



Grade **2**

# Mathematics Teacher Guide



basic education

Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA

ENGLISH



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# Introduction to the workbooks

## What are the workbooks?

The national Department of Basic Education is providing workbooks to every child in a public school in a number of subjects including mathematics. These workbooks are to be provided free of charge to every child.

Each and every child should have their own workbook. They should be allowed to take them home and they can (and indeed must) write in them.

These workbooks will help teachers to manage their teaching time and monitor the progress and performance of their learners.

The two books for Mathematics Grade 2 are available in all the official languages.

The workbooks have been designed to be fully compliant with the National Curriculum Statement (NCS) and the Curriculum and Assessment Policy Statements (CAPS).



## What is the place of these worksheets in teaching?

It is important to see what place the worksheets can play in your teaching of Grade 2 mathematics. They are not a substitute for your teaching the concepts and procedures of mathematics. The worksheets are a help in the practical work you give the learners to do. There are three very important components in every teaching interaction:

- 1 Firstly, it is important to have a knowledgeable teacher who is familiar with the **content knowledge** being taught.
- 2 Secondly, it is necessary for the knowledgeable teacher to **communicate this knowledge** so that the learners do not just memorise facts or formulae. Provide concrete (hands on) activities and semi-abstract activities such as making drawings. Good teaching requires an understanding of what the learners already know, building on it, and the skill to communicate in a way that the learners can understand easily, but still be kept interested and challenged.
- 3 Thirdly, for learning to be retained, learners must make it their own, and this requires **immediate practice**. It is this component the worksheets are designed for – to help the learners make the new knowledge and skills their own. The worksheets provide a well designed and sequenced set of practical exercises for the learners to use under your guidance. They will save you a lot of time (and money) having to write exercises on the board or photocopying your own worksheets.

# The structure of the worksheets

**Worksheet number**

**Worksheet title**

**Place for learner to write the date**

**Colour coded content area**

**Term indicator**  
(32 worksheets per term)

**Topic introduction frame**  
(A graphic, text and examples for pre-worksheet discussion)

**Questions**

**Language colour code:**  
Afrikaans (Red), English (Turquoise),  
IsiNdebele (Navy blue), SePedi  
(Green), SeSotho (Light green),  
SiSwati (Orange), XiTsonga (Pink),  
SeTswana (Yellow), TshiVenda (Burnt  
Sienna), IsiXhosa (Ochre), IsiZulu  
(Royal blue)

Content	Side bar colour
Revision	Purple
Number	Turquoise
Patterns and functions (algebra)	Electric blue
Space and shape (geometry)	Orange
Measurement	Green
Data handling	Red

**Teacher assessment rating**

**Place for teacher to sign and date**

# The structure of the Teacher Guide

**Worksheet title**

**Worksheet number**

**Objectives**

**Resources**

**Dictionary**

**Page number logo**

**Introduction**

**Term indicator**

**Grade indicator**

**Reflection**

**Homework**

**Content link: Link to all other worksheets on same topic in the workbook**  
**Grade 1 link: Link to all similar worksheets**  
**Grade 3 link: Link to all similar worksheets**

**9 Balls and boxes**

**Objectives**

- Recognise and name boxes and balls
- Recognise and name objects that roll or slide
- Identify round and straight edges

**Resources**  
**Teacher:** Scissors and glue, balls and boxes  
**Learner:** Workbook page 18, pencil, colouring pencils, scissors and glue

**Dictionary**  
**3-D:** a real life object that has height, width and length, e.g. a box  
**Box:** a 3-D shape that has two identical ends (top and bottom) and flat sides  
**Slide:** the movement when you move a box from one point to another

**Teach 3-D objects, slide and roll**

**Concrete**  
 Ask learners each to bring a box and a ball to school. In groups learners must throw their balls into a box or boxes.

**Go to page 18 in the workbook**

Learners circle the boxes in blue and balls in red.

Learners must look at the picture and ask what the children are doing. (Slide and roll). Learners must colour the correct answer. **Answer: The box slides, the ball rolls.**

**Oral questions**  
 Which object can slide? (box) Which object can roll? (ball)

**Homework**  
 Learners must trace the words for homework.

**Reflection questions**  
 Can learners do the following?  
 • Recognise and name boxes and balls  
 • Identify round edges  
 • Identify straight edges  
 • Identify the difference between: behind, in front of, next to and on top of?

**Content links: 32, 75, 106**  
**Grade 1 links: 23, 31, 87-88, 116**  
**Grade 3 links: 10, 60, 90, 124**

**Questions**

**Answers**

**Oral questions**

**Colour code for content area**

Content	Side bar colour
Revision	Purple
Number	Turquoise
Patterns and functions (algebra)	Electric blue
Space and shape (geometry)	Orange
Measurement	Green
Data handling	Red

# More notes on the structure of the Teacher Guide pages

## Content link

The content link refers to the main concepts that we are dealing with in the Foundation Phase. For example, if we are describing how to measure a flat surface, the content link will be other worksheets dealing with measurement of area and volume of shapes and objects.

## Resources

Note that sometimes you need additional resources and this needs careful preparation. E.g. if you need to use Cut-outs or any other resources, you have to ask yourself: "Do I have the resources in my class? Can I make it from recyclables? Can I ask the children to bring things from home?" Making sure you have the resources ready is in addition to the normal preparation that you need to make before any lesson. You should always have read the worksheet and worked through it yourself before using it.

## Introduction

The introduction links to the Introduction in the worksheet in the learner's book. This could be:

- A fun activity to get the learner's attention
- A problem activity to get the learner involved and thinking
- A revision activity on some important concepts needed to further develop the concept in this lesson

## Oral questions

These are questions you can pose for learners after they have been doing a question or two in their workbooks to check their understanding.

## Homework

Possible homework questions are highlighted for you. You should always check this homework before, or at the start of, the next day's lesson. Note that you don't always have to mark the learners' homework. Learners can also mark each others' homework.

## Reflection

These are the questions that you need to ask yourself after the lesson. If you cannot answer "Yes" to all of them you should plan to revise or cover those concepts again in the next lesson.

## Common Errors

We can improve our teaching and learners' learning if we know what kind of mistakes are being made. You should keep a journal of common errors and how you can correct them. E.g. If you ask the learner "What is  $7 + 6$ ?" and he or she answers "12", don't just say "WRONG". Ask the learner: "How did you get the answer?" The learner might say I counted forwards: 7, 8, 9, 10, 11, 12. You can then quickly see that the child started to count from 7 and not 8. Only through identifying the cause of the problem can you correct it.

# The concrete-to-representational-to-abstract sequence

## What is the purpose of the “Concrete-to-representational-to-abstract” (CRA) sequence?

The purpose of teaching through a concrete-to-representational-to-abstract sequence of instruction is to ensure learners have a thorough understanding of the mathematical concepts and skills while they are learning.

## What is this sequence?

### Concrete level

The concrete level of understanding is the most basic level of mathematical understanding. This level is the crucial beginning for the development of conceptual understanding of mathematics.

Each mathematical skill and knowledge is first modelled with concrete materials. Children should be provided with many opportunities to practice and master mathematical skills and knowledge using concrete materials.

Concrete level learning occurs when children have opportunities to manipulate concrete objects to solve problems.

The concrete objects you use in a classroom lesson can include everyday objects (beans, sticks, matches, popsicle sticks or stones) or specially made objects (sometimes called manipulatives) designed so that a

child can learn some mathematical concepts by actually handling it. The experience of using these concrete objects provides a way for children to learn concepts such as addition, subtraction, multiplication and division in a developmentally appropriate, hands-on way. Examples of specially made manipulatives are: counters, interlocking cubes, Cuisenaire rods, colour tiles, pattern boards, base-ten blocks and rods, fraction strips, tangrams and geoboards.

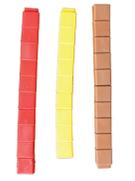
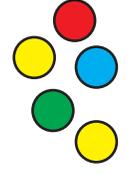
There are two types of **concrete** objects we can use:

- **Discrete** concrete materials are those that are individual, distinct objects that can be counted.
- **Continuous** concrete materials are used in measurement, e.g. scales, rulers, measuring cups, trundle wheels.



### Discrete materials

Discrete materials can be easily manipulated through sight and touch. Children first need a lot of experience with discrete materials before they will benefit from using continuous materials.

Unifix cubes	Counters	Pattern blocks	Beans	Stones	Base ten blocks
					

### Continuous materials

There are concrete objects that can be used to do continuous measurements of other objects, such as scales, rulers and measuring cups, and clocks.

Digital bathroom scale	Analogue bathroom scale	Digital kitchen scale	Ruler	Measuring cups	Trundle wheel
					

There are some manipulatives that can be used to teach place value. Base ten blocks are a good example. They consist of cubes (for units), rods (for tens), flats (for hundreds) and blocks (for thousands). Their actual size is proportional, so a rod is ten times bigger than a cube. Other forms are blocks that can be linked together to make objects of the required size.

You can make home-made equivalents by taking single units (such as popsicle sticks) and bundling ten together with string or an elastic band to make a ten.

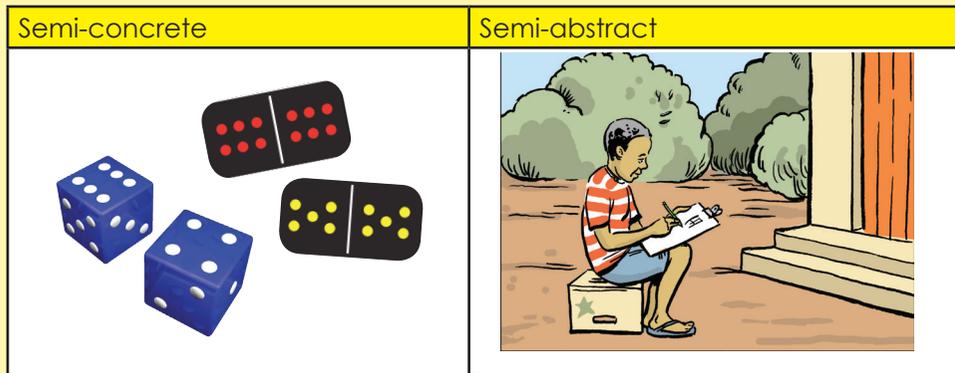
Non-proportional objects include such things as play money where the size is not indicative of the value while the other characteristics such as colour indicate value.

The workbooks provide learners with many opportunities to practice and demonstrate mastery using concrete materials. Your task as a teacher is to make sure they have these items. Some of the Workbook Cut-outs provide such items.

### Representational level

At the representational level of understanding children use or draw pictures of concrete objects when solving problems. As soon as children have mastered a particular mathematical concept or skill at the concrete level they should move to the representational level. When children draw solutions, children are crossing an intermediate step where they begin to transfer their concrete understanding toward an abstract level of understanding.

The representational level includes the semi-concrete and semi-abstract levels. The semi-concrete involves the representation of actual numbers with things such as dominoes, pictures on cards, dice, etc. and the semi-abstract involve drawing pictures that represent the concrete objects previously used. This includes the semi-concrete and semi-abstract levels.



The **semi-concrete** involves the representation of actual numbers with things such as dominoes, pictures on cards, dice, etc. Some cut-outs enable objects such as dice to be made.

The **semi-abstract** involves drawing pictures that represent the concrete objects previously used.

The workbooks have a large number of pictures that the learners can use to solve problems.

## Abstract level

After the learners have mastered the two previous levels they can move to the abstract level, using only numbers and mathematical symbols.

The child no longer uses concrete objects or drawings to solve problems.

When children solve problems using paper and pencil only, it is a common example of abstract level problem solving. Abstract understanding also enables us to do mental mathematics – 'doing maths in your head'.

Many opportunities in the workbooks are given on the abstract level to demonstrate and practice the concept before moving on to the next concept.

## What if a child cannot solve problems at an abstract level?

We have these suggestions for you if a child is not successful at solving problems at an abstract level. Provide remedial instruction on the concept or skill at the:

- concrete level using appropriate concrete objects.
- representational level and provide opportunities for the child to practice by drawing solutions.
- abstract level giving the children the opportunity to explain their solutions and how they got them.

# Mental mathematics

Mental mathematics is using knowledge of the basic mathematical facts to perform mental, as opposed to pen and paper, calculations. Mental maths calculations are done in one's head instead of using pencil and paper, calculators or other aids.

## Do the workbooks have mental maths exercises?

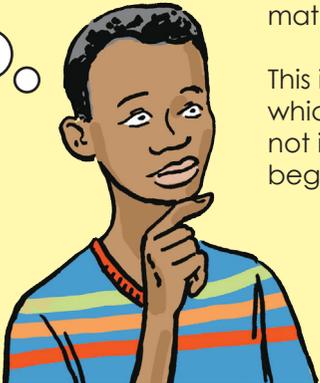
No. The worksheets do not include mental maths exercises.

## Why is this?

The reason is simple. The worksheets are pencil and paper exercises. They are often more complicated than mental maths exercises (and it would take a teacher a lot of time to design such exercises). By comparison mental maths exercises are usually straightforward and any teacher can test number bonds, knowledge of multiplication tables, and basic maths facts.

This is not to say that the lesson the teacher plans which includes the use of a worksheet should not include mental maths exercises (often at the beginning of a lesson as a way of 'warming up').

Also, mental maths skills will aid the learners as they do the worksheet.



$7 \times 5$   
 $= ?$

## What is mental mathematics?

Mental mathematics is using knowledge of the basic mathematics facts to perform mental calculations rather than using pen and paper or aids such as calculators or computers.

We use mental maths as a way to calculate (give exact answers) and estimate (give approximate answers) quickly, using the maths facts that we have committed to memory. These maths facts include such things as the rules of multiplication, division, etc. and bonds and times tables.

To use mental maths means being able to give an answer to a maths question after only thinking about it, rather than doing calculations on paper. Even if the calculation is such that one does need to use pen and paper (or a calculator), mental maths enables one to quickly judge the reasonableness of the answer so obtained.

For success in mental maths a learner needs a good number sense as he or she has to make sense of number combinations while going through the process of learning the basic mathematical facts. A mental mathematical calculation requires the learner to use a combination of maths factual knowledge and number sense.

An expanded conception of mental maths skills includes being able to truly understand maths concepts and solve problems in a logical, methodical way.

## How does one learn to do mental maths?

Traditionally, training in doing mental calculations relied very heavily on 'learning by heart' such things as bonds and times tables, though this has limitations in developing true number sense, as people can mechanically memorise things they do not understand. However, it is still important that learners do know their bonds and times tables.

A number of well known mathematics programmes have their own special mental mathematics teaching methods.

To become competent in mental maths one first has to learn the 100 or so number facts relating to the single digits 0 to 9 for each of the four operations.

When the learners have memorised and know these facts, they can quickly retrieve them from memory, they have instant recall. Through practice over time the learner will achieve automaticity. He or she will no longer have to work out a strategy in their head on how to answer the problem.

So good teachers should be developing the "mental maths" skills wherever and whenever appropriate. Mental mathematics is a necessary part of what a knowledgeable maths learner does. Fluency in the 'language' of numbers and the use of that 'language' does require some degree of automaticity (which would obviously include thorough memorisation of bonds and multiplication tables as well as a basic conceptual understanding of the four operations.)

[Becoming a good reader requires a similar development of automaticity – the beginning reader moves from sounding out words to reading instantly.]

## What are the basic mathematical facts?

<b>Number work</b>	Comparing and ordering numbers
	Counting on
	Counting back
<b>Addition</b>	Number bonds
	Adding zero
	Number families
	Building up and breaking down numbers
	Doubling in addition
	Near doubles
	Filling up the tens
	Compensation
Commutative property of addition	
<b>Subtraction</b>	Taking away
	Halving in subtraction
	Doubling in subtraction
	Subtraction as the inverse operation of addition.

<b>Multiplication</b>	Skip counting (multiples)
	Multiplication by zero
	Multiplication tables
	Equal groups
	Repeated addition
	Commutative property of multiplication
	Place-value-change strategy for multiplying by 10, 100, 1000
<b>Division</b>	Sharing leading to division
	Grouping leading to division
	Halving in division

## Teaching mental maths

A maths teacher needs to incorporate some aspect of mental maths in nearly every lesson. The actual time spent may often be very short – five minutes a day – though some lessons may focus more directly on mental maths.

To do mental maths learners need to know the number facts relating to the digits 0 to 9. Initially this involves learning and practice. With time the learner will be able to recall and use these facts automatically.

In the early years of mental maths development it is important to give the children short tests, mark them, and give the children feedback.

Mental maths tests can be oral or pencil and paper or you can have a combination of written and oral answers. Oral answers and explaining how they got the answer will be more valuable to you as teacher and the learners because they will hear and share different strategies.

When you for example ask “What is 7 times 5?” also ask what “7 times 5” means. They might answer “7 groups of 5”. Then continue: “If 7 groups of 5 equals 35, how much will 8 groups of 5 be?” “6 groups of 5?”, etc. Ask the children that gave the correct answer: “How did you get the answer?” and then ask the learners that got it incorrect: “How did you get the answer?”

Through their explanation not only can you assess them but the rest of the class also learn from them. You will notice that children will use a variety of strategies to calculate. The child that answered it incorrectly might correct him or herself when explaining how she or he got the answer or you as teacher can guide the child while giving feedback to the correct answer.



# Help your learner to think mathematically using the workbooks

There are three kinds of knowledge: physical, social and conceptual knowledge.

## Physical knowledge

Learners gain physical knowledge through touching, using, playing with, and acting on concrete/physical material. Learners need a lot of concrete experiences in the mathematics classroom to develop their physical knowledge of numbers and number patterns.

The workbooks provide a variety of ideas and pictures on how to use concrete resources. At the back of each workbook we include cut-outs that encourage the use of resources.

Teachers need to consider which concrete resources should go with each worksheet. The **Resources block** gives some suggestions. Find out if your school has these resources or whether you can make them yourself.

## Social knowledge

Social knowledge is the words and conventions we need to know and remember if we are to be able to communicate with and interact with other people. For example, we need to be on time at school. It is a convention, it is a decision we have taken and all agree to. Below are examples of some mathematics conventions that we will find throughout the workbooks:

- The way in which we write a number sentence.
- The way in which we write a number symbol.
- The way in which we use the equal sign to show equivalence.

We have agreed to use these conventions so that we can communicate mathematically with others. The teacher must help learners to put what they have learned in words or writing to explain it to the others.

## Conceptual knowledge

When learners see relationships, patterns, regularities and irregularities when doing activities, they are constructing conceptual knowledge. A concept is a general idea we hold in our minds that helps us to understand real individual things in the world. We build up conceptual knowledge based on our experience.

### What is your role as a teacher in developing conceptual knowledge when using the workbooks?

You should use the worksheets to assist the learners to build up their understanding of mathematics and to see the patterns in numbers. Encourage your learners to reflect on what they are doing and thinking when completing a worksheet.

You can ask them questions like:

- How did you get this answer?
- What did you do to complete this task?
- What is another way to solve this problem?
- Can you compare your thinking or solutions with your partner's?
- How can you show your thinking using, drawings, concrete resources, numbers and words?

# 1 Me and my family

**Content links:** None  
**Grade 1 links:** None  
**Grade 3 links:** None

## Objectives

- Draw pictures of your family
- Collect personal data
- Write whole numbers

## Resources

**Teacher:** Writing board

**Learner:** Make use of available concrete apparatus. Here are a few examples of objects that can be used:



## Dictionary

**Numbers:** A number is a count. Numbers are ideas in our minds that we use for counting things in our environment. We write and talk about numbers using "5" or "five". We can also hold up 5 fingers or stamp our feet five times.



Note: These dictionary entries are for your own information. You do not have to teach them to your learners. Learners need to understand the concepts.



## Teach whole numbers

Learners need concrete objects and apparatus in the early years to make sense of mathematical concepts. Use concrete materials to help the learners to construct their own knowledge and understanding.

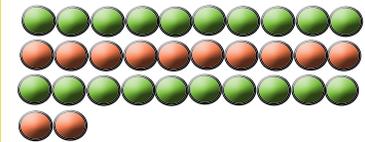
### Concrete – body

I am \_\_\_\_ years old.



### Concrete

Mother is 32 years old. Show it with the beads/counters. e.g.



### Representational

Draw your house number, e.g. If it is 12.



**Note:** Encourage learners to draw numbers in groups of ten.

### Abstract

Ask the learners to go to page 2 of the workbook. Read the introduction at the top. Write the numbers on the board. Ask them what they mean.



8 12 2 32

# 1 Me and my family *continued*



## Introduction

Show the learners how to write the date using numbers.  
Write it on the board, e.g. 18-01-2011

Date:

\_\_\_\_\_



Learners must fill in the answers to the questions about their family. You need to help the learners question by question. e.g.

## Read:

"I am \_\_\_ years old." Learners can show their age with counters.

"Two years ago I was \_\_\_ years old." Do I need to add or take counters away? How many? Do it.

"In one year I will be \_\_\_ years old." Do I need to add or take counters away? How many? Do it.

**Answers: Learner's own answers.**

## Oral question

Write your age with your finger in the air.



Learners must draw a picture of their family.

**Answer: Learner's own drawing.**



## Write

Learners must trace the numbers 1 to 9 using the dot patterns.

## Homework

The first sixteen worksheets (1 to 16) mainly provide homework exercises on the building up and breaking down of numbers up to 10.

## Reflection questions

Can learners do the following?

- Answer "number" questions
- Draw a picture of their family
- Collect personal information

# 2 Counting

**Content links:** 17-18, 21, 70  
**Grade 1 links:** 5, 18  
**Grade 3 links:** 1-2, 25a-25b, 51, 55-56

## Objectives

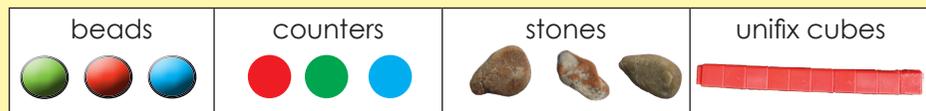
- Counts objects from 1 to 40

## Resources

**Teacher:** Writing board

**Learner:** Workbook page 4, pencil and colouring pencils

**Concrete resources:**



## Dictionary

**Counting number:** any number you can use for counting things: 1, 2, 3, 4, 5, ...

It does not include zero, negative numbers, fractions and decimals.

**Counting in groups:** From an early age learners should learn to count in groups, e.g. groups of 2.



## Teach numbers from 0 to 40

Introduce each lesson going through the different levels of maths development: concrete – body, concrete, representational (semi-abstract), and abstract.

### Concrete

Count your eyes, fingers and toes.  
Count your friend's eyes, fingers, toes. How many fingers do the two of you have altogether?



### Concrete

Count the beads.

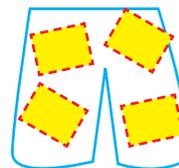


Count the counters.



### Representational

Draw this on the board.  
How many patches do you count?



### Abstract

Write a number on the board.  
What is the number?

9 14 2 39

# 2

## Counting *continued*

**Content links:** 17-18, 21, 70  
**Grade 1 links:** 5, 18  
**Grade 3 links:** 1-2, 25a-25b, 51, 55-56



### Introduction

Learners must look at the picture on page 4. How many eyes, dots and patches do you count? What else can you count?

### Oral questions

- How many eyes do I have?
- How many eyes will 2, 3, 4, 5 teachers have?
- Let us count in 2s: 2, 4, 6, ... 40.
- How many fingers do I have on one hand? Two hands?
- Let us count in 5s: 5, 10, 15, ... 40.

Draw three squares on the board.



Ask: "How many squares do you count?" Draw another three. "How many do you count now?"



Let us count in 3s: 3, 6, 9, ... 40.

Learners must fill in the empty spaces.



Do the first part of the question with the learners. Let them outline the answer given. Ask the learners to do the rest of the questions. **Answers:**

- 1 Girl: 2 eyes, 10 dots, 3 patches**
- 2 Girls: 4 eyes, 20 dots, 6 patches**
- 3 Girls: 6 eyes, 30 dots, 9 patches**
- 4 Girls: 8 eyes, 40 dots, 12 patches**



Share the dots and patches equally.

**Answers: Each girl gets 6 dots and 3 patches**



### Write

Learners must trace the numbers 1 to 9 using the dot patterns.

### Homework

Building up and breaking down numbers that will give you a total of 3 and 4. Eg:  $1 + 2 = 3$ ,  $1 + 3 = 4$ ,  $2 + 2 = 4$ .

### Reflection questions

Can learners do the following?

- Use their body to count
- Use concrete objects (beads, counters, stones) to count
- Make a drawing when counting
- Use numbers to count
- Count in groups of 2, 3 and 5

# 3 Numbers

**Content links:** 18, 34-35, 65-66, 69, 97-98, 100  
**Grade 1 links:** 9-11, 14, 17-18, 33-36, 38-39, 65-69, 97-101  
**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

## Objectives

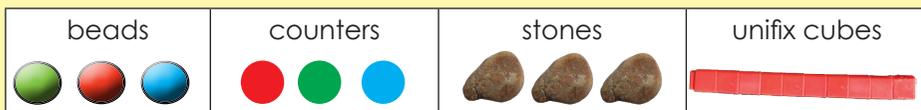
- Count objects from 1 to 100
- Recognise and write number names from 0 to 20
- Recognise and write names from 0 to 20

## Resources

**Teacher:** Chalk and writing board, counters, beads

**Learner:** Workbook page 6, pencil, crayons and paper

**Concrete resources:**



## Dictionary

**Number symbol:** symbol that stands for a number, e.g. 1, 2, 3, 14, 16 and 20

**Number names:** word for a number, e.g. one, two, three, fourteen, sixteen and twenty

## Teach numbers

### Concrete – body

How many hands?



### Concrete

Use a string of beads or 100 counters.



Show me:

8

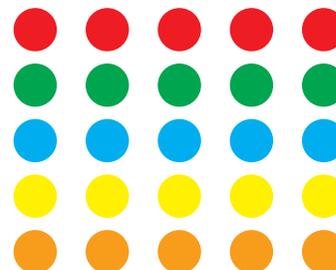
14

20

35

### Representational

Draw 25 counters.



### Abstract

Write on the board.

**13**

What is the number?

**Answer: thirteen**

# 3

## Numbers *continued*

**Content links:** 18, 34-35, 65-66, 69, 97-98, 100  
**Grade 1 links:** 9-11, 14, 17-18, 33-36, 38-39, 65-69, 97-101  
**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



Ask the learners to go to page 6.



Learners must read the number symbols and words on the board. Ask the learners to write each number symbol and word in the air.



Learners must write the number of balloons in the block.

**Answers:**

- Block 1: 22 balloons** **Block 2: 35 balloons**
- Block 3: 37 balloons** **Block 4: 48 balloons**
- Block 5: 51 balloons** **Block 6: 72 balloons**



### Oral questions

Ask learners to think of 10 beads, another 10 beads and 4 more beads. How many beads do you have? Write the answer on your "small" blackboard. Show it to me.

**24**



Learners must write the numbers in words



**Answers**

- |                  |                        |
|------------------|------------------------|
| <b>6 - six</b>   | <b>12 - twelve</b>     |
| <b>4 - four</b>  | <b>17 - seventeen</b>  |
| <b>8 - eight</b> | <b>14 - fourteen</b>   |
| <b>1 - one</b>   | <b>22 - twenty-two</b> |
| <b>2 - two</b>   | <b>18 - eighteen</b>   |
| <b>5 - five</b>  | <b>11 - eleven</b>     |
| <b>0 - zero</b>  | <b>20 - twenty</b>     |
| <b>10 - ten</b>  | <b>15 - fifteen</b>    |
| <b>3 - three</b> | <b>13 - thirteen</b>   |
| <b>9 - nine</b>  | <b>16 - sixteen</b>    |

**Note:**  
 Challenge learners sometimes by giving them a number bigger than 20.



**Write**

Learners must trace the number pattern.

### Homework

Building up and breaking down numbers that will give you a total of 5 and 6. Eg:  $1 + 4 = 5$ ,  $2 + 3 = 5$ ,  $1 + 5 = 6$ ,  $2 + 4 = 6$ ,  $3 + 3 = 6$ .

### Reflection questions

Can learners do the following?

- Recognise and write number symbols from 0 - 20
- Use each of the following to count: their body, counters, beads, unifix, cubes and stones; a drawing; numbers

# 4 More numbers

**Content links:** 18, 33-35, 65-66, 69, 97-98, 100

**Grade 1 links:** 9-11, 13-14, 17-18, 33-36, 38-39, 41-42, 65-69, 97-101

**Grade 3 links:** 3, 23-25, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

## Objectives

- Counts objects from 0 – 20
- Represent even numbers
- Represent odd numbers
- Add numbers from 0 – 20

## Resources

**Teacher:** Writing board, counters, sticky red and blue dots  
**Learner:** Workbook page 8, pencil  
**Concrete resources:** Beads, counters, stones, unifix cubes

## Dictionary

**Even number:** a number that is divisible by two. e.g. 2, 4, 6, 8 ...

**Odd number:** a number that is not divisible by 2. e.g. 1, 3, 5, 7 ...

## Teach numbers

### Concrete – body

Put blue dots on every second finger, alternating with red dots. Ask the learners: Which fingers have blue dots? Which have red dots?

### Concrete

(Ask the learners to lay out the counters.)  
 What do you see?

### Representational

Teacher says: Draw an orange circle, then a green circle, then orange, green, orange, green. What do you notice?

### Abstract

Write on the board.  
 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20  
 Circle every second number.



## Workbook introduction

**Learners must go to page 8.** “Which numbers are even? Why? The dots will help you because I can share 2, 4, 6, 8 dots between 2 people. Which numbers are odd? Why? I cannot share 3, 5, 7, 9 dots between 2 people.”



Learners must draw a triangle around the even numbers and a circle around the odd numbers.

**Answer:**

**Even - 2, 4, 6, 8, 10, 12, 14, 16, 18, 20**

**Odd - 1, 3, 5, 7, 9, 11, 13, 15, 17, 19**



Learners must number the houses.

**Note:** How learners should have completed the questions:

**Answers:**

• 1, 3, 5, 7, 9, 11, 13, 15, 17, 19

• 2, 4, 6, 8, 10, 12, 14, 16, 18, 20



# 4 More numbers *continued*

**Content links:** 18, 33-35, 65-66, 69, 97-98, 100

**Grade 1 links:** 9-11, 13-14, 17-18, 33-36, 38-39, 41-42, 65-69, 97-101

**Grade 3 links:** 3, 23-25, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

## Introduce the Addition section, going through ...

### Concrete – body

Ask one child to show 10 fingers and another to show 4 fingers.

How many fingers do you count?

### Concrete

Ask the child to lay out 10 beads, stones, counters. Add another 2. How many do you have now?

Do the same with numbers 11-19.

### Representational

Draw 10 counters. Add 4. How many do you have?

### Abstract

Write on the board.

$$10 + 3 = \underline{\quad} \quad 10 + 5 = \underline{\quad}$$

$$10 + 9 = \underline{\quad} \quad 10 + 7 = \underline{\quad}$$



Go to page 9 in the workbook.



Learners must count the two colours of beads and then write a number for it.

Learners must then write a sum for the beads.

**Answers:**

$$13, 10 + 3 = 13$$

$$15, 10 + 5 = 15$$

$$18, 10 + 8 = 18$$

$$19, 10 + 9 = 19$$



Learners must calculate the sums.

**Answer:**

**11, 18, 15    19, 12, 14    16, 13, 17**

If learners find it difficult give them number cards to help them.

$$\boxed{1} \boxed{0} + \boxed{5} = \boxed{1} \boxed{5}$$



**Write:**

Learners must trace the number pattern.

## Homework

Building up and breaking down numbers that will give you a total of 5, 6 and 7. Eg:  $1 + 4 = 5$ ,  $2 + 3 = 5$ ,  $1 + 5 = 6$ ,  $2 + 4 = 6$ ,  $3 + 3 = 6$ ,  $1 + 6 = 7$ ,  $2 + 5 = 7$ ,  $3 + 4 = 7$ .

## Reflection questions

Can learners do the following?

- Count objects from 0 – 20
- Represent even numbers from 0 – 20
- Represent odd numbers from 0 – 20
- Add numbers from 0 – 20

# 5 Addition and subtraction

**Content links:** 4, 21, 23a-23b, 24, 37-39b, 41-42b, 72-74, 77, 82, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 37a-37b, 42, 46, 73-75, 105, 108-109

## Objectives

- Add numbers from 0 – 20
- Subtract numbers from 0 – 20

## Resources

**Teacher:** Writing board, counters  
**Learner:** Workbook page 10, pencil and colouring pencils  
**Concrete resources:** Beads, counters, stones, unifix cubes

## Dictionary

**Addition:** Addition is finding the total or sum by combining two or more numbers e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$ . The symbol for addition is **+**.

**Subtraction:** Subtraction is taking a number away from another. e.g.  $11 - 6 = 5$ . The symbol for subtraction is **-**.

## Teach addition and subtraction

### Concrete – body

With a friend.

- What is 7 fingers plus 6 fingers?
- What is 12 fingers minus 3 fingers?

### Concrete

Lay out 15 counters. Add 4. How many counters do you have now? Do the same for subtraction.  $19 - 4 =$

### Representational

Draw 8 flowers. Draw another 6. How many do you have now? Do the same for subtraction.  $14 - 6 =$

### Abstract

Write on the board.  
 $6 + 5 = \underline{\quad}$     $12 - 6 = \underline{\quad}$   
 $8 - 4 = \underline{\quad}$     $11 + 3 = \underline{\quad}$   
Ask the learners for the answers.



Go to page 10 in the workbook.



Learners must add and subtract using pictures. They must write a sum for each picture.

**Answer:**  $18 - 8 = 10$ ,  $12 + 5 = 17$ ,  $8 + 6 = 14$ ,  $8 + 3 = 11$



Learners must calculate the sums.

**Answers:** 11, 15, 10, 17, 11, 12, 14, 4, 4, 7, 7, 2

Note what learners use to get the answer. Fingers? Concrete resources? Drawing? In their heads?

## Oral questions

What is  $12 + 4$ ?  $19 - 5$ ?

Ask a few questions like this to see if learners understand. Note again whether they use their fingers, concrete resources or drawings or do it in their heads,



### Write:

Learners must trace the numbers.

# 5

## Addition and subtraction *cont...*

**Content links:** 4, 21, 23a-23b, 24, 37-39b, 41-42b, 72-74, 77, 82, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 73, 77, 104

**Grade 3 links:** 5, 37a-37b, 42, 46, 73-75, 105, 108-109



### Teach repeated addition.

#### Concrete – body

Ask 6 children to stand in front of the class. One lifts up her/his hand. Ask “How many fingers do you count?” She/he lifts up both hands. Carry on like this.

#### Concrete

Ask learners to put two red counters on their desk . Put another two  (blue). Put another two  (green). Put another two  (yellow). How many counters do you have altogether?

#### Representational

Draw this on the board.



Learners must copy it. “How many counters do you see? Let us count: 3, 6, 9. Let’s make a sum.”  
 $3 + 3 + 3 = 9$

#### Abstract

Write on the board.

$$2 + 2 + 2 + 2 = \underline{\quad}$$

$$3 + 3 + 3 = \underline{\quad}$$

Ask learners what the answers are.



Go to page 11 in the workbook.



Learners must use the picture to write a sum.

**Answers:**  $3 + 3 + 3 = 9$  Child draws 9 pears

$4 + 4 + 4 + 4 = 16$  Child draws 16 strawberries

$2 + 2 + 2 + 2 + 2 = 10$  Child draws 10 pineapples

$5 + 5 = 10$  Child draws 10 oranges

### Oral questions

What is  $2 + 2 + 2 + 2 = ?$   $4 + 4 + 4 = ?$   $3 + 3 + 3 + 3 = ?$



Learners must use repeated addition to calculate the sums.

**Answer:** 6, 8, 15, 6, 12, 10, 8, 16, 3



#### Write:

Learners must trace the numbers.

### Homework

Building up and breaking down numbers that will give you a total of 7 and 8. Eg:  $1 + 7 = 8$ ,  $2 + 5 = 7$ ,  $3 + 4 = 7$ ,  $1 + 7 = 8$ ,  $2 + 6 = 8$ ,  $3 + 5 = 8$ ,  $4 + 4 = 8$ .

### Reflection questions

Can learners do the following?

- Add numbers from 0 – 20
- Subtract numbers from 0 – 20

# 6 Sharing and money

**Content links:** (Sharing) 5, 58-63, 88, 110, 113, 118, 121 (Money) 25-26, 78-79, 108-109  
**Grade 1 links:** (Sharing) 29-30, 114  
**Grade 3 links:** (Sharing) 30a-30b, 31, 78, 81, 84, 87, 92-93, 126 (Money) 8, 56, 95a-95b, 107

## Objectives

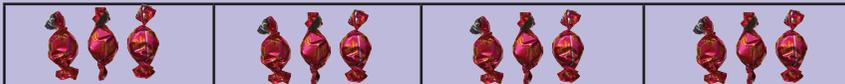
- Share items or numbers from 0 – 20
- Recognise coins and bank notes
- Identify coins and bank notes

## Resources

**Teacher:** Writing board, counters, sweets, real money  
**Learner:** Workbook page 12, pencil and colouring pencils  
**Concrete resources:** Beads, counters, stones, unifix cubes

## Dictionary

**Sharing:** splitting into equal parts or groups, e.g. these sweets have been shared equally into 4 groups.



**Money:** Our currency in South Africa is Rands and Cents, e.g. R2 or R2,00; 50c; R4,75

## Teach sharing of numbers

### Concrete

Give learners 10 counters. Tell them to share them between 2 learners.  
Give learners 10 counters. They must share them between 3 learners. Ask them if there are any counters left.  
Do a few more practical activities with numbers 0 - 20.

## Representational

Ask the learners to make a drawing of sharing 12 apples between 2 people.



## Abstract

Ask learner to share 8 between 2 people.

Write 8 on the board.

8



Go to page 12 in the workbook.

Ask learners to share out the fruit.



**Answers: 5 oranges for each child.**

**The learners must draw the oranges in the blocks.**

**5 pineapples for each child.**

**The learners must draw the pineapples in the blocks.**

**5 naartjies for each child.**

**The learners must draw the naartjies in the blocks.**

**4 bananas for each child.**

**The learners must draw the bananas in the blocks.**

## Oral questions

Share 10 between 2.

Share 6 between 2.

Share 8 between 4.

# 6 Sharing and money cont...

**Content links:** (Sharing) 5, 58-63, 88, 110, 113, 118, 121 (Money) 25-26, 78-79, 108-109  
**Grade 1 links:** (Sharing) 29-30, 114  
**Grade 3 links:** (Sharing) 30a-30b, 31, 78, 81, 84, 87, 92-93, 126 (Money) 8, 56, 95a-95b, 107

## Teach money

### Semi-abstract

Learners must make coin rubbings and cut them out. Explain that 1c and 2c coins are not much used any longer and new ones are no longer made. Ask them to show:

5c, 10c, 20c, 50c, R1, R2, R5

Ask them to show:

70c, 80c, 30c, 25c, 65c, R6, R9, R7

### Representational

Learners must draw: 70c, 60c, 35c, 55c, 95c.

Ask them how many coins they drew.

### Abstract

Learners must do the activity in the workbook.



Learners must complete the activity on Rands and cents.

**Answers: 5 cent, 10 cent, 20 cent, 50 cent  
1 Rand, 2 Rand, 5 Rand, 10 Rand, 20 Rand**



Learners must colour the correct coins that add up to the same value.

**Answers: Child colours the 10c and 10c coins.  
Child colours the 5c, 2c, 2c and the 1c coins.  
Child colours the R2, R2 and the R1 coins.  
Child colours the R5 and R5 coins (or R5, R2, R2 and R1).  
Child colours the R5, R5, R5, R2, R2 and R1 coins.**



Learners must trace the numbers and money symbols.

## Homework

Building up and breaking down numbers that will give you a total of 8 and 9. Eg:  $1 + 7 = 8$ ,  $2 + 6 = 8$ ,  $3 + 5 = 8$ ,  $4 + 4 = 8$ ,  $1 + 8 = 9$ ,  $2 + 7 = 9$ ,  $3 + 6 = 9$ ,  $4 + 5 = 9$ .

## Reflection questions

Can learners do the following?

- Share items and numbers from 0 – 20
- Recognise coins and bank notes?
- Identify coins and bank notes

# 7 Patterns

**Content links:** 27-28, 95, 103  
**Grade 1 links:** 3, 6-7, 89, 127  
**Grade 3 links:** 9

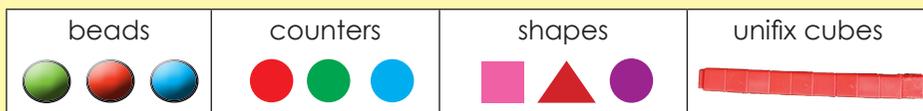
## Objectives

- Copy, extend and describe in words simple number sequences
- Identify, copy, and describe in words simple geometric patterns

## Resources

**Teacher:** Classroom wall with beads hanging on a line

**Learner:** Workbook page 14, pencil and colouring pencils



## Dictionary

**Pattern:** An arrangement of things following a rule or rules.

e.g. 

2, 4, 6, 8, ... The rule is to start at 2 and add 2 each time.

**Copy a pattern:**  **Extend a pattern:** \_\_\_\_\_

## Teach patterns

### Concrete – body

**Clap patterns:** Clap 1; 2; 1; 2



Circle = 1 clap

Square = 2 claps

### Concrete

Use counters or shapes. Ask learners to lay out patterns with counters.

- Red, blue, red, blue 
- Yellow, red, red, yellow 

### Concrete

Draw a pattern on the board and learners must copy it using beads, counters or pattern blocks.



### Abstract

See page 14 of the workbook.



**Go to page 14 in the workbook.**



Learners must look at each pattern and copy it. Learners must colour the last pattern using their colours of choice.



Learners must say the pattern e.g. Yellow circle, blue circle, yellow circle, etc. Learners must then extend the pattern.

# 7 Patterns *continued*

**Content links:** 27-28, 95, 103  
**Grade 1 links:** 3, 6-7, 89, 127  
**Grade 3 links:** 9

## Oral questions

Listen carefully and repeat: Green triangle, red circle, green triangle, red circle, etc. Do various examples like this with the learners.

## Teach counting in 2s, 5s and 10s

Lay out beads/counters/shapes in twos.



Lay out beads/counters/shapes in fives:



Lay out beads/counters/shapes in tens:



**Go to page 15 in the workbook.**

Learners must colour the beads as they count in twos. The learners must colour the beads in twos and write the numbers at the bottom.



**Answer: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20**



Learners must colour the flowers as they count in fives. The learners must colour the flowers in fives and write the numbers at the bottom.

**Answer: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50**



Learners must colour the beads as they count in tens. The learners must colour the beads in tens and write the numbers at the bottom.

**Answer: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100**

## Oral questions

Ask learners to count in: twos, fives and tens



Learners must trace the shape pattern.

## Homework

Learners must trace the pattern for homework and colour it in.

## Reflection questions

Can learners do the following?

- Copy, extend and describe in words simple number sequences
- Identify, copy, and describe in words simple geometric patterns

# 8 Shapes

Content links: 36, 99

Grade 1 links: 4, 48a-48b, 109-111

Grade 3 links: 11, 72, 127

## Objectives

- Recognise and name 2-D shapes: squares, rectangle, circles, triangles
- Describe, sort and compare 2-D shapes in terms of: size, straight or round sides
- Recognise and draw a line of symmetry in symmetrical 2-D shapes

## Resources

**Teacher:** Writing board and wall with a poster of the shapes

**Learner:** Workbook page 16, pencil and colouring pencils

**Concrete resources:** Beads, counters, stones, shapes made from old cardboard

## Dictionary

**2-D:** a shape that only has two dimensions (length and width), no thickness. e.g. Triangle, rectangle and circle.

**Polygon:** a 2-D shape with 3 or more straight sides.

**Triangle:** a 3-sided polygon (a 2-D shape with 3 sides, e.g.   )

**Rectangle:** a 4-sided polygon (a 2-D shape with 4 sides. Two opposite sides have equal length), e.g.  

**Circle:** a 2-D shape made by a curve that is always the same distance from the centre, e.g. 

**Round edges:** circles and ovals have round edges, e.g.  

**Straight edges:** all polygons have straight edges, e.g.   

**Symmetry:** when one shape becomes exactly like another when you flip, slide or turn it. In grade 2 we only do flip, e.g.  

## Teach 2-D shapes

### Concrete

Give learners shapes (you can cut them out of old cardboard).

Ask them to identify the triangles, rectangles and circles.   

### Concrete

Ask each learner to take a triangle, rectangle and circle.

Trace around the sides with your finger.

Ask learners: "Does the shape have round or straight sides?"



Go to page 16 in the workbook.

**Workbook introduction** - Learners must name the three shapes and colour them in. Learners must identify the small and big shapes.



Learners must colour the rectangles blue, the circles red and the triangles yellow. Note and guide learners, for example if they confuse the rectangles and triangles.



Learners must colour all the big circles red, the rectangles blue and the small triangles yellow. Learners must trace with their fingers around the shape.

# 8

## Shapes *continued*

**Content links:** 36, 99  
**Grade 1 links:** 4, 48a-48b, 109-111  
**Grade 3 links:** 11, 72, 127



Learners must colour in the correct answer.

**Answers:**

**Triangle: straight**

**Rectangle: straight**

**Circle: curved**

### Oral questions

Which shape has 3 sides? Which shape has 4 sides? Which shape is round?

### Teach symmetry

#### Concrete

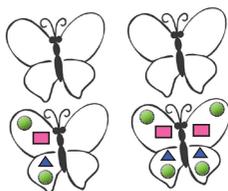
You need a piece of old paper and paint.

Ask learners to fold the paper in half and unfold it again.

Tell the learners to place some wet paint on the one half. Then tell them to fold the paper and open it again. Ask them: "What do you see?"

#### Concrete

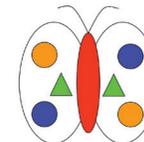
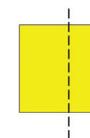
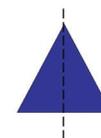
Learners must work in pairs. Give learners the outline of a butterfly. Also draw one on the board. Ask learners to place shapes on the one side. His or her friend should then place the shapes on the other side so that the sides are symmetrical.



### Go to page 17 in the workbook

Learners must draw the other side of the butterflies.

Make sure learners don't copy the pattern, but draw the mirror-image symmetry.



Learners must trace the pattern.

**right**

**wrong**

### Homework

Learners must trace the pattern for homework and colour it in.

### Reflection questions

Can learners do the following?

- Identify a triangle
- Identify a square
- Identify a rectangle
- Identify a circle
- Identify that a triangle, a square and a rectangle have straight sides
- Identify that a circle has round edges?
- Describe, sort and compare 2-D shapes in terms of: size, straight or round sides
- Recognise and draw a line of symmetry in symmetrical 2-D shapes

# 9 Balls and boxes

**Content links:** 32, 75, 106  
**Grade 1 links:** 23, 31, 87-88, 116  
**Grade 3 links:** 10, 60, 90, 124

## Objectives

- Recognise and name boxes and balls
- Recognise and name objects that roll or slide
- Identify round and straight edges

## Resources

**Teacher:** Scissors and glue, balls and boxes

**Learner:** Workbook page 18, pencil, colouring pencils, scissors and glue

## Dictionary

**3-D:** a real life object that has height, width and length, e.g. a box

**Box:** a 3-D shape that has two identical ends (top and bottom) and flat sides

**Slide:** the movement when you move a box from one point to another

**Ball:** any 3-dimensional object shaped like a ball

**Roll:** the movement a ball makes when you move it from one point to another

**Round edge:** a ball has round edges

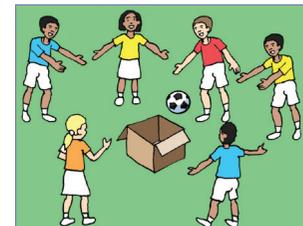
**Straight edge:** a box has straight edges



## Teach 3-D objects, slide and roll

### Concrete

Ask learners each to bring a box and a ball to school. In groups learners must throw their balls into a box or boxes.



### Concrete

#### Slide

- In groups learners must slide a box or boxes from point A to point B.

#### Roll

- Place a box at point B.
- Place a brick inside so it doesn't move. Learners stand at point A. Ask learners to roll the ball into the box.



### Go to page 18 in the workbook

Learners circle the boxes in blue and balls in red.



## 9

Balls and boxes *continued*

**Content links:** 32, 75, 106  
**Grade 1 links:** 23, 31, 87-88, 116  
**Grade 3 links:** 10, 60, 90, 124



Learners must look at the picture and ask what the children are doing. (Slide and roll). Learners must colour the correct answer. The box slides, the ball rolls.

### Oral questions

Which object can slide? (box) Which object can roll? (ball)

### Teach edges and position.

#### Concrete

Each group should have a ball and a box. In groups learners must listen to the teacher's instructions. Start with the first child. Each child in a group should get a chance. Tell learners to place the ball:



Repeat if necessary.

#### Concrete

Give each group a ball and a box. Learners must move their hands over the ball, and say: "The ball has curved edges."  
 Learners must do the same with the box, saying, "The box has straight edges."



Go to page 19 in the workbook.



Learners must colour in the correct answer.

**Answers:** *Ball - curved, box - straight, gift box - straight, coloured ball - curved, box - straight, car box - curved and straight, tissue box - straight and curved (at the hole), cricket ball - curved*



Learners must say whether the ball is behind, in front of, next to or on top of the box.

**Answer:** *on top of, in front of, behind, next to*



Learners must trace the words.

### Homework

Learners must trace the words for homework

### Reflection questions

Can learners do the following?

- Recognise and name boxes and balls
- Identify round edges
- Identify straight edges
- Identify the difference between: behind, in front of, next to and on top of

# 10 Length

**Content links:** 40, 119  
**Grade 1 links:** 12a-12b, 27, 74, 96  
**Grade 3 links:** 13, 40, 94, 97

## Objectives

- Estimate, measure, compare, order and record lengths using non-standard measures (such as hands and feet)

## Resources

**Teacher:** Writing board  
**Learner:** Cut-out

## Dictionary

**Shorter:** This worm  is shorter than this  worm.

**Longer:** This worm  is longer than this  worm.

**Higher:** This building  is higher than this building .

**Lower:** This building  is lower than this building .

**Taller:** This boy  is taller than this boy .

**Height:** the distance from the top to the bottom, e.g. Grade 2 height words are “higher”, “lower” and “taller”

height ↑

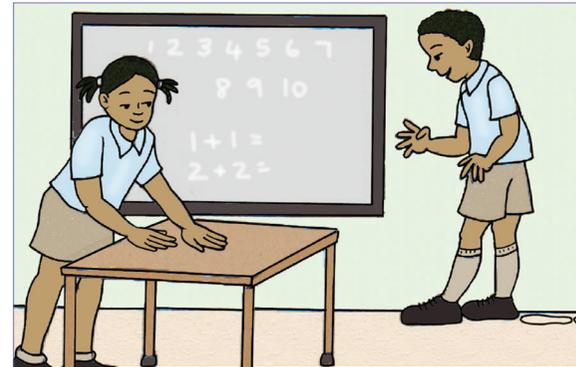
**Length:** the distance from one end to the other end, e.g. Grade 2 length words are “shorter” and “longer”

length →

## Teach length informally

### Concrete

Learners must measure the length of their desks with their hands. Remind them to use the same person's hand. Learners must measure the length and width of the classroom using their feet.



### Concrete

See questions 4 and 5 on page 21 in the learner's book.



# 10 Length *continued*

**Content links:** 40, 119  
**Grade 1 links:** 12a-12b, 27, 74, 96  
**Grade 3 links:** 13, 40, 94, 97



Go to page 20 in the workbook.

Learners must say which train is shorter and which is longer. They must colour the correct answer.



**Answer:** shorter

longer



Learners must say which building is higher and which lower. Learners must colour the correct answer.

**Answer:**



lower

higher



Learners must say which person is shorter and which taller. Learners colour the correct answer.

**Answer:**



shorter

taller

## Oral questions

Show me anything in the class that is: Short/long/high/low/tall



Learners must use Cut-out 1 of the hands and say how many hands long the rectangle is. Use Cut-out 1 of the feet.

**Answers:** "How many feet long is the rectangle?"

12 hands

9 feet



12



9



Learners must measure the height of the rectangle in hands and feet.

**Answer:**

Hands 4

Feet 3



4



3



Learners must trace and colour the pattern.

## Homework

Building up and breaking down numbers from 0 to 10.

## Reflection questions

Can learners do the following?

- Estimate, measure, compare, order and record lengths using non-standard measures (such as hands and feet)

# 11

## Mass

Content links: 43, 120

Grade 1 links: 121

Grade 3 links: 15, 44, 102a-102b

### Objectives

- Compare heavy and light objects
- Identify objects that are light
- Identify objects that are heavy

### Resources

**Teacher:** Plank, brick and variety of objects

**Learner:** Workbook page 22, pencil and colouring pencils

### Dictionary

**Mass:** Mass is commonly measured by how much something weighs.

**Weight:** Weight is how heavy something is when you pick it up.

**Heavier:** A brick is heavier than a feather.

**Lighter:** A feather is lighter than a brick.

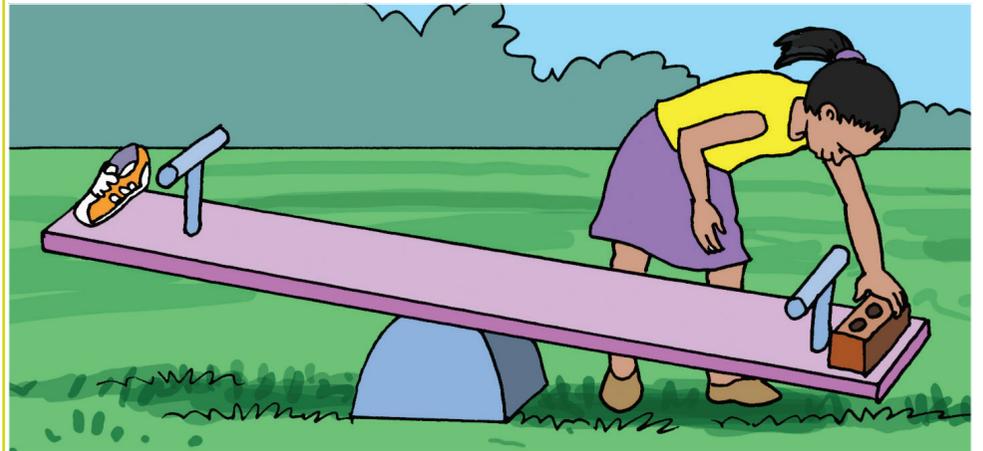
**Mass and weight:** In everyday English these two words are used as if they are the same. But there is a scientific difference. The mass of an object is a measure of how much matter it contains (the more there is the more force it will take to move it). The **weight** of an object changes according to gravity. An object would be weightless in space, even though it still has the same mass as it has on earth. You do not need to explain this distinction in Grade 2. But you may need to say that we use the special word "mass" when we are talking about how much stuff or matter there is in an object. We use "heavier" and "lighter" in Grade 2 to describe mass.

**Kilogram:** This is a measure we use for mass. The mass of a litre of water is about 1 kilogram.

### Teach mass

#### Concrete

Make a see-saw with an old plank and a brick or stone. Place an object on both sides. Ask the learners which object is heavier and which one is lighter.



# 11

## Mass continued

Content links: 43, 120  
Grade 1 links: 121  
Grade 3 links: 15, 44, 102a-102b



Go to page 22 in your workbook.

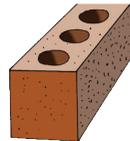


**Workbook introduction** - Learners must look at the picture and describe it, using words such as light and heavy.

Learners must say which object is heavier and which is lighter.



Lighter



Heavier



Learners must circle the heavier object.



### Oral questions

Point to 2 objects in the class. "Which one is heavier? Which one is lighter?" Repeat this with a variety of objects.



Learners must say whether each object weighs more or less than one kilogram.



**Answer:** All are lighter than one kilogram. Note that the ball can be more than 1 kilogram.



Learners must trace the words.

### Homework

Find two objects at home, one that is heavy and one that is light and make a drawing of each.

### Reflection questions

Can learners do the following?

- Compare heavy and light objects
- Identify objects that are light
- Can learners identify objects that are heavy

# 12 Capacity

**Content links:** 49, 67-68, 111  
**Grade 1 links:** 37, 40, 126  
**Grade 3 links:** 14, 106, 128a-128b

## Objectives

- Identify a container that is full
- Identify a container that is empty
- Identify a container that is half full
- Compare and order containers of the same size holding different volumes of liquid in them placed next to each other

## Resources

**Learner:** Workbook page 24, pencil and colouring pencils, a variety of containers

## Dictionary

**Capacity:** the amount that something can hold when full

**Full:** You cannot fit any more in.  
We use “full” in Grade 2 to describe capacity.



**Empty:** There is nothing inside.



## Teach capacity

### Concrete

Learners must work in groups. Ask learners to each bring a container from home. Place a big container with water or sand in the middle of each group.

Ask learners to fill one container. Ask questions such as:

- How many containers are full?
- How many containers are empty?

### Concrete

Ask learners to fill another container. Learners should also fill half of one container.

Ask questions such as:

- How many containers are full?
- How many containers are empty?
- How many containers are half full?

### Concrete

Leave one big and one small container on the table, e.g. a yoghurt cup.

Ask learners how many small cups they think will fill the big container. In groups, learners must measure how many small cups will fill a big container.

# 12

## Capacity *continued*

**Content links:** 49, 67-68, 111  
**Grade 1 links:** 37, 40, 126  
**Grade 3 links:** 14, 106, 128a-128b



Go to page 24 in the workbook.

Learners must colour in the correct answer.



**Answers:** empty    full    full    empty    empty    half



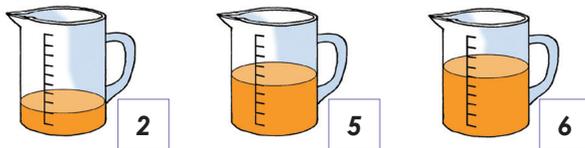
Tell learners that one measure fills up to the first marker on this jug. Learners must say how many measures will fill the jug?



**Answer:** 10 Measures will fill this jug.



Ask the learners to say how many measures have been poured into the jugs.

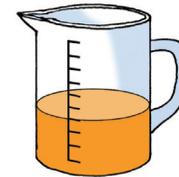


### Oral questions

What will you prefer - an empty bottle of juice or a full bottle of juice?  
Why?



Tell the learners that the jug on the left holds 1 litre of juice. Ask them which jug has the same and which jug contains less juice.



less

same



Learners must trace the words.

### Homework

At home see how many containers there are which are full, half-full or nearly empty.

### Reflection questions

Can learners do the following?

- Identify a container that is full
- Identify a container that is empty
- Identify a container that is half-full
- Compare and order containers of the same size holding different volumes of liquid in them placed next to each other

# 13 Time

## Objectives

- Sequence events according to days using words such as yesterday, today, tomorrow
- Sequence events during a day using words such as morning, noon, afternoon, evening, night, early, late
- Compare lengths of time using words such as shorter, longer, faster, slower

## Resources

**Teacher:** Scissors and glue

**Learner:** Workbook page 26, pencil, colouring pencils, scissors and glue

## Dictionary

**Today:** the day we are in right now

**Yesterday:** the day before today

**Tomorrow:** the day after today

**Morning:** the period of time between sunrise and noon



**Afternoon:** the period after midday (noon) and before sunset



**Evening:** when the sun has set and it is dark (though the moon may be visible)



## Teach time

### Concrete

#### Look and talk

Go to page 26 in your workbook. Ask learners to look at all the pictures and talk about them. Ask questions such as:

- What do you see?
- What is the boy doing?
- What is he doing in the morning?
- What is he doing during the day?
- What is he doing during the afternoon?
- What is he doing in the evening?



**Content links:** 14, 22, 55, 57a-57b, 80a-81b, 85a-85b, 116a-116b  
**Grade 1 links:** 7, 16, 32  
**Grade 3 links:** 12, 32, 54, 80, 106

# 13 Time *continued*



Go to page 26 in the workbook.

Learners must go to Cut-out 1. They must cut out the words and paste them under the pictures.



<b>early morning</b>	<b>morning and early afternoon</b>	<b>afternoon</b>	<b>late afternoon</b>
			<b>night</b>

Learners must complete the sentences on time.  
**Answer: Learners' own answers.**

### Oral questions

Ask learners to make a sentences with "morning" and "afternoon".



Learners must look at the picture and answer the questions on tomorrow, today and yesterday.



**Yesterday we were at school.**



**Today we are having a party.**



**Tomorrow we will go for a walk.**



Learners must draw their own pictures on yesterday, today and tomorrow. **Answer: Learners' own pictures.**



Learners must trace the word and the pattern of shapes.

### Homework

Draw a picture of what you wear during the day and another picture of what you wear at night.

### Reflection questions

Can learners do the following?

- Sequence events according to days using words such as yesterday, today, tomorrow
- Sequence events during a day using words such as morning, noon, afternoon, evening, night, early, late
- Compare lengths of time using words such as shorter, longer, faster, slower

# 14 Birthday calendar

Content links: 22, 116a-116b  
Grade 1 links: 32  
Grade 3 links: 32

## Objectives

- Recognise the months of the year
- Place birthdays on a calendar

## Resources

**Teacher:** Old cardboard, writing board, marker and chalk

**Learner:** Workbook page 28, pencil

## Dictionary Calendar:

a diagram that shows what day and month it is for a particular year

2015																											
January							February							March							April						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3		1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4			
4	5	6	7	8	9	10	8	9	10	11	12	13	14	8	9	10	11	12	13	14	5	6	7	8	9	10	11
11	12	13	14	15	16	17	15	16	17	18	19	20	21	15	16	17	18	19	20	21	12	13	14	15	16	17	18
18	19	20	21	22	23	24	22	23	24	25	26	27	28	22	23	24	25	26	27	28	19	20	21	22	23	24	25
25	26	27	28	29	30	31								29	30	31					26	27	28	29	30		
May							June							July							August						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
31				1	2		1	2	3	4	5	6	1	2	3	4				30	31					1	
3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8
10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15
17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22
24	25	26	27	28	29	30	28	29	30				26	27	28	29	30	31	23	24	25	26	27	28	29		
September							October							November							December						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
			1	2	3	4	5				1	2	3	1	2	3	4	5	6	7	1	2	3	4	5		
6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12
13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	16	17	18	19
20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26
27	28	29	30				25	26	27	28	29	30	31	29	30					27	28	29	30	31			

## Teach time

### Concrete

Practical activity

Make a balloon picture from waste cardboard. You will need material for each month.



Paste or draw: "January" on the balloon.

Ask learners that have their birthday in January to come and stand in front of the January balloon.

Do the same with all the other months of the year.

# 14

## Birthday calendar *continued*

Content links: 22, 116a-116b

Grade 1 links: 32

Grade 3 links: 32



Go to page 28 in the workbook

**Workbook introduction** - Look at the picture and talk about it.



Learners must trace the months of the year.

### Oral questions

Ask learners to say the months of the year in order.

What comes after April?

What comes before July?



Learners must look at the balloon and write each child's name on the birthday calendar.

**Answers:**

**January:** Sipho, Maryke, Annie

**February:** Jeffrey, Simon

**March:** Sam, Juan

**April:** Betty, Liezel

**May:** Lettie, Ricco, George

**June:** Mpho

**July:** Palesa, Lisa, Kayla

**August:** Mbali, Brenda, Mary

**September:** John

**October:** Karin, Jaco

**November:** Gugu, Dian

**December:** Kara, Richard, Denise



Learners must trace the words.

### Homework

Find out in which months of the year members of your family have their birthdays.

### Reflection questions

Can learners do the following?

- Recognise the months of the year
- Place birthdays on a calendar

# 15 Collect and sort

**Content links:** 2, 16, 64, 71, 93, 96, 107  
**Grade 1 links:** 2, 4, 8, 27-28, 44, 64b, 124-125  
**Grade 3 links:** 16, 22, 36, 96

## Objectives

- Collect and sort everyday objects
- Draw pictures of sorted objects

## Resources

**Teacher:** Writing board, counters, beads, unifix cubes, everyday objects

**Learner:** Workbook page 30, pencil and colouring pencils

## Dictionary

**Sort:** to arrange or group objects in a special way



**Collect:** to bring objects together, e.g. collect all the pencils in the class



## Teach sorting and collecting of objects

### Concrete

Practical activity

Take the learners outside. (This activity will differ from area to area.)  
Collect things such as stones, leaves, waste, etc.)

- Sort stones according to colour or size.
- Sort leaves according to shape. If this is done in autumn, sort them according to colour.
- Sort waste according to paper, plastic, glass and metal.



### Concrete:

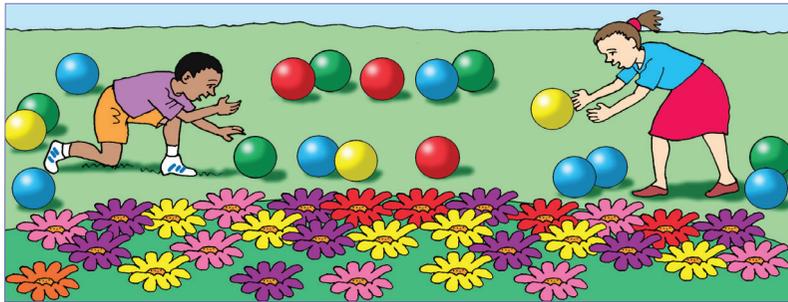
Give learners the following to sort:

- coloured beads
- coloured counters
- coloured unifix cubes
- shapes
- any other objects in the class that can be sorted



Go to page 30 in the workbook.

**Workbook introduction** - Look at the picture and discuss it.



Learners must "collect" and sort the balls and draw them in the correct box.



Learners must collect the flowers and sort them.



### Oral questions

Tell the learners to listen carefully. Red, red, blue, red, blue, red. How many times did I say red? How many times did I say blue?



Learners must sort the objects and make their own drawing.

**Answers:** *The learners must make their own drawings to sort the objects.*

*Bananas are light objects, bricks are heavy objects.  
 3 small balls, 8 big balls, 7 small boxes, 2 big boxes.*



Learners must trace the shapes and colour them

### Homework

Ask your parents or guardian how they sort the washing and why?

### Reflection questions

Can learners do the following?

- Sort colours
- Sort light objects
- Sort heavy objects
- Sort small and big balls
- Draw pictures of sorted objects

# 16 Read and interpret

**Content links:** 15, 64, 71, 93, 96, 107  
**Grade 1 links:** 2, 4, 8, 28, 37, 44, 64b, 124-125  
**Grade 3 links:** None

## Objectives

- Collect and sort everyday objects
- Draw pictures of the sorted objects

## Resources

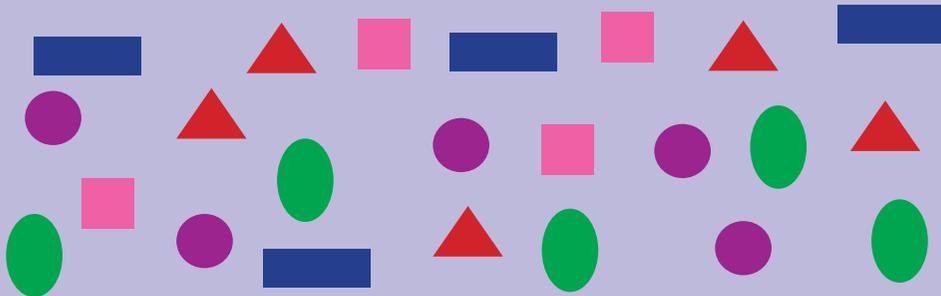
**Teacher:** Writing board, counters, different cardboard shapes (squares, rectangles, triangles, circles, ovals)

**Learner:** Workbook page 32, pencil and colouring pencils

## Dictionary

**Sort:** to arrange or group objects in a special way

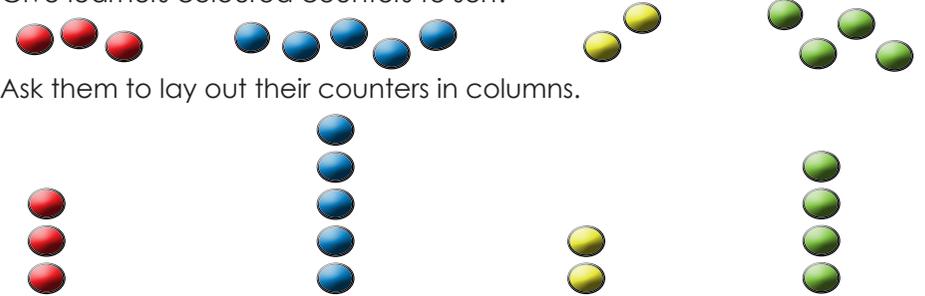
**Collect:** to bring objects together, e.g. collect all the shapes in the class



## Teach graphs

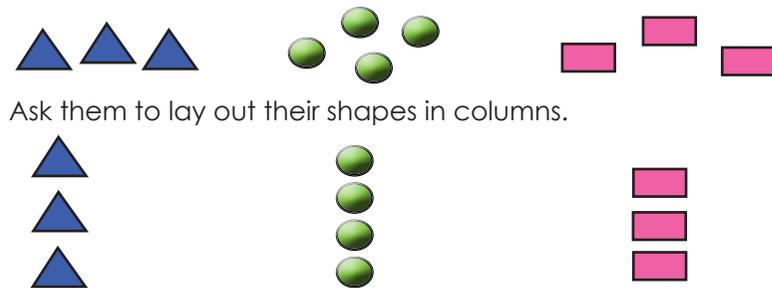
### Concrete

Give learners coloured counters to sort.



### Concrete

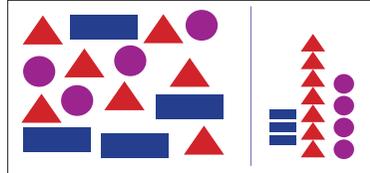
Give the learners shapes to sort.





Go to page 32 in the workbook

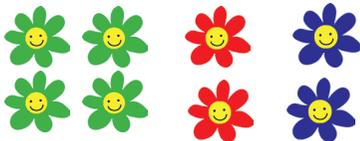
**Workbook introduction -**  
Learners must look at the picture and discuss it.



Learners must sort the crayons and draw them.  
Example: 4 red, 2 purple, 2 blue, 2 green



Learners must sort the flowers and draw them.



Learners must sort the clouds and rainbows and draw them.



### Oral questions

Tell learners to listen carefully. I have 1 purple flower, 1 yellow flower, 1 purple flower, 1 yellow flower and 1 red flower. How many red, yellow and purple flowers do I have?



Learners must look at the pictures and answer the questions.

**Answers: 5 triangles, 3 rectangles, 4 circles, there are more triangles, there are more triangles, there are more circles**  
**There are 3 empty jugs, there are 5 half-full jugs and 4 full jars**



Learners must trace the pattern and colour it in.

### Homework

At home try and sort all the cutlery (knives, forks and spoons) in the kitchen. Draw a picture of the sorted objects.

### Reflection questions

Can learners do the following?

- Collect and sort everyday objects
- Draw pictures of the sorted objects

# 17 Before, after and between

Content links: 4, 33-34, 65-66, 69, 97-98

Grade 1 links: 13, 63, 105

Grade 3 links: 17, 65-67, 69-71, 98-101, 103-104

## Objectives

- Describe numbers using before, between and after
- Describe and use odd and even numbers from 0 – 20
- Describe, compare and order numbers up to 25

## Resources

**Teacher:** Writing board, beads, counters, stones, unifix cubes

**Learner:** Workbook page 34, pencil and colouring pencils

## Dictionary

**Even number:** a number that is divisible by two, e.g. 2, 4, 6, 8 ...

**Odd number:** a number that is not divisible by 2, e.g. 1, 3, 5, 7 ...

**Before:** e.g. 7 is before 8. **After:** e.g. 12 is after 11

**Between:** e.g. 17 is between 16 and 18

## Teach before, after and inbetween

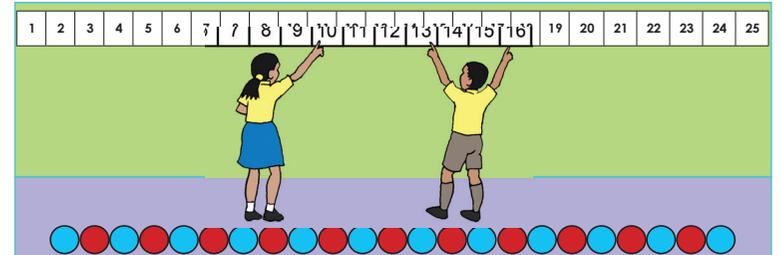
### Concrete

Place 10 counters or beads or unifix cubes in a row on your desk.

- Count it.
- Put your finger on counter/bead/unifix block number 4.
- Which counter/bead/unifix block comes before 4? Show it.



Learners must describe the numbers using the words before, between and after.



**Answers:** 10 is before 11 and 12 is after 11, 15 is before 16, 17 is after 16, 17 is before 18, 19 is after 18, etc. Blue are odd and red are even numbers.



Learners must write the correct number in the square, counting the beads.

**Answers:** • 4, 6, 8 • 16, 18, 20 • 21, 23, 25 • 12, 14, 16



Learners must fill in the missing numbers and answer the questions.

**Answers:** • 1, 2, 3, 4, 5, 6 • 11, 12, 13, 14, 15, 16 • 13, 14, 15, 16, 17, 18 • 10, 11, 12, 13, 14, 15 • 16, 17, 18, 19, 20, 21 • 20, 21, 22, 23, 24, 25 • 7 is before 8 • 17 is after 16 • 9, 10, 11 are between 8 and 12



Learners must colour the numbers between 14 and 17 blue, the number before 14 red, and the number after 17 yellow.

**Introduce odd and even****Concrete**

Ask learners to take 10 red and 10 green counters. Learners pack them in a row: Green, red, green, red until all 20 counters are packed out.



- Learners count the counters pointing at them.
- Point to the first green counter. This is 1.
- Point to the second green counter. This is 3.

**Learners count the rest. We say that these are odd numbers.**

- Point to the first red counter. This is 2.
- Point to the second red counter. This is 4.

**Learners count the rest. We say that these are even numbers.**

**Oral questions**

- Ask learners which number comes before 12, 16 and 29?
- Ask learners which number comes after 11, 15 and 18?
- Which number comes between 15 and 17?

Learners must write all the numbers that are on the yellow beads and then all the numbers that are on the pink beads.

**Answers:**

**Yellow beads. 11, 13, 15, 17, 19, 21, 23, 25, 27, 29. Odd numbers**

**Pink beads. 12, 14, 16, 18, 20, 22, 24, 26, 28, 30. Even numbers**



Look at the picture and answer the questions.



**Answers: Each child gets 3 yellow beads. Yes, one bead is left. Each child gets 2 beads each. No beads left.**



Learners must answer the questions.

**Answer: • 14, 16, 18 • 15, 17, 19 • 19, 21, 23 • 10, 12, 14, 16**

**Homework**

- Bonds 8
- Do question 6 for homework.

**Reflection questions**

Can learners do the following?

- Identify the numbers before
- Identify the numbers between
- Identify the numbers after
- Describe and use odd and even numbers from 0 – 20
- Describe, compare and order numbers up to 25

# 18 Numbers 1 – 30

**Content links:** 2-4, 35, 65-66, 69, 97-98, 100  
**Grade 1 links:** 9-11, 14, 17-18, 33-36, 38-39, 65-69, 97-101  
**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

## Objectives

- Count forwards and backwards in 1s to 100
- Count forwards and backwards in 10s to 100
- Identify, recognise and read number symbols and names from 0 to 40
- Recognise the place value for tens and units for numbers from 11 to 30

## Resources

**Teacher:** Beads and counters

**Learner:** Workbook page 36, pencil

**Concrete resources:**

beads or abacus	counters	stones	unifix cubes
			

## Dictionary

**Tens:** e.g. 10, 20, 30, 40, 50, 60, 70, 80, 90

**Units:** e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9

**Number symbols:** e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

**Number names:** one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, eighteen, nineteen, twenty, twenty-one, twenty-two, twenty-three, twenty-four, twenty-five, twenty-six, twenty-seven, twenty-eight, twenty-nine, thirty

## Introduce place value from 0 – 30

### Concrete



Learners count the beads.

How many green beads are there? How many orange beads are there?

Ask learners to show 10 green beads. 

**Show 12 beads** 

Make sure learners count in groups of 10.

10 beads + 2 beads = 12 beads.

### Show 24 beads

Make sure learners count in groups of 10.

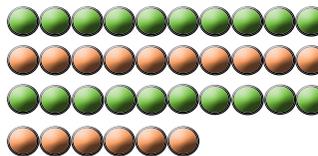
10 beads + 10 beads + 4 beads = 24 beads.



### Show 36 beads

Make sure learners count in groups of 10.

10 beads + 10 beads + 10 beads + 6 beads = 36 beads.



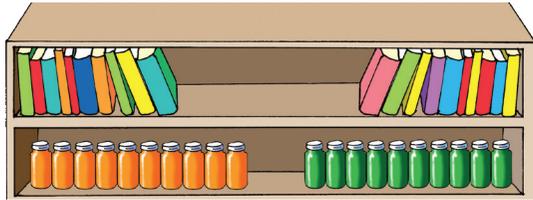
**Content links:** 2-4, 35, 65-66, 69, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



**Workbook introduction:** Learners must count how many books there are. Ask learners to look at the picture.



How many jars of paint do you count?

**Answer: 20 books, 20 jars of paint**



Ask learners: "How many beads there are?"

**Answers: 12, 15, 17, 18, 16**



Learners must count how many books there are.

**Answer: 14**



Learners must fill in the missing number. You can ask learners to write each as a sum on a separate piece of paper or writing book.

**Answers: 14 = 10 + 4, 12 = 10 + 2, 15 = 10 + 5, 17 = 10 + 7, 19 = 10 + 9, 13 = 10 + 3, 26 = 20 + 6, 28 = 20 + 8, 21 = 20 + 1, 30 = 30 + 0**



Learners must look at the first example and complete the rest on tens and units.

**Answer: 1 ten + 5 units or 15 = 10 + 5, 1 ten + 9 units or 19 = 10 + 9, 2 tens + 2 units or 22 = 20 + 2, 2 tens + 4 units or 24 = 20 + 4**

### Oral questions

What is 1 ten plus 4 units? 1 ten plus 6 units? 1 ten plus 7 units? etc.



Learners must count how many beads there are.

**Answer: • 24 beads, 20 + 4 = 24 • 28 beads, 20 + 8 = 28**



Learners must write the numbers in words.

**Answer: ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, twenty-one, twenty-two, twenty-three, twenty-four, twenty-five**



Learners must look at the examples and complete the rest.

**Answer: 1 ten 3 units, 2 tens 6 units, 2 tens 1 unit, 1 ten 9 units**

### Homework

- Bonds 9
- Do question 7 for homework

### Reflection questions

Can learners do the following?

- Count forwards and backwards in 1s to 100
- Count forwards and backwards in 10s to 100
- Identify, recognise and read number symbols and names from 0 to 30
- Recognise the place value for tens and units for numbers from 11 to 30

# 19 Number lines

**Content links:** 20, 23a-24, 29-31, 39a-39b, 41-42b, 44-46, 50 – 54, 56, 65-66, 69, 86, 97-98, 104  
**Grade 1 links:** 20, 22, 41, 45-46, 51, 58-59, 70 – 71, 73, 77, 83-84, 93, 95, 104, 115, 119  
**Grade 3 links:** 20 – 21b, 23, 25b, 27-28, 30b, 54, 65-67, 69-71, 98-104, 111

## Objectives

- Use number lines supported by concrete apparatus

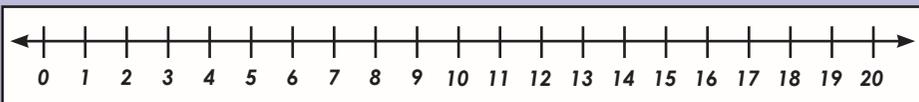
## Resources

**Teacher:** Writing board, beads, counters, stones, unifix cubes, strips of paper

**Learner:** Workbook page 38, pencil

## Dictionary

**Number line:** a line with numbers placed in their correct position, useful for showing relations between numbers, for addition and subtraction



## Teach number lines

### Concrete

Draw a number line with chalk on the “ground” outside.

Learners stand at the start. Tell learners in maths we can say this is zero. Ask: What will happen if you take one step forward? On what number will you be? **(1)** Do the same until they are on 10. Make the number line go to 20 and do the same.

## Concrete to semi-abstract

To understand a number line give learners 10 beads.



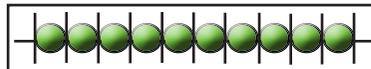
Give them a strip of paper the same length as the beads.



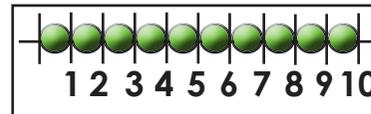
Place the beads on the strip of paper with the string of one end of the string of beads touching the side of the paper.



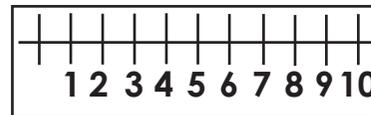
Learners take a pencil or crayon and draw the intervals between each bead.



Learners write the numbers on the intervals.



Learners remove the beads and now have a completed number line.



**Content links:** 20, 23a-24, 29-31, 39a-39b, 41-42b, 44-46, 50 – 54, 56, 65-66, 69, 86, 97-98, 104

**Grade 1 links:** 20, 22, 41, 45-46, 51, 58-59, 70 – 71, 73, 77, 83-84, 93, 95, 104, 115, 119

**Grade 3 links:** 20 – 21b, 23, 25b, 27-28, 30b, 54, 65-67, 69-71, 98-104, 111



**Workbook introduction:** Look at the picture and do the activity outside.



Place three shoes. The learner must try to jump over the first two shoes and then where she or he landed jump over the third shoe. Move the shoes further apart and try it again.



Learners must complete the number lines by filling in the missing numbers.

**Answer:** • 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 • 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15



Ask the learners: "How far did the hare jump?" Learners trace the jumps with their fingers?

**Answer:** 3 and 11



Ask the learners: "How far did the springbok jump?" Learners trace the jumps with their fingers?

**Answer:** 8 and 13

### Oral questions

Ask the learners: "What do you think a number line is?"



Learners must complete the number lines.

Ask the learners: "How far did the hare jump?"

Learners trace the jumps with their fingers? **Answers:**

$$10 + 5 = 15$$

$$10 + 4 = 14$$

$$10 + 7 = 17$$

$$10 + 3 = 13$$

$$10 + 9 = 19$$

**Make sure the learners count the first 'big jump' as a group of ten, not each interval from 1 to 10.**



### Homework

- Bonds 5,6
- Do the last 2 number lines for homework.

### Reflection questions

Can learners do the following?

- Use a number line from 0 – 20

# 20 More number lines

**Content links:** 19, 23a-24, 29-31, 39a-39b, 41-42b, 44-46, 50 – 54, 56, 65-66, 69, 86, 97-98, 104  
**Grade 1 links:** 20, 22, 41, 45-46, 51, 58-59, 70 – 71, 73, 77, 83-84, 93, 95, 104, 115, 119  
**Grade 3 links:** 20 – 21b, 23, 25b, 27-28, 30b, 54, 65-67, 69-71, 98-104, 111

## Objectives

- Add numbers from 0 – 20
- Use number lines from 0 – 20 supported by concrete apparatus

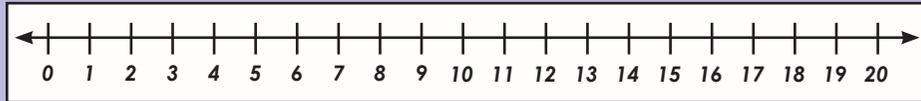
## Resources

**Teacher:** Writing board, number line outside

**Learner:** Workbook page 40, pencil

## Dictionary

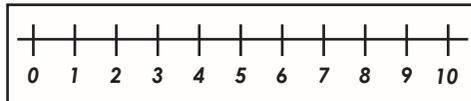
**Number line:** a line with numbers placed in their correct position, useful for showing relations between numbers, for addition and subtraction



## Teach number lines

### Concrete - body

In groups



Draw a number line on the “ground” outside.

Ask learners to stand on zero.

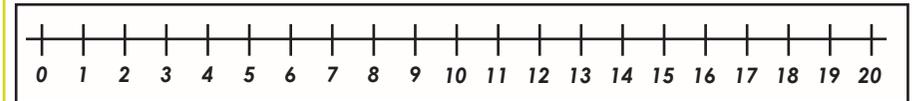
Ask them to jump from zero to three. Count 1, 2, 3.

Ask them to jump another 4 forward. Count 4, 5, 6, 7.

On which number are you standing?

Ask learners to stand on zero. Ask them to jump from zero to four in one jump. Ask them to jump another 2 in one jump. On which number are you standing?

Do similar activities with a number line from 0 – 20.  
Extend your number line to 20.



Ask learners to stand on zero. Ask them to jump from zero to 9. Count 1, 2, 3, 4, 5, 6, 7, 8, 9. Ask the learners to jump another 6 forward. Count 1, 2, 3, 4, 5, 6. On which number are you standing?

# 20 More number lines *cont...*

**Content links:** 19, 23a-24, 29-31, 39a-39b, 41-42b, 44-46, 50 – 54, 56, 65-66, 69, 86, 97-98, 104

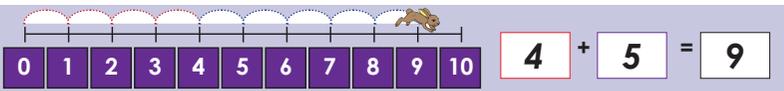
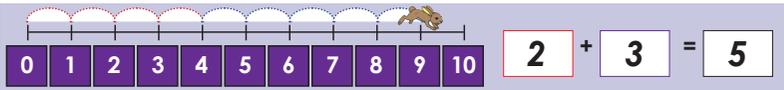
**Grade 1 links:** 20, 22, 41, 45-46, 51, 58-59, 70 – 71, 73, 77, 83-84, 93, 95, 104, 115, 119

**Grade 3 links:** 20 – 21b, 23, 25b, 27-28, 30b, 54, 65-67, 69-71, 98-104, 111



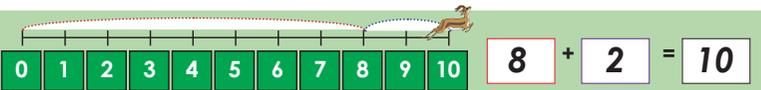
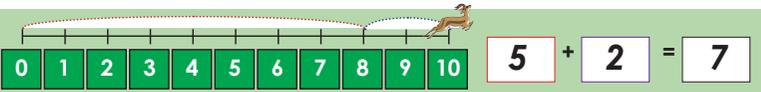
Ask the learners to help the hare to write a sum. Learners can use their fingers to trace over the hoops.

**Answers:**



Ask the learners to help the springbok to write a sum. Learners can use their fingers to trace over the hoops.

**Answers:**



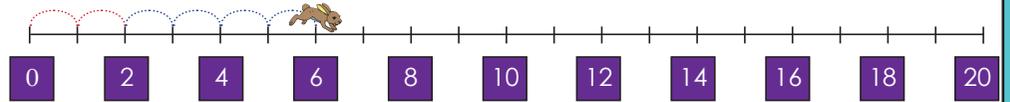
## Oral questions

If I jump one, number, another one, another one, another one, another one. How many numbers did I jump?



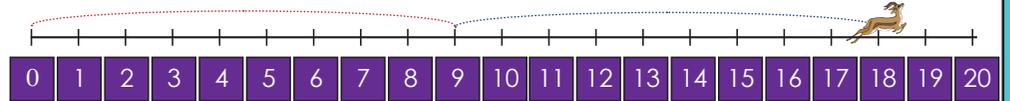
Ask the learners to help the hare to write a sum. Learners can use their fingers to trace over the hoops.

**Answers:  $2 + 4 = 6$  and  $10 + 4 = 14$**



Ask the learners to help the springbok to write a sum. Learners can use their fingers to trace over the hoops.

**Answers:  $9 + 9 = 18$  and  $12 + 4 = 16$**



## Homework

- Bonds 7
- Do the last number line for homework.

## Reflection questions

Can learners do the following?

- Add numbers from 0 – 20
- Use number lines from 0 – 20 supported by concrete apparatus

Content links: 5, 23a-24, 37-39b, 41-42b, 72-74, 77, 101-102, 104-105

Grade 1 links: 15, 19-22, 73, 77, 104

Grade 3 links: 5, 37a-37b, 42, 46, 73-75, 105, 108-109

# 21 Addition and subtraction

## Objectives

- Add numbers from 0 – 20
- Subtract numbers from 0 – 20

## Resources

**Teacher:** Writing board, beads, counters

**Learner:** Workbook page 42, pencil and colouring pencils



## Dictionary

**Addition:** Addition is finding the total or sum by combining two or more numbers, e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$

The symbol for addition is .

**Subtraction:** Subtraction is taking one number away from another, e.g.  $11 - 6 = 5$

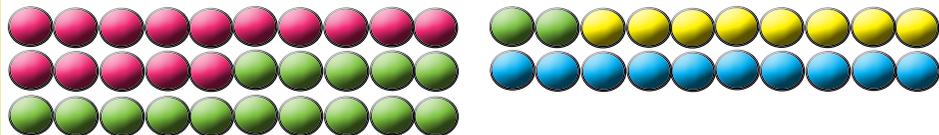
The symbol for subtraction is .

## Teach addition and subtraction

### Concrete

Give learners 50 different coloured counters.

Ask: "How many counters do you count of each colour?"



Ask the learners to give you the following totals.

red counters + green counters = ?

yellow counters + blue counters = ?

red counters + yellow counters = ?

Move 8 beads to the left.



Count another 7.

How many beads do you have? **Answers:  $8 + 7 = 15$  or  $8 + 2 + 5 = 15$**

Show 9 beads. Move 5 beads to the right.

How many beads do you have left? **Answer: 4**

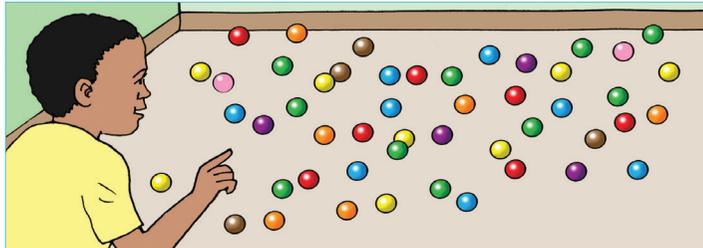


# 21

## Addition and subtraction *cont...*



**Workbook introduction** - Look at the picture and discuss it.



Learners must write the number of beads.  
**Answers:** 2 Pink beads, 7 Red beads, 8 Blue beads  
 10 Green beads, 6 Orange beads, 4 Purple beads



Learners must write the number of beads in the boxes and calculate it.  
**Answers:**  $7 + 10 = 17$ ,  $8 + 2 = 10$ ,  $6 + 8 = 14$ ,  $4 + 10 = 14$ ,  
 $4 + 8 = 12$

### Oral question

Let us count 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.  
 Ask the learners to add the sums mentally:

$8 + 2 = 10$      $4 + 10 = 14$      $6 + 3 = 9$      $8 + 7 = 15$      $9 + 3 = 12$



Learners must complete the patterns.  
**Answers:** green red green, pink yellow pink, blue orange blue, green purple green, yellow brown yellow



Learners must use the beads to fill in the boxes.  
**Answers:**  $8 + 7 = 15$ ,  $8 + 2 + 5 = 15$ ,  $9 + 6 = 15$ ,  $9 + 1 + 5 = 15$



Learners must match the picture with the sum and give the answer.  
**Answers:** Row 1 with Row 2 (Answer 5), Row 2 with Row 1 (2),  
 Row 3 with Row 4 (1), Row 4 with Row 5 (4), Row 5 with Row 3 (5)



Learners must look at the pictures and write a sum.  
**Answers:**  $9 - 6 = 3$ ,  $7 - 1 = 6$ ,  $8 - 4 = 4$  and  $6 - 4 = 2$

### Homework

- Bonds 8
- Complete question 6 for homework.

### Reflection questions

- Can learners do the following?
- Subtract numbers from 0 – 20
  - Add numbers from 0 – 20

# 22

## Days, weeks and months

**Content links:** 14, 116a-116b  
**Grade 1 links:** 32  
**Grade 3 links:** 32, 80

### Objectives

- Name and sequence the days of the week and months of the year
- Recognise the special days of religions in South Africa
- Place learner's own birthday on a calendar

### Resources

**Teacher:** Scissors and glue, prepared posters

**Learner:** Workbook page 44, Cut-out 2, pencil, scissors and glue



### Dictionary

**Calendar:** a diagram that shows what day and month it is

**Day:** the time from sunrise to sunset or the time of a full 24 hour day. The days of the week have names: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday.

**Week:** a time period of 7 days

**Month:** This is one of the twelve time periods of a year. We have twelve months: January, February, March, April, May, June, July, August, September, October, November, December.

### Teach the calendar

#### Representational (semi-abstract)

Make two posters (or draw on the writing board).



January	February	March
April	May	June
July	August	September
October	November	December

Ask learners to look at the days of the week poster. Let us say the days of the week. What day is your favourite day? Why?

Ask learners to look at the months of the year poster shown at the top of Workbook page 44.

Ask them to say the months. Then ask them "When is your birthday?" Write the learners' birthdays on the classroom calendar.

# 22

## Days, weeks and months

**Content links:** 14, 116a-116b  
**Grade 1 links:** 32  
**Grade 3 links:** 32, 80



Learners answer the questions on weeks.

**Answers: Tuesday; Thursday; Sunday; Tuesday; 5th; Thursday and Friday**



Learners answer the questions on days and months.

**Answers: March; July; September; February, March, April and May; January; December**

### Oral question

Learners must say the days of the week and the months. Start with any day of the week and months of the year. Learners should continue.



Talk about the religion days of South Africa, historical events and birthdays.

Religions in South Africa	Historical events	Birthday My Birthday
	Human Rights Day Freedom Day Workers' Day Youth Day National Women's Day Heritage Day Day of Reconciliation	

Learners use Cut-out 2 and paste onto the calendar months, three religious holidays and all the South African holidays.

**Answers:**

**March: Human Rights' Day**

**April: Freedom Day**

**May: Worker's Day**

**June: Youth Day**

**August: National Women's Day**

**September: Heritage Day**

**December: Day of Reconciliation**

### Reflection questions

Can learners do the following?

- Recognise and name the days of the week and the months of the year
- Recognise the special days of religions in South Africa
- Place their own birthday on a calendar

# 23a

## Addition

**Content links:** 5, 21, 24, 37-39b, 77, 82, 72-74, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70 – 73, 77, 81, 85, 90 – 91, 92, 102-104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109

### Objectives

- Add numbers from 0 – 20
- Use number lines from 0 – 20 supported by concrete apparatus

### Resources

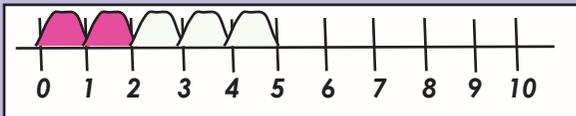
**Teacher:** Writing board, counters

**Learner:** Workbook page 46, pencil and coloured pencils

### Dictionary

#### Addition on a number line

e.g.  $2 + 3 =$



or



### Teach addition 0 - 30

#### Concrete

Ask each learner to take between 5 - 10 counters of the same colour and place it in front of them. Ask them to take another 5 -10 counters (different amount) of the same colour but different than the previous counters and place it in front of them.



How many counters do you have in total?

#### Representational/semi-concrete/semi-abstract

Make a drawing of your counters.

#### Abstract

Write a sum for your drawing.

$$7 + 8 = 15$$

# 23a

## Addition cont...

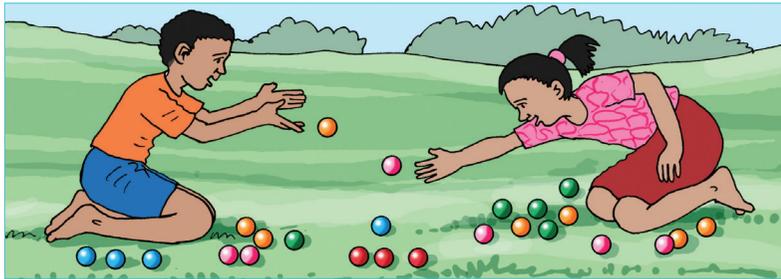
**Content links:** 5, 21, 24, 37-39b, 77, 82, 72-74, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70 – 73, 77, 81, 85, 90 – 91, 92, 102-104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109



**Workbook introduction:** Ask the learners to sort and make a drawing. Count the marbles in the picture.



Learners look at the picture and add the marbles.  
Example: Red + blue, learners should add the red marbles and the blue marbles.

**Answers:** •  $3 + 4 = 7$  •  $5 + 4 = 9$  •  $6 + 4 = 10$  •  $5 + 7 = 12$   
•  $3 + 5 = 8$  •  $7 + 4 = 11$



Learners must add the numbers.

**Note what the learners use to add: their fingers, counters, drawing a picture or mentally. If a learner makes a mistake ask him or her: "How did you get the answer?" Through the learners' responses you may pick up common errors they make.**

**Answers:** • 5 • 10 • 12 • 11 • 15 • 12 • 14 • 14 • 11  
• 18 • 12 • 16 • 13 • 15 • 14



Learners must look at the number line and write a sum.

**Answer:** •  $2 + 3 = 5$  •  $3 + 2 = 5$  •  $2 + 1 = 3$  •  $1 + 2 = 3$

### Oral questions

Learners add the following mentally,  $3 + 2$ ,  $7 + 4$ ,  $9 + 6$ ,  $7 + 8$

For those learners that are struggling, let them move from one interval to the next, making hoops, using their fingers.



Learners must make the scales equal by drawing beads and filling in the empty boxes.

**Answers:** • 5 and  $1 + 4$  • 6 and  $2 + 4$  • 3 + 4 and 7 • 2 + 1  
and  $1 + 2$  • 6 + 3 and  $3 + 6$  • 2 + 8 and  $8 + 2$

### Homework

- Bonds 7,8
- Learners do the problem for homework.

### Reflection questions

Can learners do the following?

- Add numbers from 0 – 20
- Use number lines from 0 – 20 supported by concrete apparatus

# 23b Subtraction

**Content links:** 5, 21, 24, 37-39b, 77, 82, 72-74, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70 – 73, 77, 81, 85, 90 – 91, 92, 102-104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109

## Objectives

- Subtract numbers from 0 – 20
- Use number lines from 0 – 20 supported by concrete apparatus

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 48, pencil

**Concrete resources:**



## Dictionary

**Subtraction:** Subtraction is taking one number away from another, e.g.  $11 - 6 = 5$

The symbol for subtraction is .

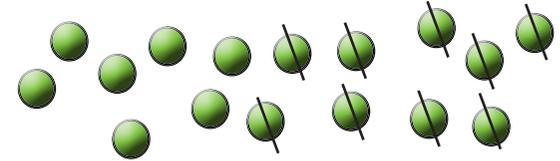
## Teach subtraction from 0 – 20

### Concrete

Give each learner 20 counters. Say to the learners.

- Place 16 counters in front of you.
- Take 9 counters away.

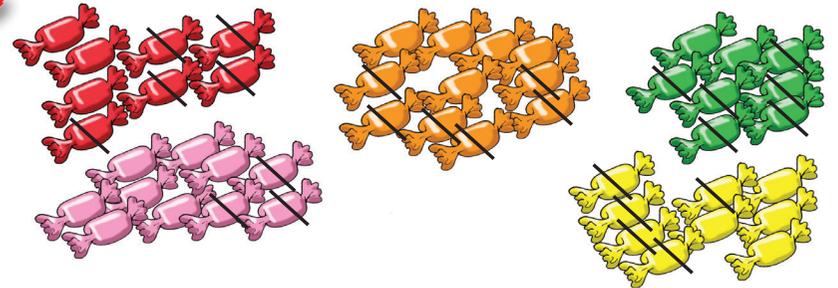
Make a drawing of this



- Do a few examples like this.



Look at the picture and discuss it.



# 23b

## Subtraction *cont...*

**Content links:** 5, 21, 24, 37-39b, 77, 82, 72-74, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70 – 73, 77, 81, 85, 90 – 91, 92, 102-104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109



Learners must look at the picture and write minus sums.

**Answer:**

red sweets  $8 - 5 = 3$

green sweets  $8 - 6 = 2$

yellow sweets  $9 - 5 = 4$

orange sweets  $11 - 6 = 5$

pink sweets  $10 - 3 = 7$



Learners must minus the numbers.

**Answer:**

- 2 • 4 • 9
- 6 • 8 • 8
- 5 • 6 • 7
- 9 • 7 • 8
- 6 • 9 • 7



Learners must complete the sum and notice that they are not equal.

**Answer:**

- 9 - 3 and 3 - 9
- 5 - 2 and 2 - 5



Learners should look at the pictures and write a sum for each:

**Answer:**

- 6 - 3 = 3
- 7 - 3 = 4
- 13 - 5 = 8
- 9 - 6 = 3
- 7 - 2 = 5

### Oral questions

Calculate the following mentally.

8 - 5

11 - 6

10 - 7

12 - 3

### Homework

- Bonds 5 – 10

### Reflection questions

Can learners do the following?

- Subtract numbers from 0 – 20
- Use number lines from 0 – 20 supported by concrete apparatus

# 24 Some more addition

**Content links:** 5, 21, 23a-23b, 37-39b, 77, 82, 72-74, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70 – 73, 81, 85, 90 – 91, 92, 102, 104, 112-113, 118  
**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109

## Objectives

- Recognise and use place value from 1– 25
- Add numbers from 0 – 20

## Resources

**Teacher:** Writing board, place value number cards

**Learner:** Workbook page 50, pencil

**Concrete resources:**



## Dictionary

**Number cards or flard cards:** Cards used to decompose two-digit numbers as expanded notation.

E.g. 14 = 10 card  (tens)

and a 4 card  (units)



Note that we only use 2-digit numbers in this worksheet. You can get number cards for other digit numbers too.

## Teach addition

### Representational (semi-concrete/semi-abstract)

Give learners units and ten number cards.

Ask them to show the number 14.



Ask learners to put the cards on top of each other, e.g.



Learners then should show a sum using 14.



**Workbook introduction 1:** Learners must match the cards to the sums.

**Answers:**

Add the numbers in each block and write down the total.

				
				
<del>7 + 10 = 17</del>	<del>10 + 2 = 12</del>	<del>10 + 5 = 15</del>	<del>3 + 10 = 13</del>	<del>10 + 8 = 18</del>

# 24 Some more addition *cont...*

**Content links:** 5, 21, 23a-23b, 37-39b, 77, 82, 72-74, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70 – 73, 81, 85, 90 – 91, 92, 102, 104, 112-113, 118  
**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109



Learners must use the number line to write additional sums.

**Answers:** •  $10 + 4 = 14$  •  $10 + 6 = 16$   
 •  $10 + 8 = 18$  •  $10 + 3 = 13$



Learners must complete the sums using number cards.

**Answer:** • 13 • 12 • 15 • 17 • 11 • 16 • 14 • 18 • 19 • 13



Learners must add the numbers filling in all the empty boxes.

16 + 13

10	+	10	=	20
6		3		9
16	+	13	=	29

14 + 12

10	+	10	=	20
4		2		6
14	+	12	=	26

17 + 11

10	+	10	=	20
7		1		8
17	+	11	=	28

15 + 13

10	+	10	=	20
5		3		8
15	+	13	=	28

## Oral questions

Show me anything in the class that is: Short/long/high/low/tall

16 + 12

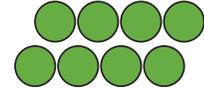
10	+	10	=	20
6		2		8
16	+	12	=	28

18 + 12

10	+	10	=	30
8		2		0
18	+	12	=	30



Learners must solve the problem. Lisa has 9 counters and Aakar has 8. What is the total?



**Answer:** 17 counters

## Homework

- Learners do the problem in Question 5 for homework.

## Reflection questions

Can learners do the following?

- Recognise and use place value from 1 – 25
- Add numbers from 0 – 20

# 25 Money

**Content links:** 6, 26, 78-79, 108-109  
**Grade 1 links:** 60a-62, 75-77, 107-108  
**Grade 3 links:** 8, 26, 56, 95a-95b, 107

## Objectives

- Solve money problems involving totals and change in cents

## Resources

**Teacher:** Writing board, money

**Learner:** Workbook page 52, pencil and colouring pencils, Cut-out 3, scissors

### Concrete resources:



## Dictionary

**Money:** coins or notes used as a payment for goods and services. It is a medium of exchange. Each coin or money note represents a specific value

**Cent:** a unit of money equal to one hundredth of the main currency unit (such as the Rand, Dollar, or Euro)

**Piggy bank:** a money box (often in the shape of a little pig) used to store money and given to children to teach them the idea of saving money. Banks often use piggy bank illustrations to advertise savings products.

## Teach cents that give a total less than 100c

### Representational (semi-concrete/semi-abstract)

Use the coins from Cut-out 3.

Ask learners to show you 10c, 20c, 50c.

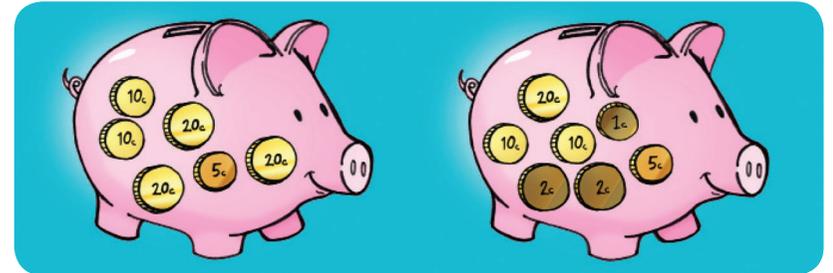
Tell learners that we don't use the 1c and 2c anymore in South Africa. But it is still good to know what the coins look like.

Ask learners to take any two coins. Add it. Do the same with 3, 4, 5 and 6 coins.



### Workbook introduction

Learners must look at the picture and discuss it.



Learners must say how many cents there are?

**Answers: 85 cents and 50 cents**

# 25

## Money *continued*

**Content links:** 6, 26, 78-79, 108-109  
**Grade 1 links:** 60a-62, 75-77, 107-108  
**Grade 3 links:** 8, 26, 56, 95a-95b, 107

### Oral questions

Do we get a 10c coin? 20c? 30? 40c? 50? 60? 70c? 80c? 90c?



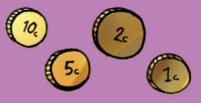
Learners must cut the coins from the Cut-out 3 and paste the right amounts in the spaces for the answer.

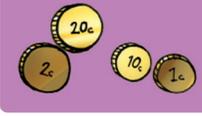
**Answers:**

 <b>50 cents</b>	 <b>70 cents</b>
 <b>70 cents</b>	 <b>60 cents</b>
 <b>40 cents</b>	 <b>80 cents</b>



Learners must say how many cents. **Answers:**

 <b>18 cents</b>	 <b>41 cents</b>
-----------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------

 <b>70 cents</b>	 <b>33 cents</b>
 <b>73 cents</b>	 <b>84 cents</b>



Learners must do the word sums:  
 Suzy has 50c her mom gives her 20c. How much money does Suzy have? **Answer: 70 cents**

I have 90c. I bought a sweet for 30c. How much money do I have left? **Answer: 60 cents**

### Homework

Ask learners to draw the coins that will give you a total of.

- 70c • 60c • 90c • 30c • 85c

### Reflection questions

Can learners do the following?

- Solve money problems involving totals and change in cents

# 26

## Note money

**Content links:** 25, 78-79, 108-109  
**Grade 1 links:** 60a-60b, 75-76, 107  
**Grade 3 links:** 8, 95a-95b, 107

### Objectives

- Solve money problems involving totals and change in rands

### Resources

**Teacher:** Writing board

**Learner:** Workbook page 54, notes from Cut-out 3, pencil, colouring pencils, scissors

### Dictionary

**Notes:** Banknotes are units of money issued on printed paper. Currently in South Africa there are notes to the value of R10, R20, R50, R100 and R200.

### Teach notes that gives a total up to R100

#### Concrete

Use the notes from Cut-out 3.

Ask learners to show you the R10, R20, R50 and R100 note.

Ask learners to add the following.

$$R10 + R20 =$$

$$R20 + R20 =$$

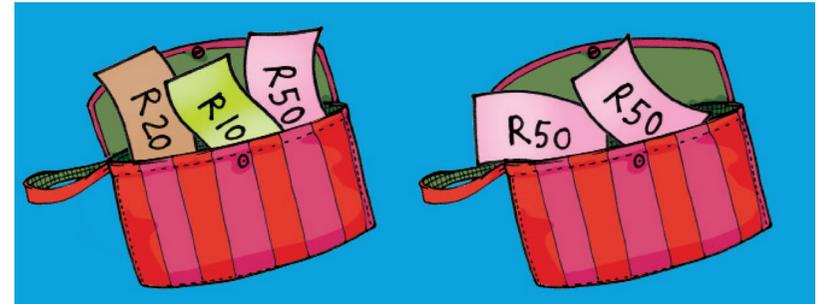
$$R10 + R20 + R20 =$$

$$R50 + R20 =$$

$$R50 + R20 + R20 =$$



Learners must look at the picture and discuss it.



Learners must cut the notes from Cut-out 3 and paste the correct amount here.

# 26

## Note money *continued*

**Content links:** 25, 78-79, 108-109  
**Grade 1 links:** 60a-60b, 75-76, 107  
**Grade 3 links:** 8, 95a-95b, 107

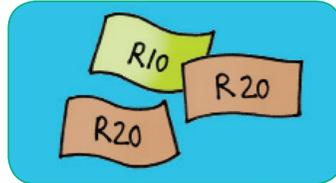


Learners must write how many Rands there are.

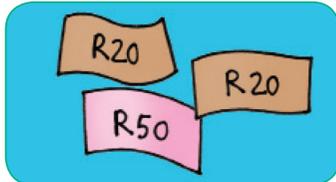
**Answers:**



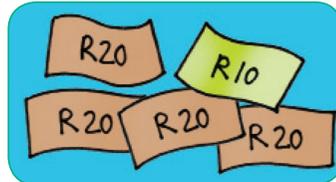
R30



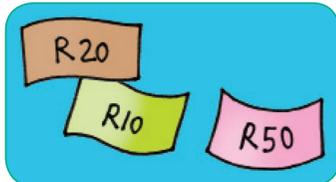
R50



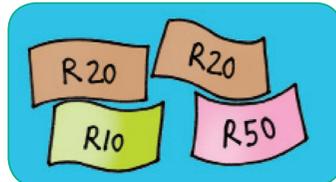
R90



R90



R80



R100

### Oral questions

If I have a R10 note and a R20 note in my purse, how much do I have altogether? (Ask for various combinations that give an answer less than R100.)



Learners must do the word sums: I saved R50. I got R20 for my Birthday. How much money do I have?

**Answer: R70**

I have R90. I bought a book for R30. How much money do I have left?

**Answer: R60**

### Homework

Make five of your own sums using R10, R20 and R50. The answers should be less than R100.

### Reflection questions

Can learners do the following?

- Solve money problems involving totals and change in rands

### Objectives

- Copy, extend and describe simple patterns
- Create and describe simple patterns

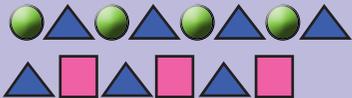
### Resources

**Teacher:** Scissors and glue, writing board, coloured chalk, plastic or cardboard shapes, paper

**Learner:** Workbook page 56, Cut-out 4, pencil, colouring pencils, scissors and glue

### Dictionary

**Patterns:** things that are arranged following a rule or rules, e.g.



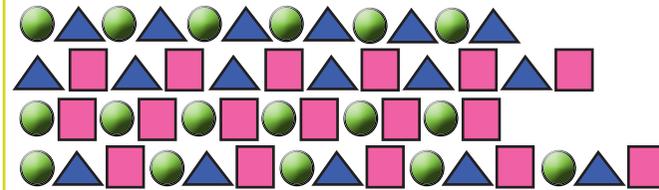
### Teach patterns

#### Concrete – body

Write and draw on the board. Then tell learners each shape represents: 1 clap 2 claps 3 claps



Learners look at the patterns on the board and clap them.



#### Concrete

Give learners some plastic shapes or ones you made from old cardboard. Start to draw a pattern on the board. Learners copy and complete it using the shapes.



#### Representational

Give learners some old paper, e.g. the back of a old photocopy paper. Draw the following on the board. Learners copy and extend them.



# 27

## Patterns *continued*

Content links: 7, 28, 95, 103  
Grade 1 links: 3, 6-7, 89, 127  
Grade 3 links: 9



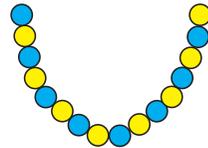
Learners clap the pattern.

clap											
clap											



Learners must copy the pattern.  
Use Cut-out 4.

**Answer:** Should look the same as the pattern on the left.



### Oral questions

On the board draw.



1 Clap    2 Claps    3 Claps    5 Claps

Point to the colours and learners should clap them: Point to red, blue, red, blue, red and blue. Ask the learners to clap them. Do it with the other colours.



Learners make their own picture from the left-over beads. Use Cut-out 4. **Answer:** Answer will vary from learner to learner.



Learners copy the patterns in their books.




Learners copy the patterns.


### Homework

Bonds 5, 6, 7 and 8

### Reflection questions

Can learners do the following?

- Copy, create and describe simple patterns
- Create and describe a pattern

# 28

## More patterns

**Content links:** 7, 27, 95, 103  
**Grade 1 links:** 3, 6-7, 89, 127  
**Grade 3 links:** 9

### Objectives

- Copy, create and describe simple patterns
- Draw simple patterns
- Extend simple patterns

### Resources

**Teacher:** Writing board, cardboard shapes (squares, circles, triangles, rectangles), counters

**Learner:** Workbook page 58, pencil, colouring pencils

**Concrete resources:**



### Dictionary

**Patterns:** things that are arranged following a rule or rules, e.g.



### Teach patterns

#### Concrete

You need to prepare the shapes in question 1 for each group using old cardboard. Per group:

- Two squares
- Two circles
- A triangle that is smaller than the square
- A square and a rectangle that is smaller than the circle
- Two small circles
- Two small triangles

Ask learners to open on page 58 in their workbook. Learners should copy the four patterns in question 2, using the cardboard shapes.



#### Concrete

Give learners some counters. (See colours on page 59 of the workbook, question 7).

Copy and extend the question 7 using the counters.

#### Representational

Learners make a drawing of the patterns.

# 28 More patterns *continued*



Ask the learners to describe each pattern in words. Tell them that words might help you.

rectangle	square	triangle	circle	colours



Learners must colour the next pattern. **Answers:**

- 
- 
- 
- 
- 



Learners must draw the next pattern. **Answer:**



Learners must extend the pattern. **Answer:**



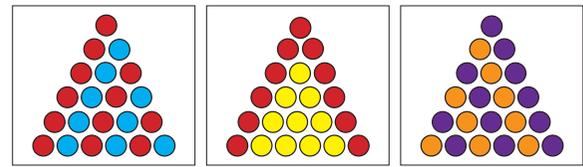
Learners must draw their own patterns using triangle, circles, squares and rectangles. **Answer: Learner's own pattern**



Learners draw the next pattern. **Answers:**



Learners must complete the triangle so that they only have one circle at the top. **Answer:**



Learners must create their own colour patterns using the shapes. **Answer: Learner's own patterns. Make sure it forms a pattern. If you cannot identify the pattern ask the learner to explain it.**

### Oral questions

What comes next:

- blue, blue, red, blue, blue, red, blue, blue, red, ... (blue)
- triangle, square, circle, triangle, square, circle, triangle, square, circle ... (triangle)
- big, small, small, big, small, small, big, small, small, ... (big)

### Homework

Learners must complete question 8.

### Reflection questions

Can learners do the following?

- Copy, create and describe simple patterns?
- Draw a simple pattern
- Extend a simple pattern

# 29 Multiplication: x 2

**Content links:** 30 – 31, 50, 52, 54, 82-84, 88, 113-115

**Grade 1 links:** None

**Grade 3 links:** 23-25, 27-28, 34, 49-51, 53, 55-56, 78, 81, 83-85, 87, 89, 113, 117-118, 120

## Objectives

- Add the same number repeatedly
- Multiply numbers 1 – 10 by 2

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 60 and coloured pencils

### Concrete resources:



## Dictionary

**Multiplication:** Multiplication is repeated addition.

E.g.  $2 + 2 + 2 = 2 \times 3 = 6$

Twos: e.g. 2, 4, 6, 8, 10, ...



## Teach 2 x table from 0 – 20

### Concrete

Go outside: Draw a number line from 0 – 20. Ask the learners to jump in twos to the end. How many times did you jump?

Stand on zero, jump 4 jumps in 2s. On what number are you?

Stand on zero, jump 6 jumps in 2s. On what number are you?

## Concrete

Give learners 20 counters each. Ask them to take 2 counters and place them in front of them. This is group 1. Take another 2 counters, this is group 2. Take another 2 counters, this is group 3. Let us look at your counters.



We can say each group has 2 counters.

Let us count the counters in groups: 2, 4, 6

Let us make an addition sum:  $2 + 2 + 2 = 6$

Let us make a multiplication sum:  $3 \times 2 = 6$

Do the same with:



Talk about the picture



Ask learners how many sweets are on each table.

**Answer: 8, 6, 4**

Ask them, "How did you count the sweets?" (Some children may say 1, 2, 3 ... others may say 2, 4, 6, ...)

# 29

## Multiplication x 2 cont...

**Content links:** 30 – 31, 50, 52, 54, 82-84, 88, 113-115

**Grade 1 links:** None

**Grade 3 links:** 23-25, 27-28, 34, 49-51, 53, 55-56, 78, 81, 83-85, 87, 89, 113, 117-118, 120



Learners must answer the sums using repeated addition and multiplication

**Answer:** • 8 • 10 • 12 • 14 • 16



Learners must make a drawing of the groups. Learners must complete the questions on the number line.

**Answers:**

○○ ○○ ○○

○○ ○○ ○○ ○○

○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○ ○○

### Oral questions

Let us count: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.

Let us add:

$2 + 2 + 2 + 2 =$  (Give learners a variety of sums using repeated addition with 2).

Let us multiply :

$1 \times 2 = \underline{\quad}$ ,  $2 \times 2 = \underline{\quad}$ ,  $2 \times 3 = \underline{\quad}$ ,  $2 \times 4 = \underline{\quad}$ ,  $2 \times 5 = \underline{\quad}$ ,  $2 \times 6 = \underline{\quad}$ ,

$2 \times 7 = \underline{\quad}$ ,  $2 \times 8 = \underline{\quad}$ ,  $2 \times 9 = \underline{\quad}$ ,  $2 \times 10 = \underline{\quad}$



Learners make a drawing and answer the questions using the number lines. **Answers:**

- 10, 12
- 12
- 12

**Answers:**

- 12
- $6 + 6 = 12$
- $2 \times 6 = 12$
- *Child makes a drawing of 12 counters to show the answer.*



Learners must multiply 2 by 7.

**Answer: 14. They may draw the 7 spiders with two eyes.**

**Write:**

Trace the number pattern.

### Homework

- Do question 5 as homework.

### Reflection questions

Can learners do the following?

- Add the same number repeatedly
- Multiply numbers 1 – 10 by 2

# 30 Multiplication: x 5

**Content links:** 29, 31, 50, 52, 54, 83-84, 88, 113-115  
**Grade 1 links:** None  
**Grade 3 links:** 24, 53, 78, 83, 89, 114

## Objectives

- Add the same number repeatedly
- Multiply numbers 1 – 10 by 5

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 62, pencil and coloured pencils

### Concrete resources:



## Dictionary

**Multiplication:** Multiplication is repeated addition.

E.g.  $5 + 5 + 5 = 3 \times 5 = 15$

Twos: e.g. 5, 10, 15, 20, 25, ...

## Teach 5 x table from 0 - 50

### Concrete

Go outside: Draw a number line from 0 – 50. Ask the learners to jump in fives to the end. How many times did you jump?

Stand on zero, jump 4 jumps in 5s. On what number are you?

Stand on zero, jump 6 jumps in 5s. On what number are you?

## Concrete

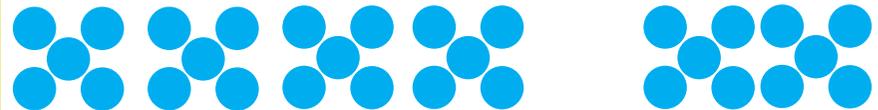
Give learners 30 counters each. Ask them to take 5 counters and place the counters in front of them. This is group 1. Take another 5 counters, this is group 2. Take another 5 counters, this is group 3. Let us look at your counters.



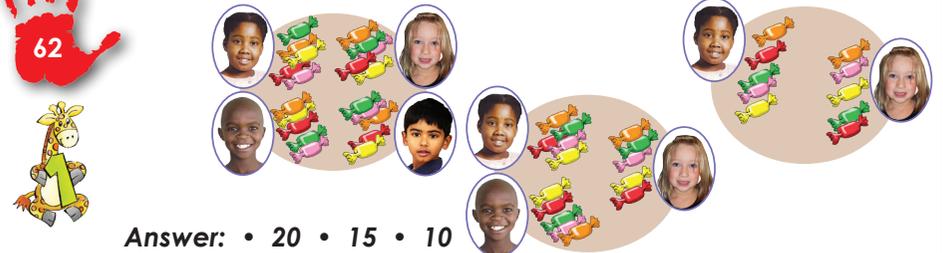
We can say each group has 5 counters. Let us count the counters in groups: 5, 10, 15 Let us make an addition sum:  $5 + 5 + 5 = 15$

Let us make a multiplication sum:  $3 \times 5 = 15$

Do the same with:



Talk about the picture. Ask learners how many sweets are on each table?



**Answer:** • 20 • 15 • 10

# 30

## Multiplication: x 5 *continued*

Content links: 29, 31, 50, 52, 54, 83-84, 88, 113-115

Grade 1 links: None

Grade 3 links: 24, 53, 78, 83, 89, 114

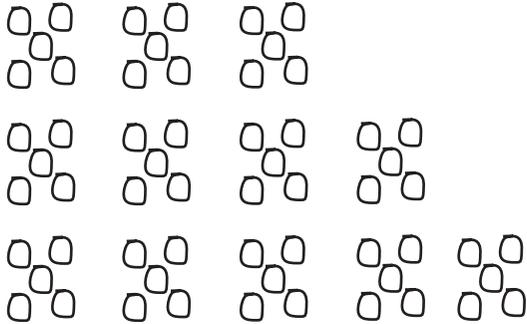


Learners must complete questions on grouping, repeated addition and multiplication.

**Answer:** • 15 • 10 • 20 • 30 • 35



Ask the learners to make a drawing of groups.



### Oral questions

Listen carefully:

Give a multiplication sum for:

$$2 + 2 + 2$$

$$3 + 3 + 3 + 3$$



Learners must make a drawing based on what they find from the number line and answer the questions.

**Answers:**

•  $20 \cdot 20 \cdot 20$

• **Child makes a drawing of 20 counters**

•  $20 \cdot 10 + 10 = 20 \cdot 10 \times 2 = 20$

• **Learner makes a drawing of 20 counters.**



**Write:**

Trace the number pattern.

### Reflection questions

Can learners do the following?

- Add the same number repeatedly
- Multiply numbers 1 – 10 by 5

# 31 Multiplication stories

Content links: 29-30, 50, 52, 54, 83-84, 88, 113-115

Grade 1 links: None

Grade 3 links: 23-24, 27-28, 50, 78, 81, 83-85, 87, 89, 113, 117-118, 120

## Objectives

- Add numbers 2 and 5 repeatedly
- Multiply numbers 1 – 10 by 2 and 5

## Resources

**Teacher:** Writing board, coloured chalk, counters

**Learner:** Workbook page 64, counters from Cut-out 4 (Worksheet 27), pencil and colouring pencils

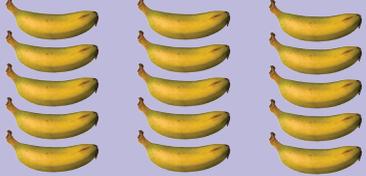
**Concrete resources:**



## Dictionary

**Multiplication:** Multiplication is repeated addition. e.g.

$$5 + 5 + 5 = 3 \times 5 = 15$$



**Fives:** e.g. 5, 10, 15, 20, 25, ...

## Teach 5 x table from 0 - 60

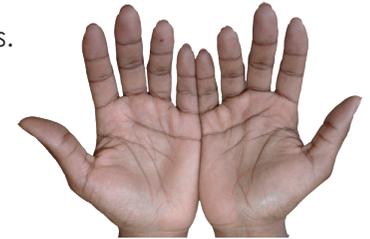
### Concrete – body

Ask one child to come to the front of the class.

Ask him or her to lift up his or her hands.

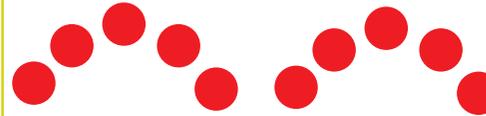
How many fingers do you count?

Let us count: 5, 10.



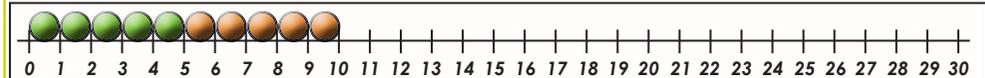
### Concrete

Show the fingers using counters.



### Representational/semi-abstract

Draw a number line on the board. Ask one child to make a drawing of his or her counters on the number line on the board.



Do the same with other children.

# 31 Multiplication stories *continued*

Content links: 29-30, 50, 52, 54, 83-84, 88, 113-115

Grade 1 links: None

Grade 3 links: 23-24, 27-28, 50, 78, 81, 83-85, 87, 89, 113, 117-118, 120



Learners must look at the picture. Learners must make their own story using total number of ears, eyes, hands and feet.



Read to the learners: We are 10 friends. Ask: "How many hands do we have?" Learner must make a drawing of the 10 friends' hands. Suggest to them that they draw the hands in pairs. Learners show it with counters, by placing the counters and then drawing them.

Learners must then show it on a number line. Learners must write a multiplication sum for it.

**Answers:**

- **Drawing of 20 hands**
- **Learner makes his or her own drawing.**
- **2, 2, 2, 2, 2, 2, 2, 2, 2, 2**
- **$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 20$      $2 \times 10 = 20$**

**If any children have written  $1 + 1 + 1 \dots$  and  $1 \times 20 + 20$ , suggest that they try again by adding and multiplying 2s.**



Learners must read: Susan's family has 10 pairs of shoes. Learner must make a drawing of Susan's family's shoes. Learners show it with counters, by placing the counters and then drawing them. Learners must then show it on a number line. Learners must write a multiplication sum for it.

**Answers:**

- **20 shoes**
- **Learner makes his or her own drawing.**
- **2, 2, 2, 2, 2, 2, 2, 2, 2, 2 counters.**
- **$2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 20$      $2 \times 10 = 20$**



Learners write their own story using 6 children and hands. Note previously we used 10 children and hands.

## Oral questions

**Count in:** Tens and twos

**Repeated addition:**  $2 + 2 + 2$ . Give a variety of sums up to 20. Give a variety of sums up to 100.

**Multiplication.**

- $1 \times 2, 2 \times 2, 2 \times 3, 2 \times 4, 2 \times 5, 2 \times 6, 2 \times 7, 2 \times 8, 2 \times 9, 2 \times 10$
- $1 \times 10, 2 \times 10, 3 \times 10, 4 \times 10, 5 \times 10, 6 \times 10, 7 \times 10, 8 \times 10, 9 \times 10, 10 \times 10$

## Homework

Find a picture of people in a magazine. How many eyes, hands, fingers and toes do they have?

## Reflection questions

Can learners do the following?

- Add numbers 2 and 5 repeatedly
- Multiply numbers 1 – 10 by 2 and 5

# 32 Three-dimensional objects

**Content links:** 9, 75-76, 92, 106  
**Grade 1 links:** 23, 87-88, 106, 116  
**Grade 3 links:** 10, 60, 90, 124

## Objectives

- Recognise and name ball shaped objects
- Recognise and name box shaped objects
- Describe, sort and compare 3-D objects using terms such as: straight edge, curved edge, roll, slide
- Describe the position of 3-D objects using terms such as: in front, at the side, behind, on top

## Resources

**Teacher:** Writing board, balls, boxes and cylinders

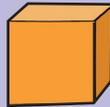
**Learner:** Workbook page 66, pencil and colouring pencils

## Dictionary

**Sphere:** a 3-dimensional object like a ball  
In grade 2 we use the word ball and not sphere.



**Prism:** a solid object that has two identical ends and flat sides.  
In grade 2 we use the word box and not prism



## Introduce 2-D shapes and 3-D objects

### Concrete and representational

Each child brings a ball or a box from home. Learners place the balls and boxes in the middle of their group. Ask learners to show you a ball and then a box.

Open your books on page 66.

- The teacher holds up a ball. "Show me all the balls in the picture."
- The teacher holds up a box. "Show me all the boxes in the picture."

Show the learners a cylinder. This can be any container that looks like a cylinder.

Tell learners that this container's shape is a cylinder. Ask learners to find all the cylinders in the pictures on pages 66 and 67.



Ask the learners to look at the picture. How many balls, cylinders and boxes do you see?



**Answers: Balls: 5; Cylinders: 4; Boxes: 5**

Learners are asked to colour all the balls red, the boxes blue and the cylinders green.

**Answers: Balls: 5; Boxes: 5; Cylinders: 5**



# 32

## Three-dimensional objects *continued*

**Content links:** 9, 75-76, 92, 106  
**Grade 1 links:** 23, 87-88, 106, 116  
**Grade 3 links:** 10, 60, 90, 124



Learners must colour the correct answer.  
**Answer: curved edges, straight edges, curved edges**



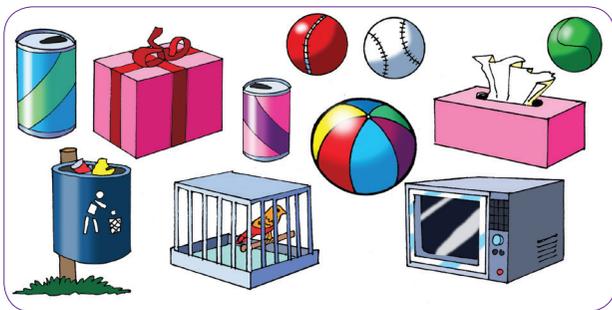
Learners must mark the correct answer.  
**Answer: roll, slide, slide and roll**

### Oral questions

- Can this object roll?
- Can this object slide?
- Can this object roll and slide?



Ask the learners how many balls, boxes and cylinders do they see in this picture?



**Answer: 3 cylinders, 4 boxes and 4 balls**



Where is the ball? Is it in front of the box? At the side? Behind?  
On top?

**Answers: In front, at side, behind**

### Homework

- Learners can do question 5 for homework.

### Reflection questions

Can learners do the following?

- Recognise and name ball shaped objects
- Recognise and name box shaped objects
- Describe, sort and compare 3-D objects using terms such as: straight edge, curved edge, roll, slide
- Describe the position of 3-D objects using terms such as: in front, at the side, behind, on top

# 33 Order and compare numbers: 1 – 40

Content links: 4, 17, 34, 65-66, 69, 97-98

Grade 1 links: 13, 41-42, 63, 105

Grade 3 links: 17, 65-67, 69-71, 98-101, 103-104

## Objectives

- Count objects from 1 – 40
- Compare whole numbers using the terms: smaller than, greater than, more than, less than, equal
- Represent even numbers from 1 – 40
- Represent odd numbers from 1 – 40

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 68, pencil and colouring pencils



## Dictionary

**Order numbers:** This is putting numbers in order according to a rule. We can also arrange numbers from the smallest to the largest (ascending order), e.g. 8, 16, 23, 26, 30.

We also arranged numbers from the largest to the smallest (descending order), e.g. 30, 27, 22, 19, 8.

**Note:** You do not introduce the words ascending and descending to your learners.

**Compare numbers:** We should know if one number is bigger, smaller or the same as another number.

= If two numbers are equal we use the “equal” sign, e.g.  $3 + 5 = 8$ .

< If one number is smaller than another, we use a “less than” sign, e.g.  $4 < 9$ .

> If one number is bigger than another, we use a “greater than” sign, e.g.  $6 > 2$

**Note:** We do not need to introduce the symbols < (smaller than) or > (bigger than) yet. We make use of the words smaller and bigger, but you can show them to those learners that already grasp the concept.

## Introduce comparing and ordering of numbers

### Concrete

In pairs give learners 30 counters. Without counting, the first learner takes some counters. The second learner takes the rest of the counters.

- How many counters do each of you have?
- Who has more counters?
- Who has less counters?

### Representational (semi-concrete/semi-abstract)

Ask learners each to draw between 20-30 flowers on a page. In groups ask:

- Who has the most flowers?
- Who has the least flowers?

**Content links:** 4, 17, 34, 65-66, 69, 97-98  
**Grade 1 links:** 13, 41-42, 63, 105  
**Grade 3 links:** 17, 65-67, 69-71, 98-101, 103-104

# 33 Order and compare numbers: 1 – 40 *cont...*



Ask the learners to look at the pictures and answer the questions. Who has more oranges? Who has more apples?

**Answers:**

*The girl has 14 oranges and the boy has 13 oranges. The girl has more oranges than the boy.*

*The girl has 30 apples and the boy has 25 apples. The girl has more apples than the boy.*



Learners must count the beads and fill in the empty boxes.

**Answers:**

- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
- 21, 22, 23, 24, 25, 26, 27, 28, 29, 30
- 31, 32, 33, 34, 35, 36, 38, 39, 40



Learners must look at the beads in question 2 and answer the questions. **Answers:** • 7 • 14 • 19 • 23

## Oral question

- Give me 3 numbers smaller than 28.
- Give me 3 numbers bigger than 20.
- Which number is bigger 12 or 13?
- Which number is smaller 20 or 22?



Learners must colour in sets of numbers that are bigger or smaller than a certain number. **Answers:**

- 1, 2, 3, 4, 5, 6, 7, 8, 9 in blue
- 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 in red
- 25, 26, 27, 28, 29 in green
- 37, 38, 39 in yellow

Learners must colour the even numbers yellow and the odd numbers green. **Answers:**

- **even:** 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50
- **odd:** 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49



Learners answer the questions. **Answers:**

- 11      • 8      • 16, 18, 20, 22      • 7, 9, 11, 13
- 23      • 22      • 22, 24, 26, 28      • 21, 23, 25, 27, 29

## Homework

- Do question 5 for homework.

## Reflection questions

Can learners do the following?

- Count objects from 1 - 40
- Compare whole numbers using the terms: smaller than, greater than, more than, less than, equal
- Learners identify even numbers from 1 - 40
- Learners identify odd numbers from 1 - 40

# 34

## Order and compare numbers: 40 – 50

**Content links:** 4, 17, 33, 65-66, 69, 97-98  
**Grade 1 links:** 13, 41-42, 63, 105  
**Grade 3 links:** 17, 65-67, 69-71, 98-101, 103-104

### Objectives

- Compare whole numbers using the terms: smaller than, greater than, more than, less than, equal
- Represent even numbers from 40 – 50
- Represent odd numbers from 41 – 49

### Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 70, pencil and colouring pencils.



### Dictionary

**Order numbers:** This is putting numbers in order according to a rule. We can also arrange numbers from the smallest to the largest (ascending order), e.g. 8, 16, 23, 26, 30.

We also arranged numbers from the largest to the smallest (descending order), e.g. 30, 27, 22, 19, 8.

**Note:** Do not need to introduce the words ascending and descending to your learners.

**Compare numbers:** We should know if one number is bigger, smaller or the same as another number.

= If two numbers are equal we use the "equal" sign, e.g.  $3 + 5 = 8$ .

< If one number is smaller than another, we use a "less than" sign, e.g.  $4 < 9$ .

> If one number is bigger than another, we use a "greater than" sign, e.g.  $6 > 2$

**Note:** We do not need to introduce the symbols < (smaller than) or > (bigger than) yet. We make use of the words smaller and bigger, but you can show them to those learners that already grasp the concept.

### Teach comparing and ordering of numbers

#### Concrete

In pairs give learners 50 counters. Without counting, the first learner takes some counters. The second learner takes the rest of the counters.

- How many counters do each of you have?
- Who has more counters?
- Who has less counters?

#### Representational

Ask learners each to draw between 40 – 50 balls on a page. In groups ask:

- Who has the most balls?
- Who has the least balls?

Ask learners to look at the picture



# 34

## Order and compare numbers: 40 – 50 *cont.*

**Content links:** 4, 17, 33, 65-66, 69, 97-98  
**Grade 1 links:** 13, 41-42, 63, 105  
**Grade 3 links:** 17, 65-67, 69-71, 98-101, 103-104



Learners must count and say who has more pineapples.  
**Answer: The girl has 40 pineapples and the boy has 43. The boy has more pineapples than the girl.**



10, 20,  
30, 40



10, 20, 30,  
40, ... 41,  
42, 43

**Note if the learners are counting in groups of ten and not each pineapple individually.**



Learners must count the beads and fill in the empty boxes.  
**Answers:**

- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
- 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
- 21, 22, 23, 24, 25, 26, 27, 28, 29, 30
- 31, 32, 33, 34, 35, 36, 37, 38, 39, 40
- 41, 42, 43, 44, 45, 46, 47, 48, 49, 50

After filling in the empty boxes, ask the learners to count in tens: 10, 20, 30, 40, 50, 60



Learners must look at the beads and answer the questions.  
**Answers: • 2 • 32 • 37 • 46**



Learners must colour the numbers that are smaller than 40 in blue and bigger than 36 in green. **Answers: • 37, 38, 39 green**  
**Block 1: • 30, 31, 32, 33, 34, 35, 36, 37, 38, 39**  
**Block 2: • 37, 38, 39, 40**

### Oral question

Give 3 numbers smaller than 50 but bigger than 40. Give 3 numbers bigger than 40 but smaller than 50.



Learners must colour the even numbers yellow and the odd numbers green and answer some questions. **Answers:**

• 40, 42, 44, 46, 48, 50 yellow	• 41, 43, 45, 47, 49 green
• 41	• 42
• 42, 44, 46, 48	• 41, 43, 45, 47, 49
• 42	• 40

### Homework

- Do question 5 for homework.

### Reflection questions

Can learners do the following?

- Compare whole numbers using the terms: smaller than, greater than, more than, less than, equal
- Represent even numbers from 40 – 50
- Represent odd numbers from 41 – 49

# 35 Numbers 40 – 50

**Content links:** 2-4, 65-66, 69, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

## Objectives

- Count everyday objects up to 100
- Count in tens forwards and backwards from any multiple of 10
- Recognise and use number symbols and names from 0 – 50

## Resources

**Teacher:** Writing board, beads, counters

**Learner:** Workbook page 72, pencil and colouring pencils

**Concrete resources:**

beads or abacus	counters 	stones 	unifix cubes 
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## Dictionary

**Tens:** e.g. 10, 20, 30, 40, 50, 60, 70, 80, 90

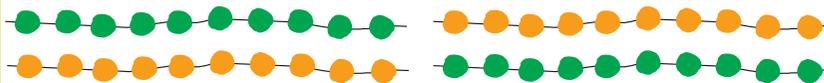
**Units:** e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9

**Number symbols:** e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30

**Number names:** one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, eighteen, nineteen, twenty, twenty-one, twenty-two, twenty-three, twenty-four, twenty-five, twenty-six, twenty-seven, twenty-eight, twenty-nine, thirty.

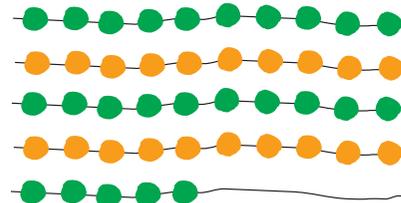
## Teach place value from 40-50

### Concrete



Learners count the beads. How many green beads are there? How many orange beads are there?

Ask learners to show 45 beads.



Make sure learners count in groups of 10.

10 beads + 10 beads + 10 beads + 10 beads + 5 beads = 45 beads

# 35

## Numbers 40 – 50 *continued*

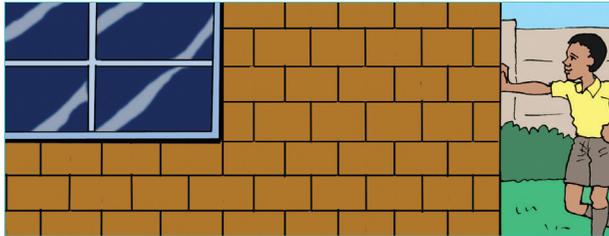
**Content links:** 2-4, 65-66, 69, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

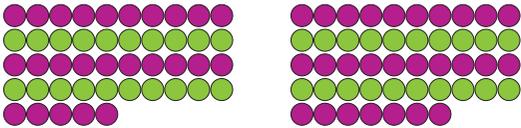
**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



Ask the learners to count the bricks in the wall. **Answer: 50**



Learners count how many beads there are.



**Answers:** 45 beads,  $40$  (Count: 10, 20, 30, 40) + 5 = 45  
47 beads,  $40$  (Count: 10, 20, 30, 40) + 7 = 47



Learners complete counting in ones.

**Answers:**

- 20, 21, 22, 23, 24, 25, 26, 27, 28, 29
- 30, 31, 32, 33, 34, 35, 36, 37, 38, 39
- 40, 41, 42, 43, 44, 45, 46, 47, 48, 49



Learners count the circles and complete the sum

**Answer:**  $40 + 5 = 45$



Learners write the words for the numbers:

**Answers:** *forty-one, forty-two, forty-three, forty-four, forty-five, forty-six, forty-seven, forty-eight, forty-nine, fifty*



Learners look at the first example and complete the sums on tens and units.

**Answers:**

- 4 tens 5 units    4 tens 3 units    4 tens 2 units
- 4 tens 4 units    4 tens 1 unit    4 tens 8 units



Learners write the number in the correct column.

**Answers:**

**Tens:** 2 3 4 4 3  
**Units:** 7 4 6 1 9

### Homework

- Bonds 5,6
- Learners complete the second part (table) of question 5 for homework.

### Reflection questions

Can learners do the following?

- Count everyday objects up to 100
- Count in tens forwards and backwards from any multiple of 10
- Recognise and use number symbols and names from 0 – 50

# 36 Squares, rectangles, triangles and circles

Content links: 8, 99  
Grade 1 links: 4, 48a-48b, 109-111  
Grade 3 links: 11, 72, 127

## Objectives

- Recognise and name the 2-D shapes of squares, rectangles, triangles and circles
- Describe, sort and compare these shapes in terms of: shape, size, colour, and straight or curved edges or sides

## Resources

**Teacher:** Writing board, cardboard or plastic shapes of squares, rectangles, triangles and circles

**Learner:** Workbook page 74, pencil and colouring pencils

## Dictionary

**Triangle:** a flat shape with 3 sides, a 3-sided polygon 

**Square:** a flat shape with 4 sides equal in length (a 4-sided polygon) 

**Rectangle:** a flat shape with 4 sides and 4 right angles (a 4-sided polygon) 

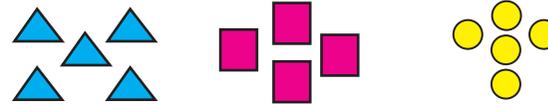
## Teach 2-D and 3-D shapes

### Concrete

- Give the learners plastic shapes (or make your own from old cardboard). -
- Show me all the triangles.
  - Show me all the rectangles.
  - Show me all the circles.

### Concrete

Sort the shapes in triangles, rectangles and circles.



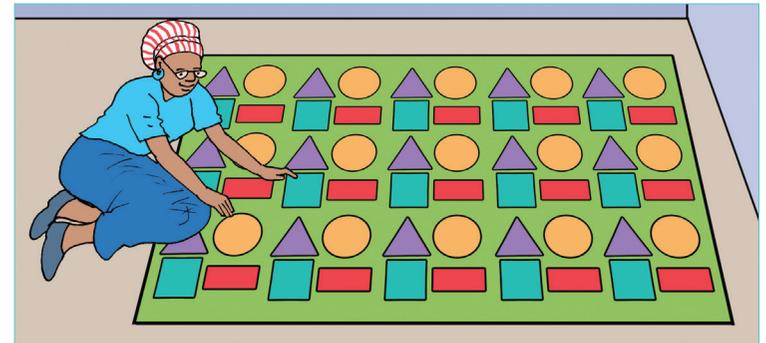
Do the same activity but ask learners to show you the: red triangle, blue triangle, yellow circle, red rectangle, etc.

Give learners each a triangle, a rectangle and a circle. Which shape has straight edges? Show me? Which shape has curved edges? Show me?

Straight edges:    Curved edges: 



Ask learners to look at the quilt granny made. Identify all the shapes. **Answer: Triangle, rectangle, square and circle**



# 36 Squares, rectangles, triangles and circles *cont...*



Learners must colour the squares blue, the rectangles yellow, the triangles green and the circles red.

## Oral question

Listen carefully. Draw the following in the air: Triangle, circle and square.



Ask the learners to choose the correct answer.

straight edges 

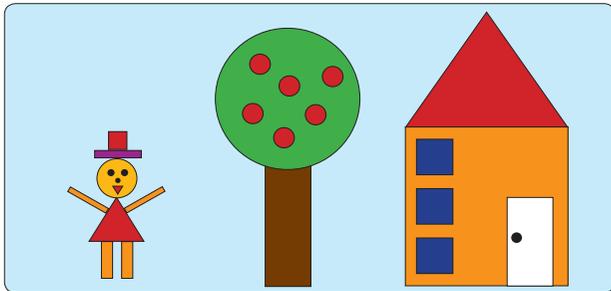
curved edges 

straight edges 

straight edges 



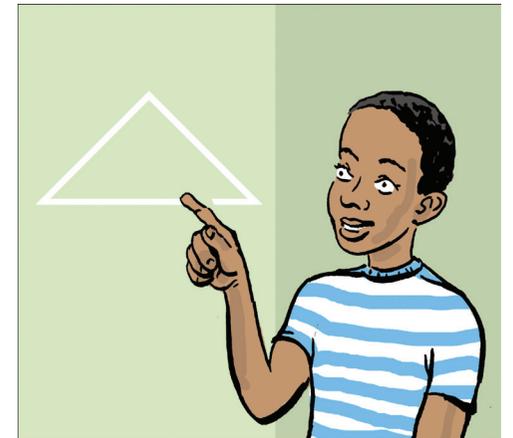
Ask the learners how many circles, squares, triangles and rectangles there are?



Answer: 12 circles, 5 squares, 3 triangles, 12 rectangles  
 (5 squares and 7 other rectangles)



Learners must draw their own pictures using circles, squares, triangles and rectangles.



## Homework

- Learners complete Question 5 for homework.

## Reflection questions

Can learners do the following?

- Recognise and name the 2-D shapes of squares, rectangles, triangles and circles
- Describe, sort and compare these shapes in terms of: shape, size, colour, and straight or curved edges or sides

# 37 Addition and subtraction up to 20

## Objectives

- Add up to 20
- Subtract from numbers up to 20
- Use appropriate symbols (+, -, =)

## Resources

**Teacher:** Writing board, unifix cubes, place value number cards

**Learner:** Workbook page 76, pencil and colouring pencils



## Dictionary

**Addition:** finding the total or sum by combining two or more numbers, e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$

The symbol for addition is 

**Subtraction:** taking one number away from another, e.g.  $11 - 6 = 5$

The symbol for subtraction is 

## Introduce the lesson

### Concrete

Give learners 20 unifix cubes.

Ask learners to put a unifix train (10 cubes) and 6 cubes in front of them.



Ask them to place another 5 cubes in front of them.

Can you make a "train" using the loose cubes? Show it.



Write a sum:  $16 + 5 = 21$

### Abstract

Give learners place value cards. Ask the learners to place a 10 number card and a 6 number card in front of them.



Ask them to then place a 5 card in front of them.



What is  $6 + 5 = ?$  Can you swop the 6 and the 5 card for a ten card and unit card? What is the answer? 21



### Concrete

Give learners 20 unifix cubes.

Ask the learners to place one unifix train and 5 cubes on their desk.

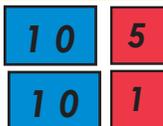


# 37 Addition and subtraction up to 20 *continued*

Take 4 cubes away.    
 What is the answer? 11. Say it as a sum:  $15 - 4 = 11$

### Abstract

Ask the learners to place a 10 number card and a 5 number card in front of them. What will happen if I take 4 away? Show it. What is your answer?  $15 - 4 = 11$ . Write the sum and the answer on your black board.



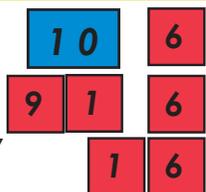
Ask learners to place one unifix "train" and 6 cubes on their table.



Take 9 cubes away? Can you? What can you do? (Swop one cube train for 10 cubes.) Let us say it.  $16 - 9 = 8$

### Abstract

Ask learners to work in pairs or groups. Place a 10 and 6 number card in front of them. Take 9 away? Can you? What should you do? (Swop the 10 card for a 9 and a 1 card). Minus 9. The answer is 7. Write it as a sum.  $16 - 9 = 7$

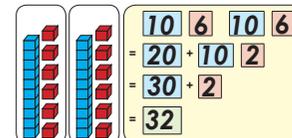


Learners must recall the answers as fast as they can.

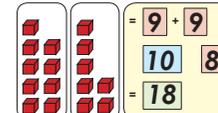
$4 + 5 - 1 = 8$	$13 - 9 + 2 = 6$	$20 - 7 + 1 = 14$	$10 + 5 - 4 = 11$
$10 + 3 + 2 = 15$	$9 + 3 - 2 = 10$	$8 - 2 - 1 = 5$	$13 - 8 + 1 = 6$
$9 - 4 - 3 = 2$	$18 - 9 - 4 = 5$	$7 + 8 + 1 = 16$	$16 - 7 + 3 = 12$
$14 - 6 + 4 = 12$	$12 - 5 - 2 = 5$	$19 - 10 + 5 = 14$	$6 + 5 - 3 = 8$



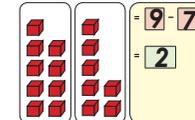
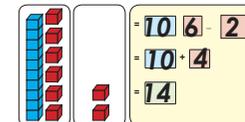
Learners must add using the pictures.



Learners must subtract using the pictures.



Learners solve the word problem. **Answer: 9 sweets**



### Homework

- Complete question 4 for homework.

### Reflection questions

Can learners do the following?

- Add up to 20
- Subtract from numbers up to 20
- Use appropriate symbols (+, -, =)

# 38 Addition and subtraction up to 50

## Objectives

- Add up to 50
- Subtract from numbers up to 50
- Use appropriate symbols (+, -, =)

## Resources

**Teacher:** Writing board, unifix cubes, place value number cards

**Learner:** Workbook page 78, pencil and colouring pencils



## Dictionary

**Addition:** finding the total or sum by combining two or more numbers, e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$

The symbol for addition is 

**Subtraction:** taking one number away from another, e.g.  $11 - 6 = 5$

The symbol for subtraction is 

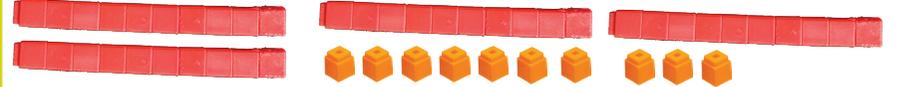
## Concrete

Give learners 50 unifix cubes.

Ask learners to put 3 unifix trains (30 cubes) and 7 cubes in front of them.



Ask them to place another unifix train and 3 cubes.



Can you make a "train" from the loose cubes? Show it.

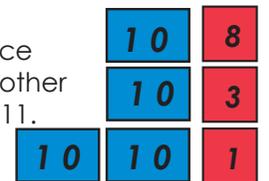


Write a sum:  $37 + 13 = 50$

## Abstract

Learners use the number cards. In groups, learners place a 10 and a 8 card in front of them. Ask them to put another 10 card and 3 card in front of them. What is  $8 + 3$ ? It is 11.

Can you swop the 8 and 3 card for a ten card and unit card?



## Concrete

Give learners 40 unifix cubes. Ask the learners to place three unifix trains and 9 cubes on their desk.

Take 1 train and 7 cubes away.

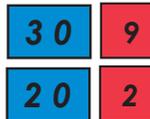
What is the answer? 22. Say it as a sum:  $39 - 17 = 22$

**Content links:** 5, 21, 23a-24, 37, 39a-39b, 41-42b, 72-74, 77, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 24, 35a-35b, 37-39, 42, 46-47, 73-75, 105, 108

# 38 Addition and subtraction up to 50 *cont...*

## Abstract

Ask the learners to place a 30 number card and a 9 number card in front of them. What will happen if i take 17 away? What is your answer. Write the sum and the answer on your black board.  $39 - 17 = 22$



Ask learners to place 3 unifix trains and 4 cubes on their table.



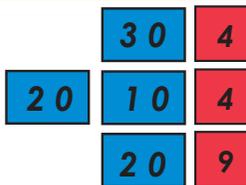
Take 9 cubes away? Can you? What can you do? (Swop one cube train for 10 cubes.)



Can you take 9 away? Let us say it.  $34 - 9 = 25$

## Abstract

Ask learners to work in pairs or groups. Place a 30 and 4 number card in front of them. Take 5 away? Can you? What should you do? (Swop the 30 card for a 20 and a 10 card). Minus 5. The answer is? 29. Write it as a sum.  $34 - 5 = 29$



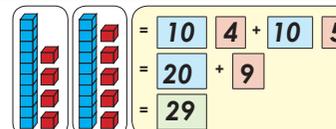
Learners must recall the answers as fast as they can.

### Answers:

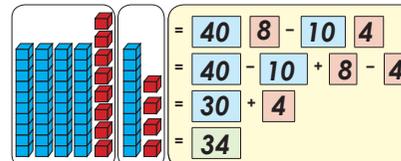
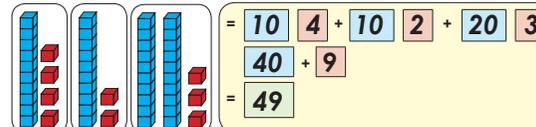
- 21 • 32 • 44 • 50
- 39 • 50 • 30 • 50
- 50 • 30 • 48 • 48
- 23 • 25 • 40 • 30



Learners must add using the pictures.

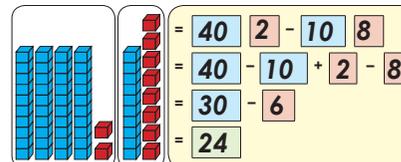


Learners must subtract using the pictures.



Learners solve the problem.

**Answer: R37**



## Homework

- Do question 4 for homework

## Reflection questions

Can learners do the following?

- Add up to 50
- Subtract from numbers up to 50
- Use appropriate symbols (+, -, =)

# 39a More addition

**Content links:** 4, 5, 21, 23a-24, 39a-39b, 72-74, 77, 82, 100-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70-73, 81, 85, 90-91, 92, 102, 104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35a-35bb, 37-39, 41-43, 45-47, 49, 73-75, 105, 108-109

## Objectives

- Add numbers up to 60
- Use drawings, number lines and concrete apparatus to solve addition problems

## Resources

**Teacher:** Writing board, beads, place value number cards

**Learner:** Workbook page 80, pencil

**Concrete resources:**



## Dictionary

**Addition:** finding the total or sum by combining two or more numbers, e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$

The symbol for addition is 

**Subtraction:** taking one number away from another, e.g.  $11 - 6 = 5$

The symbol for subtraction is 

## Introduce the lesson

### Concrete

Write the following on the board.  $13 + 12 = \underline{\quad}$

Learners show it with the beads.



Let us say it:  $10 + 10 + 3 + 2 = \underline{\quad}$

### Semi-abstract

Give each learner the following number cards.



In pairs ask them each to take a ten and any unit card.

What is the total of each card?

Do this with different combinations, do it always with a ten or twenty card plus any unit card.

**Content links:** 4, 5, 21, 23a-24, 39a-39b, 72-74, 77, 82, 100-102, 104-105

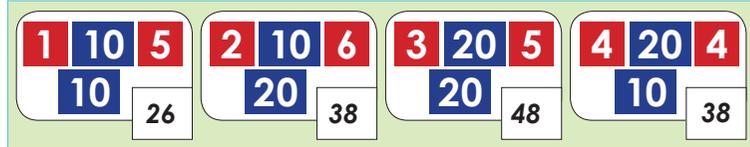
**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70-73, 81, 85, 90-91, 92, 102, 104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35a-35bb, 37-39, 41-43, 45-47, 49, 73-75, 105, 108-109

# 39a More addition *cont...*



Ask the learners what the total of each block is. **Answers:**



Learners add the numbers using the number line and beads.  
 $13 + 12 = \underline{\quad}$ . Before doing the first one ( $13 + 12 = \underline{\quad}$ ) with your learners, first count in multiples of ten, on the bead line, starting with 3. Let us count: 3, 13, 23, 33, 43,...

Ask the learners to show where 13 is.  
 Then ask them to add 10 to 13 (Learners should recognise that 13 to 23 forms a pattern).  
 (One ten and 3 units now becomes two tens and 3 units = 23)  
 Then add the two beads at the end. Learners add 2 to 23.  
 Let us write it as  $13 + 10 + 2 = 25$

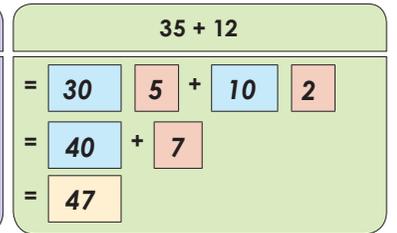
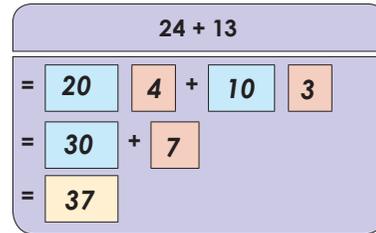
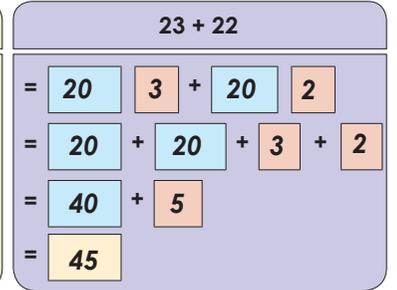
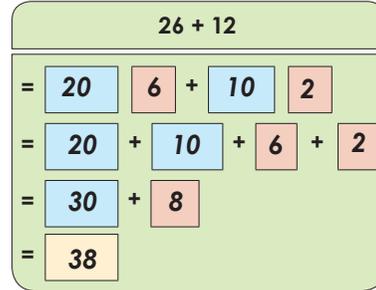
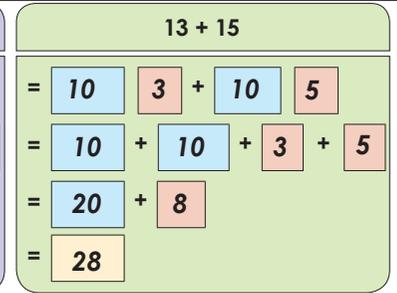
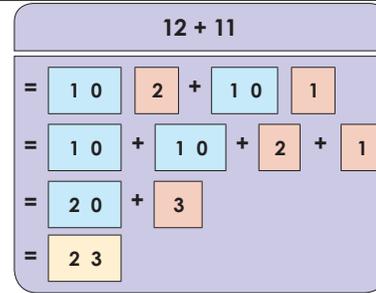
**Answers:**

- $10 + 10 + 3 + 2 = 25$
- $10 + 10 + 4 + 2 = 26$
- $10 + 10 + 9 + 1 = 30$
- $10 + 10 + 6 + 3 = 29$
- $10 + 10 + 5 + 4 = 29$

### Oral question

Learners add the following mentally.  
 $10 + 10 + 3 + 2$   
 $10 + 10 + 4 + 5$   
 $10 + 10 + 7 + 1$

Learners must add the numbers using the spaces given.



Learners must solve the word problem. **Answer: R49.**

# 39b More addition (continued)

**Content links:** 4, 5, 21, 23a-24, 39a-39b, 72-74, 77, 82, 100-102, 104-105  
**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70-73, 81, 85, 90-91, 92, 102, 104, 112-113, 118  
**Grade 3 links:** 5, 23-24, 27-28, 33, 35a-35bb, 37-39, 41-43, 45-47, 49, 73-75, 105, 108-109

### Objectives

- Add numbers up to 60
- Recognise place value
- Use drawings, number lines and concrete apparatus to solve addition problems

### Resources

**Teacher:** Writing board, beads

**Learner :** Workbook page 82, pencil and colouring pencils

#### Concrete resources:



### Dictionary

**Addition:** finding the total or sum by combining two or more numbers, e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$

The symbol for addition is 

**Subtraction:** taking one number away from another, e.g.  $11 - 6 = 5$

The symbol for subtraction is 

### Introduce the lesson

#### Concrete

Give learners some beads (Should be in groups of ten)



Ask learners to show 8 beads.



Ask them to add 10.



Do a few activities like this using beads.

$$7 + 10 = \underline{\quad}$$

$$5 + 10 = \underline{\quad}$$

$$9 + 10 = \underline{\quad}$$

$$6 + 10 = \underline{\quad}$$

#### Concrete

Do a similar activity with beads, adding:

$$10 + 3 + 10 + 4 = \underline{\quad}$$

$$10 + 5 + 10 + 2 = \underline{\quad}$$

#### Representational

Do a similar activity with beads, adding:

In pairs ask learners to show the sums using number cards.

$$14 + 13 = \underline{\quad}$$

$$16 + 12 = \underline{\quad}$$

$$18 + 11 = \underline{\quad}$$

## 39b More addition (continued) cont...

**Content links:** 4, 5, 21, 23a-24, 39a-39b, 72-74, 77, 82, 100-102, 104-105  
**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70-73, 81, 85, 90-91, 92, 102, 104, 112-113, 118  
**Grade 3 links:** 5, 23-24, 27-28, 33, 35a-35bb, 37-39, 41-43, 45-47, 49, 73-75, 105, 108-109



Ask learners what the total of each block is? Ask learners to explain each solution

**Answers:**

- Possible solution:  $12 + 10 = 22$  or  $10 + 2 + 10 = 22$
- Possible solution:  $15 + 10 = 25$  or  $10 + 5 + 10 = 25$
- Possible solution:  $19 + 10 = 29$  or  $10 + 9 + 10 = 29$



Learners must draw the rest of the beads and complete the addition sums.

**Answers:**

- $10 + 6 + 10 + 3 = 29$
- $10 + 7 + 10 + 2 = 29$
- $10 + 5 + 11 + 3 = 29$
- $10 + 3 + 10 + 1 = 24$



Learners must complete the addition sums using the example to guide them.

**Answers:**

- $44 + 2 = 46$
- $33 + 3 = 36$
- $45 + 2 = 47$
- $36 + 1 = 37$



Learners must add the sum. Learners should recognise adding 10 changes the tens to the next ten, e.g.  $34 + 10 = 44$

**Answers:**

- $21 + 33 + 46$
- $38 + 47 + 22$
- $44 + 39 + 25$



Learners must add 27 and 16 and also draw a picture to show their answer.

**Answer: 43 and draw a picture.**



Learners must solve the word sum by drawing a picture.

**Answer: Learners must make their own word sum using the pictures.**

### Homework

- Complete questions 5 and 6 for homework

### Reflection questions

Can learners do the following?

- Add numbers up to 60
- Recognise place value
- Use drawings, number lines and concrete apparatus to solve addition problems

# 40 Length

**Content links:** 10, 119  
**Grade 1 links:** 12a-12b, 74, 96  
**Grade 3 links:** 13, 40, 94, 97

## Objectives

- Estimate, measure, compare, order and record length using non-standard measures
- Use words such as short, long, high, low, tall to talk about length and height

## Resources

**Teacher:** Writing board, unifix cubes

**Learner:** Workbook page 84, pencil, colouring pencils, scissors, Cut-out 1

### Concrete resources:



## Dictionary

**Length:** the distance from one end to the other end, e.g. **length** →  
Grade 2 length words are "shorter" and "longer".

**Height:** the distance from the top to the bottom, e.g. **height** ↑  
Grade 2 height words are "higher", "lower" and "taller".

## Introduce the lesson

### Concrete

Ask learners to make a unifix train. 

Ask them to make a train that is shorter. 

Ask them to make a train that is longer. 

Take the unifix cubes and tell the learners to turn them so they look like buildings. First the 10 cube train and then the 6 cube train.

Which one is shorter?

Which one is taller?



Do the same with the 6 cube train and the 12 cube train.

### Concrete – body

Stand next to a friend.

Who is the tallest?

Who is the shortest?

# 40

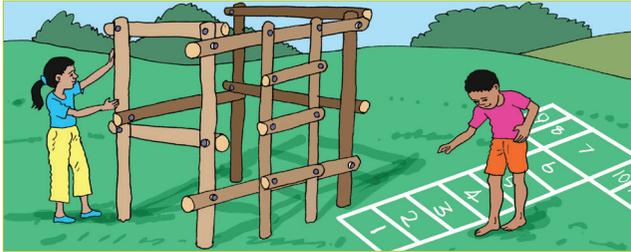
## Length *continued*

**Content links:** 10, 119  
**Grade 1 links:** 12a-12b, 74, 96  
**Grade 3 links:** 13, 40, 94, 97



### Introduction

Look at the picture. Talk about it and use words such as long and short.



Learners must colour the answer the same colour as the blocks.

		<b>shorter</b>	<b>longer</b>
		<b>shorter</b>	<b>longer</b>
		<b>shorter</b>	<b>longer</b>
		<b>shorter</b>	<b>taller</b>
		<b>shorter</b>	<b>taller</b>
		<b>shorter</b>	<b>taller</b>



Learners must colour the answer the same as the boy's shorts.

<b>shorter</b>	<b>taller</b>	<b>taller</b>	<b>shorter</b>	<b>shorter</b>	<b>taller</b>	<b>taller</b>

### Oral questions

Find all the things in the class that are:

- Long. Why do you say it is long?
- Short. Why do you say it is short?
- Tall. Why do you say it is tall?



Learners must measure the playground sides with the hand and the foot from Cut-out 1. Learners answer the questions:

- “How many hands long is the playground?”
- “How many feet long is the playground?”

**Answers: learner's own answers**

### Reflection questions

Can learners do the following?

- Estimate, measure, compare, order and record length using non-standard measures
- Use words such as short, long, high, low, tall to talk about length and height

# 41 Subtraction

**Content links:** 5, 21, 23b, 42a-42b, 74, 77, 101-102, 104-105

**Grade 1 links:** 15, 20-22, 73, 77, 103-104

**Grade 3 links:** 5, 21a-21b, 30, 33, 35b, 37b, 39, 41-42, 45-47, 73-75, 107-109

## Objectives

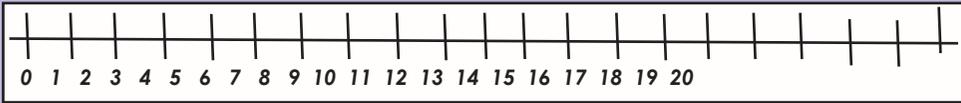
- Subtract from numbers up to 50
- Recognise place value
- Use number lines

## Resources

**Teacher:** Writing board, place value number cards, beads  
**Learner:** Workbook page 86, pencil, colouring pencils

## Dictionary

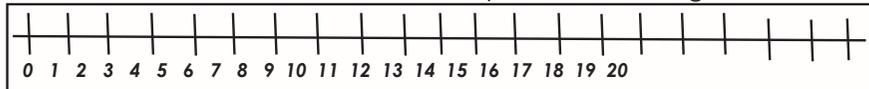
**Number line:** a line with numbers placed in their correct position (useful for showing relations between numbers, for addition and subtraction)



## Teach subtraction

### Concrete – body

Go outside and draw a number line up to 20 on the “ground”.



Ask learners to jump from 0 to 14. Ask them to turn around and jump 4 back. On what number are you standing?

## Representational

Ask learners to make the following using number cards.



Make the 12 again. What should I remove to get an answer of 2?



Use the number cards, and do the same for: 11, 15, 18 and 19

Learners must match the cards to the subtraction sums. **Answers:**



10	10	10	10	10
2 2	8 8	7 7	5 5	3 3
17-7 = 10	12-2 = 10	15-5 = 10	13-3 = 10	18-8 = 10

Learners must use the number line and beads, and write a subtraction sum.

### Answers:

- $14 - 4 = 10$  Count 14 beads, 10, 11, 12, 13, 14. Minus 4 means you go 4 back.
- $16 - 6 = 10$  Count 16 beads, 10, 11, 12, 13, 14, 15, 16. Minus 6 means you go 6 back.

# 41

## Subtraction *continued*

**Content links:** 5, 21, 23b, 42a-42b, 74, 77, 101-102, 104-105

**Grade 1 links:** 15, 20-22, 73, 77, 103-104

**Grade 3 links:** 5, 21a-21b, 30, 33, 35b, 37b, 39, 41-42, 45-47, 73-75, 107-109

- $18 - 8 = 10$  Count 18 beads, 10, 11, 12, 13, 14, 15, 16, 17, 18. Minus 8 means you go 8 back.
- $13 - 3 = 10$  Count 13 beads, 10, 11, 12, 13. Minus 3 means you go 3 back.



Learners must subtract using the number cards.

**Answers:**

$$10 + 3 - 3 = 10$$

$$10 + 5 - 5 = 10$$

$$10 + 1 - 1 = 10$$

$$10 + 4 - 4 = 10$$

$$10 + 9 - 9 = 10$$

$$10 + 2 - 2 = 10$$

$$10 + 7 - 7 = 10$$

$$10 + 6 - 6 = 10$$

$$10 + 8 - 8 = 10$$

$$10 + 9 - 5 = 14$$



Learners must subtract using the number cards. **Answer:**

16 - 13		
10	- 10	= 0
6	- 3	= 3
16	- 13	= 3

14 - 12		
10	- 10	= 0
4	- 2	= 2
14	- 12	= 2

27 - 11		
20	- 10	= 10
7	- 1	= 6
27	- 11	= 16

35 - 13		
30	- 10	= 20
5	- 3	= 2
35	- 13	= 22

26 - 12		
20	- 10	= 10
6	- 2	= 4
26	- 12	= 14

48 - 11		
40	- 10	= 30
8	- 1	= 7
48	- 11	= 37



Learners must solve the word sum: Lisa has 17 counters. She lost 8 counters. How many counters does she have left?

**Answer: 9 counters**

### Homework

- Complete Question 5 for homework
- Revise bonds 5-10

### Reflection questions

Can learners do the following?

- Subtract from numbers up to 50
- Recognise place value
- Use number lines

# 42a More subtraction

Content links: 5, 21, 23b, 41, 74, 77, 101-102, 104-105

Grade 1 links: 15, 20-22, 73, 77, 103-104

Grade 3 links: 5, 21a-21b, 30, 33, 35b, 37b, 39, 41-42, 45-47, 73-75

## Objectives

- Subtract from numbers up to 50
- Recognise place value
- Use number lines

## Resources

**Teacher:** Writing board, place value number cards, beads

**Learner:** Workbook page 88, pencil, colouring pencils

## Dictionary

**Subtraction:** taking one number away from another, e.g.  $11 - 6 = 5$

The symbol for subtraction is 

## Teach subtraction 0-50

### Representational (semi-abstract)

Count backwards:

Draw a number line outside from 0 – 30. Ask learners to stand on 25. Ask them to walk ten steps backwards. On what number are you?

Walk another two steps backwards. On what number are you?

Do the same with  $26 - 14$ . Stand on 26, walk 10 steps back and again 4 steps.

### Representational (semi-abstract)

Learners work in pairs. The first learner takes a 20 and a 7 number card. The second learner takes a 10 and a 2 number card. The second learner subtracts his or her number cards from the first learner's cards.



20 7 10 2

### Abstract

On their desks ask learners to show  $27 - 12 =$  with their number cards. They then minus the cards.



20 7 - 10 2 = 10 5



27 - 12 = 15



Learners must subtract the bottom numbers from the top numbers.

  17	  22	  38	  49
  15	  11	  15	  14
2	11	23	35

# 42a More subtraction *continued*

Content links: 5, 21, 23b, 41, 74, 77, 101-102, 104-105

Grade 1 links: 15, 20-22, 73, 77, 103-104

Grade 3 links: 5, 21a-21b, 30, 33, 35b, 37b, 39, 41-42, 45-47, 73-75

Answers:

- Learners say 10 minus 10 equals 0 and 7 minus 5 equals 2. The answer is 2.
- Learners say 20 minus 10 equals 10 and 2 minus 1 equals 1. The answer is 11.
- Learners say 30 minus 10 equals 20 and 8 minus 5 equals 3. The answer is 23.
- Learners say 40 minus 10 equals 30 and 9 minus 4 equals 5. The answer is 35.



Learners must use the number line and write a subtraction sum.

Answers:

- $25 - 12 = 13$
- $26 - 14 = 12$
- $28 - 11 = 17$
- $29 - 13 = 16$
- $29 - 14 = 15$

### Oral questions

Calculate the following mentally.

- $20 - 10 =$
- $40 - 10 =$
- $30 - 10 =$



Learners must subtract. Answers:

$$\begin{array}{r}
 45-23 \\
 = 40 \quad 5 - 20 \quad 3 \\
 = 40 - 20 + 5 - 3 \\
 = 20 + 2 \\
 = 22
 \end{array}$$

$$\begin{array}{r}
 38-16 \\
 = 30 \quad 8 - 10 \quad 6 \\
 = 30 - 10 + 8 - 6 \\
 = 20 + 2 \\
 = 22
 \end{array}$$

$$\begin{array}{r}
 29-14 \\
 = 20 \quad 9 - 10 \quad 4 \\
 = 20 - 10 + 9 - 4 \\
 = 10 + 5 \\
 = 15
 \end{array}$$

$$\begin{array}{r}
 48-11 \\
 = 40 \quad 8 - 10 \quad 1 \\
 = 40 - 10 + 8 - 1 \\
 = 30 + 7 \\
 = 37
 \end{array}$$

$$\begin{array}{r}
 35-23 \\
 = 30 \quad 5 - 20 \quad 3 \\
 = 30 - 20 + 5 - 3 \\
 = 10 + 2 \\
 = 12
 \end{array}$$

$$\begin{array}{r}
 38-15 \\
 = 30 \quad 8 - 10 \quad 5 \\
 = 30 - 10 + 8 - 5 \\
 = 20 + 3 \\
 = 23
 \end{array}$$

### Homework

- Bonds 5-10
- Complete question 3

### Reflection questions

Can learners do the following?

- Subtract from numbers up to 50
- Recognise place value
- Use number lines

# 42b Even more subtraction

Content links: 5, 21, 23b, 41, 74, 77, 101-102, 104-105

Grade 1 links: 15, 20-22, 73, 77, 103-104

Grade 3 links: 5, 21a-21b, 30, 33, 35b, 37b, 39, 41-42, 45-47, 73-75

## Objectives

- Subtract from numbers up to 50
- Recognise place value
- Use number lines

## Resources

**Teacher:** Writing board, place value number cards, beads

**Learner:** Workbook page 90, pencil, colouring pencils

**Concrete resources:**



## Dictionary

**Subtraction:** taking one number away from another, e.g.  $11 - 6 = 5$

The symbol for subtraction is



## Teach subtraction 0 – 50

### Concrete

Give learners 30 beads.



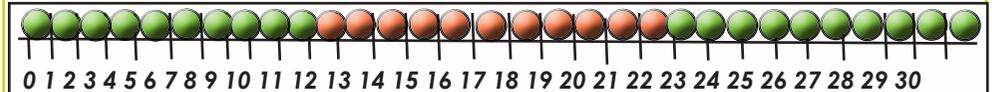
Ask them to put their finger on 25. Ask them to count back 10. On what number are you?

Count another 10 back. On what number are you?

Do the same with 21, 22, 23, 24, 26, 27, 28 and 29.

### Representational (semi-abstract)

Draw a number line 0 – 30 on the board. Ask a learner to come to the front of the class.



Ask the learner to put his or her finger on 25? Count 10 back. On what number are you now?

Do the same with 21, 22, 23, 24, 26, 27, 28 and 29

### Representational (semi-abstract)

Learners use number cards and place the following on their tables.  $46 - 13$

$$\begin{array}{|c|c|} \hline 4 & 6 \\ \hline \end{array} - \begin{array}{|c|c|} \hline 1 & 3 \\ \hline \end{array}$$

Do a few examples like this.

# 42b Even more subtraction *continued*

Content links: 5, 21, 23b, 41, 74, 77, 101-102, 104-105

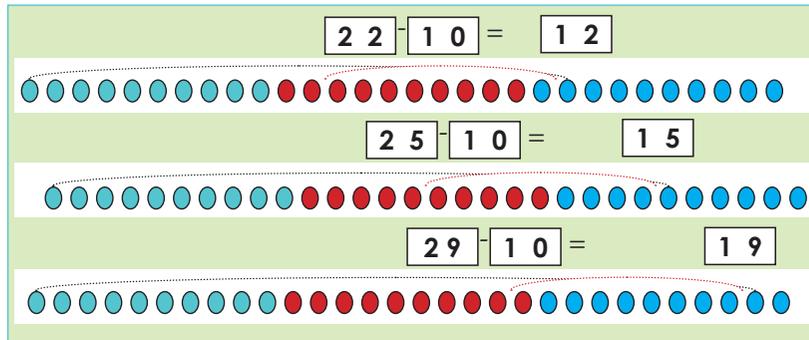
Grade 1 links: 15, 20-22, 73, 77, 103-104

Grade 3 links: 5, 21a-21b, 30, 33, 35b, 37b, 39, 41-42, 45-47, 73-75



Go to page 90 of the workbook.

Ask the learners to look at the picture.



Learners must say what the total of each block is.

**Answers**

•  $22 - 10 = 12$  •  $25 - 10 = 15$  •  $29 - 10 = 19$

Learners must complete the sums using the number lines and beads.

**Answers**

•  $29 - 10 - 11 = 8$  •  $25 - 10 - 10 = 5$   
 •  $23 - 10 - 10 = 3$  •  $28 - 9 - 11 = 8$



Note if learners count in groups of 10



Learners must complete the sums mentally.

•  $46 - 13 = 33$  •  $38 - 14 = 24$  •  $25 - 11 = 14$   
 •  $49 - 23 = 26$  •  $27 - 16 = 11$  •  $46 - 32 = 14$



Learners must minus 10 from each number.

**Answers**

•  $21 - 10 = 11$  •  $43 - 10 = 33$  •  $16 - 10 = 6$   
 •  $28 - 10 = 18$  •  $27 - 10 = 17$  •  $22 - 10 = 12$   
 •  $34 - 10 = 24$  •  $37 - 10 = 27$  •  $45 - 10 = 35$



Learners should solve the word problem by drawing a picture.

Learners must make their own word sum using the pictures.



Learners should notice that you can minus 10 from the tens

## Homework

- Bonds 5 - 10
- Complete questions 5 and 6 for homework.

## Reflection questions

Can learners do the following?

- Subtract from numbers up to 50
- Recognise place value
- Use number lines

# 43 Heavy and light

Content links: 11, 120  
Grade 1 links: 121  
Grade 3 links: 15, 44, 102a-102b

## Objectives

- Estimate, measure, compare, order and record mass using a scale and using non-standard measures
- Use words such as heavy and light to talk about mass

## Resources

**Teacher:** Writing board, heavy and light objects

**Learner :** Workbook page 92, pencil and coloured pencils and pictures

## Dictionary

**Mass:** A measure of how much matter is in an object. This gold bar is quite small but has a mass of 1 kilogram, so it contains a lot of matter.



**Weight:** how heavy something is when you pick it up

**Mass and weight:** In everyday English these two words are used as if they are the same. But there is a scientific difference. The **mass** of an object is a measure of how much matter it contains (the more matter there is the more force it will take to move it). The **weight** of an object changes according to gravity. An object is weightless in outer space even though it has the same mass as it has on Earth. You do not need to explain this distinction in Grade 2. Nor do you need to explain why you can only measure mass on a balance scale and that spring scales (bathroom scales, kitchen scales) only measure weight. But you need to say that we use the special word "mass" when we are talking about how much stuff or matter there is in an object.

## Teach subtraction 0 – 50

### Concrete

Work in groups. Place 2 heavy and 2 light objects on each group's table.

- One empty backpack, bag or suitcase.
- One backpack, bag or suitcase filled with books.
- A pencil.
- A book.

Are the objects heavy or light? Why do you say so?

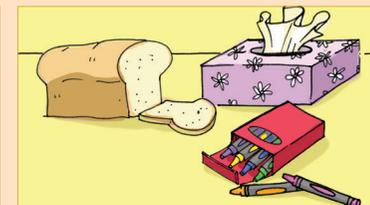
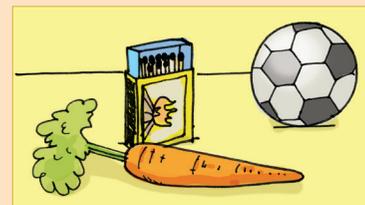
(Let learners explain why the objects are heavy or light. Their answers may differ but listen carefully to their explanation. Let them compare the objects, e.g. the empty and full backpack, bag or suitcase, The book and the backpack, bag or suitcase, etc.



Learners must look at the picture and discuss it.



### What is lightest and what is heaviest?



# 43

## Heavy and light *continued*

**Content links:** 11, 120  
**Grade 1 links:** 121  
**Grade 3 links:** 15, 44, 102a-102b



Learners must paste or draw pictures of:

Heavy objects	Light objects
<p>A learner might see an object as heavy and the next learner might see it as light. Ask the learner: "Why do you say this object is heavy or light?" The learners' explanation will tell you what they understand.</p>	Empty space for drawing/pasting

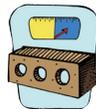
**Answer:** Learners must paste or draw pictures of heavy and light objects.



The yellow shows the object is light and blue shows the object is heavy. Learners must write light or heavy.



light



heavy



light



heavy



heavy



light

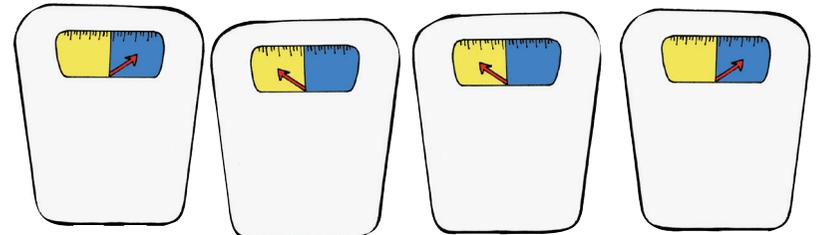
(Learners answers may differ on the bag. E.g. it is heavy with books and light without books).

### Oral questions

What does heavy mean?  
 What does light mean?



Learners must draw or paste objects according to what the scale shows.



**Answers:** Learners' own pictures.

### Homework

- Find 3 pictures of things that are heavy. Ask your parents/care giver to write why you say it is heavy. Do the same with 3 light pictures.

### Reflection questions

Can learners do the following?

- Estimate, measure, compare, order and record mass using a scale and using non-standard measures
- Use words such as heavy and light to talk about mass

# 44 Number patterns: Twos

Content links: 51, 53, 56, 80, 89, 112, 117

Grade 1 links: 51, 93, 119-120

Grade 3 links: 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

## Objectives

- Complete, extend and describe simple number patterns in twos from any multiple of two between 0 and 100

## Resources

**Teacher:** Number boards, beads or counters, magazines

**Learner:** Workbook page 94, pencil, colouring pencils, scissors, glue, magazines

### Concrete resources:



## Dictionary

**Pattern:** things that are arranged following a rule or rules

**Twos:** e.g. the rule is two:

2, 4, 6, 8, 10, ...

12, 10, 8, 6, 4, 2, ...

1, 3, 5, 7, 9, ...

## Teach number patterns 0 – 50

### Counting

Let us count in twos: 2, 4, 6, ... up to 100.

### Representational and concrete

Give each learner a number board.

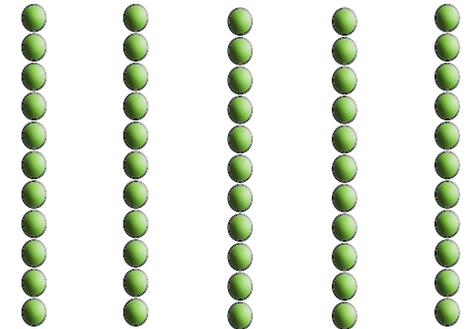
Ask learners to put a counter on 2, 4, 6, 8, 10.

Ask them to fill in the rest of the board.

1		3		5		7		9	
11		13		15		17		19	
21		23		25		27		29	
31		33		35		37		39	
41		43		45		47		49	
51		53		55		57		59	
61		63		65		67		69	
71		73		75		77		79	
81		83		85		87		89	
91		93		95		97		99	

### Concrete

Ask the learners to pack away the number board. Use the beads or counters to set out the pattern that was on the board.



Content links: 51, 53, 56, 80, 89, 112, 117

Grade 1 links: 51, 93, 119-120

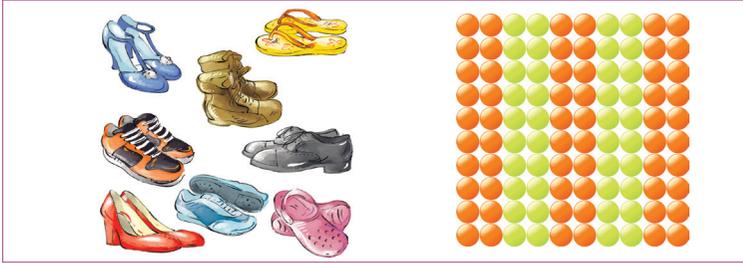
Grade 3 links: 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

# 44

## Number patterns: Twos *continued*



Ask the learners to look at the picture. What do you see? Let us count in twos.



Learners draw or paste pictures of things that come in twos.



Learners complete the pattern on the number board. Complete it.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

### Oral questions

Count in twos from 2–100 both forwards and backwards.



Learners use the number lines to write a pattern. **Answers:**

- 10, 12, 14, 16, 18, 20
- 22, 24, 26, 28
- 1, 3, 5, 7, 9



Learners complete the number pattern.

**Answers:**

- 2, 4, 6, 8, 10, 12
- 44, 46, 48, 50, 52, 54
- 13, 15, 17, 19, 21, 23
- 10, 8, 6, 4, 2, 0
- 26, 24, 22, 20, 18, 16
- 29, 27, 25, 23, 21, 19
- 62, 64, 66, 68, 70, 72
- 1, 3, 5, 7, 9, 11
- 55, 57, 59, 61, 63, 65
- 98, 96, 94, 92, 90, 88
- 11, 9, 7, 5, 3, 1
- 95, 93, 91, 89, 87, 85

### Homework

Learners must complete question 5.

### Reflection questions

Can learners do the following?

- Complete, extend and describe simple number patterns in twos from any multiple of two between 0 and 100

# 45 Double

**Content links:** 46-48, 86-87  
**Grade 1 links:** 26, 45-48, 85, 122  
**Grade 3 links:** 6, 61-62

## Objectives

- Double numbers from 0 – 10

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 96, pencil and colouring pencils

### Concrete resources:



## Dictionary

**Double:** make twice as many or as big

**Multiply by 2:** e.g. double 3 is 6



## Introduce doubling numbers from 0-10

### Concrete

Tell learners to take 2 counters. Ask them to double the counters. Look and see if learners add another two counters.

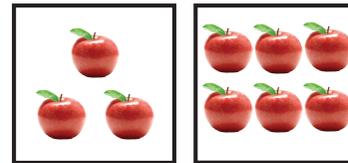


Ask learners to place: 1 counter on their desks. Double it.

- 3 counters on their desks. Double them.
- 4 counters on their desks. Double them.
- 5 counters on their desks. Double them.

## Semi-abstract

Draw the following on the board:



How many apples are in the first block?

How many apples are in the second block?

We can say: Double 3 or  $2 \times 3$

Give them more examples using double 2, 4, and 5.



Ask learners to look at the pictures and ask "What happened?"



**Answer: Everything doubled**

# 45

## Double *continued*



Learners must add the dots and write a sum for each.

**Answers:**

		$2 + 2 = 4$
		$3 + 3 = 6$
		$4 + 4 = 8$
		$1 + 1 = 2$
		$5 + 5 = 10$

### Oral questions

Ask the learners to do tasks such as:

- Add 2 squares and 2 squares.
- Add 4 circles and 4 circles.
- Add 5 triangles and 5 triangles.



Learners must use the number lines to write a sum. Learners trace the hoops with their fingers when they add, e.g.  $3 + 3 = 6$

**Answers:**

- $3 + 3 = 6$
- $1 + 1 = 2$
- $2 + 2 = 4$
- $5 + 5 = 10$
- $4 + 4 = 8$



Learners must double the numbers. Ask the learners to read the first one: Double 1 is  $1 + 1 = 2$  can also write it as  $1 \times 1 = 2$ , and  $2 \times 1 = 2$

**Answer:**

- $1 + 1 = 2$ ,  $2 \times 1 = 2$
- $3 + 3 = 6$ ,  $2 \times 3 = 6$
- $5 + 5 = 10$ ,  $2 \times 5 = 10$
- $2 + 2 = 4$ ,  $2 \times 2 = 4$
- $4 + 4 = 8$ ,  $2 \times 4 = 8$



Learner must double 5.

**Answer: 10**

### Homework

Complete the last 2 sums of question 4.

### Reflection questions

Can learners do the following?

- Double numbers from 0–10

# 46 Double again

**Content links:** 45, 47-48, 86-87  
**Grade 1 links:** 26, 45-48, 85, 122  
**Grade 3 links:** 6, 61-62

## Objectives

- Double numbers from 0 – 20

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 98, pencil and colouring pencils

**Concrete resources:**



## Dictionary

**Double:** make twice as big

**Multiply by 2:** e.g. double 6 is 12



## Introduce doubling numbers from 0 – 20

### Concrete

Tell learners to take 6 counters. Ask them to double the counters. Look and see if learners add another 6 counters.

Ask learners to place: 7 counters on their desks. Double them.

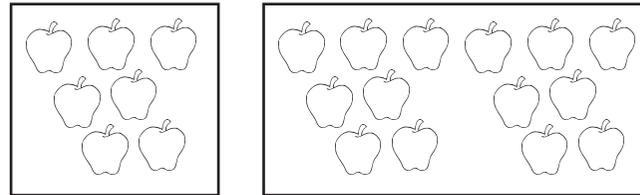
- 8 counters on their desks. Double them.

- 9 counters on their desks. Double them.

- 10 counters on their desks. Double them.

## Representational

Draw the following on the board:



How many apples are in the first block?

How many apples are in the second block?

We can say: Double 7 or  $2 \times 7$

Give them more examples with double 6, 8, 9 and 10.



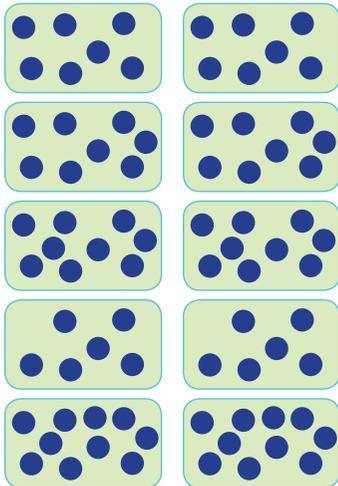
Ask learners to look at the picture. What happened?



**Answer: everything doubled**



Learners must add the dots and write a sum for each.



$$\boxed{7} + \boxed{7} = \boxed{14}$$

$$\boxed{8} + \boxed{8} = \boxed{16}$$

$$\boxed{9} + \boxed{9} = \boxed{18}$$

$$\boxed{6} + \boxed{6} = \boxed{12}$$

$$\boxed{10} + \boxed{10} = \boxed{20}$$

### Oral questions

Ask the learners to do tasks such as:

- Add 6 circles and 6 circles.
- Add 9 balls and 9 balls.
- Add 8 boxes and 8 boxes.



Ask learners to look at the first of the number lines. What numbers do you see? **(2, 4, 6, 8, 10, 12, 14, 16, 18, 20)**. What number is between 2 and 4? **(3)** 10 and 12? **(11)** 18 and 20? **(19)**

Learners use the number lines to write sums.

**Answers:**

- $6 + 6 = 12$
- $9 + 9 = 18$
- $8 + 8 = 16$
- $7 + 7 = 14$
- $10 + 10 = 20$



Learners must double the following numbers.

- $6 + 6 = 12$ ,  $2 \times 6 = 12$
- $7 + 7 = 14$ ,  $2 \times 7 = 14$
- $8 + 8 = 16$ ,  $2 \times 8 = 16$
- $9 + 9 = 18$ ,  $2 \times 9 = 18$
- $10 + 10 = 20$ ,  $2 \times 10 = 20$



My friend has 9 marbles, I have to double that. How many marbles do I have?

**Answer: 18**

### Homework

- Complete the last 2 sums of question 4

### Reflection questions

Can learners do the following?

- Double numbers from 0 – 20

# 47 Double up

**Content links:** 45-46, 48, 86-87  
**Grade 1 links:** 26, 45-48, 85, 122  
**Grade 3 links:** 6, 61-62

## Objectives

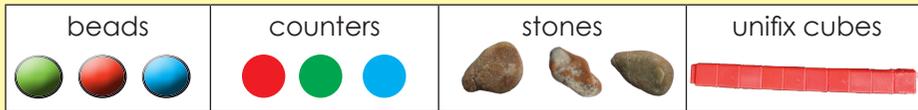
- Double numbers from 0 – 40

## Resources

**Teacher:** Writing board, counters, beads, unifix cubes

**Learner:** Workbook page 100, pencil, colouring pencils

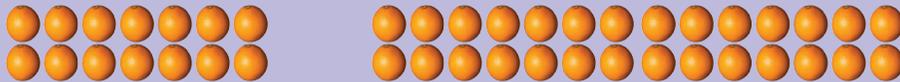
### Concrete resources:



## Dictionary

**Double:** Double 7 is 14, e.g.  $7 + 7 = 14$  or  $7 \times 2 = 14$ .

Double 14 is 28, e.g.  $14 + 14 = 28$  or  $14 \times 2 = 28$ .



## Introduce doubling numbers from 0 – 40

### Concrete

Give learners beads or unifix cubes. Ask learners to place 10 blue beads and 2 red beads in a row in front of them.



## Concrete

How many beads do you have? Double the beads.



Count the beads. Encourage learners to say double 10 is 20 (count 10, 20) and double 2 is 4. 20 and 4 equals to 24.

Do a few more. Double 11, 13, 14 and 15.

Give learners unifix cubes. Ask them to take 20 blocks of the same colour and another 10 of a different colour.

Ask learners to show double 12. Double 10 + double 2; this is  $20 + 4 = 24$



Do a few more. Double 11, 13, 14 and 15.



**Workbook introduction:** Ask the learners, "How will the beads help us to double 10?"



Double 8

1 2 3 4 5 6 7 8 1 2 3 4 5 6 7 8



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Double 9

1 2 3 4 5 6 7 8 9 1 2 3 4 5 6 7 8 9



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

# 47

## Double up *continued*

Content links: 45-46, 48, 86-87  
 Grade 1 links: 26, 45-48, 85, 122  
 Grade 3 links: 6, 61-62



Learners must use the beads to double the numbers. We started the first one for you.

Answers:

- $5 + 5 = 10$
- $6 + 6 = 12$
- $7 + 7 = 14$
- $8 + 8 = 16$
- $9 + 9 = 18$



Learners must double the numbers, colour the base ten blocks to show their answer. They then write an addition and multiplication sum for each.

	<b>Double 6</b> $6 + 6 = 12$ $2 \times 6 = 12$
	<b>Double 8</b> $8 + 8 = 16$ $2 \times 8 = 16$
	<b>Double 7</b> $7 + 7 = 14$ $2 \times 7 = 14$
	<b>Double 9</b> $9 + 9 = 18$ $2 \times 9 = 18$

Answers:

- **Double 6:**  $6 + 6 = 12$ ,  $2 \times 6 = 12$
- **Double 7:**  $7 + 7 = 14$ ,  $2 \times 7 = 14$
- **Double 8:**  $8 + 8 = 16$ ,  $2 \times 8 = 16$
- **Double 9:**  $9 + 9 = 18$ ,  $2 \times 9 = 18$

### Oral questions

Double 13 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$   
 Double 14 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$   
 Double 15 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$   
 Double 16 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$



Learners must double the numbers.

Answer:

- **Double 7:**  $7 + 7 = 14$ ,  $2 \times 7 = 14$
- **Double 9:**  $9 + 9 = 18$ ,  $2 \times 9 = 18$
- **Double 6:**  $6 + 6 = 12$ ,  $2 \times 6 = 12$
- **Double 8:**  $8 + 8 = 16$ ,  $2 \times 8 = 16$
- **Double 10:**  $10 + 10 = 20$ ,  $2 \times 10 = 20$



Learners must double 8. **Answer: 16**

### Reflection questions

- Can learners do the following?
- Double numbers from 0 – 40

# 48

## More doubling

**Content links:** 45-47, 86-87  
**Grade 1 links:** 26, 45-48, 85, 122  
**Grade 3 links:** 6, 61-62

### Objectives

- Double numbers from 0 – 40.

### Resources

**Teacher:** Writing board, beads, unifix cubes

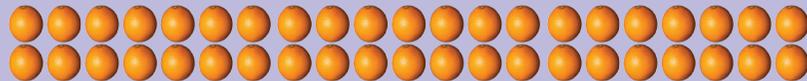
**Learner:** Workbook page 102, pencil, colouring pencils

### Concrete resources:



### Dictionary

**Double:** 21 is 42, e.g.  $21 + 21 = 42$  or  $21 \times 2 = 42$



### Introduce further doubling of numbers

#### Concrete

Give learners beads or unifix cubes. Ask learners to place 20 blue beads and 2 red beads in a row in front of them.



### Concrete

How many beads do you have? Double the beads.



Count the beads. Encourage learners to say double 20 is 40 (count 20, 40) and double 2 is 4. 40 and 4 equals to 44.

Do a few more. Double 21, 23, 27 and 34.

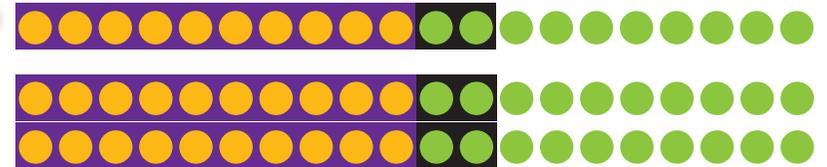
Give learners unifix cubes. Ask them to take 30 blocks of the same colour and another 10 of a different colour.

Ask learners to show double 17. Double 10 + double 7; this is  $20 + 14 = 34$

Do a few more. Double 24, 25 and 26.



**Workbook introduction:** Ask the learners, "How will the beads help us to double 12?"





Learners must use the beads to double the numbers. We started the first one for you.

**Answers:**

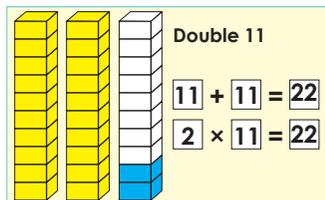
- **Double 13:**  $13 + 13 = 26$



- **Double 15:**  $15 + 15 = 30$
- **Double 14:**  $14 + 14 = 28$
- **Double 11:**  $11 + 11 = 22$
- **Double 16:**  $16 + 16 = 32$



Learners must double the numbers, colour the base ten blocks to show their answer. They then write an addition and multiplication sum for each.



**Answers:**

- **Double 11:**  $11 + 11 = 22$ ,  $2 \times 11 = 22$
- **Double 13:**  $13 + 13 = 26$ ,  $2 \times 13 = 26$
- **Double 14:**  $14 + 14 = 28$ ,  $2 \times 14 = 28$
- **Double 15:**  $15 + 15 = 30$ ,  $2 \times 15 = 30$

### Oral questions

- Double 13 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$   
 Double 14 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$   
 Double 15 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$   
 Double 16 is equal to  $10 + 10 + \underline{\quad} + \underline{\quad}$



Learners must double the numbers.

**Answer:**

- **Double 11:**  $11 + 11 = 22$ ,  $2 \times 11 = 22$
- **Double 13:**  $13 + 13 = 26$ ,  $2 \times 13 = 26$
- **Double 16:**  $16 + 16 = 32$ ,  $2 \times 16 = 32$
- **Double 17:**  $17 + 17 = 34$ ,  $2 \times 17 = 34$
- **Double 18:**  $18 + 18 = 36$ ,  $2 \times 18 = 36$



Learners must double the 14.

**Answer: 28**

### Reflection questions

- Can learners do the following?
- Double numbers from 0 – 40?

# 49

## Containers and capacity

Content links: 12, 67-68, 111  
Grade 1 links: 37, 40, 126  
Grade 3 links: 14, 128-128b

### Objectives

- Describe the capacity of a container using the words, full, empty and half full

### Resources

**Teacher:** Writing board, containers of different sizes, liquid

**Learner:** Workbook page 104, containers of different sizes



### Dictionary

**Full:** Note that with containers with measurement marks the container may be considered 'full' when the highest measurement mark is reached even though the container is not full to the brim. The same applies to cold drinks where the unopened bottle is not filled right to the top but is considered 'full'.

### Introduce empty and full

#### Concrete

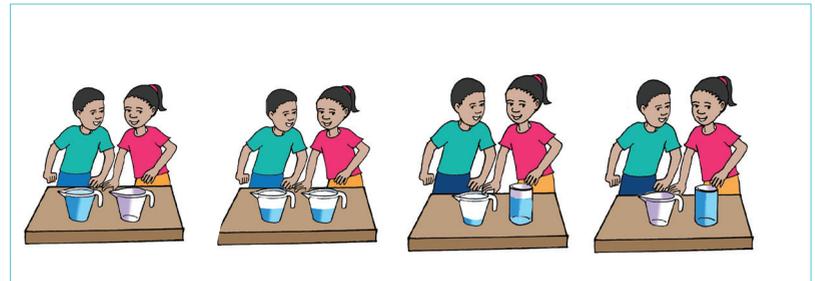
Place 10 containers on your table. Fill five and keep 5 empty. Write the words full and empty on the board.



Ask learners to show which containers are full and which are empty.

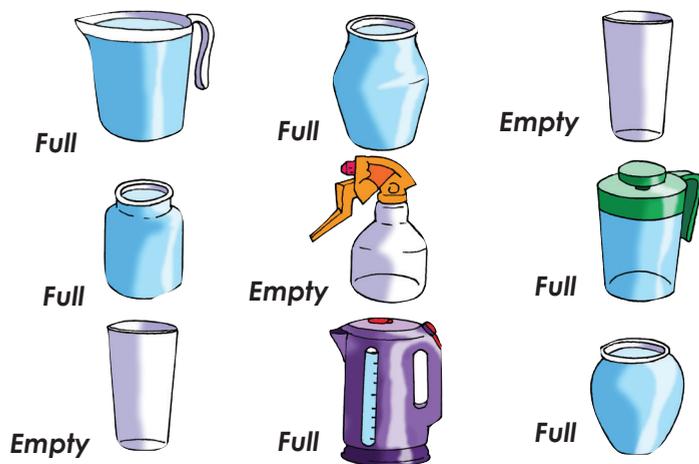


Learners must look at the picture and discuss it.

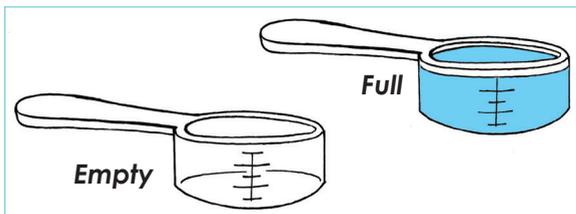




Learners must say if the container is full or empty.



Learners must colour the containers.



### Oral question

- What does empty mean?
- What does full mean?



Learners must draw their own containers.

Empty	Full
Empty	Full

**Answer:** Learners draw their own containers using full and empty.

### Homework

Ask your parents or caregiver to help you identify 10 containers in your home. Say if they are full or empty. Discuss this the following day in class.

### Reflection questions

Can learners do the following?

- Describe the capacity of a container using the words, full, empty and half full

# 50 Multiplication: x 3

## Objectives

- Add the same number repeatedly
- Multiply numbers from 1 – 10 by 3

## Resources

**Teacher:** Writing board, counters

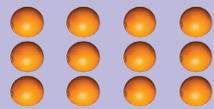
**Learner:** Workbook page 106, pencil and colouring pencils

### Concrete resources:

beads 	counters 	stones 	unifix cubes 
--------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

## Dictionary

**Multiplication:** Multiplication is repeated addition.  
 e.g.  $3 + 3 + 3 + 3 = 4 \times 3 = 12$



## Teach 3 x table

### Concrete

Go outside: Draw a number line from 0 – 30. Ask the learners to jump in threes to the end.

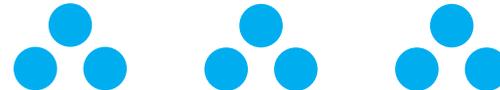
How many times did you jump?

Stand on zero jump 4 jumps in 3s. On what number are you?

Stand on zero jump 6 jumps in 3s. On what number are you?

## Concrete

Give learners 30 counters each. Ask them to take 3 counters and place them in front of them. This is group 1. Take another 3 counters, this is group 2. Take another 3 counters, this is group 3. Let us look at your counters.



We can say each group has 3 counters. Let us count the counters in groups: 3, 6, 9

Let us make an addition sum:  $3 + 3 + 3 = 9$

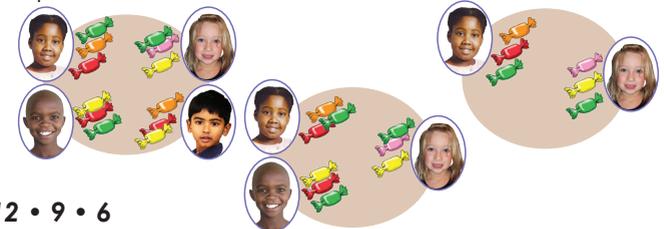
Let us make an multiplication sum:  $3 \times 3 = 9$

Do the same with:



Talk about the picture

Ask learners how many sweets are on each table?



**Answers:** • 12 • 9 • 6

# 50 Multiplication: x 3 *continued*



Learners must complete questions on grouping, repeated addition and multiplication.

**Answer:** • 6 • 15 • 12 • 18 • 21



Ask the learners to make drawings of the groups.

• **Child draws 3, 3, 3 counters**

○○○ ○○○ ○○○

• **Child draws 3, 3, 3, 3 counters**

○○○ ○○○ ○○○ ○○○

• **Child draws 3, 3, 3, 3, 3 counters**

○○○ ○○○ ○○○ ○○○ ○○○

### Oral question

Give a multiplication sum for:

- $3 + 3 + 3 + 3 + 3 + 3$
- $3 + 3 + 3 + 3$



Learners must make a drawing of the number lines and complete the sums. The first drawing of counters is given to the learners.

**Answers:**

- 15, 18
- 18
- 18
- 12, 18
- $6 + 6 + 6 = 18$
- $3 \times 6 = 18$
- **Learner draws own picture of 18 counters.**



Learners solve the word problem. The cooking pot has three legs. How many legs do 7 cooking pots have?

**Answer: 21 legs**



Trace the numbers

3 6 9 12 15 18  
 21 24 27 30

### Homework

- Do question 5 for homework.

### Reflection questions

Can learners do the following?

- Add the same number repeatedly
- Multiply numbers from 1 – 10 by 3

# 51 Number patterns: Threes

**Content links:** 44, 53, 56, 80, 89, 112, 117

**Grade 1 links:** None

**Grade 3 links:** 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

## Objectives

- Copy, extend and describe simple number patterns in 3s from any multiple of 3 between 0 and 99

## Resources

**Teacher:** Number boards, beads or counters, magazines

**Learner:** Workbook page 108, pencil, colouring pencils, scissors, glue, magazine

### Concrete resources:

beads or abacus	counters 	stones 	unifix cubes 
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## Dictionary

**Patterns:** things that are arranged following a rule or rules

**Threes:** e.g. the rule is 3:

3, 6, 9, 12, 15, ... Three is added to the previous number.

15, 12, 9, 6, 3, ... Three is subtracted from the previous number.

## Introduce counting in threes

### Counting

Let us count in threes: 3, 6, 9, ... up to a 100.

### Representational (semi-abstract)

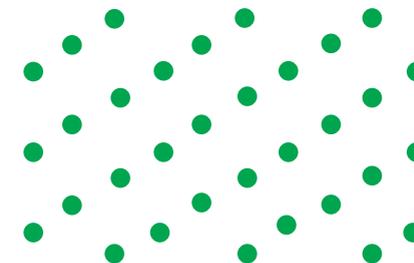
Give each learner a number board.

Ask learners to put a counter on 3, 6, 9, 12, 15. Ask them to fill the rest of the board continuing to count in threes (that is putting counters on the other multiples of three).

1	2	●	4	5	●	7	8	●	10
11	●	13	14	●	16	17	●	19	20
●	22	23	●	25	26	●	28	29	●
31	32	●	34	35	●	37	38	●	40
41	●	43	44	●	46	47	●	49	50
●	52	53	●	55	56	●	58	59	●
61	62	●	64	65	●	67	68	●	70
71	●	73	74	●	76	77	●	79	80
●	82	83	●	85	86	●	88	89	●
91	92	●	94	95	●	97	98	●	100

### Concrete

Ask the learners to put away their number board. Use the counters to repeat the pattern that was on the board.



Content links: 44, 53, 56, 80, 89, 112, 117

Grade 1 links: None

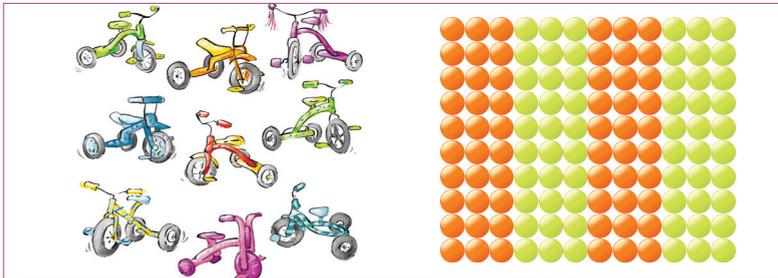
Grade 3 links: 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

# 51

## Number patterns: Threes cont...



Ask the learners to look at the picture. What do you see. Let us count in threes.



Learners must draw or paste pictures of things that come in threes.



Learners must complete the pattern on the number board.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

### Oral question

Count in threes from 3 - 99 both forwards and backwards.



Learners must use the number lines to write a pattern.

**Answer:**

- 20, 22, 24, 26, 28, 30
- 30, 33, 36, 39
- 60, 63, 66, 69



Learners must complete the number pattern.

3, 6, 9, 12, 15, 18	22, 25, 28, 31, 34, 37	40, 37, 34, 31, 28, 25
36, 39, 42, 45, 48, 51	15, 12, 9, 6, 3, 0	98, 95, 92, 89, 86, 83
12, 15, 18, 21, 24, 27	99, 96, 93, 90, 87, 84	
1, 4, 7, 10, 13, 16	66, 63, 60, 57, 54, 51	



Learners must multiply 10 by 3. **Answer: 30**

### Homework

- Learners must do question 5.

### Reflection questions

Can learners do the following?

- Copy, extend and describe simple number patterns in 3s from any multiple of 3 between 0 and 99

# 52 Multiplication: x 4

## Objectives

- Add the same number repeatedly
- Multiply numbers from 1 – 10 by 4

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 110, pencil and colouring pencils

### Concrete resources:

beads 	counters 	stones 	unifix cubes 
--------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

## Dictionary

**Multiplication:** Multiplication is repeated addition.

E.g.  $4 + 4 + 4 = 3 \times 4 = 12$

Fours: e.g. 4, 8, 12, 16, 20, ...



## Teach 4 x table

### Concrete

Go outside: Draw a number line from 0 – 40. Ask the learners to jump in fours to the end.

How many times did you jump?

Stand on zero, jump 4 jumps in 4s. On what number are you?

Stand on zero, jump 6 jumps in 4s. On what number are you?

## Concrete

Give learners 40 counters each. Ask them to take 4 counters and place them in front of them. This is group 1. Take another 4 counters, this is group 2. Take another 4 counters, this is group 3. Let us look at your counters.



We can say each group has 4 counters. Let us count the counters in groups: 4, 8, 12

Let us make an addition sum:  $4 + 4 + 4 = 12$

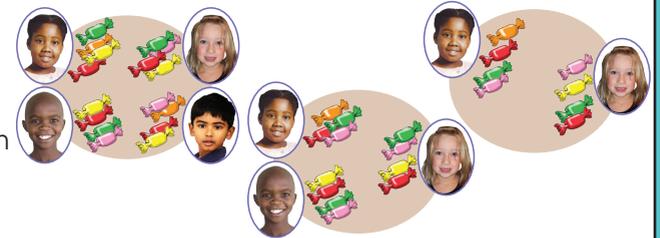
Let us make a multiplication sum:  $3 \times 4 = 12$

Do the same with:



Talk about the picture  
 Ask learners how many sweets are on each table?

**Answers:**  
 16, 12, 8



# 52 Multiplication: x 4 *continued*



Learners must complete questions on grouping, repeated addition and multiplication.

**Answers:** • 12 • 8 • 16 • 24 • 28



Ask the learners to make a drawing of each group.

**Answers:**

oo oo oo  
oo oo oo

oo oo oo oo  
oo oo oo oo

oo oo oo oo oo  
oo oo oo oo oo

### Oral question

- Give a multiplication sum for:
- $4 + 4 + 4$
- $4 + 4 + 4 + 4$



Learners must make a drawing of the number line and complete the questions. The first drawing of counters is given to the learners.

**Answer:**

- 12
- 16
- 12
- $8 + 8 = 16$
- $8 \times 2 = 16$
- **Learner draws their own picture with 16 counters.**



How many legs does the horse have?

**Answer:** 12



Trace the numbers

4 8 12 16 20 24  
28 32 36 40

### Reflection questions

Can learners do the following?

- Add the same number repeatedly
- Multiply numbers from 1 – 10 by 4

# 53

## Number patterns: Fours

**Content links:** 44, 51, 56, 80, 89, 112, 117

**Grade 1 links:** None

**Grade 3 links:** 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

### Objectives

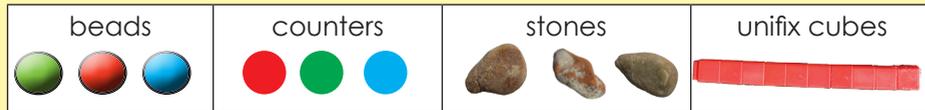
- Copy, extend and describe simple patterns in 4s from any multiple of 4 between 0 and 100

### Resources

**Teacher:** Number boards, counters, magazines

**Learner:** Workbook page 112, pencil, colouring pencils, scissors, glue, magazines

### Concrete resources:



### Dictionary

**Patterns:** things that are arranged following a rule or rules

**Fours:** e.g. the rule is 4:

4, 8, 12, 16, 20, ... Four is added to the previous number.

24, 20, 16, 12, 8, 4, ... Four is subtracted from the previous number.

### Introduce counting in fours

#### Counting

Let us count in fours: 4, 8, 12, ... up to a 100.

#### Semi-abstract and concrete

Give each learner a number board.

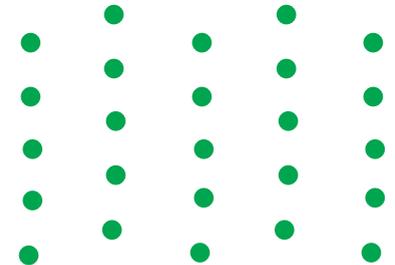
Ask learners to put a counter on

4, 8, 12, 16, 20. Ask them to complete the rest of the board.

1	2	3	●	5	6	7	●	9	10
11	●	13	14	15	●	17	18	19	●
21	22	23	●	25	26	27	●	29	30
31	●	33	34	35	●	37	38	39	●
41	42	43	●	45	46	47	●	49	50
51	●	53	54	55	●	57	58	59	●
61	62	63	●	65	66	67	●	69	70
71	●	73	74	75	●	77	78	79	●
81	82	83	●	85	86	87	●	89	90
91	●	93	94	95	●	97	98	99	●

#### Concrete

Ask the learners to put away their number board. Use only the counters to repeat the pattern that was on the board.



# 53

## Number patterns: Fours *continued*

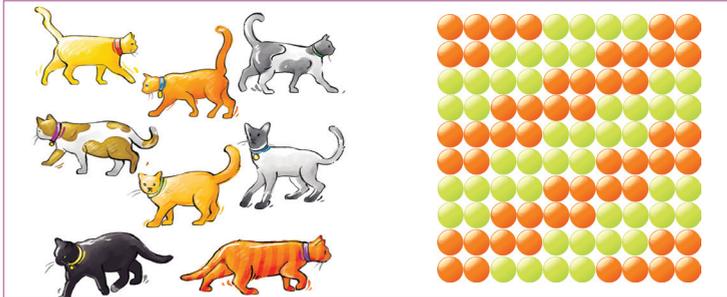
Content links: 44, 51, 56, 80, 89, 112, 117

Grade 1 links: None

Grade 3 links: 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121



Ask the learners to look at the picture. What do you see. Let us count in fours.



Learners draw or paste pictures of things that come in fours.



Learners complete the pattern on the number board.



1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Learners use the number lines to write a pattern.

**Answers:**

- 40, 44, 48
- 20, 24, 28
- 74, 78



Learners complete the number patterns.

4, 8, 12, 16, 20, 24

1, 5, 9, 13, 17, 21

48, 44, 40, 36, 32, 28

28, 32, 36, 40, 44, 48

42, 46, 50, 54, 58, 62

60, 56, 52, 48, 44, 40

12, 16, 20, 24, 28, 32

20, 16, 12, 8, 4, 0

70, 66, 62, 58, 54, 51



Learners multiply 4 x 9.

**Answer: 36**

### Homework

- Do question 4 for homework.

### Reflection questions

Can learners do the following?

- Copy, extend and describe simple patterns in 4s from any multiple of 4 between 0 and 100

Content links: 29-31, 50, 52, 83-84, 88, 113-115

Grade 1 links: None

Grade 3 links: 23-24, 27-28, 50, 78, 81, 83-85, 87, 89, 113, 117-118, 120

# 54 More multiplication stories



## Objectives

- Multiply numbers from 1 to 10 by 2, 4 and 5
- Solve word problems in context and explain own solutions to these problems involving repeated addition and multiplication up to 30

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 114, pencil and colouring pencils

### Concrete resources:



## Dictionary

**Multiplication:** Multiplication is repeated addition.

E.g.  $2 + 2 + 2 = 3 \times 2 = 6$



## Introduce 2 x table

### Concrete - Body

Ask a learner to stand in front of the class.

- How many eyes do you count?
- How many legs do you count?
- How many hands do you count?
- How many feet do you count?

Ask 2, then 3, then 4 and then 5 learners to stand in front of the class. Ask the class the same questions.

### Concrete

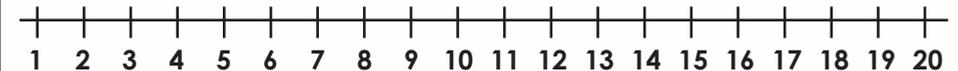
Ask 2, 3, 4, 5 learners to stand in front of the class. Give each learner 20 counters. Point to the learners in front of the class. Show the number of eyes using the counters, e.g. five learners will look like this.



Do the same with legs, hands and feet.

### Representational/semi-abstract

Ask the learners to make a drawing of their counters on the board. Draw a number line from 0 – 20 on the board.



Learners to count in twos and show the number of eyes on the number line.

# 54

## More multiplication stories *cont..*

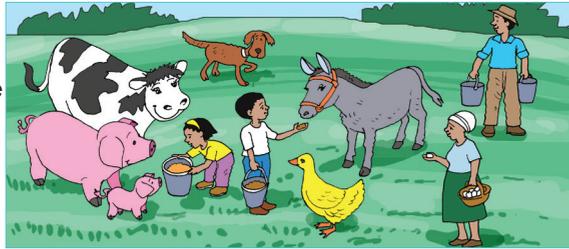
**Content links:** 29-31, 50, 52, 83-84, 88, 113-115

**Grade 1 links:** None

**Grade 3 links:** 23-24, 27-28, 50, 78, 81, 83-85, 87, 89, 113, 117-118, 120



Ask the learners to look at the picture story using such words as eyes, legs, hands, feet, animals, people.



Learners must look at the picture. Ask questions such as: A cat has 2 eyes. How many eyes do 4 cats have? Learners must: Colour the cats' eyes. Show it with counters. Show it on a number line. **Answers:**

- **8 eyes**
- **The learner colours in the eight counters.**
- **The learner draws 8 beads on the number line**
- **$2 + 2 + 2 + 2 = 8$  and  $2 \times 4 = 8$**

Ask the learners to look at the picture of the tricycles. Ask questions: A tricycle has 3 wheels. How many wheels do 5 tricycles have? Colour the tricycle wheels. Show it with counters. Show it on a number line.

- Answer:**
- **15 wheels**
  - **The learner colours the wheels.**
  - **The learner draws 3, 3, 3, 3, 3 counters**
  - **The learner draws beads on the number line**
  - **$3 + 3 + 3 + 3 + 3 = 15$  and  $5 \times 3 = 15$**



Ask the learners to look at the picture of the dogs. **Ask questions:** A dog has 4 legs. How many legs do 4 dogs have? Colour the dogs' legs. Show it with counters. Show it on a number line.

- Answers:**
- **16 legs**
  - **The learner colours the legs.**
  - **The learner draws 4, 4, 4, 4 counters**
  - **The learner draws beads on the number line**
  - **$4 + 4 + 4 + 4 = 16$  and  $4 \times 4 = 16$**

### Oral questions

Let us count in:

2s: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.

3s: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30.

4s: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40.

### Homework

- Learners find pictures with objects in twos, threes and fours.

### Reflection questions

Can learners do the following?

- Multiply numbers from 1 to 10 by 2, 4 and 5
- Solve word problems in context and explain own solutions to these problems involving repeated addition and multiplication up to 30

# 55 Hours

## Objectives

- Tell the time in hours on analogue clocks

## Resources

**Teacher:** Writing board, big analogue clock (made from old cardboard).

**Learner:** Workbook page 116, pencil, colouring pencils.

## Dictionary

**Analogue clock:** a clock that has a circular clock face or dial with the numbers 1 to 12 marked round it representing the hours and a short hand whose movement indicates the hours passing over a twelve hour period. A longer hand moves round the circular face every hour and the minutes passed are represent by 60 small marks.

**Hour:** A period of time of which there are 24 in the day. There are 60 minutes in a hour.

**Short hand:** the shorter of the two main hands on an analogue clock face dial which measures the hours. The short hand rotates around the dial once every 12 hours.

**Counting in hours:** There are two ways of counting in hours. We can count with 24 hours, starting at midnight (00:00 and ending at midnight (24:00). We can also count with two periods of 12 hours. The first 12 hour period is from midnight (12:00 a.m.) till noon (12:00 p.m.) and from noon till midnight. The abbreviation a.m. means before midday and p.m. means after midday.

## Introduce hours

### Concrete

#### Analogue clock

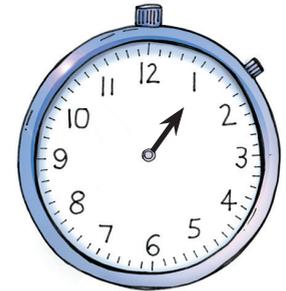
Make your own clock using old cardboard.

Point to the numbers on the clock.

Learners count in hours:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.

Make a short hand and stick it to the clock using a split pin. Move the hand and count in hours again. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.



Learners look at the picture and discuss it.



The **short hand** shows us the hours.  
Here it shows **7 hours**.

The hand on the clock goes round and round,  
Round and round, round and round.  
The hand on the clock goes round and round,  
To tell us the time.

# 55

## Hours *continued*



Learners say what the short hand is showing us.

<b>1 hour</b>	<b>2 hours</b>	<b>3 hours</b>	<b>11 hours</b>
<b>6 hours</b>	<b>9 hours</b>	<b>5 hours</b>	<b>7 hours</b>
<b>10 hours</b>	<b>4 hours</b>	<b>8 hours</b>	<b>12 hours</b>

### Oral questions

How long is an hour?  
 What can you do for an hour?



Learners draw the short hand.

<b>4 hours</b>	<b>11 hours</b>	<b>1 hour</b>	<b>7 hours</b>
<b>9 hours</b>	<b>10 hours</b>	<b>2 hours</b>	<b>5 hours</b>
<b>3 hours</b>	<b>6 hours</b>	<b>8 hours</b>	<b>12 hours</b>



Learners say what can take an hour? Learners must colour in the correct answer.

**Answer: Doing homework**



### Homework

- Complete question 4 for homework.

### Reflection questions

Can learners do the following?

- Tell the time in hours on analogue clocks

# 56

## Number patterns: Fives

**Content links:** 44, 51, 53, 80, 89, 112, 117

**Grade 1 links:** 58-59, 83-84, 115

**Grade 3 links:** 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

### Objectives

- Copy, extend and describe simple number patterns in 5s from any multiple of 5 between 0 and 100

### Resources

**Teacher:** Number boards, beads or counters, magazines

**Learner:** Workbook page 118, pencil, colouring pencils, scissors, glue, magazines

### Concrete resources:



### Dictionary

**Patterns:** things that are arranged following a rule or rules

**Fives:** e.g. the rule is 5:

5, 10, 15, 20, 25, ... Five is added to the previous number.

35, 30, 25, 20, 15, ... Five is subtracted from the previous number.

### Introduce counting in fives

#### Counting

Let us count in fives: 5, 10, 5, ... up to a 100.

#### Representational and concrete

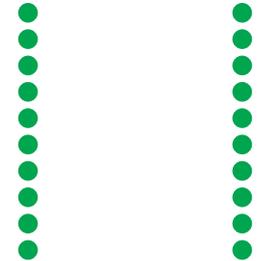
Give each learner a number board.

Ask learners to put a counter on 5, 10, 15, 20, 25. Ask them to place counters on the rest of the board which are "counting in fives" numbers.

1	2	3	4	●	6	7	8	9	●
11	12	13	14	●	16	17	18	19	●
21	22	23	24	●	26	27	28	29	●
31	32	33	34	●	36	37	38	39	●
41	42	43	44	●	46	47	48	49	●
51	52	53	54	●	56	57	58	59	●
61	62	63	64	●	66	67	68	69	●
71	72	73	74	●	76	77	78	79	●
81	82	83	84	●	86	87	88	89	●
91	92	93	94	●	96	97	98	99	100

#### Concrete

Ask the learners to put away their number board. Use the counters to repeat the pattern that was on the board.



# 56

## Number patterns: Fives *continued*

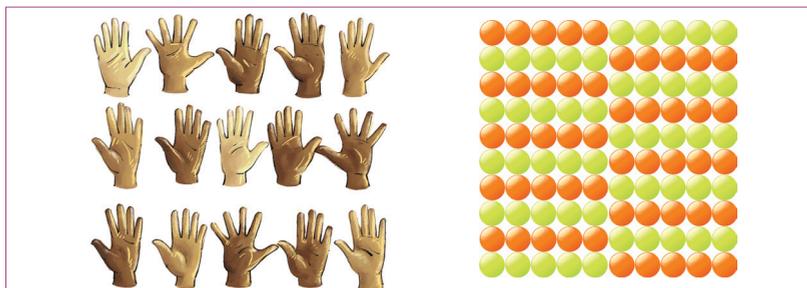
Content links: 44, 51, 53, 80, 89, 112, 117

Grade 1 links: 58-59, 83-84, 115

Grade 3 links: 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121



Ask the learners to look at the picture. What do you see. Let us count in fives.



Learners must draw or paste pictures of things that come in fives.



Learners must complete the pattern on the number board. Complete it.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

### Oral questions

Count in fives: 5 - 100



Learners must use the number lines to write a pattern.

**Answer:** • 40, 45, 50 • 21, 26, 31 • 70, 75, 80

Learners must complete the number pattern.

**Answer:**

5, 10, 15, 20, 25, 30      1, 6, 11, 16, 21, 26      50, 45, 40, 35, 30, 25  
 20, 25, 30, 35, 40, 45      23, 28, 33, 38, 43, 48      60, 55, 50, 45, 40, 35  
 30, 35, 40, 45, 50, 55      25, 20, 15, 10, 5, 0      54, 49, 44, 39, 34, 29



5 10 15 20 25 30 35 40 45 50

### Homework

Learners must do question 5.

### Reflection questions

Can learners do the following?

- Copy, extend and describe simple number patterns in 5s from any multiple of 5 between 0 and 100

# 57a Minutes

**Content links:** 13, 55, 81a-81b, 85a-85b, 89  
**Grade 1 links:** None  
**Grade 3 links:** 12, 32, 54, 80, 106

## Objectives

- Tell the time in minutes on analogue clocks

## Resources

**Teacher:** Writing board, big analogue clock made from cardboard

**Learner:** Workbook page 120, pencil, colouring pencils

## Dictionary

**Minute:** A minute is a period of time of which there are 60 in an hour. There are 60 seconds in a minute.

**Long hand:** this is the longer of the two main hands on an analogue clock face dial which measures the minutes. The long hand rotates around the dial once every hour.

**Counting in minutes:** There are two ways of counting the minutes on a clock face.

Each of the 60 small marks represents one minute.

Each of the numbers on the clock face (which represent the hours), can also be used to count each five minutes (so the 1 represents five minutes, the 2 represents ten minutes, and so on, until one is back at the number 12 which represents a full sixty minutes).

## Introduce minutes

### Concrete

### Analogue clock

How many minutes are in an hour? Let us count:

1, 2, 3, up to 60. Point to minutes on the clock.

The long hand shows us the minutes.

Move the long hand to 1. This shows us 5 minutes.

An easy way to count in minutes is in fives.

Move the long hand to 1 and say 5, move to 2 and

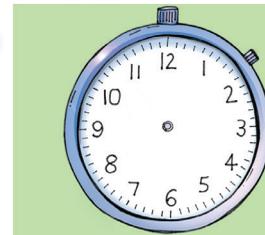
say 10, move to 3 and say 15, ..., move to 12 and say 60.

Now move the short hand to 1. This shows us 1 hour. Let us count the hours:

1, 2, 3 up to 12.



Learners must look at the picture and discuss it.



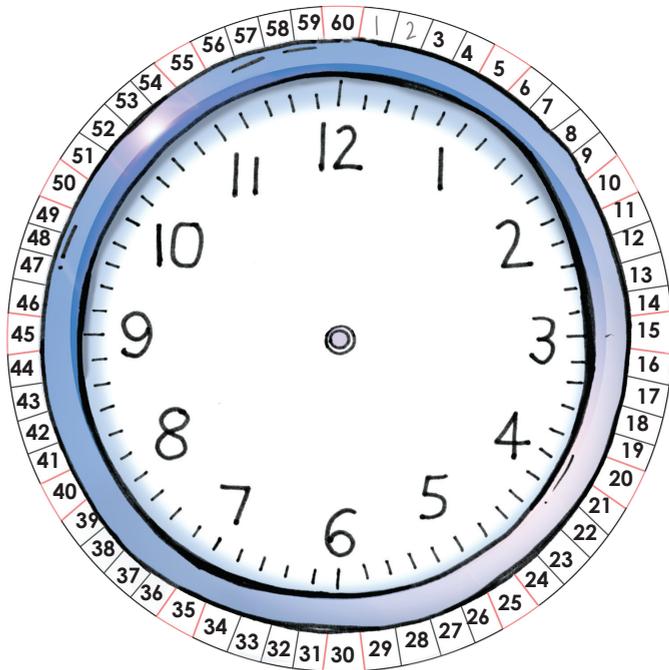
Think of all the things you can do in one minute.

# 57a Minutes *continued*

**Content links:** 13, 55, 81a-81b, 85a-85b, 89  
**Grade 1 links:** None  
**Grade 3 links:** 12, 32, 54, 80, 106



Learners must fill in the minutes.



## Oral questions

Let us count in fives: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60



Learners must write down the numbers in the red squares here.

**Answers:**

5 10 15 20 25 30 35 40 45 50 55 60



Learners must make a drawing of things you can do in the squares.

## Homework

- Bonds 5 -10
- Complete question 4 for homework

## Reflection questions

Can learners do the following?

- Tell the time in minutes on analogue clocks

# 57b More minutes

**Content links:** 13, 55, 81a-81b, 85a-85b, 89  
**Grade 1 links:** None  
**Grade 3 links:** 12, 32, 54, 80, 106

## Objectives

- Tell the time in minutes on analogue clocks

## Resources

**Teacher:** Writing board, big analogue clock made from cardboard

**Learner:** Workbook page 122, pencil, colouring pencils

## Dictionary

**Minute:** A minute is a period of time of which there are 60 in an hour. There are 60 seconds in a minute.

**Long hand:** this is the longer of the two main hands on an analogue clock face dial which measures the minutes. The long hand rotates around the dial once every hour.

**Counting in minutes:** There are two ways of counting the minutes on a clock face.

Each of the 60 small marks represents one minute.

Each of the numbers on the clock face (which represent the hours), can also be used to count each five minutes (so the 1 represents five minutes, the 2 represents ten minutes, and so on, until one is back at the number 12 which represents a full sixty minutes).

## Introduce minutes

### Analogue clock

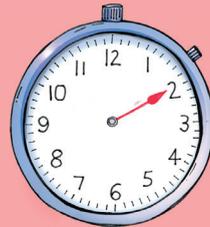
Ask the learners to come to the front of the class and show the following by moving the hand.

Which hand do I need to move to show minutes?

5 min, 10 min, 25 min, 50 min, 20 min, 40 min, 30 min,  
15 min, 45 min, 55 min, 35 min, 60 min.



Learners must look at the picture and discuss it.



**The long hand shows us minutes.  
Here it shows 10 minutes.**

**The hand on the clock goes round and round,  
Round and round, round and round.  
The hand on the clock goes round and round,  
To tell us the time.**

# 57b More minutes *continued*

Content links: 13, 55, 81a-81b, 85a-85b, 89  
Grade 1 links: None  
Grade 3 links: 12, 32, 54, 80, 106



Learners say what the long hand is showing us.



15 minutes



50 minutes



25 minutes



40 minutes



35 minutes



5 minutes

### Oral questions

- How long is a minute?
- What can you do in a minute?



Learners draw the long hand.

55 minutes



35 minutes



60 minutes



10 minutes



45 minutes



12 minutes



What can take one minute? Colour the correct picture/s.

Answer: all

### Homework

- Learners do question 4 for homework.

### Reflection questions

Can learners do the following?

- Tell the time in minutes on analogue clocks

# 58 Grouping and sharing

**Content links:** 5, 59-63, 88, 110, 113, 118, 121  
**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120  
**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

## Objectives

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

## Resources

**Teacher:** Writing board, unifix cubes, counters

**Learner:** Workbook page 124, pencil and colouring pencils

## Dictionary

**Group:** divide items/objects into equal groups (sets), e.g. 3 groups of 10



## Teach grouping and sharing from 0 – 40

### Concrete

In pairs, give learners 4 trains of unifix cubes.



Share it between two. (Each learner will get 2 trains of unifix cubes).  
Groups of 20. We have 2 groups of 20.



In pairs, give learners 4 trains of unifix cubes and 8 small cubes.



Share it between two. (Each learner will get 2 trains of unifix cubes and 4 small cubes each.)

In pairs, give learners 3 trains of unifix cubes.



Share it between two. (Each child will get 1 train and a half train (5 small cubes) each. We now have 2 groups of 15 cubes.)

In pairs, give learners 3 trains and 4 small cubes.

Share it between two. (Each child will get 1 train and 5 small cubes + 2 small cubes.)



Groups of 17. We have 2 groups of 17.



Learners must share the cubes between the children.

### Answers:

- 44 cubes and each gets 22
- 28 cubes and each gets 14
- 36 cubes and each gets 18

# 58

## Grouping and sharing *continued*

**Content links:** 5, 59-63, 88, 110, 113, 118, 121  
**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120  
**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126



Ask learners how many blocks are in each circle? Learners must write the total in the blue circle and a multiplication sum for each. **Answers:**

- Total in blue circle is 30,  $10 \times 3 = 30$
- Total in blue circle is 24,  $12 \times 2 = 24$
- Total in blue circle is 40,  $10 \times 4 = 40$



Learners must share the blocks between the circles. Learners write a division sum for each. **Answers:**

- Child draws 9 in one circle and 9 in the other  $18 \div 2 = 9$
- Child draws 8 counters in each circle  $24 \div 3 = 8$

### Oral questions

- What is 3 groups of 10 blocks?
- What is 2 groups of 13 blocks?
- Share 14 blocks between 2.
- Share 26 blocks between 2.

Learners must draw the groups and write a sum for each.

**Answers:** ● ● ● ● ● ●

**Plus sum:**  $2 + 2 + 2 = 6$  **and times sum:**  $3 \times 2 = 6$



**Plus sum:**  $14 + 14 = 28$  **and times sum:**  $2 \times 14 = 28$



**Minus sum:**  $12 - 3 - 3 - 3 - 3 = 0$  **and division sum:**  $12 \div 4 = 3$



**Minus sum:**  $30 - 10 - 10 - 10 = 0$  **and division sum:**  $30 \div 3 = 10$



Learners must calculate the groups.

**Answers:**

- 2 groups of 7: 14
- 4 groups of 5: 20
- Share 18 by 2: 9
- Share 35 by 5: 7
- 3 groups of 8: 24
- 2 groups of 15: 30
- Share 24 by 3: 8
- Share 50 by 10: 5



Learner needs to multiply 6 by 5.

**Answer:** 30 children

### Homework

Learners do question 5.

### Reflection questions

Can learners do the following?

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

# 59 More grouping and sharing

**Content links:** 5, 58, 60-63, 88, 110, 113, 118, 121

**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120

**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

## Objectives

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

## Resources

**Teacher:** Writing board, unifix cubes, counters

**Learner:** Workbook page 126, pencil, colouring pencils

## Dictionary

**Group:** divide items/objects into equal groups (sets), e.g. 4 groups of 12



## Teach grouping and sharing from 0 – 50

### Concrete

In pairs, give learners  
3 groups of 10 counters.



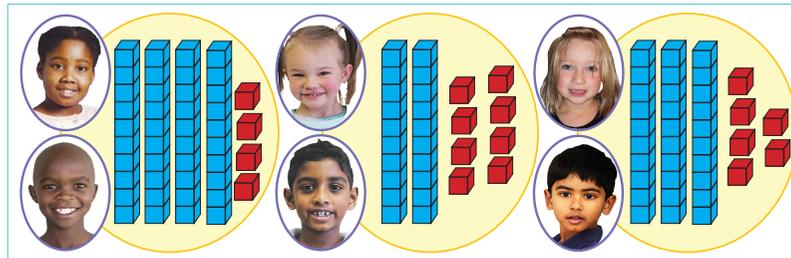
Share it between two (each child will get 15 counters).



Do the same with 36.



Learners must share the blocks between the children.



### Answers:

- 44 blocks and each gets 22
- 28 blocks and each gets 14
- 36 blocks and each gets 18

**Content links:** 5, 58, 60-63, 88, 110, 113, 118, 121  
**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120  
**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

# 59 More grouping and sharing *cont...*



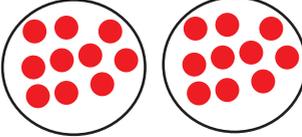
Ask learners how many counters are in each circle? Learners must write the total in the blue circle and a multiplication sum next to it.

- Answers:**
- 30 in the blue circle,  $10 \times 3 = 30$
  - 24 in the blue circle,  $12 \times 2 = 24$
  - 36 in the blue circle,  $9 \times 4 = 36$



Learners must divide the counters in the blue circle and write a division sum for each.

**Answers:**



•  $20 \div 2 = 10$



•  $27 \div 3 = 9$



Learners must draw the groups. They then write a plus, times or minus and division sum for each.

- Answers:**
- **Plus sum:**  $12 + 12 + 12 = 36$  and **times sum:**  $12 \times 3 = 36$



- **Plus sum:**  $10 + 10 + 10 + 10 + 10 = 50$  and **times sum:**  $5 \times 10 = 50$
- **Minus sum:**  $24 - 4 - 4 - 4 - 4 - 4 - 4 - 4$  and **division sum:**  $24 \div 4 = 6$
- **Minus sum:**  $25 - 5 - 5 - 5 - 5 - 5 - 5$  and **division sum:**  $25 \div 5 = 5$

Learners must calculate the groups.

- Answers:**
- |                             |                             |
|-----------------------------|-----------------------------|
| 2 groups of 11 is <b>22</b> | 3 groups of 10 is <b>30</b> |
| 4 groups of 4 is <b>16</b>  | 2 groups of 25 is <b>50</b> |
| Share 20 by 2: <b>10</b>    | Share 27 by 3: <b>9</b>     |
| Share 50 by 5: <b>10</b>    | Share 28 by 2: <b>14</b>    |



Trace the words

## double share

**Homework**

- Do question 5 for homework.

**Reflection questions**

Can learners do the following?

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

**Content links:** 5, 58-59, 61-63, 88, 110, 113, 118, 121  
**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120  
**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

# 60 Yet more grouping and sharing

## Objectives

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 128, Cut-out 4 (Worksheet 60 section), scissors, glue, pencil and colouring pencils.

### Concrete resources:



## Dictionary

**Group:** divide items into equal groups (sets), e.g. 9 groups of 2



## Teach grouping and sharing

### Concrete

In pairs learners take 4 counters. Share the counters between the two of you. How many counters will you each get?



We have 2 groups of 2 each.

Do the same with 6 – 20 counters, sharing it between 2.

In groups of 4 learners take 8 counters. Share the counters between 4 of you. How many counters will you each get?



Groups of 2. We have 4 groups of 2.



Ask the learners to look at the pictures. Ask learners: "How many counters are in each circle?" Learners must share it between two children.

### Answers:

- 4 counters and each gets 2
- 12 counters and each gets 6
- 18 counters and each gets 9



**Content links:** 5, 58-59, 61-63, 88, 110, 113, 118, 121  
**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120  
**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

# 60 Yet more grouping and sharing *cont...*



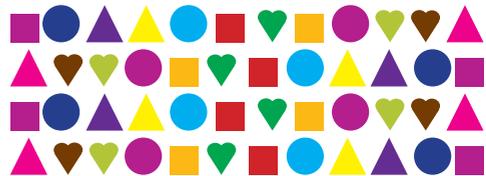
Ask learners how many counters are in each circle? Learners write the answer down.  
**Answers: 8, 10, 9, 12**

### Oral questions

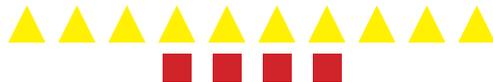
If 2 children have 5 counters each. How many counters are there altogether?  
 If 2 children have 6 counters each. How many counters are there altogether?



Learners cut the shapes from Cut-out 4 (Worksheet 60 section above the line) and paste it in the correct block. Learners must count the shapes and write the answer in the block  
**Answers: 12 triangles, 12 circles, 12 squares, 12 hearts**



Learners must share the shapes between the children using the shapes from Cut-out 4 (Worksheet 60 section below the line).  
**Answers: 5 triangles each, 1 square each**



Learners must share the fruit between the children by drawing them.  
**Answers: drawings of 3 oranges each, 3 apples each**



The two children need to divide 12 sweets between 2.  
**Answer: 6 sweets each**

### Homework

- Do question 5 for homework.

### Reflection questions

Can learners do the following?

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

# 61

## Grouping and sharing again

**Content links:** 5, 58-60, 62-63, 88, 110, 113, 118, 121

**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120

**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

### Objectives

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

### Resources

**Teacher:** Writing board, unifix cubes, beads

**Learner:** Workbook page 130, Cut-out 4 (Worksheet 61 section), scissors, glue, pencil and colouring pencils

### Concrete resources:

beads 	counters 	stones 	unifix cubes 
--------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

### Dictionary

**Group:** divide objects into equal groups (sets), e.g. 2 groups of 12



### Concrete

In pairs, give learners 2 trains of unifix cubes.



Share it between you. (Each child will get 1 train of unifix cubes). Learners say: "We have 2 groups of 10."

In pairs, give learners 2 trains of unifix cubes and 8 small cubes.

Share it between you. (Each child will get 1 train of unifix cubes and 4 small cubes each).

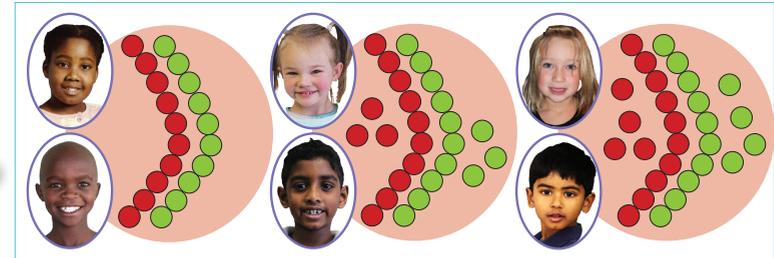


We have 2 groups of 14.

Do the same with 12, 14, 16 and 20.



Ask the learners to look at the pictures. Ask them to share the beads between the children.



**Answers:** • 20 beads and each gets 10

• 26 beads and each gets 13 • 28 beads and each gets 14

**Content links:** 5, 58-60, 62-63, 88, 110, 113, 118, 121  
**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120  
**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

# 61 Grouping and sharing again *cont...*

## Oral questions

If I share 22 beads between 2 children. How much will each get?

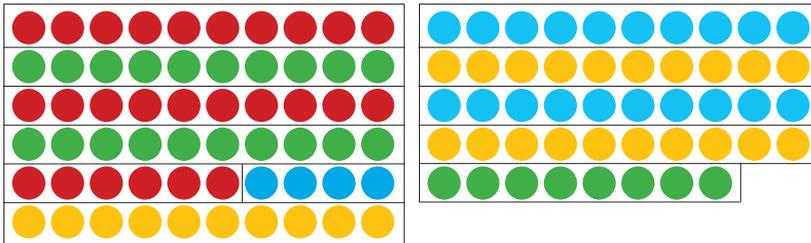


Ask learners: "How many beads are in each circle?"

**Answer: 20, 30, 30, 32**



Learners must cut the beads from Cut-out 4 (Worksheet 61 section) and paste it in their workbook. Learners must count the beads.



**Answer:**

- 26 red beads
- 30 yellow beads
- 24 blue beads
- 28 green beads



Learners must draw an equal number of beads for each child.

**Answers: Child's own drawings.**



Learners share the beads between the children and draw it.

**Answer:**

- 24 beads shared between 2 children are 11 beads each.
- 28 beads shared between 4 children are 7 beads each.



Learners must divide 32 by 2.

**Answer: 16 each.**

## Reflection questions

Can learners do the following?

- Share numbers or objects from 0 – 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

# 62 Halves: 1 – 20

## Objectives

- Halve sets of objects or numbers up to 20

## Resources

**Teacher:** Writing board, counters, containers

**Learner:** Workbook page 132, pencil and colouring pencils

### Concrete resources:

beads 	counters 	stones 	unifix cubes 
--------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------

## Dictionary

**Halving:** to share objects/items between 2

To divide a number by 2, e.g.

half of 4 is 2



More grouping and sharing by halving



## Concrete

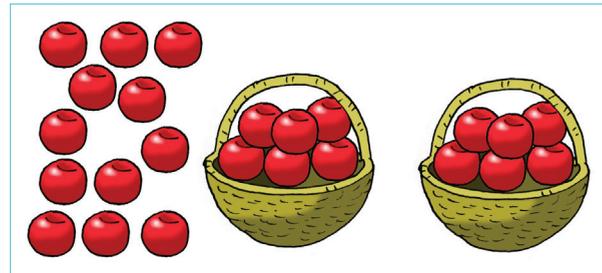
Give each learner 20 counters and 2 containers. Take 4 counters. Share it between the 2 containers. How many counters are in each container?



We can say a half of 4 is 2.

Do the same with 6, 8, 10, 12, 14, 16, 18 and 20.

Learners must say what happened to the apples? **Answers:**  
**They are divided into 2 baskets.**



Learners must share the fruit on the left in the baskets on the right and draw it. **Answers:**

- 22 oranges, 11 in one basket and 11 in the other.
- 14 strawberries, 7 in one basket and 7 in the other.
- 18 bananas, 9 in one basket and 9 in the other.
- 30 pears, 15 in one basket and 15 in the other.



# 62

## Halves: 1 – 20 *continued*



Learners draw a line to show half and complete the sentence.

	Half of 4 is <u>2</u>		Half of 6 is <u>3</u>
	Half of 8 is <u>4</u>		Half of 2 is <u>1</u>
	Half of 10 is <u>5</u>		Half of 14 is <u>7</u>
	Half of 20 is <u>10</u>		Half of 16 is <u>8</u>

### Oral questions

Ask the learners questions such as:

- Half of 12.
- Half of 18.
- Half of 20.



Learners say what is half of each plate of food?

**Answers: 2, 3, 5, 4, 6, 9, 10**

### Homework

Learners do question 3 for homework.

### Reflection questions

Can learners do the following?

- Halve sets of objects or numbers up to 20

**Objectives**

- Halve sets of objects or numbers up to 50
- Solve and explain solutions to practical problems that involve equal sharing

**Resources**

**Teacher:** Writing board, beads, containers, unifix cubes

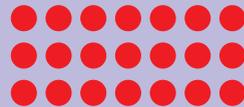
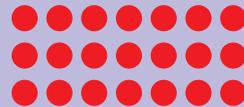
**Learner:** Workbook page 134, pencil and colouring pencils

**Concrete resources:**

beads	counters	stones	unifix cubes
			

**Dictionary**

**Halve:** to share objects or items between 2, to divide a number by 2, e.g. half of 42 is 21



More grouping and sharing from 20 to 50

**Concrete**

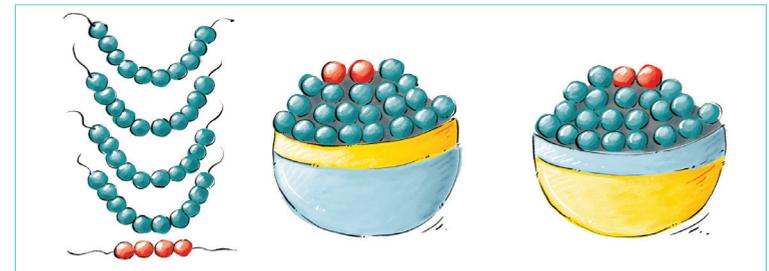
Give each learner 50 unifix cubes and two containers. The learners can work in groups.



- Ask learners to take 40 unifix cubes. Share it between the two containers. What is half of 40?
  - Ask learners to take 30 unifix cubes. Share it between the two containers. What is half of 30?
- Do the same with 32, 34, 36, 42, 44, 46 and 48.  
What is half of 32, 34, 36, 42, 46 and 48?



Learners must say what happened to the beads?



**Answers:** The 44 beads was divided into 2 bowls. Each bowl has 22 beads.



Learners must share the beads on the left in the baskets on the right by drawing it.

**Answers:**

- There are 28 beads. Each basket will have 14 beads.
- There are 44 beads. Each basket will have 22 beads.
- There are 40 beads. Each basket will have 20 beads.
- There are 46 beads. Each basket will have 23 beads.



Learners must colour one half (of the blocks). **Answers:**

**Half of 20 is 10**

**Half of 28 is 14**

**Half of 40 is 20**

**Half of 46 is 23**

**Half of 22 is 11**

**Half of 26 is 13**

**Half of 44 is 22**

**Half of 50 is 25**

### Oral questions

Ask the learners what is:

- Half of 48.
- Half of 42.
- Half of 38



Learners must colour half of each diagram.

**Answers:**

- Colour 2 blocks
- Colour 4 blocks
- Colour 8 blocks

### Homework

- Do question 3 for homework.

### Reflection questions

Can learners do the following?

- Halve sets of objects or numbers up to 50
- Solve and explain solutions to practical problems that involve equal sharing

# 64 Data

Content links: 15-16, 71, 93, 96, 107  
Grade 1 links: 2, 4, 28, 44, 78-79, 124-125  
Grade 3 links: 16, 22, 36, 96

## Objectives

- Sort objects
- Collect data about the class or school
- Represent data in tables, bar graphs and pictographs

## Resources

**Teacher:** Writing board, make shapes of circles, triangles, squares and rectangles from old cardboard or use plastic shapes

**Learner:** Workbook page 134, pencil, colouring pencils

## Dictionary

**Sort:** to arrange or group in a certain way according to some common quality or characteristic that each member of the group has

**Pictograph:** a diagram that carries its meaning through its pictorial resemblance to a physical object. Good example are the pictographs of male and female shapes outside public toilets. Pictographs are often used to represent a particular number of units of data, for example a pictogram of a motor car may represent 100 cars.



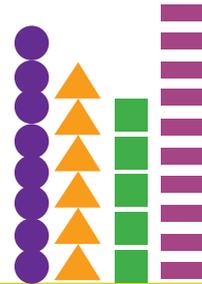
Introduce sorting and pictographs

## Concrete

In groups give learners 8 circles, 6 triangles, 5 squares and 10 rectangles. Ask them to sort it according to shape.



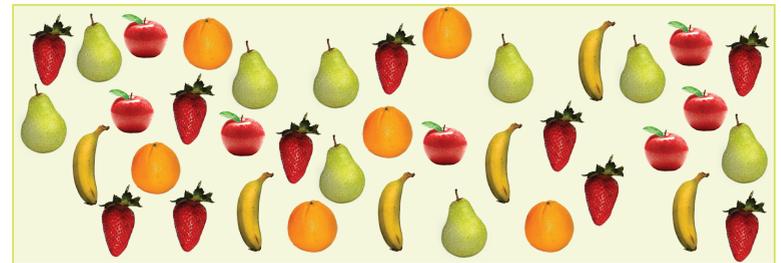
Ask learners to place the shapes in rows (columns)



### Ask:

- How many circles are there? **8 circles**
- How many triangles are there? **6 triangles**
- How many squares are there? **5 squares**
- How many rectangles are there? **10 rectangles**
- Which shape do you have most of? **Rectangles**
- Which shape do you have least of? **Squares**

Learners discuss the picture.





Grade **2** Book **2**

# Mathematics Teacher Guide



basic education  
Department:  
Basic Education  
REPUBLIC OF SOUTH AFRICA

ENGLISH

Book

**2**

# Contents Grade 2 Book 2

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# 65 Numbers 50 – 99

**Content links:** 2-4, 35, 66, 69, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

## Objectives

- Identify, recognise and read number symbols up to 99
- Write number names 0 - 99
- Count forwards and backwards in 1s between 0 - 99
- Compare whole numbers
- Recognise place value up to 99

## Resources

**Teacher:** Writing board, 1 to 100 number boards, base ten blocks, place value number cards

**Learner:** Workbook page 2, pencil, colouring pencils

### Concrete resources:

<p>beads</p> 	<p>counters</p> 	<p>stones</p> 	<p>unifix cubes</p> 
------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------

## Dictionary

**Number:** a count or a measurement, e.g. 114

**Number names:** e.g. one hundred and fourteen

**Order:** arrangement according to size, amount or value, e.g. arrange (order) from small to large – 52 469, 52 470, 52 471

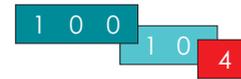
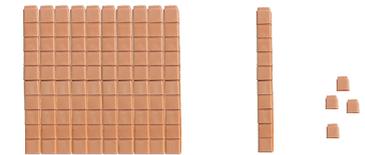
**Compare:** to describe as bigger as, smaller as or equal, e.g. 2 345 is smaller than 2 435

## Introduce numbers from 100 – 120

### Abstract

In groups give learners a 1 to 100 number board, base ten blocks, place value cards.

- Use the number board to count forwards and backwards in ones from 100 - 120.
- Ask learners to point to 114.
- Ask them to show the number with base ten blocks.
- Ask them to show it using the number cards.



Learners colour in the circles.

Learners must write a number for. The first example will guide you.

### Answer:

 $60 + 8$ $= 68$	 $80 + 6$ $= 86$	$50 + 3$ $= 53$
$70 + 1$ $= 71$	$90 + 5$ $= 95$	$60 + 9$ $= 69$

# 65

## Numbers 50 – 99 *continued*

**Content links:** 2-4, 35, 66, 69, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



Learners must write each number for the answers to Question 2 above in words: **Answers: sixty-eight; eighty-six; fifty-three; seventy-one; ninety-five; sixty-nine**



Learners must give two numbers smaller and two numbers bigger than the given number.

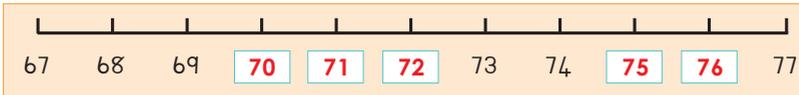
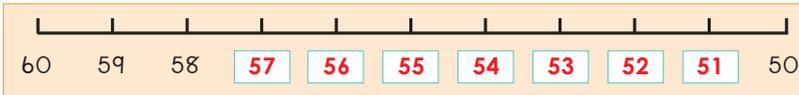
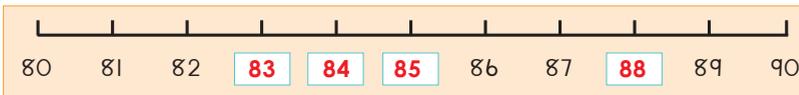
Smaller		Number	Bigger	
53	54	55	56	57
61	62	63	64	65
86	87	88	89	90
93	94	95	96	97
69	70	71	72	73

### Oral question

- Let us count: 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99
- Then backwards: 99, 98, 97, 96, 95, 94, 93, 92, 91, 90, 89, 88, 87, 86, 85, 84, 83, 82, 81, 80, 79, 78, 77, 76, 75, 74, 73, 72, 71, 70, 69, 68, 67, 66, 65, 64, 63, 62, 61, 60, 59, 58, 57, 56, 55, 54, 53, 52, 51, 50
- Which number comes before 77?
- Which number comes before 68?
- Which number comes after 59?
- Which number comes after 98?



Learners must complete the number lines.



Learners must cut three numbers between 50 and 99 from a magazine or newspaper. Paste it here. **Answer: Any three of 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98**

### Homework

Learners do Question 6 for homework.

### Reflection questions

Can learners do the following?

- Identify, recognise and read number symbols up to 99
- Write number names 0 - 99
- Count forwards and backwards in 1s between 0 - 99
- Compare whole numbers
- Recognise place value up to 99

# 66 Numbers 100 – 150

**Content links:** 2-4, 35, 65, 69, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

## Objectives

- Identify, recognise and read number symbols up to 150
- Write number names 0 - 150
- Count forwards and backwards in 1s between 0 - 150
- Compare whole numbers
- Recognise place value up to 150

## Resources

**Teacher:** Writing board, 1 - 200 number boards, base ten blocks, place value number cards

**Learner:** Workbook page 4, pencil

### Concrete resources:

beads 	counters 	stones 	unifix cubes 
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## Dictionary

**Number:** a count or a measurement, e.g. 114

**Number names:** e.g. one hundred and fourteen

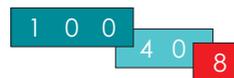
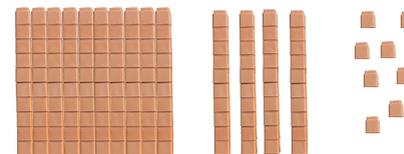
**Order:** arrangement according to size, amount or value, e.g. arrange (order) from small to large – 52 469, 52 470, 52 471

**Compare:** to describe as bigger as, smaller as or equal, e.g. 2 345 is smaller than 2 435

## Concrete and Representational

In groups give learners 200 number boards, base ten blocks, place value cards.

- Use the number board to count forwards and backwards in ones from 120 - 150.
- Ask learners to point to 148.
- Ask them to show the number with base ten blocks.
- Ask them to show it using the number cards.

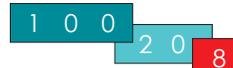
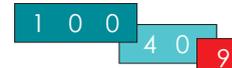
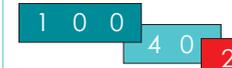
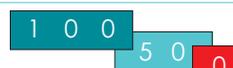


Learners colour in the circles.

Learners must write a number for. The first example will guide you.

**Answer:**



 $100 + 10 + 8 = 118$ 	 $= 100 + 40 + 9 = 149$	 $= 100 + 40 + 2 = 142$
 $= 100 + 50 + 0 = 150$	 $= 100 + 20 + 7 = 127$	 $= 100 + 30 + 5 = 135$

## 66

Numbers 100 – 150 *continued*

Content links: 2-4, 35, 65, 69, 97-98, 100

Grade 1 links: 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

Grade 3 links: 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



What number comes between?

**Answers:** *one hundred and four, one hundred and forty, one hundred and twenty-one, one hundred and forty-nine, one hundred and forty-seven*



Learners must write down two numbers smaller and two numbers bigger than the given number. **Answer:**

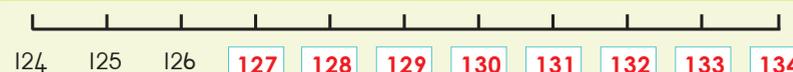
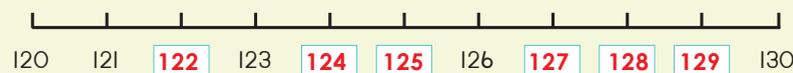
Smaller		Number	Bigger	
<b>121</b>	<b>122</b>	123	<b>124</b>	<b>125</b>
<b>143</b>	<b>144</b>	145	<b>146</b>	<b>147</b>
<b>106</b>	<b>107</b>	108	<b>109</b>	<b>110</b>
<b>139</b>	<b>140</b>	141	<b>142</b>	<b>143</b>
<b>132</b>	<b>133</b>	134	<b>135</b>	<b>136</b>

## Oral questions

- Let us count: 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150
- Then backwards: 150, 149, 148, 147, 146, 145, 144, 143, 142, 141, 140, 139, 138, 137, 136, 135, 134, 133, 132, 131, 130, 129, 128, 127, 126, 125, 124, 123, 122, 121, 120
- Which number comes before 124? Which number comes before 150?
- Which number comes after 130? Which number comes after 149?



Learners must complete the number lines.



Learners must cut three numbers between 100 and 150 from a magazine or newspaper. Paste it here.

**Answer:** *Any three of 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119*

## Homework

- Learners complete the fun activity (Question 6) on page 7 for homework.

## Reflection questions

Can learners do the following?

- Identify, recognise and read number symbols up to 150
- Write number names 0 - 150
- Count forwards and backwards in 1s between 0 - 150
- Compare whole numbers
- Recognise place value up to 150

**Objectives**

- Recognise full, empty and half (full) quantities (volumes) in containers.
- Compare, order and record the capacity of containers

**Resources**

**Teacher:** Writing board, containers

**Learner:** Workbook page 6, pencil and colouring pencils

**Dictionary**

**Full:** means that a container is totally full of the matter it contains (Note that with containers with measurement marks the containers may be considered full when the highest measurement mark is reached, even though the container is not full to the brim. The same applies to unopened cold drinks where the bottle is not filled right to the top.)

**Half full:** contains matter that fills up half the space of the container

**Container:** a vessel that can hold solid objects, liquids or gases

**Capacity:** the total amount the container can hold

**Volume:** the amount of space taken up by something. So volume is the actual amount of space that the matter in a container occupies.

**Introduce full and empty****Counting**

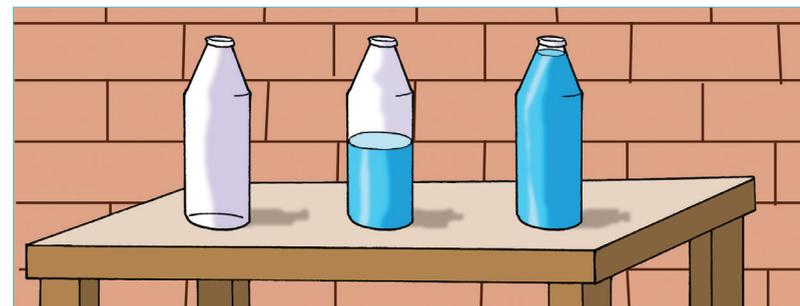
Place 12 containers on your table. Fill 4 of them, half-fill 4 of them and leave 4 empty. Place them in a random order. Write the words on the board.



Ask the learners if the containers are full, empty or half.



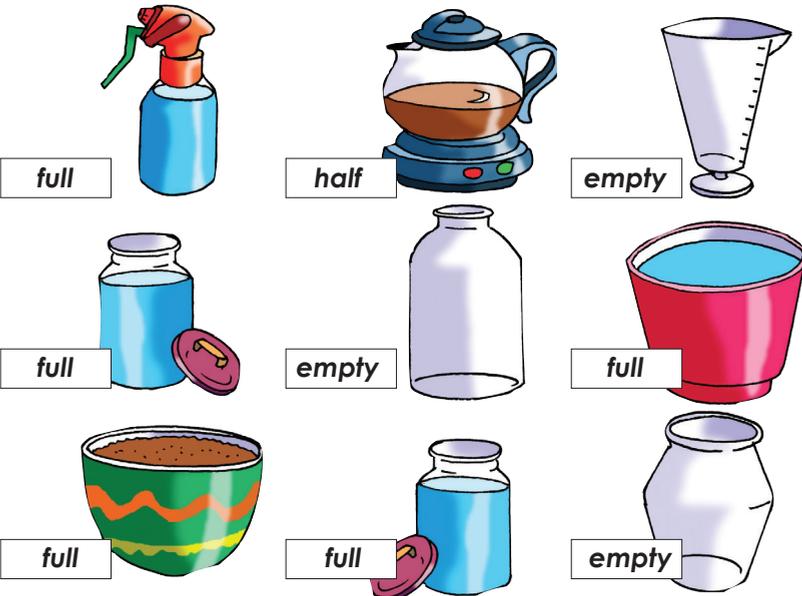
Learners must look at the picture and discuss it.



# 67 Full, half full, empty *continued*

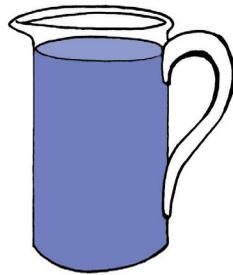
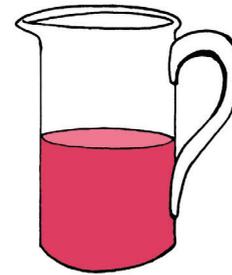
Learners must say if the container is full, half full or empty.

**Answers:**



**Oral question**

- What does full mean?
- What does empty mean?
- What does half full mean?

Full	Half full	Empty
		

Learners must draw their own containers.  
**Answers: Learners draw their own containers.**

Learners must say which container holds the most?  
**Answers: The middle bottle with yellow liquid.**



**Homework**

- Identify 5 containers in your home that are half full. Why are they half full?

**Reflection questions**

Can learners do the following?

- Recognise full, empty and half (full) quantities (volumes) in containers.
- Compare, order and record the capacity of containers

# 68

## More capacity

**Content links:** 12, 49, 67, 111  
**Grade 1 links:** 37, 40, 126  
**Grade 3 links:** 14, 106, 128a-128b

### Objectives

- Estimate, measure, compare, order and record the capacity of containers using non-standard measures

### Resources

**Teacher:** Writing board, different containers

**Learner:** Workbook page 8, pencil and colouring pencils



### Dictionary

**Capacity:** the amount that something can hold. Usually it means volume, such as millilitres (ml) or litres (l) in metric, e.g. "The bucket has a capacity of 9 litres."

**Non-standard measures:** In grade 2 we make use of non-standard measures, e.g. the bottle can hold 4 cups of water.

### Introduce capacity

#### Concrete

Work in groups.

Give each group a big container (make use of old 1 litre containers).

Give each group a cup (e.g. old yogurt containers).

Ask them how many cups do they think will fill the containers (estimate).

Ask them to measure it by filling the container with cups of water or sand.

Learners must look at the picture and discuss it.

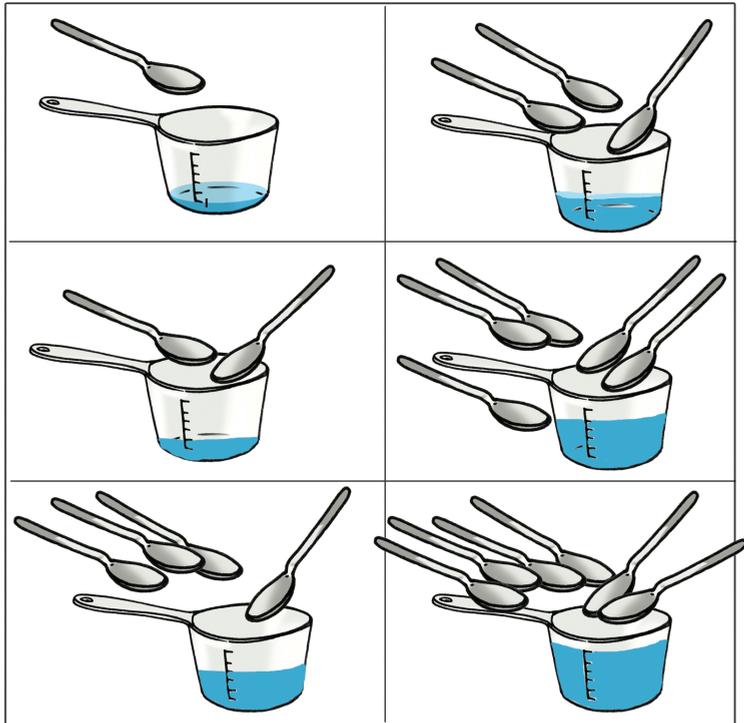


#### Oral question

Place a bigger container on the desk (e.g. 2 litre). Ask learners how many cups will fill the container.

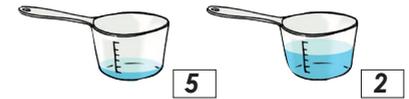
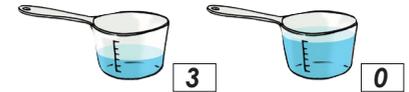
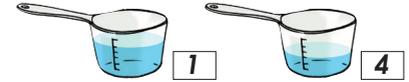


Learner must see up to where will the spoons fill the jug.  
 Colour in. **Answers:**



Learners must see how many spoons more do you need to fill the measuring cup?

**Answers:**



Doubling 2 cups of milk means:  
**Answer: 4 cups of milk.**

### Homework

Ask your parents or caregiver to help you do the following. Use various pots or containers. Take a cup as your measure. First, guess (estimate) how many of these cupfuls will fill each of the containers, then measure it.

### Reflection questions

Can learners do the following?

- Estimate, measure, compare, order and record the capacity of containers using non-standard measures

# 69

## Numbers 150 – 170

**Content links:** 2-4, 35, 65, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

### Objectives

- Identify, recognise and read number symbols up to 170
- Write number names 0 to 170
- Count forwards and backwards in 1s between 0 and 170
- Compare whole numbers
- Recognise place value of numbers up to 170

### Resources

**Teacher:** Writing board, 1 - 200 number boards, place value cards, base 10 blocks

**Learner:** Workbook page 10, pencil, colouring pencils, place value cards.

### Concrete resources:



### Dictionary

**Number:** A number is mathematical value, expressed by a word, symbol, or figure, that represents a particular quantity and used in counting and doing calculations, e.g. 162.

**Number names:** e.g. one hundred and sixty-two

**Order:** arrangement according to size, amount, value or some other characteristic, e.g. arrange (order) from small to large - 52 469, 52 470, 52 471

**Compare:** to describe as bigger as, smaller as or equal, e.g. 2 345 is smaller than 2 435

### Introduce numbers from 150 – 170

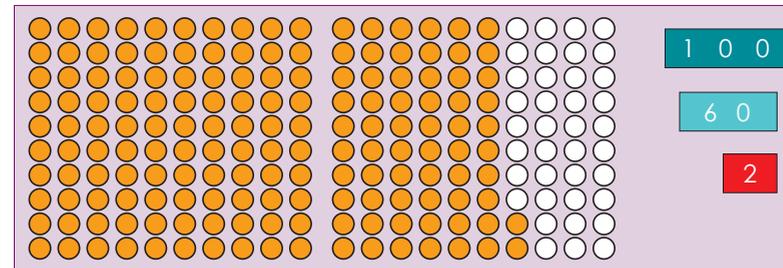
#### Abstract

In groups give learners 1 to 200 number board, base ten blocks and place value cards.

- Use the number board to count forwards and backwards in ones from 150 - 170.
- Ask learners to point to 159.
- Ask them to show the number using base ten blocks.
- Ask them to show it with place value number cards.



Learners must colour in 162 circles.



# 69

## Numbers 150 – 170 *continued*

**Content links:** 2-4, 35, 65, 97-98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



Learners must write a number for:

$100 + 50 + 2 = 152$	$100 + 60 + 7 = 167$	$100 + 70 = 170$
$100 + 60 + 9 = 169$	$100 + 50 + 4 = 154$	$100 + 60 + 1 = 161$



Learners must write which numbers come between: **Answers:**

**150 and 155:** 151, 152, 153, 154

**158 and 162:** 159, 160, 161

**170 and 165:** 169, 168, 167, 166

**163 and 167:** 164, 165, 166

**172 and 166:** 171, 170, 169, 168, 167

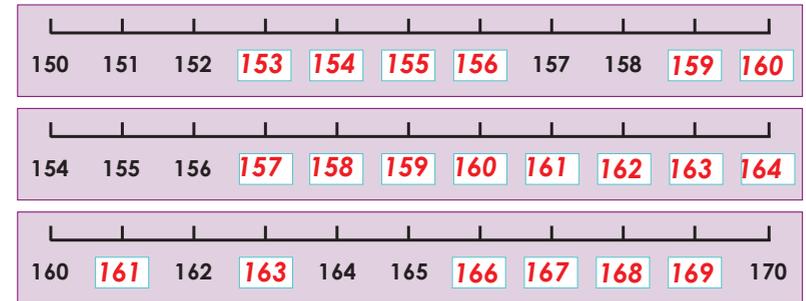


Learners give two numbers smaller and two numbers bigger than the given number. **Answers:**

Smaller		Number	Bigger	
<b>153</b>	154	155	<b>156</b>	<b>157</b>
<b>166</b>	167	168	<b>169</b>	<b>170</b>
<b>149</b>	150	151	<b>152</b>	<b>153</b>
<b>160</b>	161	162	<b>163</b>	<b>164</b>
<b>158</b>	159	160	<b>161</b>	<b>162</b>



Learners must complete the number lines.



Learners must cut three numbers between 150 and 170 from a magazine or newspaper. Paste them here.

**Answer:** 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170

### Homework

Learners do Question 6 for homework.

### Reflection questions

Can learners do the following?

- Identify, recognise and read number symbols up to 170
- Write number names 0 to 170
- Count forwards and backwards in 1s between 0 and 170
- Compare whole numbers
- Recognise place value of numbers up to 170

**Objectives**

- Estimate objects up to 100
- Count objects up to 100

**Resources**

**Teacher:** Writing board, beads, transparent containers, counters

**Learner:** Workbook page 12 and colouring pencils

**Dictionary**

**Estimate:** make a guess or judgement about the size of a quantity rather than carrying out a process to measure the quantity more accurately

**Concrete**

Learners work in groups.

Place the following on each groups table.

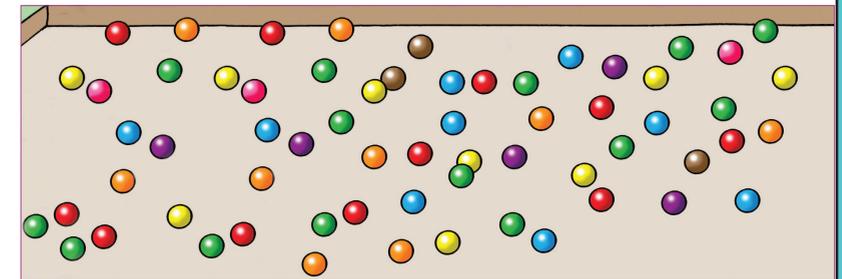
- A transparent container with beads less than a 100. (You can replace beads with stones).
- A pile of counters less than 100. (non-transparent)
- A container with unifix cubes.

Each group should guess how many objects there are for i-iii. Learners then count the objects.

Learners compare their estimation with the count.



Learners estimate the number of beads and then count the beads.



# 70

## Counting and estimating (0 – 100) *continued*

Content links: 2, 17-18, 21, 70  
 Grade 1 links: 5  
 Grade 3 links: 1-2, 25a-25b, 51, 55-56



Learners must estimate and then count. There are 10 blocks in the container (the blue rod representing a 10).

<p>estimate  <input type="text"/>                      calculate                      53</p>	<p>estimate  <input type="text"/>                      calculate                      68</p>
<p>estimate  <input type="text"/>                      calculate                      72</p>	<p>estimate  <input type="text"/>                      calculate                      54</p>
<p>estimate  <input type="text"/>                      calculate                      90</p>	<p>estimate  <input type="text"/>                      calculate                      97</p>

### Oral question

What does estimate mean? Why should we count the objects we estimate?



There are 42 sweets in the box.  
How many are hidden?



36

There are 50 beads in the box.  
How many are hidden?



20

There are 78 sweets in the box.  
How many are hidden?



61

There are 100 beads in the box.  
How many are hidden?



60



Learners must see how fast can you do this? Each container holds 10 beads. How many are here? **Answer: 100**

### Homework

Go home. Share with your parents or caregiver what estimation is.

### Reflection questions

Can learners do the following?

- Can learners estimate objects up to 100
- Can learners count objects up to 100

# 71 More data

## Objectives

- Sort objects
- Represent data in a pictograph
- Answer questions from a set of data

## Resources

**Teacher:** Writing board, pick some leaves (five types)

**Learner:** Workbook page 14, colouring pencils.



## Dictionary

**Sort:** to arrange a group in a specific way.

**Pictograph:** a simple chart in which pictures represent numbers to make it more interesting and easier to understand. A key is often included to indicate what each picture or symbol represents. All the pictures must be of the same size, but a fraction of an picture can be used to show the respective fraction of that amount

## Oral questions

If I have 10 red flowers, 6 pink flowers and 8 white flowers. Which flower do I have the least of?

## Introduce sorting

### Concrete

Work in groups.  
 Place the leaves on the learners desk.  
 (Not more than 5 leaves of a type).



Ask learners to sort it.

Each learner makes a drawing of their sorting.



Learners look at the picture and discuss it.



# 71 More data *continued*

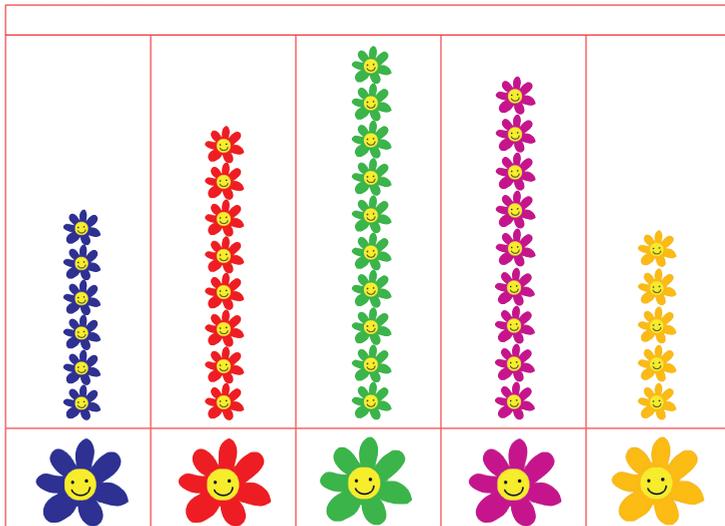


Learners must sort the flowers. Learners must make your own drawing. Write the total in the box. **Answers:**

- 6 dark blue flowers
- 8 red flowers
- 10 green flowers
- 9 pink (violet) flowers
- 5 orange (yellow) flowers



Learners must draw a pictograph of their sorted flowers. **Answers:**



Answer the following questions:

**Answers:**

How many dark blue flowers are there? **6**

How many red flowers are there? **8**

How many green flowers are there? **10**

How many pink (violet) flowers are there? **9**

How many orange (yellow) flowers are there? **5**

What is the most popular colour flower? **Green**

What is the least popular colour flower? **Orange**

What is your favourite colour flower? **Learner's own answer.**

### Homework

- Give learners the following pictures to copy in their books.
- Sort it: Draw a pictograph.



### Reflection questions

Can learners do the following?

- Sort objects
- Represent data in a pictograph
- Answer questions from a set of data

# 72

## Addition 0 – 50

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 73-74, 77, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70-73, 81, 85, 90-91, 92, 102, 104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109

### Objectives

- Add to 50
- Use number lines from 0 - 50 when doing calculations

### Resources

**Teacher:** Writing board, counters, place value number cards

**Learner:** Workbook page 16, pencil and colouring pencils

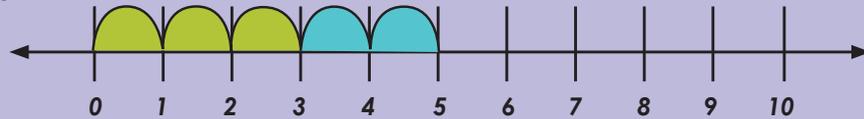
### Concrete resources:



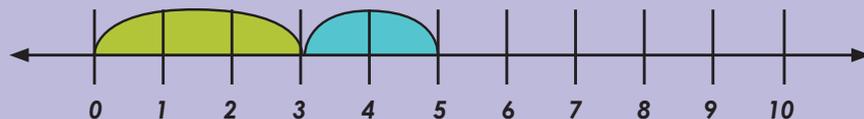
### Dictionary

**Addition on a number line:** A number line is useful for addition.

E.g.  $3 + 2 =$



or



### Introduce addition 0 – 50

#### Concrete

Ask each learner to take between 5 – 10 counters of the same colour and place it in front of them. Ask them to take another 5 – 10 counters of the same colour but a different amount from the previous counters and place it in front of them.



How many counters do you have in total? **Answer: 11**

#### Representational

Make a drawing of your counters.



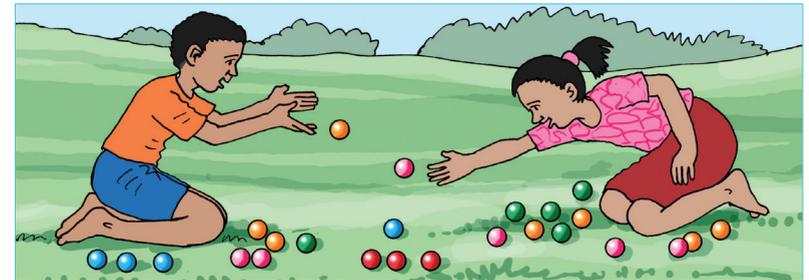
#### Abstract

Write a sum for your drawing.

**Answer:  $5 + 6 = 11$**



Ask the learners to sort and make a drawing. Count the marbles in the picture.



# 72

## Addition 0 – 50 cont...



Learners look at the picture and add the marbles.  
 Example: Red + blue, learners should add the red marbles and the blue marbles.

**Answers:**

- $3 + 4 = 7$                       •  $5 + 4 = 9$
- $6 + 4 = 10$                       •  $5 + 7 = 12$                       •  $3 + 5 = 8$



Learners must match the cards with the correct sum. **Answer:**

- $10 + 2 = 12$
- $20 + 5 = 25$
- $30 + 3 = 33$
- $40 + 7 = 47$



Add the numbers on the cards. **Answers:**

$10 + 3 = 13$	$30 + 2 = 32$
$20 + 5 = 25$	$30 + 7 = 37$
$40 + 1 = 41$	$20 + 6 = 26$
$10 + 4 = 14$	$40 + 8 = 48$
$30 + 9 = 39$	

### Oral questions

Learners add the following mentally:  $3 + 2$ ,  $7 + 4$ ,  $9 + 6$ ,  $7 + 8$



Learners must add the sets of cards. **Answers:**

$16 + 13$

$6$	$3$	$9$
$10$	$10$	$20$
$16$	$13$	$29$

$24 + 12$

$4$	$2$	$6$
$20$	$10$	$30$
$24$	$12$	$36$

$37 + 11$

$7$	$1$	$8$
$30$	$10$	$40$
$37$	$11$	$48$

$25 + 23$

$5$	$3$	$8$
$20$	$20$	$40$
$25$	$23$	$48$

$36 + 12$

$6$	$2$	$8$
$30$	$10$	$40$
$36$	$12$	$48$

$28 + 21$

$8$	$1$	$9$
$20$	$20$	$40$
$28$	$21$	$49$



Add the counters. **Answer:**  $16 + 12 = 28$

### Reflection questions

Can the learners do the following?

- Add to 50
- Use the number lines from 0 – 50 when doing calculations

# 73

## Addition 0 – 75

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72, 74, 77, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70-73, 81, 85, 90-91, 92, 102, 104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109

### Objectives

- Add to 75
- Use the building up and breaking down of numbers to perform calculations

### Resources

**Teacher:** Writing board, counters, place value number cards

**Learner:** Workbook page 18, pencil, colouring pencils

### Dictionary

**Calculation:** to determine the value of something or the solution to a problem involving numbers by a mathematical process



**Introduce addition 0 – 75**



What is the total of each block? **Answers:**

$\begin{array}{ c c } \hline 1 & 10 \\ \hline 5 & 10 \\ \hline \end{array}$	$\begin{array}{ c c } \hline 6 & 20 \\ \hline 2 & 10 \\ \hline \end{array}$	$\begin{array}{ c c } \hline 3 & 20 \\ \hline 5 & 30 \\ \hline \end{array}$	$\begin{array}{ c c } \hline 4 & 40 \\ \hline 4 & 30 \\ \hline \end{array}$
26	38	58	78



Add. **Answers:**

$$12 + 11$$

$$= 10 + 2 + 10 + 1$$

$$= 20 + 3$$

$$= 23$$

$$20 + 3 + 40 + 1$$

$$= 20 + 40 + 3 + 1$$

$$= 60 + 4$$

$$= 64$$

# 73

## Addition 0 – 75 cont...

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72, 74, 77, 101-102, 104-105

**Grade 1 links:** 15, 19-22, 25-26, 43, 45-46, 49-50, 53-57, 70-73, 81, 85, 90-91, 92, 102, 104, 112-113, 118

**Grade 3 links:** 5, 23-24, 27-28, 33, 35b, 37-39, 41-43, 45-47, 49, 73-75, 105, 107-109



Complete the addition sums

**Answers:**

$$28 + 11 = 28 + 10 + 1 = 38 + 1 = 39$$

$$34 + 12 = 34 + 10 + 2 = 44 + 2 = 46$$

$$43 + 23 = 43 + 20 + 3 = 63 + 3 = 69$$

$$45 + 23 = 45 + 20 + 3 = 65 + 3 = 68$$

$$56 + 11 = 56 + 10 + 1 = 66 + 1 = 67$$

### Oral questions

Let us count in fives: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75



Add. **Answers:**

$$21 + 10 = 31 \quad 53 + 10 = 63 \quad 46 + 10 = 56$$

$$68 + 10 = 78 \quad 37 + 10 = 47 \quad 42 + 10 = 52$$

$$74 + 10 = 84 \quad 19 + 10 = 29 \quad 55 + 10 = 65$$



Add 47 and 6 and draw a picture to show your answer.

**Answer: 53**

**Learner's own picture**



Learners make own word sum using the pictures.

**Answer: Learners' own answers. Their answers should make use of fives or tens and a three or an eight.**



### Homework

- Bonds 5 to 10
- Complete the word sum in Question 6 for homework

### Reflection questions

Can learners do the following?

- Add to 75
- Build up and break down numbers to perform calculations

**Content links:** 5, 23a-24, 37-39b, 41-42b, 72-73, 77, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

# 74 Addition and subtraction: 0 – 75

## Objectives

- Add to 75
- Recognise place value of numbers up to 75

## Resources

**Teacher:** Writing board, place value number cards and unifix cubes  
**Learner:** Workbook page 20, pencil, colouring pencils and small black board and chalk  
**Concrete resources:**



## Dictionary

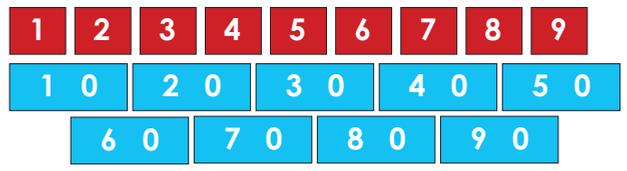
**Addition:** Addition is finding the total or sum by combining two or more numbers, e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$

The symbol for addition is 

## Introduce place value and addition

### Concrete

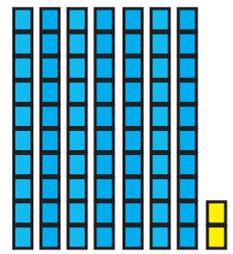
Show learners the following number cards.



- Give the learners sets of 100 unifix cubes.
- Each learner uses their small black board and chalk or scrap paper and a pencil.
- Put a 70 and a 2 card on the board.



- Ask the learners to show it using unifix cubes.



- Ask the learners, "How can I write this as a sum? Do it on your small black board."
- Write the answer. Do a few more: 41, 54, 63, 89 and 78.

**Content links:** 5, 23a-24, 37-39b, 41-42b, 72-73, 77, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

# 74 Addition and subtraction: 0 – 75 cont...



Ask the learners to match the cards with the sums.

9 60	5 50	4 70	7 40
7 + 40 = 47	60 + 9 = 69	50 + 5 = 55	4 + 70 = 74



Learners must write a sum for the unifix cubes. **Answers:**  
 • 50 + 8 = 58      • 70 + 9 = 79      • 60 + 4 = 64



Learners must add the numbers. **Answers:**



60 + 4 = 64	30 + 2 = 32
40 + 9 = 49	50 + 4 = 54
20 + 8 = 28	10 + 7 = 17
70 + 5 = 75	70 + 8 = 78
50 + 6 = 56	

### Oral questions

What is: 60 + 3 90 + 1      50 + 9



Add and subtract. **Answers:**

56 + 15 6 + 5 = 11 50 + 10 = 60 56 + 15 = 71	34 + 17 4 + 7 = 11 30 + 10 = 40 34 + 17 = 51
48 + 13 8 + 3 = 11 40 + 10 = 50 48 + 13 = 61	63 - 41 3 - 1 = 2 60 - 40 = 20 63 - 41 = 22
75 - 51 5 - 1 = 4 70 - 50 = 20 75 - 51 = 24	72 - 49 2 - 9 = -7 70 - 40 = 30 72 - 49 = 23

### Homework

Learners complete question 5 for homework. **Answer: 88 counters**

### Reflection questions

Can learners do the following?

- Add to 75
- Recognise place value of numbers up to 75

# 75

## Balls, boxes and cylinders

Content links: 9, 32, 76, 106  
Grade 1 links: 23, 87-88, 106  
Grade 3 links: 10, 60, 90, 124

### Objectives

- Recognise and name 3-D objects like balls (spheres), boxes (prisms) and cylinders
- Sort, compare and describe 3-D objects in terms of size and shape

### Resources

**Teacher:** Writing board, cereal boxes, toothpaste boxes, balls, cool drink cans, and toilet rolls

**Learner:** Workbook page 22, cereal boxes, toothpaste boxes, balls, cool drink cans, and toilet rolls

### Dictionary

**Sphere:** a 3-D object shaped like a ball

**Prism:** a 3-D object shaped like a box, a 3-D object that has two identical ends and all flat sides

**Cylinder:** a 3-D object with two identical flat ends that are circular and one curved side



Bring some of the following items to class: balls, boxes such as cereal boxes, toothpaste boxes and cylinders such as cooldrink cans and toilet rolls.

### Teach mathematics

#### Concrete

Place some cereal boxes, toothpaste boxes, balls and cool drink cans on your table. Write the words box, ball and cylinder on pieces of recycled paper or card board. Ask learners to match the words on the board with the objects on the table by sticking the names on the objects.



box



ball



cylinder

#### Representational

Give learners some advertisement pamphlets. Ask them to identify:

- the box like objects
- the ball like objects
- the cylinder like objects



cylinder

box

# 75 Balls, boxes and cylinders *continued*

## Oral questions

Do you still remember what these shapes are called?



Ask the learners to identify the balls, boxes and cylinders by writing the word below each picture in their books.

ball	box	cylinder	cylinder
cylinder	box	ball	cylinder
box	ball	box	ball



Ask the learners to look at the pictures and colour in the smaller objects in each picture in blue.

**Answer: Learners need to identify each of the 3 smaller items and colour them in blue.**



Ask the learners to look at the object in each block and draw the same object, just bigger than the one shown.

**Answer: Learners need to be creative and draw their own illustration of the object on a bigger scale.**



## Homework

### Question 4

Ask your learners to complete this question at home by writing down how they would explain to the shop assistant what they are looking for. **Answer:**

**Learners need to be creative and write their own explanation of the shape of the box they require for the present. Though it is essentially a box with seven sides some learners may say that it is a box that almost looks like a cylinder (although it is not perfectly round).**

## Reflection questions

Can learners do the following?

- Recognise and name 3-D objects like balls (spheres), boxes (prisms) and cylinders
- Sort, compare and describe 3-D objects in terms of size and shape

# 76 Slide, roll and build with 3-D objects

## Objectives

- Describe, sort and compare 3-D objects in terms of whether they can roll or slide
- Build with 3-D objects

## Resources

**Teacher:** Writing board, balls, boxes and cylinders, recycled cardboard boxes

**Learner:** Workbook page 24, balls, boxes and cylinders, cardboard box

## Dictionary

**Roll:** to move forward along a surface by repeatedly turning over and over (usually on an axis)

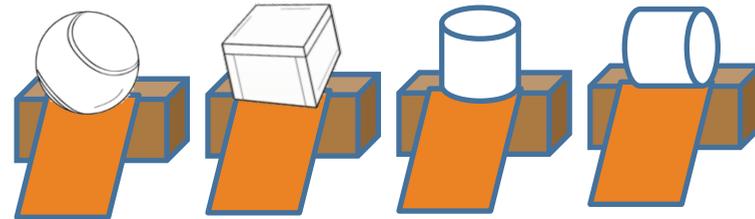
**Slide:** to move smoothly over a surface while maintaining continuous contact with the surface

## Teach mathematics

### Concrete

Group learners and give them boxes, balls and cylinders. Give them each a part of a recycled box to make a slide. Ask learners to move the object down the slide. Ask them questions such as:

- Did the ball roll or slide?
- Did the box roll or slide?
- Did the cylinder roll or slide?
- Can a cylinder both roll and slide?



### Representational

Give the learners some 3-D objects to build various towers. Ask them to describe their towers using words such as boxes, balls and cylinders.

Ask learners:

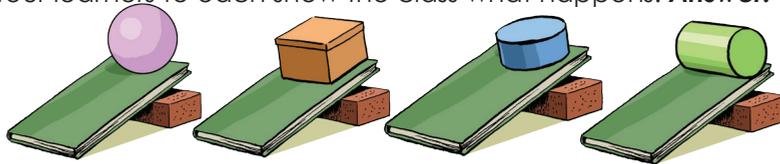
- What worked? Which objects can balance on each other?
- What did not work? Which objects do not balance on each other?

Find the instructions in the Learner Workbook at the top of page 24 before starting with question 1. This must be done as a practical activity to show to your class if the items will balance.

# 76 Slide, roll and build with 3-D objects *continued*



Bring a brick, book, ball and cylinder to class. Set it up like the picture in the learner books. To save some time, you could pick four learners to each show the class what happens. **Answer:**



**Roll**      **Slide**      **Slide**      **Roll**



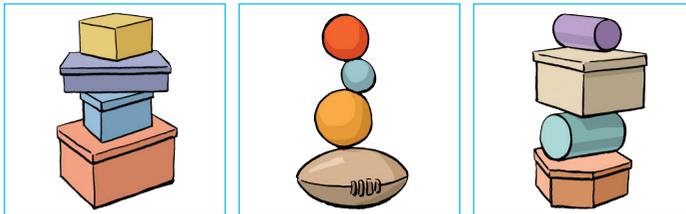
Ask the learners to find pictures of items that will roll or slide and paste it in their work books.

**Answer: Each learner will have to be creative and find their own pictures to paste here. Make sure that the pictures fit with each answer box.**

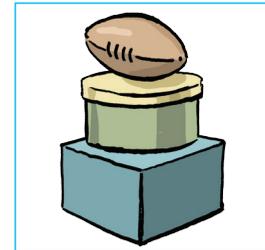


Ask the learners to look at the pictures and say if it will work or not.

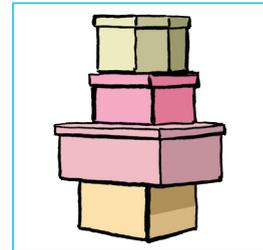
**Answer:**



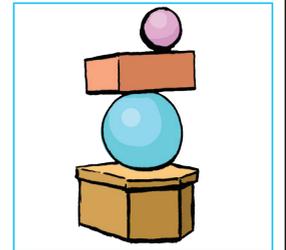
**Yes**      **No**      **No**



**Yes**



**Yes**



**No**

## Homework

Ask your learners to look at the match box towers in their workbooks and build their own match box tower as high as possible. Ask them to write down how many match boxes they used for the tower and draw a picture of how they built it to show the class the next day.



## Reflection questions

Can learners do the following?

- Describe, sort and compare 3-D objects in terms of whether they can roll or slide
- Build with 3-D objects

**Content links:** 5, 23a-24, 37-39b, 41-42b, 72-74, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

# 77 More addition and subtraction 0 – 75

## Objectives

- Add numbers from 0 – 75
- Subtract numbers from 0 – 75
- Recognise place value of numbers

## Resources

**Teacher:** Writing board, place value number cards, unifix cubes  
**Learner:** Workbook page 77, pencil, colouring pencils and small black board and chalk.  
**Concrete resources:**



## Dictionary

**Addition:** finding the total or sum by combining two or more numbers, e.g.  $5 + 6 = 11$ ,  $3 + 2 + 7 = 12$

The symbol for addition is 



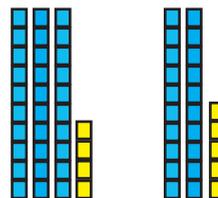
## Teach decomposition of numbers

### Concrete to abstract

Display the following place value cards.



Give learners sets of 100 unifix cubes. Show this with your unifix cubes. Put all the tens and units together.



Ask the learners to write a sum on their small black boards. Possible answers.

$30 + 4 + 20 + 5$   
 $30 + 20 + 4 + 5$   
 $50 + 9$   
 $59$

$4 + 5 + 30 + 20$   
 $9 + 50$   
 $59$

$30 + 20 + 5 + 4$   
 $50 + 9$   
 $59$

**Content links:** 5, 23a-24, 37-39b, 41-42b, 72-74, 101-102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

# 77 More addition and subtraction 0 – 75 cont...



Ask the learners what is the total of each block. **Answers:**

2	50	7	50	4	40	8	30
3	20	2	10	3	10	1	20
	75		69		57		59



Add using own method. **Answers: 73, 71**



Learners must complete the sums. **Answers:**

28	+	31	=	28	+	30	+	1	=	58	+	1	=	59
45	+	32	=	45	+	30	+	2	=	75	+	2	=	77
52	+	14	+	52	+	10	+	4	=	62	+	4	=	66



Learners must add the numbers.

**Answers:**  $41 + 10 = 51$     $44 + 10 = 54$     $71 + 10 = 81$

### Oral questions

What is:  $22 + 24$                        $35 + 21$                        $62 + 67$



Learners must add 36 and 24 and draw a picture to show their answer.

**Answer:**  $36 + 24 = 60$ . *Learner's own picture*



Learners must subtract the numbers in the bottom box from the numbers in the top box.

**Answer:** 32   41   41   24



Write a subtraction sum for the subtraction illustrated by the blocks. **Answers:**  $50 - 6 = 44$                        $70 - 3 = 67$



Learners subtract. **Answer:**  $65 - 23 = 42$      $72 - 29 = 43$



Learners subtract ("minus")

**Answer:**  $61 - 10 = 51$      $42 - 10 = 32$      $37 - 10 = 27$



Learners must make a drawing showing a subtraction sum with marbles.

**Answer:** *Learners do their own drawing for  $62 - 21$ . 40 marbles are left.*  $62 - 21 = 41$

### Homework

- Do question 6 for homework.

### Reflection questions

Can learners do the following?

- Add numbers from 0 – 75
- Subtract numbers from 0 – 75
- Recognise place value of numbers

# 78

## More money

**Content links:** 6, 25-26, 79, 108-109  
**Grade 1 links:** 60a-62, 75-76, 107-108  
**Grade 3 links:** 8, 26, 95a-95b, 107

### Objectives

- Identify and add cents
- Solve money problems involving totals and change in cents and rands

### Resources

**Teacher:** Writing board, money (rands and cents in coins)

**Learner:** Workbook page 78, pencil and colouring pencils, notes and coins from Cut-out 5, scissors and glue

### Dictionary

**Money:** coins or notes used as a payment for goods and services. It is a medium of exchange. Each coin or money note represents a specific value.

**Cent:** a unit of money equal to one hundredth of the main currency unit (such as the Rand, Dollar, or Euro)

### Introduce cents that gives a total of more than 100c

#### Concrete:

Semi-abstract: Ask learners to draw the following:

6 coins that add up to more than R1 (100c).

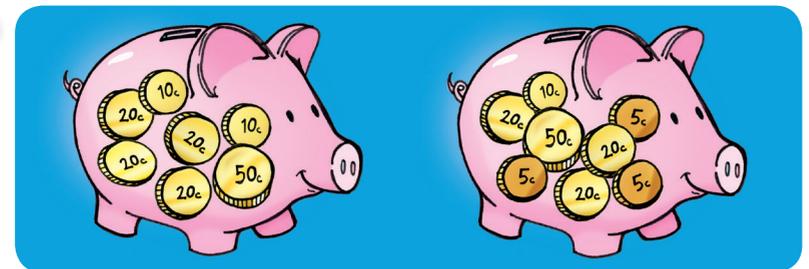
5 coins that add up to more than R1 (100c).

4 coins that add up to more than R1 (100c).

3 coins that add up to more than R1 (100c).



Learners must look at the picture and discuss it.



**Answers:** R1,50

**R1,35**

# 78

## More money *continued*

**Content links:** 6, 25-26, 79, 108-109  
**Grade 1 links:** 60a-62, 75-76, 107-108  
**Grade 3 links:** 8, 26, 95a-95b, 107



Learners cut the coins from the Cut-out 5 and paste them here.






Learners write how many cents there are.  
**Answers: 113c, 107c, 107c, 108c, 178c, 107c.**

Learners do the word sums: I have 100c.

### Oral questions

Which coins will make 145c, 150c, 160c, 175c, 180c



My father gives me another 50c. How much do I have? Draw a picture to show your answer.

**Answer: 150c (or R1,50c)**

I have 170c. I bought a sweet for 100c. How much money do you have left? Draw a picture to show your answer.

**Answer: 70c**

### Homework

- Do the second word sum in Question 4.

### Reflection questions

Can learners do the following?

- Identify and add cents
- Solve money problems involving totals and change in cents and rands

# 79 Note money

## Objectives

- Identify money notes
- Add notes
- Solve money problems involving notes

## Resources

**Teacher:** Writing board, prepare items with prices on for a shop

**Learner:** Workbook page 30, pencil, colouring pencils and money notes from Cut-out 5 (= Cut-out 3)

## Dictionary

**Money:** coins or notes used as a payment for goods and services. It is a medium of exchange. Each coin or money note represents a specific value.

**Cent:** a unit of money equal to one hundredth of the main currency unit (such as the Rand, Dollar, or Euro)

**Rand:** the main unit of currency in South Africa. One hundred cents make up one rand.



**Introduce notes that gives a total of more than R100.**

### Abstract

Play shop using the notes.

In groups give each group R200 (variety of notes). Each group gets the opportunity to come and buy goods for just under R200 from your shop.

Each group will take their goods back to their groups.

Ask each group how many items they bought and how much it cost.

Learners look at the picture and discuss it.



# 79

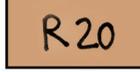
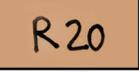
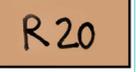
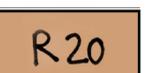
## Note money *continued*

**Content links:** 6, 25-26, 78, 108-109  
**Grade 1 links:** 60a-62, 75-76, 107-108  
**Grade 3 links:** 8, 95a-95b, 107



Learners cut the notes from the Cut-out 5 (or Cut-out 3) and paste them here.

**Answer: These are some possible answers.**

### Oral questions

If I have R50 and R20 in my purse. How much money do I have in my purse.



Learners must write how many Rands there are?

**Answers: R150, R140, R130, R130, R180, R230**



Word sums: My brother has R100. I have R50 and my little sister has R20. How much money do we have altogether?

**Answers: R170**

I have R160. I bought a shirt for R50. How much money do I have left?

**Answers: R110**

### Homework

Complete the second word sum in Question 4 for homework.

### Reflection questions

Can learners do the following?

- Identify money notes
- Add notes
- Solve money problems involving notes

# 80 Time patterns

**Content links:** 89, 112, 117  
**Grade 1 links:** 51, 58-59, 115, 119-120  
**Grade 3 links:** 13, 32, 54

## Objectives

- Read time in hours and minutes on an analogue clock face
- Follow simple numerical sequences on an analogue clock face up to 60
- Copy, extend and describe, counting in fives, simple numerical sequences up to 60

## Resources

**Teacher:** Writing board, large analog clock face marked in hours, large analog clock face marked in minutes

**Learner:** Workbook page 32, colouring pencils

## Dictionary

**Hour:** a unit of time that equals 60 minutes or one twenty-fourth of a day.

**Minute:** a basic unit of time equal to one sixtieth of an hour. It is also equal to 60 seconds.

**Analogue clock:** a clock that represents (displays) time without changing the marked numerals or symbols from 1 to 12 by means of moving hands and hours.

**Sequence:** a list of numbers or objects that are ordered according to a rule

## Introduce minutes and hours



### Concrete and representational

Show the learners a clock face. Place the long hand on 12 and the short hand on 1. We say it is 1 o'clock.

Write it on the board.

Using the short hand go round the clock face doing the same with 2 to 12 o'clock.

Then, using the long hand on the clock face marked in minutes, ask the learners to count in fives. Start at the 5 on the clock face and end at 60.

Then, using the conventional clock face go through the same process of counting in fives and moving the long hand.



### Oral questions

When I count in fives, using the ordinary clock face, at which number (in minutes) will I be when the long hand is at hour number \_\_\_\_\_

4?	20
9?	45
12?	60



Learners look at the picture and discuss it.



# 80

## Time patterns *continued*

Content links: 89, 112, 117  
 Grade 1 links: 51, 58-59, 115, 119-120  
 Grade 3 links: 13, 32, 54



Learners write down the sequence of numbers show by the pattern arrows.

**Answers:**

**10, 20, 30, 40, 50, 60**

**3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60**



Learners must write down the sequence of numbers show by the pattern arrows.

**Answers:**

**Arrows touch at numbers:**

**Count in 3s start at 4.**

**4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34, 37, 40, 43, 46, 49, 52, 55, 58, 1**

**Count in 2s start at 3.**

**3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 57, 59, 1**

**Count in 10s start at 1.**

**11, 21, 31, 41, 51, 1**

**Count in 5s start at 2.**

**2, 7, 12, 17, 22, 27, 32, 37, 42, 47, 52, 57**

### Oral questions

When I count in fives minutes, how many minutes will it be when on the clock face the long hand is at:

4? **20 minutes**

9? **45 minutes**

12? **60 minutes (or 0 minutes)**



What time do you go to school?



What time do you go home?



What time do you eat supper?



**Answer: Learner's own answers.**

### Homework

- Complete the last activity (Question 4) for homework.

### Reflection questions

Can learners do the following?

- Read time in hours and minutes on an analogue clock face
- Follow simple numerical sequences on an analogue clock face up to 60

# 81a Hours and minutes

**Content links:** 13-14, 22, 55, 57a-57b, 85a-85b, 89  
**Grade 1 links:** None  
**Grade 3 links:** 12, 32, 54, 80, 106

## Objectives

- Tell 12-hour time in hours and minutes on analogue clocks
- Tell time in half and quarter hours
- Use terms such as "to", "after" and "past" in relation to telling the time

## Resources

**Teacher:** Writing board, analogue clocks

**Learner:** Workbook page 34, pencil, and colouring pencils.

## Dictionary

**Minutes:** The long hand on the clock shows us minutes. There are 60 minutes in an hour. We can count minutes in fives, e.g. 5, 10, 15, ..., 60.

**Hours:** The short hand on the clock shows us hours. We can count hours in ones, e.g. 1, 2, 3, ..., 12

## Introduce minutes and hours.

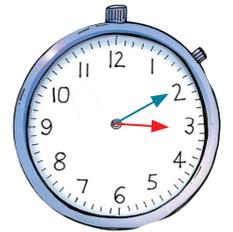
### Representational, abstract

Use a self made clock. Show it to the learners.

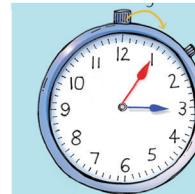
Ask learners:

- On which number is the short hand?
- What does this tell us (hours)?
- On which number is the long hand?
- What does this tell us? (minutes)
- Do we say "2 minutes" or "10 minutes"?

Do a few examples with the learners using five past, ten past, fifteen past, twenty past and twenty-five past. Do some examples using quarter to, quarter past and half past.



Learners must look at the picture and discuss it.



The **short hand** shows us **3 hours**.

The **long hand** shows us it is **5 minutes**.

We say it is **five past three**.

We mean it is five minutes after 3 hours.



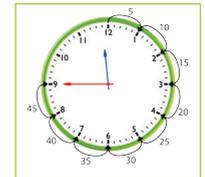
Learners tell what the time is.

**Answers:**

**The short hand shows us nearly 12 hours.**

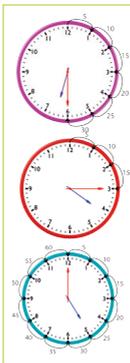
**The long hand shows us it is 45 minutes.**

**We say it is a quarter to twelve.**



# 81a Hours and minutes *continued*

**Content links:** 13-14, 22, 55, 57a-57b, 85a-85b, 89  
**Grade 1 links:** None  
**Grade 3 links:** 12, 32, 54, 80, 106

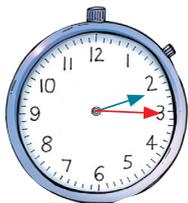


The short hand shows us between 6 and 7 hours.  
The long hand shows us it is 30 minutes.  
We say it is half past six.

The short hand shows us it is a little past 4 hours.  
The long hand shows us it is 15 minutes.  
We say it is quarter past four.

The short hand shows us 5 hours.  
The long hand shows us it is 0 (or 60) minutes.  
We say it is five (o'clock)

Learners must draw the long hand and short hand. **Answers:**



What do you do during this time in the week? Draw a picture.

**Answers:** Learners draw own pictures.

## Oral questions

- What time is it if the long hand is on 2 and the short hand on 5?
- What time is it if the long hand is on 1 and the short hand on 7?
- What time is it if the long hand is on 5 and the short hand on 2?
- What time is it if the long hand is on 3 and the short hand on 1?
- What time is it if the long hand is on 4 and the short hand on 5?

## Homework

Learners complete question 4 for homework.

## Reflection questions

Can learners do the following?

- Tell 12-hour time in hours and minutes on analogue clocks
- Tell time in half and quarter hours
- Use terms such as "to", "after" and "past" in relation to telling the time



## Common errors

Make notes of common errors made by the learners.

# 81b Minutes and hours

**Content links:** 13-14, 22, 55, 57a-57b, 85a-85b, 89  
**Grade 1 links:** None  
**Grade 3 links:** 12, 32, 54, 80, 106

## Objectives

- Tell 12-hour time in hours and minutes on analogue clocks
- Tell time in half and quarter hours
- Use terms such as "to", "after" and "past" in relation to telling the time

## Resources

**Teacher:** Writing board, clocks

**Learner:** Workbook page 36 and colouring pencils

## Dictionary

**Minutes:** The long hand on the clock shows us minutes. There are 60 minutes in an hour. We can count minutes in fives, e.g. 5, 10, 15, ..., 60.

**Hours:** The short hand on the clock shows us hours. We can count hours in ones, e.g. 1, 2, 3, ..., 12

## Introduce minutes and hours

### Representational, Abstract

Use a self made clock. Show it to the learners. Ask learners:

- On which number is the short hand?
- What does this tell us? (**hours**)
- On which number is the long hand?
- What does this tell us? (**minutes**)
- Do we say "10 minutes" or "50 minutes"?

Do a few examples with the learners using five to, ten to, fifteen to, twenty to and twenty-five to.



Learners must look at the picture and discuss it.



The **short hand** is just before **three**.  
The **long hand** stands on **35 minutes**.

It is **25 minutes** before the long hand is on 12.

We say it is **twenty five to three**.

We mean it is **25 minutes** before the 3rd hour.



Learners say what the time is.

**Answers:**

**The short hand is just before three.**

**The long hand stands on 40 minutes.**

**It is 20 minutes before the long hand is on 12.**

**We say it is twenty to three.**

**The short hand is just before one.**

**The long hand stands on 45 minutes.**

**It is 15 minutes before the long hand is on 12.**

**We say it is quarter to one.**

**The short hand is just before seven.**

**The long hand stands on 50 minutes.**

**It is 10 minutes before the long hand is on 12.**

**We say it is ten to seven.**



# 81b Minutes and hours

Content links: 13-14, 22, 55, 57a-57b, 85a-85b, 89

Grade 1 links: None

Grade 3 links: 12, 32, 54, 80, 106



The short hand is just before nine.  
The long hand stands on 55 minutes.  
It is 5 minutes before the long hand is on 12.  
We say it is five to nine.



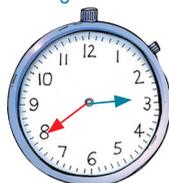
Learners must draw the long hand and short hand.

Answers:

Five to eight.



Twenty to three.



Five to one.



Ten to six.



Thirteen to seven.



Twelve to twelve.



## Oral questions

- What time is it if the long hand is on 6 and the short hand on 5?
- What time is it if the long hand is on 9 and the short hand on 7?
- What time is it if the long hand is on 11 and the short hand on 2?
- What time is it if the long hand is on 7 and the short hand on 1?
- What time is it if the long hand is on 8 and the short hand on 5?

## Homework

- Learners complete question 3 for homework.

## Reflection questions

- Tell 12-hour time in hours and minutes on analogue clocks
- Tell time in half and quarter hours
- Use terms such as "to", "after" and "past" in relation to telling the time

## Common errors

Make notes of common errors made by the learners.

# 82 Repeated addition

## Objectives

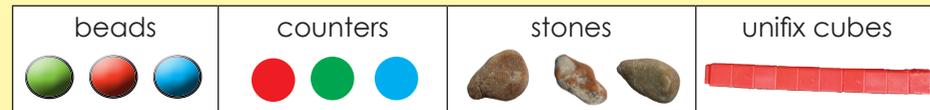
- Add the same number repeatedly
- Multiply numbers 1 to 10 by 2, 4, and 5
- Use appropriate symbols (+, −, x)

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 38, paper and pencils

### Concrete resources:



## Dictionary

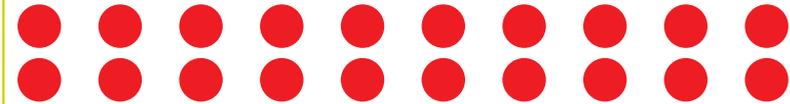
**Repeated addition:** The basic idea of multiplying is repeated addition, e.g.  $4 + 4 + 4 = 12$

**Addition number sentence or sum:** An addition number sentence include the plus sign (+), numbers and the equal (=) sign.

**Multiplication number sentence or sum:** A multiplication number sentence include the times sign (x), numbers and the equal (=) sign.

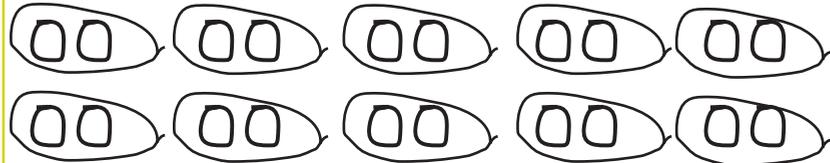
## Concrete

Give the learners 20 counters or stones each. Ask them to make ten groups of 2.



Ask the learners how many counters are there? Ask them how did they count it. Guide learners to say: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20

Ask learners to make a drawing of the counters set out and to circle each group of 2.



Ask the learners how many groups of 2 do they have? 10 groups of 2.

Ask the learners to look at their drawings and then make an:

- **addition number sentence:**  $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 20$
- **multiplication number sentence:**  $10 \times 2 = 20$

Do similar activities with fours and fives.

# 82 Repeated addition *continued*



Work through the example at the top of the worksheet with the learners on your chalk board so that every learner understands how you worked out the sum.

Ask the learners to work out the sentence and sums for the following pictures.

**Answer:**

- 4 groups of 2;  $2 + 2 + 2 + 2 = 8$ ;  $4 \times 2 = 8$
- 2 groups of 2;  $2 + 2 = 4$ ;  $2 \times 2 = 4$
- 5 groups of 5;  $5 + 5 + 5 + 5 + 5 = 25$ ;  $5 \times 5 = 25$
- 6 groups of 2;  $2 + 2 + 2 + 2 + 2 + 2 = 12$ ;  $6 \times 2 = 12$



Ask the learners to look at the pictures and now do the same as what they did in question 1, but this time each bag will have 4 sweets.

**Answer:**

- 7 groups of 4;  $4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$ ;  $7 \times 4 = 28$
- 10 groups of 4;  $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 40$ ;  $10 \times 4 = 40$
- 8 groups of 4;  $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 32$ ;  $8 \times 4 = 32$
- 5 groups of 4;  $4 + 4 + 4 + 4 + 4 = 20$ ;  $5 \times 4 = 20$



Ask the learners to complete the multiplication table.

**Answer:**

x	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50



## Homework

Ask the learners to complete this question for homework.

**Answer:**

- 5 boxes x 2 muffins = 10 muffins
- 4 boxes x 5 cup cakes = 20 cup cakes
- 3 boxes x 4 doughnuts = 12 doughnuts

## Reflection questions

Can the learners do the following?

- Add the same number repeatedly
- Multiply numbers 1 to 10 by 2, 4, and 5
- Use appropriate symbols (+, −, x)

# 83 Multiply by 5

## Objectives

- Multiply numbers 1 to 15 by 5
- Use appropriate symbols (+, -, x)

## Resources

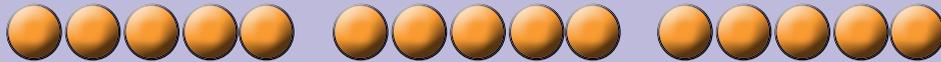
**Teacher:** Writing board, board, 1 - 100 number boards, counters, unifix cubes, beads

**Learner:** Workbook page 40, pencil and colouring pencils



## Dictionary

**Multiplication:** The basic idea of multiplication is repeated addition, e.g.  $5 + 5 + 5 = 15$ ,  $5 \times 3 = 15$



### Introduce multiplying by 5

Learners look at the picture and discuss it.

## Concrete

Ask learners to set out the following on their desk using beads, counters, stones or unifix cubes.

Place five counters on your desk.

Place another five, place another five, place another five.

How many counters do you have?



Let us count: 5, 10, 15, 20.

Let us make an addition sum:  $5 + 5 + 5 + 5 = 20$

Let us make a multiplication sum:  $5 \times 4 = 20$

## Abstract

Place counters in correct places on a 1 to 100 number board

1	2	3	4		6	7	8	9	
11	12	13	14		16	17	18	19	
21	22	23	24		26	27	28	29	
31	32	33	34		36	37	38	39	
41	42	43	44		46	47	48	49	
51	52	53	54		56	57	58	59	
61	62	63	64		66	67	68	69	
71	72	73	74		76	77	78	79	
81	82	83	84		86	87	88	89	
91	92	93	94		96	97	98	99	

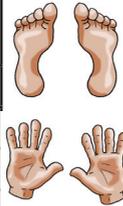
# 83

## Multiply by 5 *continued*



Learners complete the following. **Answers:**

Toes on one foot	Feet	Total	Fingers on one hand	Hands	Total
5	x 2	= 10	5	x 1	= 5
5	x 3	= 15	5	x 2	= 10
5	x 4	= 20	5	x 4	= 20
5	x 6	= 30	5	x 7	= 35



### Oral question

Let us count: 5, 10, 15, ..., 50



Learners complete the following:

5	10	15	20	25	30	35	40	45	50
50	45	40	35	30	25	20	15	10	5



Learners complete the following:

5 × 	25 apples	4 × 	20 bananas
6 × 	30 bananas	7 × 	35 apples



Learners complete the following:

$\begin{aligned} & 10 \overset{5}{\times} 5 \\ = & 10 + 5 \times 5 \\ = & 10 \times 5 + 5 \times 5 \\ = & 50 + 25 \\ = & 75 \end{aligned}$	$\begin{aligned} & 10 \overset{2}{\times} 5 \\ = & 10 + 2 \times 5 \\ = & 10 \times 5 + 2 \times 5 \\ = & 50 + 10 \\ = & 60 \end{aligned}$
$\begin{aligned} & 10 \overset{4}{\times} 5 \\ = & 10 + 4 \times 5 \\ = & 10 \times 5 + 4 \times 5 \\ = & 50 + 20 \\ = & 70 \end{aligned}$	$\begin{aligned} & 10 \overset{3}{\times} 5 \\ = & 10 + 3 \times 5 \\ = & 10 \times 5 + 3 \times 5 \\ = & 50 + 15 \\ = & 65 \end{aligned}$

### Homework

- Practice the 5 times table.

### Reflection questions

Can learners do the following?

- Multiply numbers 1 to 15 by 5
- Use appropriate symbols (+, −, ×)

# 84 Multiply by 2

## Objectives

- Multiply numbers 1 to 15 by 2
- Use appropriate symbols (+, −, x, ÷)

## Resources

**Teacher:** Writing board, 1 - 100 number boards, counters, unifix cubes, beads

**Learner:** Workbook page 42, pencil and colouring pencils



## Dictionary

**Multiplication:** The basic idea of multiplication is repeated addition, e.g.  $2 + 2 + 2 = 6$ ,  $3 \times 2 = 6$



### Introduce multiplying by 2

Learners look at the picture and discuss it.

## Concrete

Ask learners to set out the following on their desk using beads, counters, stones or unifix cubes.

Place two counters on your desk.

Place another two, place another two, place another two.

How many counters do you have?



Let us count: 2, 4, 6, 8.

Let us make an addition sum:  $2 + 2 + 2 + 2 = 8$

Let us make a multiplication sum:  $2 \times 4 = 8$

## Abstract

Place counters on the correct places on a 1 to 100 number board.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Learners must look at the picture and complete the following.

**Answers:**

**Pigeons:**  $1 \times 2 = 2$  and  $1 \times 2 = 2$

**Ducks:**  $2 \times 2 = 4$  and  $2 \times 2 = 4$

## Oral question

Let us count: 5, 10, 15, ..., 175

# 84 Multiply by 2 *continued*



Learners must complete the following:

2	4	6	8	10	12	14	16	18	20
20	18	16	14	12	10	8	6	4	2



Learners complete the following:

5 × <input type="text" value="10"/> apples	4 × <input type="text" value="8"/> bananas
6 × <input type="text" value="12"/> bananas	7 × <input type="text" value="14"/> apples



Learners complete the following:

$\begin{aligned} & 10 \overset{2}{\times} 2 \\ = & 10 + \overset{2}{\times} 2 \\ = & 10 \times 2 + \overset{2}{\times} 2 \\ = & 20 + 4 \\ = & 24 \end{aligned}$	$\begin{aligned} & 10 \overset{5}{\times} 2 \\ = & 10 + \overset{5}{\times} 2 \\ = & 10 \times 2 + \overset{5}{\times} 2 \\ = & 20 + 10 \\ = & 30 \end{aligned}$
-----------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------



Learners complete the drawings and sums.

**Answer:**  
 2 stars on each flag  
 $2 + 2 + 2 + 2 + 2 + 2 = 12$   
 $6 \times 2 = 12$



How many blocks in these slabs of chocolate

**Answer:**  
 $5 \times 2 = 10$   
 $2 \times 5 = 10$   
 Explain to the learners that you can identify 5 groups of two pieces of chocolate (5 rows of 2 pieces each) or 2 groups of 5 each (2 rows of 5 pieces each).  
 The total number of pieces altogether is 20.



## Homework

- Practice the 2 x table.

## Reflection questions

- Can learners do the following?
- Multiply numbers 1 to 15 by 2
  - Use appropriate symbols (+, −, ×, ÷)

# 85a Quarter past

Content links: 13-14, 22, 55, 57a-57b, 81a-81b, 89

Grade 1 links: None

Grade 3 links: 12, 32, 54, 80, 106

## Objectives

- Tell 12-hour time in quarter hours on an analogue clock

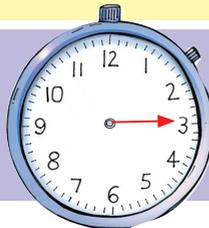
## Resources

Teacher: Writing board, analogue clock

Learner: Workbook page 44, pencil and colouring pencils

## Dictionary

**Quarter past:** If the long hand is on three of a clock it is fifteen minutes past (which is a quarter of the 60 minutes shown on the clockface).



Introduce quarter past and quarter to

## Concrete and representational

Divide the clock face into half.

The long hand is on 6. It is 30 minutes past, but we can also say it is **half past**. It means half of the clock.

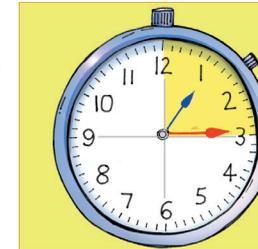


Divide the clock into quarters.

The long hand is on 3. It is 15 minutes past, but we can say it is **quarter past**.



Learners must look at the picture and discuss it.



The **short hand just passed one**.  
The **long hand stands on fifteen minutes**.  
We say it is **quarter past one**.  
We mean it is a quarter of an hour  
(15 minutes) after the 1st hour.

Learners say what the time is.

**Answers:**

*The short hand just passed ten.*

*The long hand stands on fifteen minutes.*

*We say it is quarter past ten.*



Learners draw the long and short hands to show the time.

**Answers:**

*The short hand just passed eight.*

*The long hand stands on fifteen minutes.*

*We say it is quarter past eight.*



*The short hand just passed three.*

*The long hand stands on fifteen minutes.*

*We say it is quarter past three.*



# 85a Quarter past *continued*

## Oral question

Where will the long hand be if it is quarter past? Where will the short hand be?



Learners talk about finding the "quarter to" time.



What is the time?

**Answer:**

**The short hand is just before eleven.**

**The long hand stands on forty-five minutes.**

**We say it is quarter to eleven.**



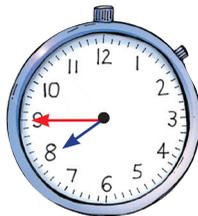
Learners must draw the long hand and the short hand to show the time.

**Answers:**

Quarter to 4.



Quarter to 8.



## Homework

- Learners can do Question 6 for homework.

## Reflection questions

Can learners do the following?

- Tell 12-hour time in quarter hours on an analogue clock

## X Common errors

Make notes of common errors made by the learners.

# 85b Time passes

**Content links:** 13-14, 22, 55, 57a-57b, 81a-81b, 89  
**Grade 1 links:** None  
**Grade 3 links:** 12, 32, 54, 80, 106

## Objectives

- Use clocks to calculate length of time in hours

## Resources

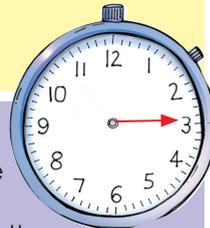
**Teacher:** Writing board, analogue clocks

**Learner:** Workbook page 46, pencil, piece of paper

## Dictionary

**Time:** a measure in which events can be ordered from the past through the present into the future, and also the measure of durations of events and the intervals between them

**Hour:** one 24th of the time it takes the earth to make one full rotation. The short hand on the clock shows us hours using 12-hour time. We can count hours in ones, e.g. 1, 2, 3, ..., 12.



## Introduce calculating time passed

### Concrete

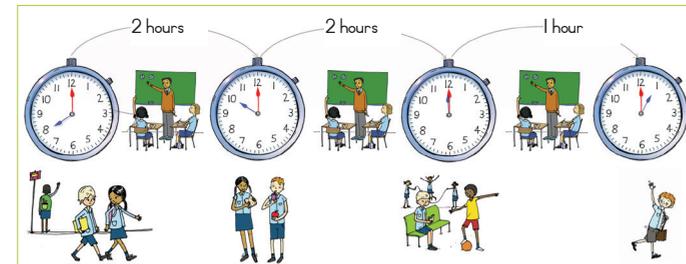
Give 2 learners a clock each showing different times. Ask the rest of the class to look at these 2 times and to calculate how much time passed between the 2 shown times. Do more examples like this.

### Representational

Draw a clock on the board. Ask the learners to draw a clock on a piece of paper showing 1 hour later than the time on your clock. Do more examples like this.



Learners look at the picture and discuss it.



Learners say how long each activity took.

**Answers:**



1 hour

2 hours

1 hour

10 hours



**Content links:** 13-14, 22, 55, 57a-57b, 81a-81b, 89

**Grade 1 links:** None

**Grade 3 links:** 12, 32, 54, 80, 106

## 85b Time passes *continued*



How many hours is it from 4 o'clock to 7 o'clock? 3 hours

How many hours is it from 8 o'clock to 12 o'clock? 4 hours

How many hours is it from 1 o'clock to 8 o'clock? 7 hours

How many hours is it from 5 o'clock to 10 o'clock? 5 hours

How many hours is it from 2 o'clock to 11 o'clock? 9 hours



Learners draw a picture.

**Answer: 5 hours**



Learners draw a picture.

**Answer: 18 hours**

### Oral question

I woke up at 6 o'clock this morning. I got to school at 7 o'clock. How much time passed from when I woke up to when I got to school?

Ask more questions like this.

### Homework

See what time your mother or caregiver starts cooking supper and what time she ends. How long did it take the person to cook supper?

### Reflection questions

Can learners do the following?

- Use clocks to calculate length of time in hours



### Common errors

Make notes of common errors made by the learners.

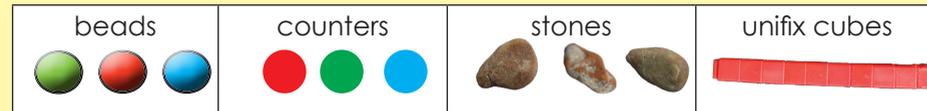
**Objective**

- Double numbers from 0 – 10

**Resources**

**Teacher:** Writing board, counters

**Learner:** Workbook page 48, pencil and colouring pencils

**Dictionary**

**Double:** make twice as big

**Multiply by 2:** e.g. double 3 is 6

**Introduce doubling numbers from 0 – 10**

**Concrete**

Tell learners to take 2 counters each. Ask them to double the counters. Look and see if learners add another two counters.



Ask learners to place:

- 1 counter on their desk. Double it.
- 3 counters on their desk. Double them.
- 4 counters on their desk. Double them.
- 5 counters on their desk. Double them.

Draw the following on the board:



How many apples are in the first block?

How many apples are in the second block?

We can say: Double 3 or  $2 \times 3$

Give them more examples with double 2, 4, and 5.

Ask learners to look at the picture, what happened.





Learners add the dots and write a sum for each.

**Answer:**

- $2 + 2 = 4$
- $3 + 3 = 6$
- $4 + 4 = 8$
- $1 + 1 = 2$
- $5 + 5 = 10$

### Oral questions

Ask the learners to:

- Add 2 squares and 2 squares.
- Add 4 circles and 4 circles.
- Add 5 triangles and 5 triangles.



Learners use the number lines to write a sum.

**Answer:**

•  $3 + 3 = 6$  •  $2 + 2 = 4$  •  $4 + 4 = 8$  •  $1 + 1 = 2$  •  $5 + 5 = 10$

Learners trace the hoops with their fingers when they add.



Learners double the numbers. Ask the learners to read the first one: Double 1 is  $1 + 1 = 2$  can also write it as  $1 + 1 = 2$ , and  $2 \times 1 = 2$

**Answer:**

- $1 + 1 = 2, 2 \times 1 = 2$
- $2 + 2 = 4, 2 \times 2 = 4$
- $3 + 3 = 6, 2 \times 3 = 6$
- $4 + 4 = 8, 2 \times 4 = 8$
- $5 + 5 = 10, 2 \times 5 = 10$



2 4 6 8 10 12 14

### Homework

- Complete the last 2 sums of question 4.

### Reflection questions

- Double numbers from 0 – 10



### Common errors

Make notes of common errors made by the learners.

# 87 Doubling and halving

Content links: 44, 51, 53, 56, 80, 89, 112

Grade 1 links: 51, 58-59, 83-84, 93, 115, 119-120

Grade 3 links: 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

## Objectives

- Use doubling and halving when doing calculations

## Resources

**Teacher:** Writing board, unifix cubes

**Learner:** Workbook page 50, pencil, colouring pencils

beads 	counters 	stones 	unifix cubes 
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## Dictionary

**Double:** make twice as big, e.g. multiply by 2 as in  $4 \times 2 = 8$  or  $12 \times 2 = 24$

**Halve:** make half as big, e.g. divide 8 by  $2 = 4$

### Introduce doubling

#### Concrete

Ask the learners to place 5 unifix cubes on their desks. 

Ask learners to double the cubes. 

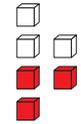
In groups, ask learners to place 12 unifix cubes (one 10-cube train and two cubes) on the desk. Ask them to double them.



Learners look at the picture and make their own story to explain it.

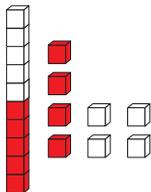


Learners count and colour half the objects:



Count

Half is



Count

Half is

# 87

## Doubling and halving *continued*



Learners complete the following and make a drawing.

**Answers:**

**Double 12 is 24**

$12 + 12$

**Learner's own drawing**



Complete. **Answers:**

14		8		4		16		18	
7	7	4	4	2	2	8	8	9	9



Look at the two pictures and make your own story.

**Answer:** *an example story would be this. Two children opened a bag of sweets . They found four sweets which they shared equally, each getting two.*

*Four other children opened a bag of sweets and found eight sweets, which they also shared out, each getting two. There was double the number of sweets in their bag.*



Learners count the objects and colour in half of them.

**Answer:**

**Count is 24    Half is 12**

**Count is 30    Half is 15**



Learners complete the following and make a drawing.

**Answers:**

**Double 16 is 32**

$16 + 16$

**Learner's own drawing**



Complete. **Answers:**

34		44		38		36		40	
17	17	22	22	19	19	18	18	20	20

### Oral question

- What is double: 7, 13, 15

### Homework

Do Question 8 for homework.

### Reflection questions

Can learners do the following?

- Use doubling and halving when doing calculations

# 88

## More multiplication

**Content links:** 29-31, 50, 52, 54, 83-84, 113-115

**Grade 1 links:** None

**Grade 3 links:** 23-25, 27-28, 34, 49-51, 53, 55-56, 78, 81, 83-85, 87, 89, 113, 117-118, 120

### Objectives

- Multiply numbers 1 to 15 by 2 and 4
- Use appropriate symbols (+, −, ×, ÷)
- Recognise place value in numbers

### Resources

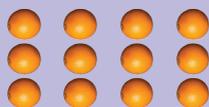
**Teacher:** Writing board, counters, beads, unifix cubes, 1 - 100 number boards

**Learner:** Workbook page 50, pencil, colouring pencils



### Dictionary

**Multiplication:** Multiplication is repeated addition.  
e.g.  $3 + 3 + 3 + 3 = 4 \times 3 = 12$



Teach multiplication

### Concrete

Ask learners to set out the following on their desk using beads, counters, stones or unifix cubes.

Place four counters on your desk.

Place another four, place another four, place another four.

How many counters do you have?



Let us count: 4, 8, 12, 16

Let us make an addition sum:  $4 + 4 + 4 + 4 = 16$

Let us make a multiplication sum:  $4 \times 4 = 16$

### Abstract

Place counters in correct places on a 1 to 100 number board

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Content links: 29-31, 50, 52, 54, 83-84, 113-115

Grade 1 links: None

Grade 3 links: 23-25, 27-28, 34, 49-51, 53, 55-56, 78, 81, 83-85, 87, 89, 113, 117-118, 120

# 88

## More multiplication cont..

Learners look at the picture and discuss it.



Learners look at the picture and complete the following.

Answers:

$$\begin{array}{|c|} \hline 1 \\ \hline \end{array} \times \begin{array}{|c|} \hline 4 \\ \hline \end{array} = \begin{array}{|c|} \hline 4 \\ \hline \end{array}$$

Number of dogs      Feet per animal

$$\begin{array}{|c|} \hline 1 \\ \hline \end{array} \times \begin{array}{|c|} \hline 2 \\ \hline \end{array} = \begin{array}{|c|} \hline 2 \\ \hline \end{array}$$

Number of dogs      Eyes per animal

$$\begin{array}{|c|} \hline 4 \\ \hline \end{array} \times \begin{array}{|c|} \hline 4 \\ \hline \end{array} = \begin{array}{|c|} \hline 16 \\ \hline \end{array}$$

Number of wild animals      Legs per animal

$$\begin{array}{|c|} \hline 4 \\ \hline \end{array} \times \begin{array}{|c|} \hline 2 \\ \hline \end{array} = \begin{array}{|c|} \hline 8 \\ \hline \end{array}$$

Number of wild animals      Ears per animal



Learners complete the following. Answers:

4	8	12	16	20	24	28	32	36	40
40	36	32	28	24	20	16	12	8	4



Learners complete the following. Answers:

5 x  = 20	4 x  = 16
6 x  = 24	7 x  = 28



Learners complete the following. Answers:

$14 \times 4 = \boxed{56}$ $\begin{array}{ c } \hline 10 \\ \hline \end{array} \times 4$ $= \begin{array}{ c } \hline 10 \\ \hline \end{array} + \begin{array}{ c } \hline 4 \\ \hline \end{array} \times 4$ $= \begin{array}{ c } \hline 10 \\ \hline \end{array} \times 4 + \begin{array}{ c } \hline 4 \\ \hline \end{array} \times 4$ $= 40 + 16$ $= 56$	$15 \times 4 = \boxed{60}$ $\begin{array}{ c } \hline 10 \\ \hline \end{array} \times 4$ $= \begin{array}{ c } \hline 10 \\ \hline \end{array} + \begin{array}{ c } \hline 5 \\ \hline \end{array} \times 4$ $= \begin{array}{ c } \hline 10 \\ \hline \end{array} \times 4 + \begin{array}{ c } \hline 5 \\ \hline \end{array} \times 4$ $= \begin{array}{ c } \hline 40 \\ \hline \end{array} + \begin{array}{ c } \hline 20 \\ \hline \end{array}$ $= \begin{array}{ c } \hline 60 \\ \hline \end{array}$
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------



Discuss with the learners. Answer: It looks like there are 12 cups, saucers and spoons and two tea pots and two sugar bowls.



Share 19 marbles equally between 4 children.	Share 22 pencils equally between 4 children.
Each get $\boxed{4}$ Left over $\boxed{3}$	Each get $\boxed{5}$ Left over $\boxed{2}$



Share 23 books between 4 children.	Share 15 books between 4 children.
Each get $\boxed{5}$ Left over $\boxed{3}$	Each get $\boxed{3}$ Left over $\boxed{3}$

### Reflection questions

Can learners do the following?

- Multiply numbers 1 to 15 by 2 and 4
- Use appropriate symbols (+, −, ×, ÷)
- Recognise place value in numbers

# 89 Number patterns

**Content links:** 44, 51, 53, 56, 80, 112, 117

**Grade 1 links:** 51, 58-59, 83-84, 93, 115, 119-120

**Grade 3 links:** 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

## Objectives

- Copy, extend and describe simple number sequences up to at least 180
- Count forwards and backwards in 2s, 3s, 4s, 5, and 10s

## Resources

**Teacher:** Writing board, 1 - 100 number boards, counters

**Learner:** Workbook page 54, pencil and colouring pencils

**Concrete resources:**



## Dictionary

**Pattern:** something that repeats itself in a regular, predictable way

**Sequence:** an ordered list of numbers or objects



Introduce number patterns

## Concrete

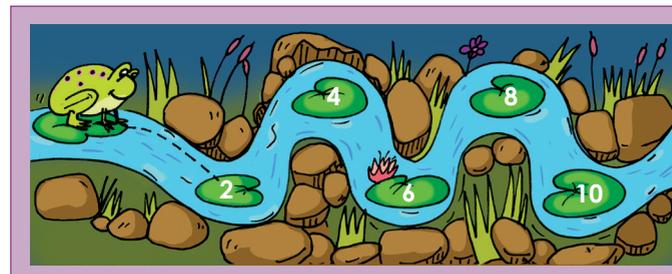
In pairs give learners a number board.

1		3		5		7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Ask learners to place counters on 2, 4, 6. Ask them to extend the pattern:  
Say: "Let us use the number board to count forwards and backwards." Do the same with: • 3, 6, 9, ... • 4, 8, 12, ... • 5, 10, 15, ...



Learners look at the picture and discuss it.



# 89

## Number patterns *continued*

Content links: 44, 51, 53, 56, 80, 112, 117

Grade 1 links: 51, 58-59, 83-84, 93, 115, 119-120

Grade 3 links: 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121



Learners identify the pattern. Draw the path, starting with the smallest number.

Answers:

- 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
- 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
- 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
- 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

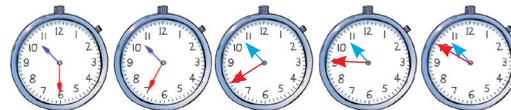


Learners draw the clock hands and write the time.

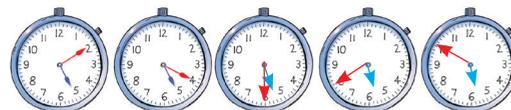


### Oral questions

Count backwards: • 20, 18, 16, ... • 30, 27, 24, ... • 40, 36, 32, ...



10:30 10:35 **10:40 10:45 10:50**



5:10 5:20 **5:30 5:40 5:50**

### Homework

- 2, 4, 6, \_\_\_\_\_
- 3, 6, 9, \_\_\_\_\_
- 4, 8, 12, \_\_\_\_\_
- 5, 10, 15, \_\_\_\_\_
- 20, 18, 16, \_\_\_\_\_
- 30, 27, 24, \_\_\_\_\_
- 40, 36, 32, \_\_\_\_\_
- 50, 45, 40, \_\_\_\_\_

### Reflection questions

Can learners do the following?

- Copy, extend and describe simple number sequences up to at least 180
- Count forwards and backwards in 2s, 3s, 4s, 5, and 10s

# 90 Fractions – halves

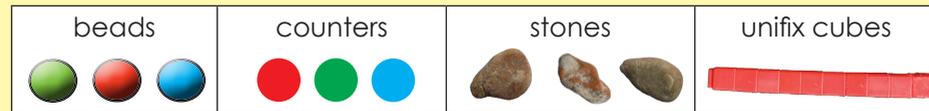
## Objectives

- Identify halves
- Use and name half fractions

## Resources

**Teacher:** Writing board, old cardboard or paper cut into shapes

**Learner:** Workbook page 56, pencil and colouring pencils



## Dictionary

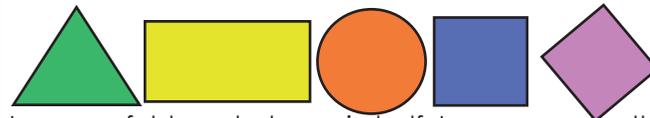
**Fractions:** part of a whole. A fraction is a number written with the bottom part (the denominator) telling you how many parts the whole is divided into, and top part (the numerator) telling how many of these parts you have, e.g.  $\frac{3}{4}$  meaning 3 parts of the whole that has been divided into 4 equal parts.

**Half:** divide into two parts of equal or roughly equal size

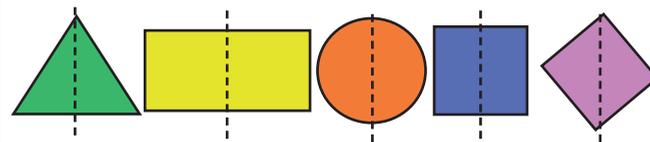


Introduce halves

Give learners various pieces of old cardboard paper. Trace and cut out shapes.

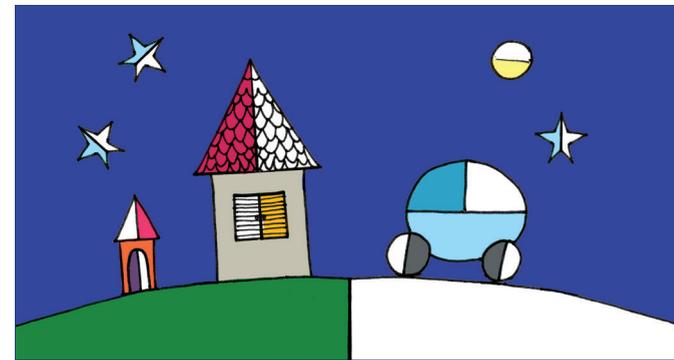


Learners fold each shape in half. Learners open the shapes.



Tell learners that these shapes are exactly divided into halves that are the same size. Draw it on the board. Point to one half and say: "This is one half."

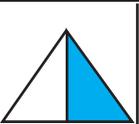
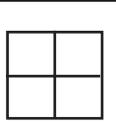
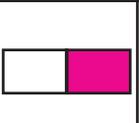
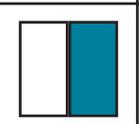
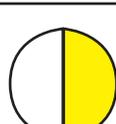
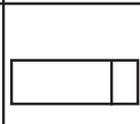
Learners look at the picture and colour it.



# 90 Fractions – halves *continued*

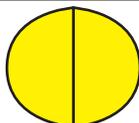
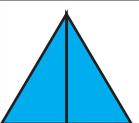
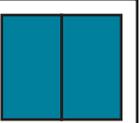
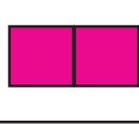
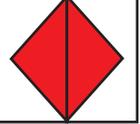


Learners look at the picture. Tick the shapes that show halves. Colour one half of the shape that is divided into halves.

 <input checked="" type="checkbox"/>	 <input type="checkbox"/>	 <input checked="" type="checkbox"/>	 <input type="checkbox"/>
 <input checked="" type="checkbox"/>	 <input type="checkbox"/>	 <input checked="" type="checkbox"/>	 <input type="checkbox"/>
 <input checked="" type="checkbox"/>	 <input checked="" type="checkbox"/>	 <input checked="" type="checkbox"/>	 <input type="checkbox"/>



Learners colour half of each shape. Note that shapes 1, 3, 4 and 6 can be divided horizontally instead.

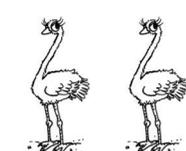
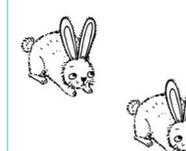
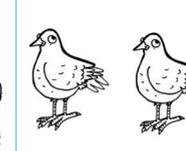
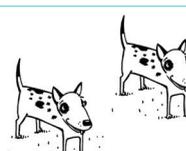
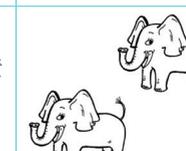
		
		

## Oral questions

Show me anything that is divided into half in the class. (Make sure there are some examples in the class.)



Learners colour one half of the animals in each block.

## Homework

- Draw five pictures or shapes and divide them in half.

## Reflection questions

- Can the learners do the following?
- Identify halves
  - Use and name half fractions

# 91 Fractions – more halves

Content links: 90, 94a-94b, 118, 122-123, 125-126

Grade 1 links: None

Grade 3 links: 7, 57-58

## Objectives

- Identify halves
- Identify, recognise and write the half symbol ( $\frac{1}{2}$ )
- Identify one half of a number
- Recognise fractions in diagrammatic form

## Resources

**Teacher:** Writing board  
**Learner:** Workbook page 58, pencil and colouring pencils

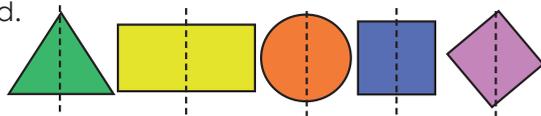
## Dictionary

**Half:** one half of something, one of the parts when something is divided into two parts

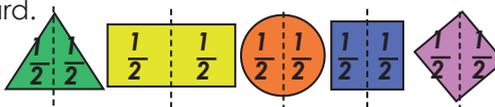
**Quarter:** one fourth of something, one of the parts when something is divided into four parts

Introduce the half symbol. Learners must write one half like this.  $\frac{1}{2}$

Draw a few shapes on the board.  
 Divide them each in half.



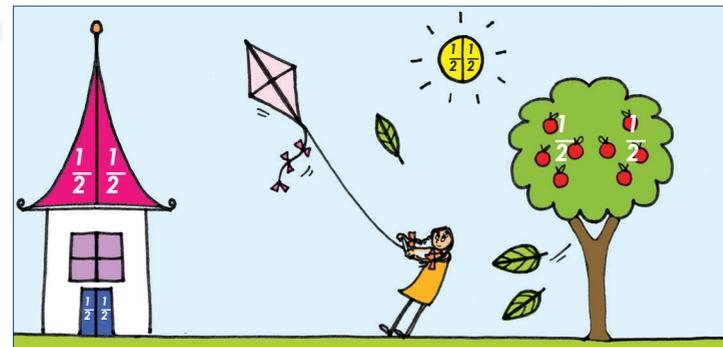
In mathematics we write half as a number:  $\frac{1}{2}$ . Write  $\frac{1}{2}$  on the board.



How will we show it on the shapes.  
 Write it on each shape.



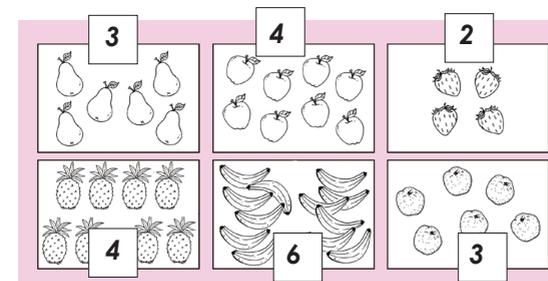
Learners discuss the picture and explain what they understand by "one half".



Answer the following: **One half of the apples on the tree is 4.**



Learners colour in half of the fruit and say how much is half.  
**Answers:**

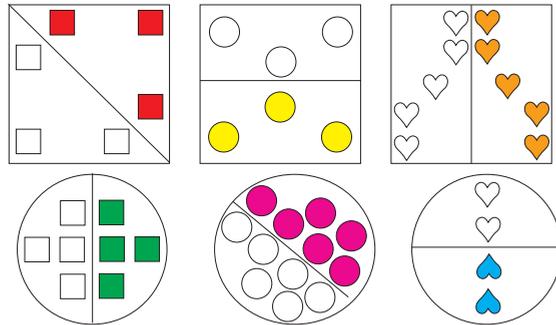


# 91 Fractions – more halves *continued*



Learners must draw the other half.

**Answers:**



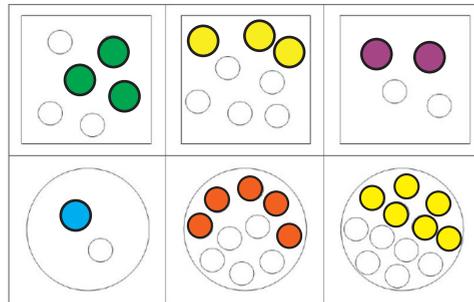
## Oral questions

How would you write one half as a symbol?



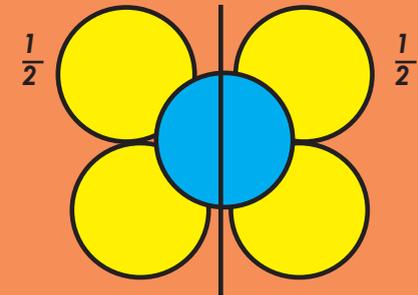
Learners must colour half of the shapes.

**Answers:**



## Homework

Draw three shapes or pictures. Divide each shape into two halves. Write the half fraction next to each half of the full shape or picture, e.g.:



## Reflection questions

Can learners do the following?

- Identify halves
- Identify, recognise and write the half symbol ( $\frac{1}{2}$ )
- Identify one half of a number
- Recognise fractions in diagrammatic form



## Common errors

Make notes of common errors made by the learners.

# 92 Position and views

## Objectives

- Describe the view of an object
- Match different views of the same object
- Describe if the object is near or far

## Resources

**Teacher:** Writing board, boxes and other objects made from circles, squares, rectangles and triangles

**Learner:** Workbook page 60, everyday objects

## Dictionary

**Views:** Most objects have front, side, top, back and underside views.

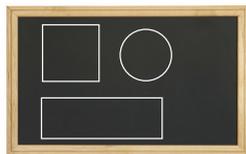
## Concrete

Give the learners some real life objects such as boxes. Ask them to show you the top of the box. Turn the box so that they see the top and say to them this is the top view. Do the same with the front, back and side view.



## Concrete and representational

Make some drawings on the board and place some objects on your table. Ask the learner which drawing will fit the top view of which object.



Learners must write down where the bird is sitting.

Where is the bird sitting? The words will help you.



Front view of building.

**In the front**



Side view of building.

**At the side**

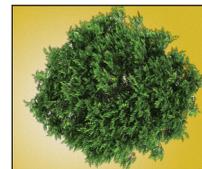


Top view of building.

**On the top**



Ask the learners to look at each picture and say where the person was standing when they saw this.



**Answer:** Learners must be creative and give their own answers.

**Here are a few guidelines:**

**Picture 1:** On a high building. In an aeroplane looking down.

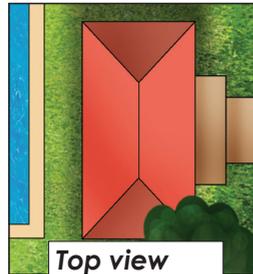
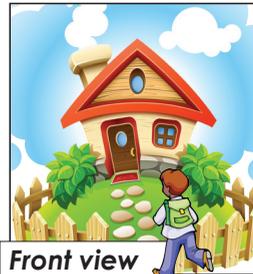
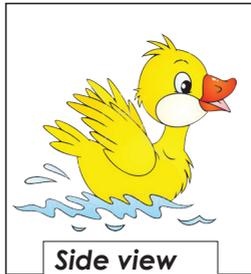
**Picture 2:** In front of the car.

**Picture 3:** Next to the house. In the garden at the side of the house.

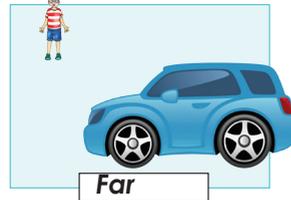
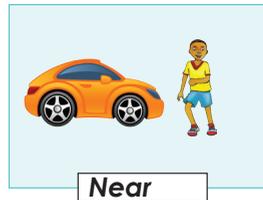
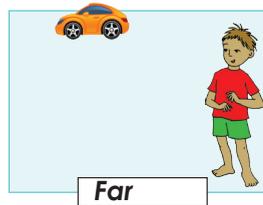
# 92 Position and views *continued*



Ask your learners to look at the pictures and write the words on the picture to say what the person is seeing.



Ask the learners to look at the pictures and say if the car is near or far from the boy.



Ask the learners to draw a tree in both blocks. In the first block the tree must be near the girl and in the second block the tree must be far from the girl.

**Answer: Each learner must use their own creativity and draw the trees as requested.**

## Homework

Ask your learners to do Question 4 activity at home and then write down what they were looking at and what they discovered.

**Answer: Each learner will have a different answer of what they were looking at. Have a quick class discussion of what everyone discovered during this activity**

## Reflection questions

Can the learners do the following?

- Describe the view of an object
- Match different views of the same object
- Describe if the object is near or far

### Objectives

- Sort objects
- Draw a pictograph with one-to-one correspondence from data provided in picture form or in a table
- Draw a bar graph

### Resources

**Teacher:** Writing board, shapes made from old cardboard or use plastic shapes

**Learner:** Workbook page 62, pencil, colouring pencils, shapes

### Dictionary

**Sort:** to separate a group of things according to certain characteristics and then put them in a particular order

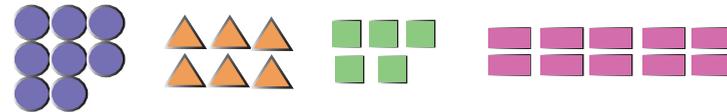
**Pictograph:** a simple chart in which pictures represent numbers to make it more interesting and easier to understand. A key is often included to indicate what each picture or symbol represents. All the pictures must be of the same size, but a fraction of a picture can be used to show the respective fraction of that amount.

**Bar graph:** a graph drawn using rectangular bars to show how large each value is. The bars can be horizontal or vertical.

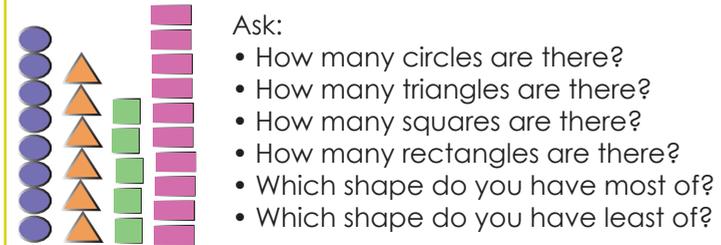
**Introduce sorting and pictographs**

### Concrete

In groups give learners 8 circles, 6 triangles, 5 squares and 10 rectangles. Ask them to sort it according to shapes.



Ask learners to place the shapes in columns.



Learners look at the picture and discuss it.



# 93

## More and more data *continued*

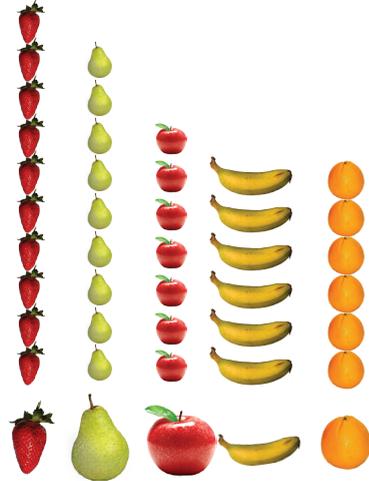
Content links: 15-16, 64, 71, 96, 107  
 Grade 1 links: 2, 4, 28, 44, 78-79, 124-125  
 Grade 3 links: 16, 22, 36, 96



Learners sort the fruit. Learners must make their own drawing to show it. Write the total in the box.

**Answers:**

- 10 Strawberries
- 9 Pears
- 7 Apples
- 6 Bananas
- 6 Oranges



Learners draw a pictograph of your sorted fruit.

**Answers:**

- 10 Strawberries
- 9 Pears
- 7 Apples
- 6 Bananas
- 6 Oranges



Learners colour the blocks to complete your bar graph.

Which fruit do we have the most of? **Strawberries**

Which fruit do we have the least of? **Bananas**

### Oral questions

I have 6 bananas and 8 oranges. Which do I have more of? Which do I have least of?

### Homework

Give the learners the following pictures to copy in their books.



Sort it. Draw a pictograph. Draw a bar graph.

### Reflection questions

Can the learners do the following?

- Sort objects
- Draw a pictograph with one-to-one correspondence from data provided in picture form or in a table
- Draw a bar graph

# 94a Fractions – quarters

Content links: 91, 118, 122-123, 125-126

Grade 1 links: None

Grade 3 links: 7, 31, 57-59, 91-93, 122-123, 125-126

## Objectives

- Identify quarters
- Identify, recognise and write the quarter symbol ( $\frac{1}{4}$ )
- Identify one quarter of a number
- Recognise fractions in diagrammatic form

## Resources

**Teacher:** Writing board, old cardboard or paper cut into shapes

**Learner:** Workbook page 64, pencil, colouring pencils

## Dictionary

**Fraction:** part of a whole, a number written with the bottom part (the denominator) telling you how many parts the whole is divided into, and top part (the numerator) telling how many of these parts you have, e.g.  $\frac{3}{4}$  meaning 3 parts of the whole that has been divided into 4 equal parts

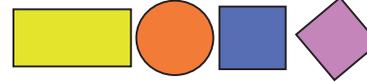
**Halve:** divide into two parts of equal or roughly equal size

**Quarter:** divide into four parts of equal or roughly equal size

Introduce the quarter symbol  $\frac{1}{4}$

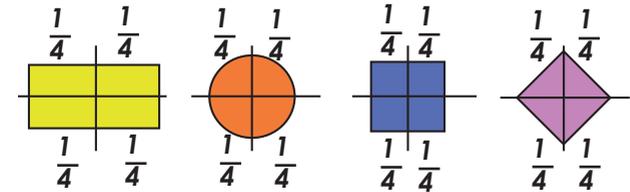
## Concrete

Give learners various shapes cut from pieces of old cardboard.



Learners fold each shape into quarters. Learners open the shapes. Tell learners that these shapes are exactly divided into quarters that are the same size.

Draw it on the board.  
Point to one of the quarters and say:  
"This is one quarter."



Learners look at the picture and discuss it. They must colour the last uncoloured quarter of the same kind of object the correct colour(s).



# 94a Fractions – quarters *continued*

**Content links:** 91, 118, 122-123, 125-126  
**Grade 1 links:** None  
**Grade 3 links:** 7, 31, 57-59, 91-93, 122-123, 125-126



Learners tick the shapes that shows quarters. Colour one quarter of each shape that is divided into quarters.

**Answer:**




Learners must colour one quarter of the shape.

**Answer:**


## Oral questions

Show me anything that is divided into quarters in the class. (Make sure there are some examples in the class.)



Learners colour one quarter of the animals.

## Homework

Draw five pictures or shapes and divide each of them into quarters.

## Reflection questions

Can learners do the following?

- Identify quarters
- Identify, recognise and write the quarter symbol ( $\frac{1}{4}$ )
- Identify one quarter of a number
- Recognise fractions in diagrammatic form

# 94b Fractions – more quarters

Content links: 91, 118, 122-123, 125-126

Grade 1 links: None

Grade 3 links: 7, 31, 57-59, 91-93, 122-123, 125-126

## Objectives

- Use and name fractions including quarters
- Recognise fractions in diagrammatic form
- Recognise that one half is the same as two quarters

## Resources

**Teacher:** Writing board, old cardboard or paper cut into shapes, counters

**Learner:** Workbook page 66, pencil and colouring pencils

## Dictionary

**Fraction:** part of a whole, a number written with the bottom part (the denominator) telling you how many parts the whole is divided into, and top part (the numerator) telling how many of these parts you have, e.g.  $\frac{3}{4}$  meaning 3 parts of the whole that has been divided into 4 equal parts

**Halve:** divide into two parts of equal or roughly equal size

**Quarter:** divide into four parts of equal or roughly equal size



Teach fractions

## Concrete

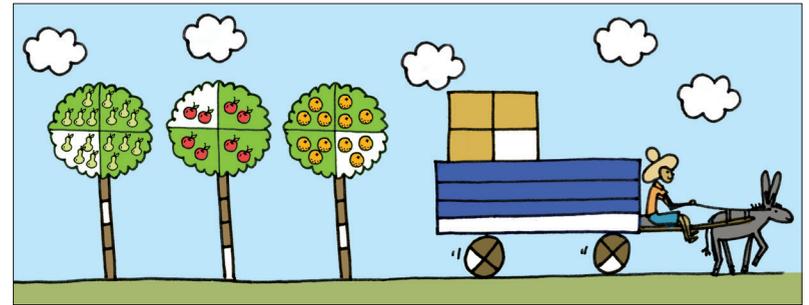
Give learners paper and ask them to draw a circle on it. They divide the circle into halves. Put 3 counters in each half. Ask them how many counters there are in one half. Do the same with quarters.

## Representational

Learners draw circles on paper. Divide the circles into halves and quarters respectively. Draw 4 sweets in each half. What is one half of eight sweets? Do the same with quarters.



Learners colour the last quarter (the white parts of the objects) the same colour.



Learners do the word sums.

**Answers:**

- 4
- 2
- 3

# 94b Fractions – more quarters *continued*

**Content links:** 91, 118, 122-123, 125-126  
**Grade 1 links:** None  
**Grade 3 links:** 7, 31, 57-59, 91-93, 122-123, 125-126



Learners colour in a quarter of the fruit in each group and say what a quarter of the number of the fruit in each group is.

**Answers:**




Learners must draw more shapes to make each quarter equal.

**Answers:**




Learners show one quarter of the shapes. **Answers:**

--	--



Learners tick which is bigger. **Answers:**

	<input type="checkbox"/>		<input checked="" type="checkbox"/>	one half	<input checked="" type="checkbox"/>
	<input checked="" type="checkbox"/>		<input type="checkbox"/>	one quarter	<input type="checkbox"/>

## Oral questions

I have 4 sweets. I divide them between 4 children. How many sweets will each child get? (Learners answers should be in fractions.)

## Reflection questions

Can learners do the following?

- Use and name fractions including quarters
- Recognise fractions in diagrammatic form
- Recognise that one half is the same as two quarters

# 95

## Geometric patterns

Content links: 7, 27-28, 103  
 Grade 1 links: 6-7, 89, 127  
 Grade 3 links: 9

### Objectives

- Copy, extend and describe simple patterns made with drawings of lines, shapes and objects
- Create own patterns

### Resources

**Teacher:** Writing board, three kinds of coloured shapes made from cardboard

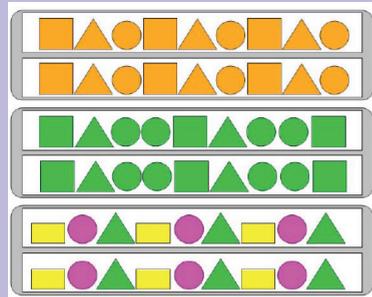
**Learner:** Workbook page 68, pencil and colouring pencils

### Dictionary

**Pattern:** something that repeats itself in a regular, predictable way

**Geometric pattern:** a visual pattern formed of geometric shapes and typically repeating

[Note that a geometric pattern made of shapes is not the same as a geometric sequence (which is a sequence of numbers made by multiplying each number by another number -- 1, 2, 4, 8, 16, 32 ... is a geometric sequence where each number is multiplied by 2 to get the next number).]



### Introduce number patterns

#### Concrete

In pairs/groups give learners:

- 10 shapes, 2 types. Ask them to make a pattern.

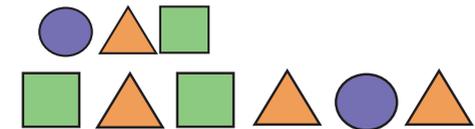
E.g.

- 12 shapes, 3 types

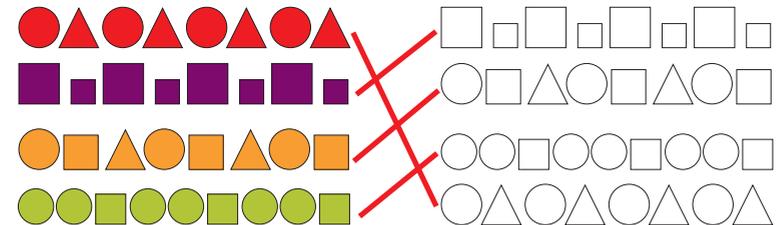
#### Semi-abstract

Draw the following on the board.

Ask learners to make their own pattern using these three shapes.



Learners must look at the two sets of patterns and match them. They can colour the matching pattern the same colour.





### Objectives

- Sort objects
- Represent data in a pictograph
- Draw a bar graph
- Answer questions about data in a pictograph or bar graph

### Resources

**Teacher:** Writing board  
**Learner:** Workbook  
 page 70, pencil,  
 colouring pencils

### Dictionary

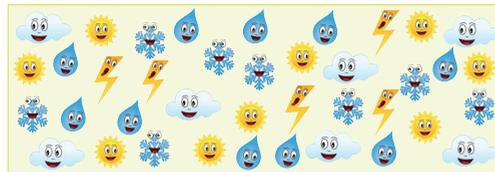
**Sort:** to separate a group of things according to certain characteristics and then put them in a particular order

**Pictograph:** a simple chart in which pictures represent numbers to make it more interesting and easier to understand. A key is often included to indicate what each picture or symbol represents. All the pictures must be of the same size, but a fraction of an picture can be used to show the respective fraction of that amount.

**Bar graph:** a graph drawn using rectangular bars to show how large each value is. The bars can be horizontal or vertical.



Learners look at the picture and discuss it. The learners need to clarify what each symbol stands for.



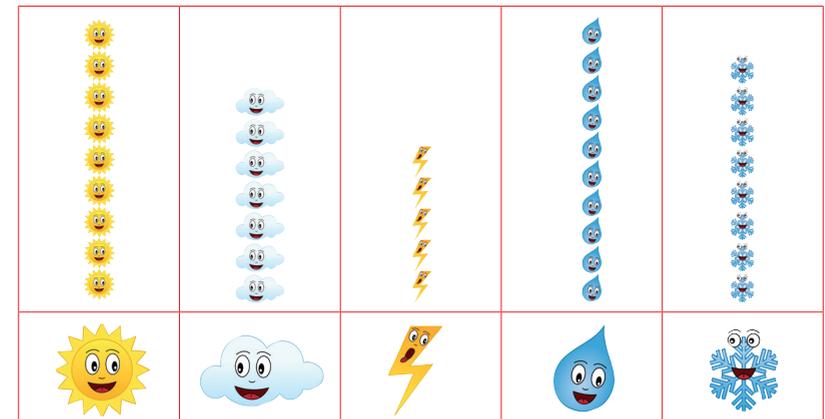
Learners sort the weather objects. Learners must make their own drawing. Write the totals for each in the answer boxes.

#### Answers:

- 7 cloud
- 9 sunshine
- 8 snow (or frost or hail)
- 10 rain
- 5 lightning



Learners must draw a pictograph of their sorted weather conditions. **Answers:**





# 97

## Numbers 150 – 180

**Content links:** 2-4, 35, 65-66, 69, 98, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

### Objectives

- Identify, recognise and read number symbols to 180
- Write number names 0 – 180
- Count forwards and backwards between 0 – 180
- Compare whole numbers
- Recognise the place value of numbers up to 180

### Resources

**Teacher:** Writing board, 1 – 200 number boards, place value cards, base 10 blocks

**Learner:** Workbook page 72, pencil, colouring pencils

### Dictionary

**Number:** A number is mathematical value, expressed by a word, symbol, or figure, that represents a particular quantity and used in counting and doing calculations, e.g. 162.

**Number names:** e.g. one hundred and sixty two

**Order:** arrangement according to size, amount, value or some other characteristic, e.g. arrange (order) from small to large – 52 469, 52 470, 52 471

**Compare:** to describe as bigger as, smaller as or equal to, e.g. 2 345 is smaller than 2 435

### Introduce numbers from 150 – 180

#### Abstract In groups

Give learners 1 to 200 number boards, base ten blocks and place value cards.

- Use the number board to count forwards and backwards in ones from 150 - 180.
- Ask learners to point to 169.
- Ask them to show the number using base ten blocks.
- Ask them to show it with their number cards.



Learners must colour in 172 circles.

Content links: 2-4, 35, 65-66, 69, 98, 100

Grade 1 links: 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

Grade 3 links: 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



Learners must write a number for:

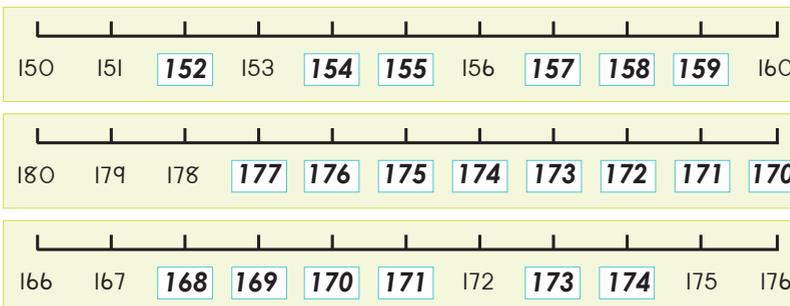
$100 + 50 + 8 = 158$	$100 + 50 + 9 = 159$	$100 + 70 + 2 = 172$
$100 + 50 = 150$	$100 + 60 + 7 = 167$	$100 + 5 = 105$

Learners must write which numbers come between: **Answer:****150 and 158: 151, 152, 153, 154, 155, 156, 157****172 and 177: 173, 174, 175, 176****180 and 175: 179, 178, 177, 176****160 and 155: 159, 158, 157, 156****165 and 160: 164, 163, 162, 161**Learners must give two numbers smaller and two numbers bigger than the given number. **Answer:**

Smaller		Number	Bigger	
<b>155</b>	<b>156</b>	157	<b>158</b>	<b>159</b>
<b>163</b>	<b>164</b>	165	<b>166</b>	<b>167</b>
<b>176</b>	<b>177</b>	178	<b>179</b>	<b>180</b>
<b>159</b>	<b>160</b>	161	<b>162</b>	<b>163</b>
<b>172</b>	<b>173</b>	174	<b>175</b>	<b>176</b>



Learners must complete the number lines.



### Homework

Learners do question 6 for homework. Learners must cut out three numbers between 150 and 180 from a magazine or newspaper. Paste them here in biggest to smallest order. **Answer:** **Any three of 179, 178, 177, 176, 175, 174, 173, 172, 171, 170, 169, 168, 167, 166, 165, 164, 163, 162, 161, 159, 158, 157, 156, 155, 154, 153, 152, 151**

### Reflection questions

Can the learners do the following?

- Identify, recognise and read number symbols to 180
- Write number names 0 – 180
- Count forwards and backwards between 0 – 180
- Compare whole numbers
- Recognise the place value of numbers up to 180

# 98

## Numbers 170 – 200

**Content links:** 2-4, 35, 65-66, 69, 97, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

### Objectives

- Identify, recognise and read number symbols to 200
- Write number names 0 – 200
- Count forwards and backwards between 0 – 200
- Compare whole numbers
- Recognise the place value of numbers up to 200

### Resources

**Teacher:** Writing board, 0 – 200 number boards, base ten blocks, number cards

**Learner:** Workbook page 74, pencil, colouring pencils

### Dictionary

**Number:** A number is mathematical value, expressed by a word, symbol, or figure, that represents a particular quantity and used in counting and doing calculations, e.g. 162.

**Number names:** e.g. one hundred and sixty two

**Order:** arrangement according to size, amount, value or some other characteristic, e.g. arrange (order) from small to large – 52 469, 52 470, 52 471

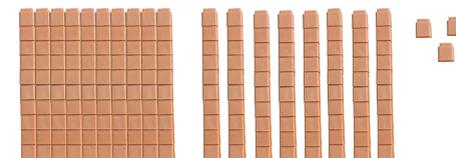
**Compare:** to describe as bigger as, smaller as or equal to, e.g. 2 345 is smaller than 2 435

### Introduce numbers from 170 – 200

#### Abstract

In groups  
Give learners 1 to 200 number boards, base ten blocks, number cards.

- Use the number board to count forwards and backwards in ones from 170 – 200.



- Ask learners to point to 183.
- Ask them to show the number using base ten blocks.



- Ask them to show it with the place value number cards.

Learners must look at the picture and colour in 199 circles.



# 98

## Numbers 170 - 200 *continued*

**Content links:** 2-4, 35, 65-66, 69, 97, 100

**Grade 1 links:** 9-11, 14, 17-18, 33-34, 36, 38-39, 65-69, 97-101

**Grade 3 links:** 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104



Learners must write a number for:

$100 + 70 + 7 = 177$	$100 + 90 + 3 = 193$	$100 + 80 + 1 = 181$
$100 + 90 + 5 = 195$	$100 + 90 + 9 = 199$	$100 + 70 + 9 = 179$



Learners must write which numbers come between: **Answer:**

**170 and 175:** 171, 172, 173, 174

**198 and 195:** 197, 196

**180 and 175:** 179, 178, 177, 176

**168 and 173:** 169, 170, 171, 172

**200 and 196:** 199, 198, 197



Learners must give two numbers smaller and two numbers bigger than the given number. **Answer:**

Smaller		Number	Bigger	
168	169	170	171	172
196	197	198	199	200
183	184	185	186	187
172	173	174	175	176
179	180	181	182	183



Learners must complete the number lines.

170	171	172	173	174	175	176	177	178	179	180
175	176	177	178	179	180	181	182	183	184	185
190	191	192	193	194	195	196	197	198	199	200

### Homework

Learners do Question 6 for homework. Learners must cut three numbers between 170 and 200 from a magazine or newspaper. Paste it here from biggest to smallest. **Answer:** 199, 198, 197, 196, 195, 194, 193, 192, 191, 190, 189, 188, 187, 186, 185, 184, 183, 182, 181, 180, 179, 178, 177, 176, 175, 174, 173, 172, 171

### Reflection questions

Can the learners do the following?

- Identify, recognise and read number symbols to 200
- Write number names 0 – 200
- Count forwards and backwards between 0 – 200
- Compare whole numbers
- Recognise the place value of numbers up to 200

# 99 2-D shapes

## Objectives

- Recognise and name 2-D shapes – circles, triangles, squares, rectangles
- Recognise triangles, squares and rectangles in any position
- Describe, order and compare 2-D shapes according to shape and size

## Resources

**Teacher:** Writing board, shapes: squares, rectangles and triangles cut from cardboard or plastic.

**Learner:** Workbook page 76, scissors, scrap paper and cardboard

## Dictionary

**Triangle:** a 2-D shape with three straight sides

**Square:** a 2-D shape with four straight sides of equal length, four right angles and the opposite sides are parallel

**Rectangle:** a 2-D shape with four straight sides and four right angles, where the pairs of opposite sides are of equal length and are also parallel

**Circle:** a 2-D shape with a curved side made by drawing a single curve that is always the same distance from a centre of the shape

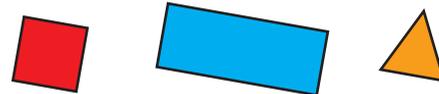
## Introduce 2-D shapes

### Concrete

Give learners squares, rectangles and triangles cut from recycled card board. Ask them to place the shapes in front of them.



Ask them to turn each of them slightly?

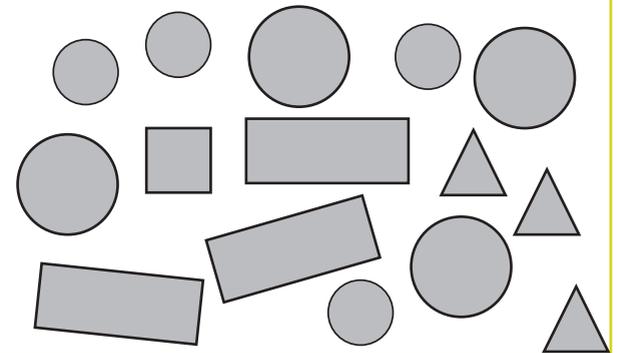


Is it still a square? rectangle? triangle?

Turn it again and ask the same question.

### Concrete

Give the learners shapes cut from recycled card board in different sizes. Ask the learners to sort the shapes into small and big shapes.



# 99

## 2-D shapes *continued*



Ask the learners to go to page 76 in the workbook. Ask the learners to trace over the shapes and then to colour in each shape as requested.



Ask the learners to match and connect each word with the right shape.

**Answer:**

		triangle
		circle
		square
		rectangle



Ask the learners to colour the big circles in red and the small circles in yellow, the big rectangles in red and the small rectangles in yellow.

**Answer:**



Ask the learners to colour in all the shapes that match the first shape.

**Answer:**



Ask the learners to draw their own picture using only squares, rectangles, triangles and circles. **Answer: Learners need to be creative and draw their own pictures.**

### Homework

Ask learners to cut out squares, triangles, rectangles and circles from old papers and magazines and paste their own picture in their books.

**Answer: Each picture will be unique and different**

### Reflection questions

Can the learners do the following?

- Recognise and name 2-D shapes – circles, triangles, squares, rectangles
- Recognise triangles, squares and rectangles in any position
- Describe, order and compare 2-D shapes according to shape and size

Content links: 2-4, 35, 65-66, 69, 98

Grade 1 links: 95

Grade 3 links: 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

# 100 Numbers 0 – 200

## Objectives

- Identify, recognise and read number symbols to 200
- Write number names 0 to 200
- Count forwards and backwards between 0 and 200
- Compare whole numbers
- Recognise the place value of numbers up to 200
- Use expanded notation up to 200

## Resources

**Teacher:** Writing board, number cards

**Learner:** Workbook page 78, pencil and colouring pencils

## Dictionary

**Place value:** the value of where the digit is in the number, such as units, tens, hundreds, etc.

In the decimal number system, the value of a digit depends on its place, or position, in the number. Each place has a value of 10 times the place to its right. Examples:

$$55\ 555 = 50\ 000 + 5\ 000 + 500 + 50 + 5$$

$$55\ 555 = 5 \text{ ten thousands} + 5 \text{ thousands} + 5 \text{ hundreds} + 5 \text{ tens} + 5 \text{ units}$$

$$95\ 618 = 90\ 000 + 5\ 000 + 600 + 10 + 8$$

$$95\ 618 = 9 \text{ ten thousands} + 5 \text{ thousands} + 6 \text{ hundreds} + 1 \text{ ten} + \text{eight units}$$

**Expanded notation:** writing a number to show the value of each digit, e.g.  $96\ 581 = 90\ 000 + 6\ 000 + 500 + 80 + 1$

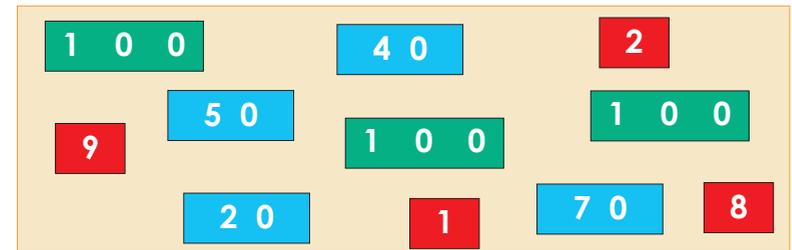
## Introduce capacity

### Concrete

Ask learners to make numbers using place value number cards. Ask them to put all the units together, the tens and the hundreds. Teacher says: Show me a 40 and a 3 card. Make a number. **(43)** How will you say the number? **(Forty-three)** Show me a 100, a 40 and a 3 card. Make a number. **(143)** How will you say the number? **(One hundred and forty-three)** Do a few more numbers including 100.



Learners must look at the picture and discuss it. Ask them how many different numbers can be made from these number cards.



### Oral question

- What is  $100 + 50 + 7$ ?
- What is  $100 + 10 + 8$ ?
- What is  $100 + 90 + 9$ ?

Content links: 2-4, 35, 65-66, 69, 98

Grade 1 links: 95

Grade 3 links: 3, 23-25b, 33, 41, 43, 45, 65-67, 69-71, 98-101, 103-104

# 100 Numbers 0 - 200 *continued*



Learners must complete the following:

$\begin{array}{r} 100 \\ + 40 \\ + 9 \\ \hline \end{array}$ $100 + 40 + 9 = 149$	$\begin{array}{r} 100 \\ + 70 \\ + 3 \\ \hline \end{array}$ $100 + 70 + 3 = 173$	$\begin{array}{r} 100 \\ + 20 \\ + 8 \\ \hline \end{array}$ $100 + 20 + 8 = 128$
$\begin{array}{r} 100 \\ + 10 \\ + 7 \\ \hline \end{array}$ $100 + 10 + 7 = 117$	$\begin{array}{r} 100 \\ + 90 \\ + 2 \\ \hline \end{array}$ $100 + 90 + 2 = 192$	



Learners must fill in the empty boxes.

$$181 = 100 + 80 + 1$$
$$144 = 100 + 40 + 4$$
$$135 = 100 + 30 + 5$$
$$156 = 100 + 50 + 6$$
$$169 = 100 + 60 + 9$$

Learners must add the following: **Answers:**

$60 + 4 = 64$	$100 + 20 + 3 = 123$
$90 + 8 = 98$	$100 + 40 + 9 = 149$
$40 + 7 = 47$	$100 + 70 + 8 = 178$
$30 + 6 = 36$	$100 + 60 + 1 = 161$
$50 + 2 = 52$	$100 + 50 + 5 = 155$



Learners must fill in the missing number:

$70 + 1 = 71$	$100 + 50 + 3 = 153$
$30 + 8 = 38$	$100 + 60 + 9 = 169$
$60 + 9 = 69$	$100 + 70 + 8 = 178$
$20 + 4 = 24$	$100 + 90 + 1 = 191$
$80 + 5 = 85$	$100 + 50 + 7 = 157$



Learners must make their own sums. **Answer: learners' own sums**

## Homework

Learners do question 6 for homework.

What number is the biggest? What number is the smallest?

**Answers: The biggest number is 159 and the smallest number is 149.**

## Reflection questions

Can the learners do the following?

- Identify, recognise and read number symbols to 200
- Write number names 0 to 200
- Count forwards and backwards between 0 and 200
- Compare whole numbers
- Recognise the place value of numbers up to 200
- Use expanded notation up to 200

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

# 101 Addition and subtraction

## Objectives

- Add to 99
- Subtract from numbers up to 99
- Use building up and breaking down of numbers to perform calculations

## Resources

**Teacher:** Writing board, place value number cards, beads or counters

**Learner:** Workbook page 80, pencil, colouring pencils

## Dictionary

**Addition:** finding the total, or sum, by combining two or more numbers, e.g.  $5 + 11 + 3 = 19$

**Subtraction:** taking one number away from another, e.g. if you have 5 and you subtract 2, you will be left with 3.

The symbol of subtraction is 

E.g.  $5 - 2 = 3$

A subtraction is the inverse operation of addition.



Introduce addition and subtraction

**Abstract** Ask learners to show calculations using place value cards.

Ask learners to make an addition sum using:  $6 + 5$

E.g.  + 

This is equal to 11. How will you show it? You need to get a 10 and 1 card.

 +  =  

Eg:   +  

   +   

  +  

  +   

  + 

E.g. Ask the learners to subtract 15 from 41.

   -   

Swap the 40 card for a 30 and 10 card.

     -   

   - 

Swap the 30 card for a 20 card and a 10 card

     - 

Eleven minus 5 is 6.

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 102, 104-105  
**Grade 1 links:** 15, 19-22, 73, 77, 104  
**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

# 101 Addition and subtraction cont...



Learners must look at the picture and discuss it.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Learners must add or subtract the beads.

$$\begin{array}{r} 50 \\ - 30 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 40 \\ + 15 \\ \hline 55 \end{array}$$

$$\begin{array}{r} 10 \\ + 9 \\ \hline 19 \end{array}$$

$$\begin{array}{r} 80 \\ - 60 \\ \hline 20 \end{array}$$

$$\begin{array}{r} 70 \\ + 13 \\ \hline 83 \end{array}$$

$$\begin{array}{r} 10 \\ + 9 \\ \hline 19 \end{array}$$

$$\begin{array}{r} 30 \\ + 20 \\ \hline 50 \end{array}$$

$$\begin{array}{r} 30 \\ + 20 \\ + 16 \\ \hline 66 \end{array}$$

$$\begin{array}{r} 30 \\ + 20 \\ + 10 \\ + 1 \\ \hline 61 \end{array}$$

$$\begin{array}{r} 50 \\ + 10 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 50 \\ + 10 \\ + 1 \\ \hline 61 \end{array}$$

$$\begin{array}{r} 70 \\ + 1 \\ \hline 71 \end{array}$$



Learners must estimate and then calculate.

+

Estimate **Learner's own answer**

Calculate **85**



+

Estimate **Learner's own answer**

Calculate **102**

Learners must calculate using their own method.

$53 + 39$   
**Answer: 92**

$92 - 48$   
**Answer: 44**



**Homework**

Learners must do Question 5 for homework.  
 Learners must add 39 and 29. **Answer: 68**  
 What is 43 less 19. **Answer: 24**  
 Subtract 45 from 74. **Answer: 29**  
 What is 82 take away 69. **Answer: 13**

### Reflection questions

Can the learners do the following?

- Add to 99
- Subtract from numbers up to 99
- Use building up and breaking down of numbers to perform calculations

# 102 Addition and subtraction again

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 101, 104-105

**Grade 1 links:** 15, 19-22, 73, 77, 104

**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

## Objectives

- Add to 99
- Subtract from numbers up to 99
- Use building up and breaking down of numbers to perform calculations

## Resources

**Teacher:** Writing board, abacus, place value number cards

**Learner:** Workbook page 82, pencil, colouring pencils

## Dictionary

**Addition:** finding the total, or sum, by combining two or more numbers, e.g.  $5 + 11 + 3 = 19$

**Subtraction:** taking one number away from another, e.g. if you have 5 and you subtract 2, you will be left with 3.

The symbol of subtraction is 

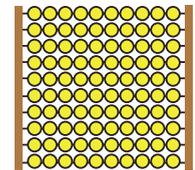
E.g.  $5 - 2 = 3$

A subtraction is the inverse operation of addition.

## Continue with addition and subtraction

### Concrete or semi-abstract:

**Tens:** Use an abacus or draw an abacus on the board (If the learners are not familiar with an abacus you will need to explain how it is used.) Let us count in tens (point to each row). E.g. 10, 20, 30, 40, 50, 60, 70, 80, 90, 100



Ask learners to count to 50: 10, 20, 30, 40, 50.

How many sums can we make giving an answer of 50 using tens only.

**Answer:**  $10 + 40$ ,  $20 + 30$ ,  $10 + 10 + 30$ ,  $10 + 10 + 10 + 20$ ,  $10 + 10 + 10 + 10 + 10$  and variations in the order of the tens in these



Learners must look at the pictures and discuss them.

20 8

30 7

60 5

Add the two numbers.

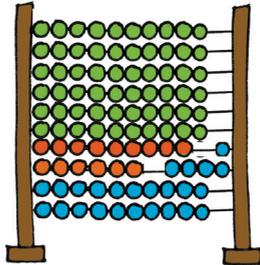
It equals to?

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 101, 104-105

**Grade 1 links:** 15, 19-22, 73, 77, 104

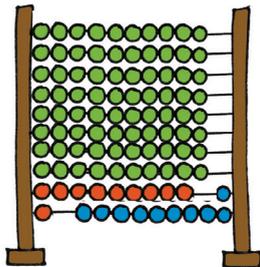
**Grade 3 links:** 5, 24, 27, 33, 35a-35b, 37-39, 41-42, 45-47, 73-75, 105, 107-109

# 102 Addition and subtraction again *cont...*



Learners must write an addition and a subtraction sum. Calculate it. **Answers: these are some possible answers**

Addition sum	Subtraction sum
$10 + 50$ or	$75 - 19 = 56$ or
$20 + 40$ or	$75 - 29 = 45$ or
$30 + 30$ and	$75 - 39 = 36$
$9 + 6 = 75$	



Addition sum	Subtraction sum
$10 + 70$ or	$90 - 19 = 71$ or
$20 + 60$ or	$90 - 29 = 61$ or
$30 + 50$ or	$90 - 39 = 51$ or
$40 + 40$ and $9 + 1 = 90$	$90 - 49 = 41$

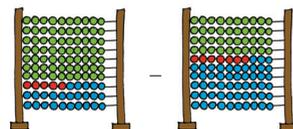
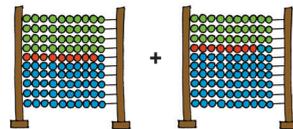
Learners should understand that subtraction is the inverse of addition.



Learners must estimate and then calculate.

**Answers:**  
**Estimate = learner's own estimate**  
**Calculate = 87**

**Estimate = learner's own estimate**  
**Calculate = 28**



## Oral questions

If  $32 + 49 = 81$  then  $81 - 49 =$   
or  $81 - 32 =$



Learners must calculate using their own method.

$58 + 35$

**Answer: 93**

$34 - 26$

**Answer: 8**



## Homework

Learners can do Question 5 for homework.

What is 74 and 19? **93**

The sum of 46 and 27. **73**

Take away 34 from 72. **38**

The difference between 81 and 36. **45**

## Reflection questions

Can the learners do the following?

- Add to 99
- Subtract from numbers up to 99
- Use building up and breaking down of numbers to perform calculations

waiting  
info from  
ezel

# 103 Shape patterns

Content links: 7, 27-28, 95  
Grade 1 links: 3, 6-7, 89, 127  
Grade 3 links: 9

## Objectives

- Identify, describe, and copy geometric patterns
- Create own patterns using shapes

## Resources

Teacher: Writing board

Learner: Workbook page 84, pencil, colouring pencils

## Dictionary

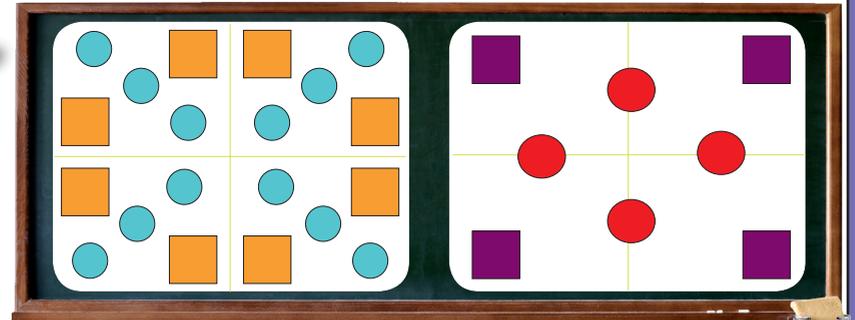
**Pattern:** something that repeats itself in a regular, predictable way

**Geometric pattern:** a visual pattern formed of geometric shapes and typically repeating

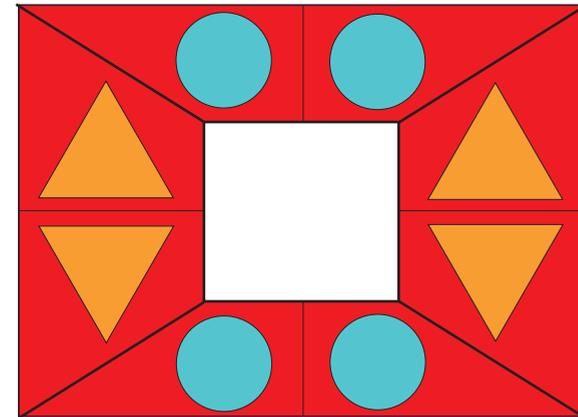
[Note that a geometric pattern made of shapes is not the same as a geometric sequence (which is a sequence of numbers made by multiplying each number by another number -- 1, 2, 4, 8, 16, 32 ... is a geometric sequence where each number is multiplied by 2 to get the next number).]



Learners must look at the picture and describe the pattern.



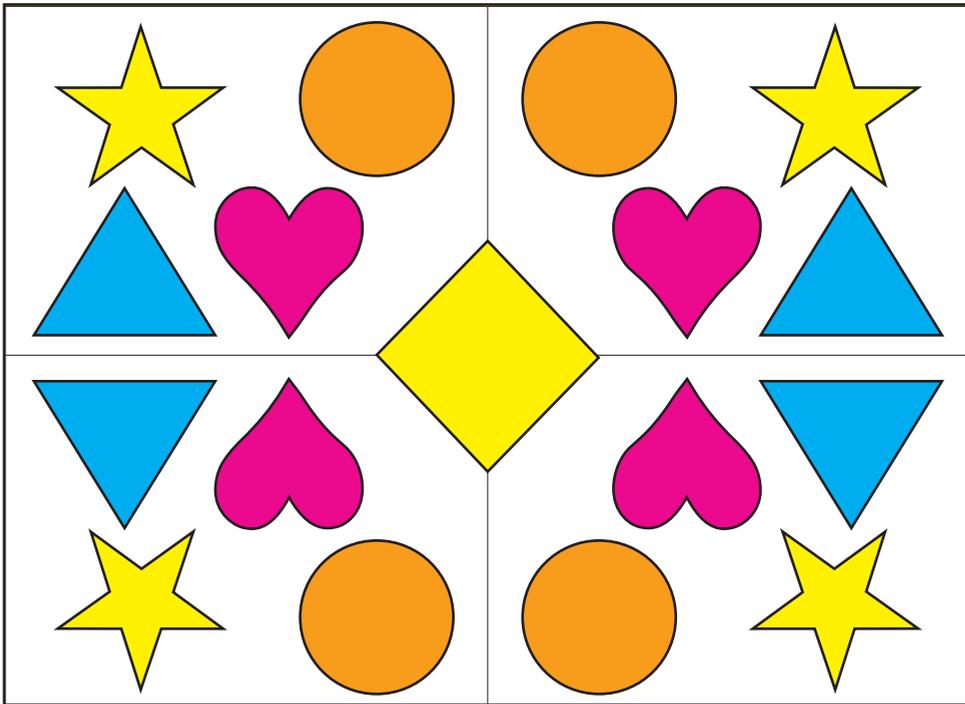
Learners must trace over the pattern and then colour it.  
E.g.



# 103 Shape patterns *continued*



Learners trace over the pattern and then colour it.  
E.g.



## Homework

Learners can do Question 4 for homework. Learners must create their own pattern using shapes.

## Reflection questions

Can the learners do the following?

- Identify, describe, and copy geometric patterns
- Create own patterns using shape

# 104 More addition and subtraction

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 102, 105

**Grade 1 links:** 15, 19-22, 73, 77, 104

**Grade 3 links:** 5, 20-21b, 73-75, 105, 108-109

## Objectives

- Add to 99
- Subtract from numbers up to 99
- Use number lines when performing calculations

## Resources

**Teacher:** Writing board, beads and number lines

**Learner:** Workbook page 86, pencil, colouring pencils

## Dictionary

**Addition:** finding the total, or sum, by combining two or more numbers, e.g.  $5 + 11 + 3 = 19$

**Subtraction:** taking one number away from another, e.g. if you have 5 and you subtract 2, you will be left with 3.

The symbol of subtraction is

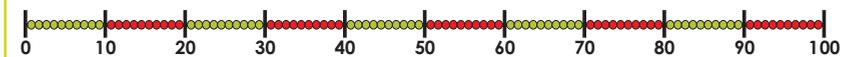


E.g.  $5 - 2 = 3$

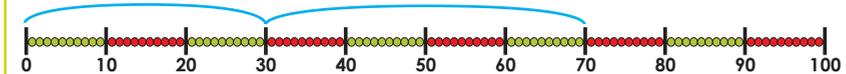
A subtraction is the inverse operation of addition.

Draw this on the board or use concrete resources.

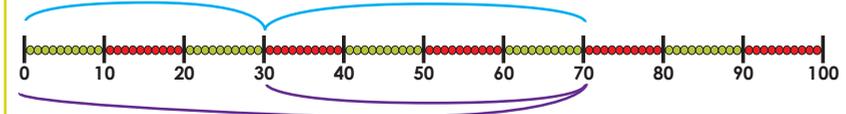
Let us count in tens: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100.



Give me an addition sum:  $30 + 40 = 70$



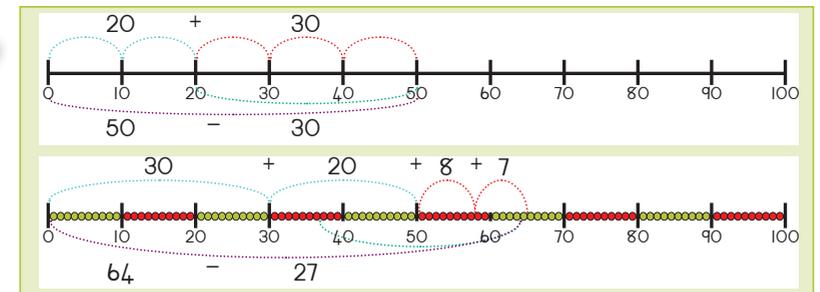
Give me a subtraction sum:  $70 - 40 = 30$ . Look at the bottom hoops.



Do the same for  $20 + 60 = 80$ ,  $30 + 60 = 90$



Learners must look at the picture and discuss it.



Content links: 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 102, 105

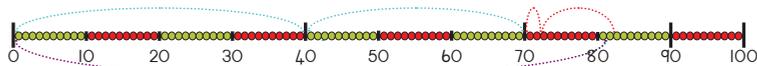
Grade 1 links: 15, 19-22, 73, 77, 104

Grade 3 links: 5, 20-21b, 73-75, 105, 108-109

# 104 More addition and subtraction *cont...*

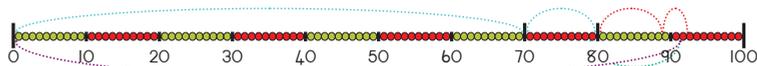


Learners write an addition and subtraction sum using the number line.



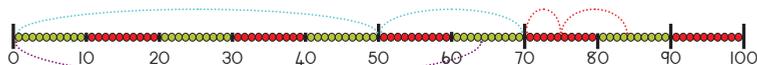
**Addition sum:**  $40 + 30 + 2 + 10 = 82$

**Subtraction sum:**  $81 - 39 = 42$



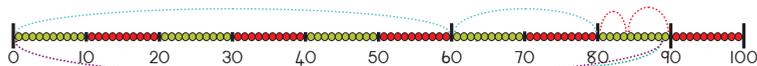
**Addition sum:**  $70 + 10 + 9 + 3 = 92$

**Subtraction sum:**  $91 - 12 = 79$



**Addition sum:**  $50 + 20 + 5 + 9 = 84$

**Subtraction sum:**  $64 - 56 = 8$



**Addition sum:**  $60 + 20 + 4 + 6 = 90$

**Subtraction sum:**  $89 - 26 = 63$



Learners estimate and then calculate the number of beads.

**Answers:**

**Estimate = Learner's own answer**

**Calculate**  $50 + 30 + 9 + 9 = 98$



**Estimate = Learner's own answer**

**Calculate**  $96 - 48 = 48$

Learners do calculations using their own methods.

$74 + 18$

$72 - 43$

**Answer: 92**

**Answer: 29**



## Homework

Learners do Question 5 for homework.

What is 82 and 9? **91**

The sum of 79 and 13. **92**

Take away 44 from 52. **8**

The difference between 98 and 59. **39**

## Reflection questions

Can the learners do the following?

- Add to 99
- Subtract from numbers up to 99
- Use number lines when performing calculations

# 105 Even more addition and subtraction

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 102, 104

**Grade 1 links:** 15, 19-22, 73, 77, 104

**Grade 3 links:** 5, 20-21b, 73-75, 105, 108-109

## Objectives

- Add to 99
- Subtract from numbers up to 99
- Use number lines when performing calculations

## Resources

**Teacher:** Writing board, beads and number lines

**Learner:** Workbook page 86, pencil, colouring pencils, beads and number lines

## Dictionary

**Addition:** finding the total, or sum, by combining two or more numbers, e.g.  $5 + 11 + 3 = 19$

**Subtraction:** taking one number away from another, e.g. if you have 5 and you subtract 2, you will be left with 3.

The symbol of subtraction is



E.g.  $5 - 2 = 3$

A subtraction is the inverse operation of addition.



Learners make the sides equal. **Answers:**

$10 + 4 + 5$	$9 +$ <span style="border: 1px solid black; padding: 2px;">4</span> $+$ <span style="border: 1px solid black; padding: 2px;">5</span>	$90 - 50$	<span style="border: 1px solid black; padding: 2px;">60</span> $- 20$



Learners complete the following. **Answers:**



1 more		1 less		10 more		10 less	
6	7	4	3	40	50	40	30
5	6	8	7	10	20	150	140
3	4	10	9	60	70	20	10
9	10	9	8	70	80	110	100
2	3	2	1	20	30	200	190
7	8	7	6	80	90	60	50
4	5	6	5	30	40	180	170
8	7	3	2	100	110	70	60

**Content links:** 5, 21, 23a-24, 37-39b, 41-42b, 72-74, 77, 102, 104

**Grade 1 links:** 15, 19-22, 73, 77, 104

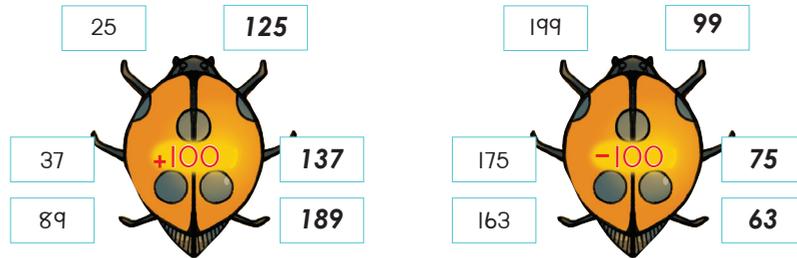
**Grade 3 links:** 5, 20-21b, 73-75, 105, 108-109

# 105 Even more addition and subtraction *cont...*



Learners complete the following diagrams.

**Answers:**



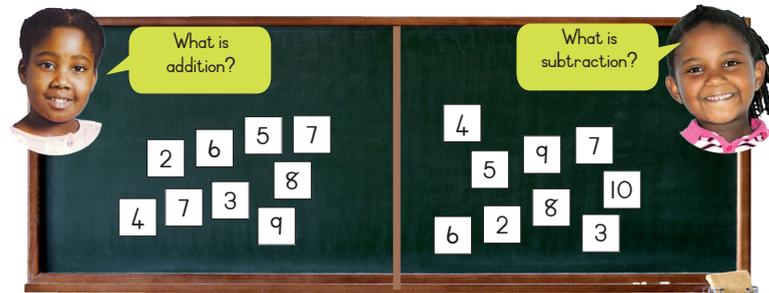
Learners make the sums.

**Answers:** learner's own answers



Learners make the sums.

**Answers:** learner's own answers



Learners calculate using their own method.

**Answers:**

$$\begin{array}{r} 48 + 36 \\ = 84 \end{array}$$

$$\begin{array}{r} 85 - 59 \\ = 26 \end{array}$$



Learners solve the word sums and do a drawing.

**Answers:**

$$R42 + R29 = R71$$

$$R78 - R34 = R44$$

## Homework

Learners do Question 7 for homework.

## Reflection questions

Can the learners do the following?

- Add to 99
- Subtract from numbers up to 99
- Use number lines when performing calculations

# 106 3-D objects

Content links: 32, 75-76  
Grade 1 links: 23, 31, 87-88, 106  
Grade 3 links: 10, 90, 124

## Objectives

- Recognise and name 3-D objects - balls (spheres), boxes (prisms) and cylinders
- Describe, sort and compare 3-D objects in terms of size and whether they can roll or slide
- Build with 3-D objects

## Resources

**Teacher:** Writing board, objects such as tissue box, netball ball, cool drink can, a pipe, printing paper box and a marble

**Learner:** Workbook page 96, pencil

## Dictionary

**Sphere:** This is a 3-D object shaped like a ball. Every point on the surface of the sphere is the same distance from the very centre of the sphere.

**Prism:** This is a 3-D object which has two faces identical and parallel to each other (the ends) and a number of flat sides joining the ends. Prisms are named after the shape of the ends, e.g. rectangular prism, triangular prism. The most common form of a prism in everyday life is a square or rectangular box.

**Cylinder:** This 3-D object has two identical flat ends that are circular and one curved side.

## Teach 3-D objects

### Concrete

Place the following objects on your table, tissue box, netball ball, cool drink can, a pipe, printing paper box and a marble. Ask learner to say if the object has a:

- ball shape
- box shape
- cylindrical shape



### Concrete

Ask the learners to describe the above objects by saying if it will roll or slide.

In groups give the learners two objects, such as a ball and a box. Ask them if they can balance one on top of one another. Ask questions such as:

- Can you balance a ball on a box?
- Can you balance a box on a ball?

Give them a cylinder.

- Can you balance a cylinder on a ball? Box?
- Can you balance all three objects on top of each other?



Ask the learners to look at the picture at the top of page 90 and find the 6 boxes, 7 balls and 9 cylinders. Ask the learners to say if it is a box, ball or a cylinder.

**Answer:**



box



ball



cylinder



cylinder



box



ball



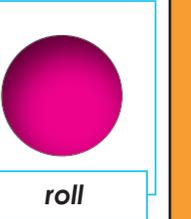
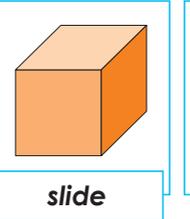
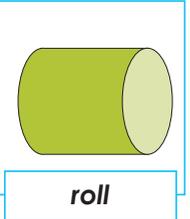
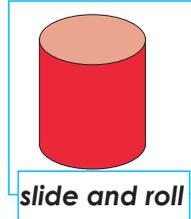
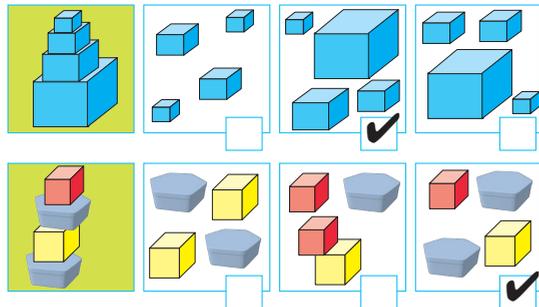
Ask learners to cut out pictures of boxes, balls and cylinders and paste it in the right boxes.

**Answer: Each learner will have different pictures and will be creative in their own ways. Teachers must check if the pictures were pasted in the correct blocks.**



Ask the learners to look at the pictures and tick the correct set of objects that was used to create the picture.

**Answer**



Though the cylinders can both slide and roll, the first cylinder is upright and can only slide, the second cylinder is horizontal and will roll.

### Homework

Ask the learners to write down a few things at home that looks like a cylinder, ball and a box.

**Answer: Each learner will have different answers depending on what they will see or find at home.**

### Reflection questions

Can the learners do the following?

- Recognise and name 3-D objects - balls (spheres), boxes (prisms) and cylinders
- Describe, sort and compare 3-D objects in terms of size and whether they can roll or slide
- Build with 3-D objects

# 107 Even more data

Content links: 15-16, 64, 71, 93, 96  
Grade 1 links: 2-4, 28, 44, 78-79, 124-125  
Grade 3 links: 16, 22, 36, 96

## Objectives

- Sort objects
- Collect data
- Draw a pictograph with one-to-one correspondence from data provided in picture form or in a table
- Draw a bar graph
- Analyse data from data representations in a pictograph or bar graph

## Resources

**Teacher:** Writing board, shapes made from old cardboard or plastic

**Learner:** Workbook page 92, pencil, colouring pencils

## Dictionary

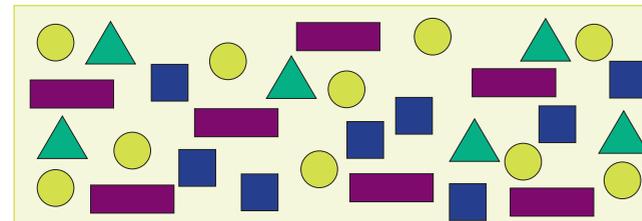
**Sort:** to separate a group of things according to certain characteristics and then put them in a particular order

**Pictograph:** This is a simple chart in which pictures represent numbers to make it more interesting and easier to understand. A key is often included to indicate what each picture or symbol represents. All the pictures must be of the same size, but a fraction of an picture can be used to show the respective fraction of that amount.

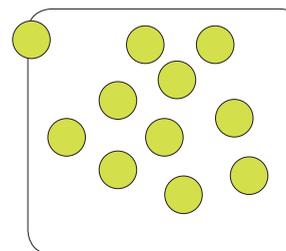
**Bar graph:** a graph drawn using rectangular bars to show how large each value is. The bars can be horizontal or vertical.



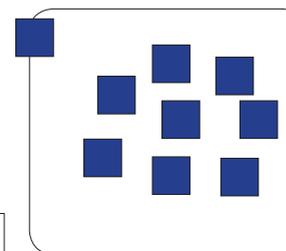
Learners must look at the picture and discuss it.



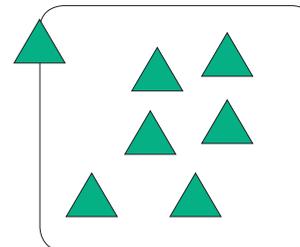
Learners must sort the shapes. Learners must make their own drawing. Write the total in the box. **Answers:**



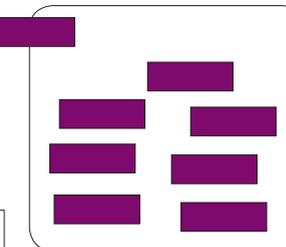
10



8



6



7

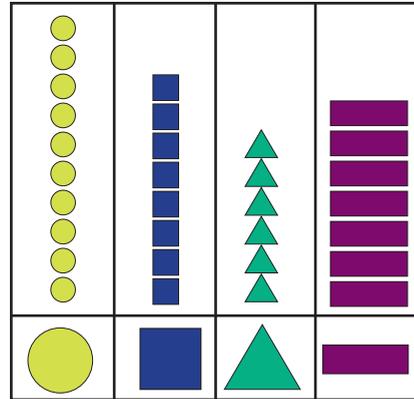
# 107 Even more data *continued*

Content links: 15-16, 64, 71, 93, 96  
 Grade 1 links: 2-4, 28, 44, 78-79, 124-125  
 Grade 3 links: 16, 22, 36, 96



Learners draw a pictograph of the sorted shapes.

**Answers:**



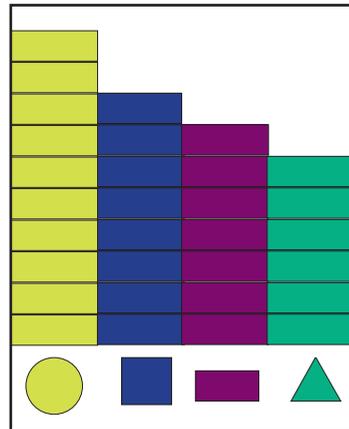
Learners must colour the blocks to complete their bar graph.

How many circles are there? **10**

How many squares are there? **8**

How many rectangles are there? **7**

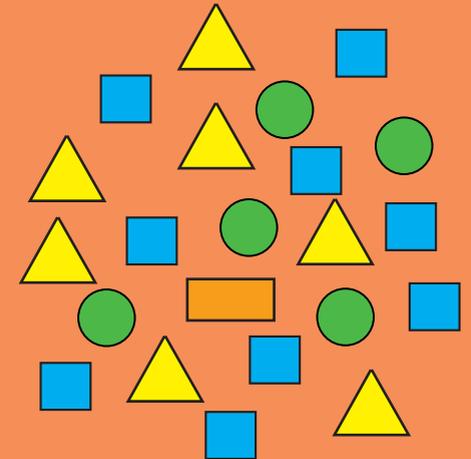
How many triangles are there? **6**



## Homework

Give the learners the following pictures to copy in their books. Sort them.

Draw a pictograph.  
 Draw a bar graph.



## Reflection questions

Can the learners do the following?

- Sort objects
- Collect data
- Draw a pictograph with one-to-one correspondence from data provided in picture form or in a table
- Draw a bar graph
- Analyse data from data representations in a pictograph or bar graph

# 108 Calculating money

**Content links:** 6, 25-26, 78-79, 109  
**Grade 1 links:** 60a-62, 75-76, 107-108  
**Grade 3 links:** 8, 26, 95a-95b, 107

## Objectives

- Calculate combinations of South African coins
- Calculate combinations of South African notes
- Calculate combinations of South African coins and notes
- Solve money problems involving totals and change in rands and cents

## Resources

**Teacher:** Writing book, some real money (coins and notes)  
**Learner:** Workbook page 94, play coins and money notes from Cut-outs 3 or 5

## Dictionary

**Coin:** A South African coin is a small piece of circular printed metal, authorised by government for the use as money.



**Note:** A South African note is a regular piece of printed paper, authorised by government for the use as money.



## Concrete

In groups give learners some real coins. Ask learners to show you the following coins:



- Ask the learners which coins will make 20c? 30c? 40c? 50c? 60c? 70c? 80c? 90c? R1?
- Ask the learners which coins will make R3? R4? R6? R7? R8? R9?

In groups give learners some real notes. Ask learners to show you the following notes:



- Ask the learners how can they recognise the value of each note without looking at the number on the note.
- Ask the learners which notes will make R30? R40? R60? R70? R80? R90?
- Ask learners which combination of coins and notes will make, e.g. R75? R82? R98?

# 108 Calculating money *continued*

**Content links:** 6, 25-26, 78-79, 109  
**Grade 1 links:** 60a-62, 75-76, 107-108  
**Grade 3 links:** 8, 26, 95a-95b, 107



Ask the learners to look at the pictures of coins at the top of page 94 and colour in the money as requested.

Ask the learners to colour in the money that will make up the amount given in the first column of the table.

**Answer: Learners must use their own initiative. There are more than one combination of coins to make up the amounts of 75c and 90c. Check to see if learners counted correctly.**



Ask the learners to colour in the money that will make up the amount given in the first column.

**Answer: Learners must use their own initiative. There are more than one combination of coins to make up the amounts. Check to see if learners counted correctly.**



Ask the learners to colour in the money and work out what the amount is that Siphso paid for the 2 hamburgers.

**Answer:**

**Colour in all the money.**

**Number sentence:  $R12,50 + R12,50 = R25$**



Ask the learners to draw money and make a number sentence to show what the cost would be if Siphso bought 3 hamburgers.

**Answer:**

**$R12,50 + R12,50 + 12,50 = R 37,50$  (there are a few combinations)**



Ask the learners to draw money and make a number sentence to show what the cost would be if Siphso bought 4 hamburgers.

**Answer:**

**$R12,50 + R12,50 + 12,50 + 12,50 = R50$  (there are a few combinations)**



## Homework

Ask the learners to work out how many hamburgers Siphso can buy for R87,50 **Answer: 7**

## Reflection questions

Can the learners do the following?

- Calculate combinations of South African coins
- Calculate combinations of South African notes
- Calculate combinations of South African coins and notes
- Solve money problems involving totals and change in rands and cents

# 109 Solve money problems

**Content links:** 6, 25-26, 78-79, 108  
**Grade 1 links:** 60a-62, 75-76, 107-108  
**Grade 3 links:** 8, 26, 95a-95b, 107

## Objectives

- Solve money problems involving totals and change in rands and cents
- Solve money problems using drawings

## Resources

**Teacher:** Writing board

**Learner:** Workbook page 96, paper and pencil, play money coins from Cut-out 3 or 5.

## Dictionary

**Problem:** A mathematical problem is a question that can be represented, analyzed and solved using the methods of mathematics. In mathematics these problems involve numbers (though the numbers may be presented in words or in a story).

## Representational

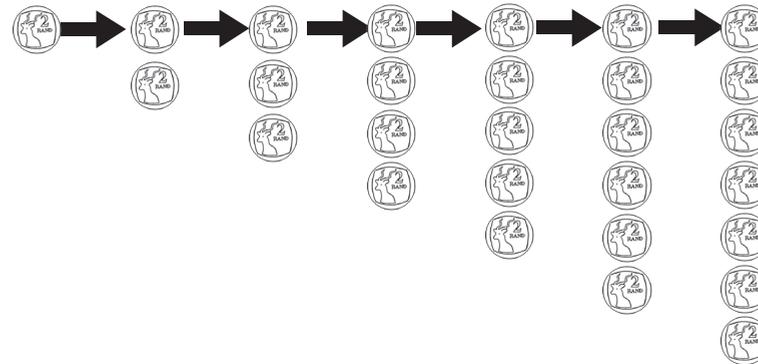
Ask the learners to make a drawing as you are telling a story of what Maria sold. Maria has an ice cream stall. She sells ice creams for R2 each. She started off by selling one. Then she sells another one. She then sells 2 ice creams and then again another 3. She sells 1 ice cream and then again 2.

- How many ice creams did she sell?
- How much money did she get for the ice creams?

**[ice creams sold:  $1 + 1 + 2 + 3 + 1 + 2 = 10$     Total costs =  $10 \times R2 = R20$ ]**

## Concrete

The learners must work with play coins such as R2. Ask them to place one R2 coin on their desks. How much is it? Place another coin below it. How much is it now? Carry on like this until the learners have 7 coins below each other. How much is it in total?



Ask the learners to look at the picture and continue the pattern to find out how much you'll get if you sell 10 chocolates.

**Answer: R50**



What will I get if I sell 10 chocolates? Look at the pictures and continue the pattern?



# 109 Solve money problems *continued*

**Content links:** 6, 25-26, 78-79, 108  
**Grade 1 links:** 60a-62, 75-76, 107-108  
**Grade 3 links:** 8, 26, 95a-95b, 107



Ask the learners to complete the table and help Sheila find the right amount for larger orders. **Answer:**

Number of hotdogs	1	2	3	4	5	6	7	8	9	10
Coins 	2	4	6	8	10	12	14	16	19	20
Cost in Rand	R4	R8	R12	R16	R20	R24	R28	R32	R36	R40



Ask the learners to work out the same table if Sheila sold the hotdogs for R5 each. **Answer:**

Number of hotdogs	1	2	3	4	5	6	7	8	9	10
Coins 	2	3	4	5	6	7	8	9	10	
Cost in Rand	R5	R10	R15	R20	R25	R30	R35	R40	R45	R50



Ask the learners to complete the table based on Sedrick charging R5 per hour.

Number of hours	1	2	3	4	5	6	7	8	9	10
Cost in Rand	R5	R10	R15	R20	R25	R30	R35	R40	R45	R50



Ask learners to add R20 for travel cost each day and complete the table. **Answer:**

Number of hours	1	2	3	4	5	6	7	8	9	10
Cost in Rand	10	20	30	40	50	60	70	80	90	100



Ask the learners to draw a picture to show what Sedrick's cost was for 8 hours at R5 per hour.

**Answer: Learners must be creative and make their own drawings to be equal to R40**



## Homework

Ask learners to do this question at home.

**Answer:**

Number of muffins	1	2	3	4	5	6	7	8	9	10
Cost in Rand	10	20	30	40	50	60	70	80	90	100

## Reflection questions

Can the learners do the following?

- Solve money problems involving totals and change in rands and cents
- Solve money problems using drawings

# 110 Grouping and sharing

**Content links:** 5, 59-63, 88, 113, 118, 121

**Grade 1 links:** 29-30, 49, 52, 54, 56, 80-84, 90-92, 112-114, 117-118, 120

**Grade 3 links:** 2, 16, 30a-30b, 31, 34-36, 63, 78, 81, 83-85, 87, 92-93, 126

## Objectives

- Share numbers or objects from 0 to 50 in equal groups (and remainders)
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

## Resources

**Teacher:** Writing board, unifix cubes

**Learner:** Workbook page 98, pencil and colouring pencils

## Dictionary

**Group:** divide items/objects into equal groups (sets), e.g. groups of 12



## Introduce grouping and sharing from 0 – 50

### Concrete

In pairs, give learners 4 trains of unifix cubes. Share it between two. (Each learner will get 2 trains of unifix cubes). They put them in groups of 20 cubes each. We have 2 groups of 20.



In pairs, give learners 4 trains of unifix cubes and 8 single cubes. Share it between two. (Each learner will get 2 trains of unifix cubes and 4 single cubes each.)



In pairs, give learners 3 trains of unifix cubes.



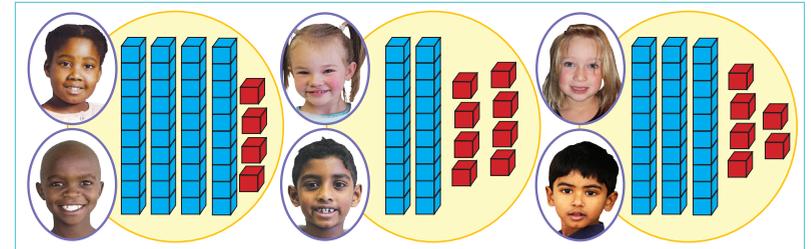
Share it between two. They put them in groups of 15 cubes each. We have 2 groups of 15. Each child will get 1 train and a half train.



In pairs, give learners 3 trains and 4 single cubes. Share it between two. They put them in groups of 17 cubes each. We have 2 groups of 17. Each child will get 1 train and 5 cubes (a half train) and 2 single cubes.



Learners must share the cubes between the children.



**Answers:**

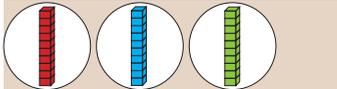
- 44 cubes and each gets 22
- 28 cubes and each gets 14
- 36 cubes and each gets 18

# 110 Grouping and sharing *continued*



Ask learners how many blocks are in each circle? Learners write the total in the blue circle and a multiplication sum for each.

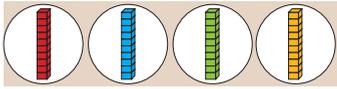
**Answers:**



30  $10 \times 3 = 30$



24  $12 \times 2 = 24$



40  $10 \times 4 = 40$

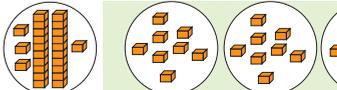


Learners share the blocks between the circles. Learners write a division sum for each.

**Answers:**



$18 \div 2 = 9$



$24 \div 3 = 8$

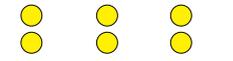
- Oral questions**
- What is 3 groups of 10 blocks?
  - What is 2 groups of 13 blocks?
  - Share 14 blocks between 2.
  - Share 26 blocks between 2.



Learners draw the groups and write a sum for each.

**Answer:**

3 groups of 2



+ Plus sum:  $2 + 2 + 2 = 6$

× Times sum:  $3 \times 2 = 6$

4 groups of 10



+ Plus sum:  $10 + 10 + 10 + 10 = 40$

× Times sum:  $4 \times 10 = 40$

Share 12 counters between 4.



- Minus sum:  $12 - 3 - 3 - 3 - 3 = 0$

÷ Division sum:  $12 \div 4 = 3$

Share 36 counters between 3.



- Minus sum:  $36 - 12 - 12 - 12 = 0$

÷ Division sum:  $36 \div 3 = 12$

- 
- Learners must calculate the total numbers in sets of groups and the number in groups made by dividing up a number.
- Answer:**
- 2 groups of 7: 14
  - 3 groups of 8: 24
  - 4 groups of 5: 20
  - 2 groups of 15: 30
  - Share 18 by 2: 9
  - Share 24 by 3: 8
  - Share 35 by 5: 7
  - Share 50 by 10: 5

- Reflection questions**
- Can the learners do the following?
- Share numbers or objects from 0 to 50 in equal groups (and remainders)
  - Solve number problems that involve equal sharing and grouping in context and explain own solutions

# 111 Even more capacity

**Content links:** 12, 49, 67-68  
**Grade 1 links:** 37, 40, 126  
**Grade 3 links:** 14, 128a-128b

## Objectives

- Estimate, measure, compare, order and record the quantities (volumes) in containers such as measuring jugs with numbered calibration lines

## Resources

**Teacher:** Writing board, containers for liquids (cups, litre bottles, measuring jugs)

**Learner:** Learner workbook page 100, pencil and colouring pencils

## Dictionary

**Capacity:** the amount that something can hold. Usually it means volume, such as millilitres (ml) or litres (l) in metric. Example: "The bucket has a capacity of 9 litres"

**Non-standard measures:** In grade 2 we make use of non-standard measures, e.g. the bottle can hold 4 cups of water.

## Introduce capacity

### Concrete

You will demonstrate this on your desk or outside the classroom. Show learners that 4 cups fill the container (1 litre container). Ask them, "If I have 2 containers how many cups do I need to fill it? 3 containers? 4 containers? 5 containers?"



Learners look at the picture and discuss it.



# 111

## Even more capacity *continued*

**Content links:** 12, 49, 67-68  
**Grade 1 links:** 37, 40, 126  
**Grade 3 links:** 14, 128a-128b



Learners must colour in up to the mark where the spoons fill the jug with liquid.

**Answers:**

- Learners colour up to the 3rd line
- Learners colour up to the 2nd line
- Learners colour up to the 5th line
- Learners colour up to the 4th line
- Learners colour up to the 3rd line

What will happen if you pour 15 spoonful in the measuring jug? **Answer: it will overflow**



It takes five cups of water to fill a large jug. How many cups of water do you need to fill the following number of jugs?

**Answer:**

<b>10 cups</b>	<b>15 cups</b>
<b>20 cups</b>	<b>25 cups</b>

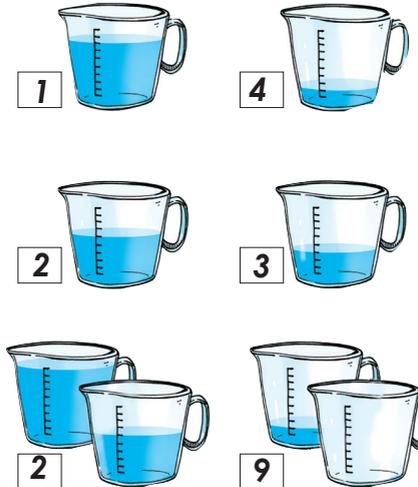
### Oral questions

3 Cups will fill one container. How many cups will fill 2, 3, 4 and 5 containers.



It takes five cups of water to completely fill this measuring jug. How many more cups of water do you need to fill the measuring jug or jugs?

**Answers: [note that each mark on the measuring jug works out at half a cup.]**



Paste pictures of 1 litre, 2 litre and 3 litre containers.

### Homework

Do question 5 for homework.

### Reflection questions

Can learners do the following?

- Estimate, measure, compare, order and record the quantities (volumes) in containers such as measuring jugs with numbered calibration lines

# 112 Number patterns

**Content links:** 44, 51, 53, 56, 80, 89, 117

**Grade 1 links:** 51, 58-59, 83-84, 93, 115, 119-120

**Grade 3 links:** 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121

## Resources

**Teacher:** Writing board

**Learner:** Workbook page 102, pencil, colouring pencils

## Objectives

- Count in 2s, 3s, 4s and 5s from 0 - 200
- Identify and use pattern rules
- Copy, extend and describe simple number sequences up to 200
- Describe, order and compare numbers
- Use numbers to show order, place or position

## Dictionary

**Counting forwards:** count on from a given number following a rule, e.g. 12, 14, 16, ...

**Counting backwards:** count back from a given number following a rule: e.g. 100, 95, 90, ...

**Pattern:** something that repeats itself in a regular, predictable way

**Extend a pattern:** identify the rule using the given numbers and then carry on with it

Twos: 2, 4, 6, 8, ... 100

Threes: 3, 6, 9, ... 99

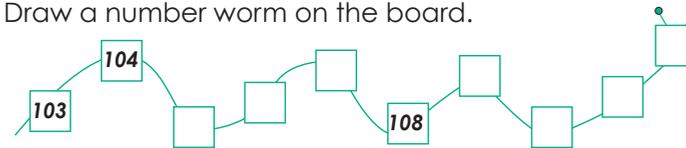
Fours: 4, 8, 12, ... 100

Fives: 5, 10, 15, ... 100

**Introduce the concept of identifying a rule (e.g. counting forwards or backwards by a certain number)**

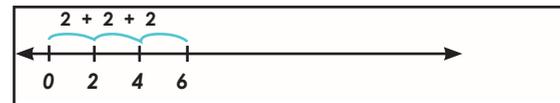
## Abstract

Draw a number worm on the board.



In the first block is 103, the second block is 104 and the sixth block is 108. What numbers will be in the other blocks? How do you know? How did you work it out. Use the same worm giving examples of counting in 2s, 3s, 4s and 5s.

Draw a number line on the board.



Ask the learners to extend the number line. Why did you use these numbers? How did you work it out? Do similar examples with 3s, 4s and 5s.



Learners must look at the picture and discuss it.

Place the cards in order. First from big to small, then small to big.

5	3	8	1	9	7	6	2	4	
61	66	64	69	62	68	67	63	65	
136	132	140	138	131	135	133	137	134	139

# 112

## Number patterns *continued*

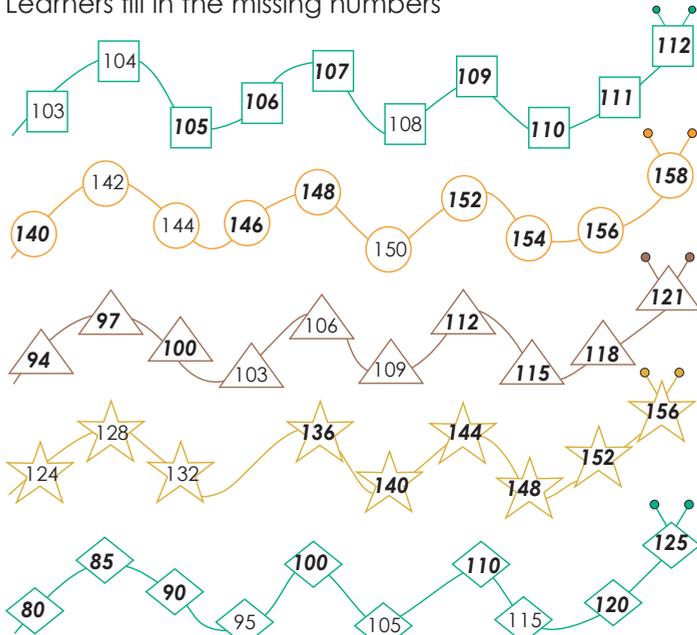
**Content links:** 44, 51, 53, 56, 80, 89, 117

**Grade 1 links:** 51, 58-59, 83-84, 93, 115, 119-120

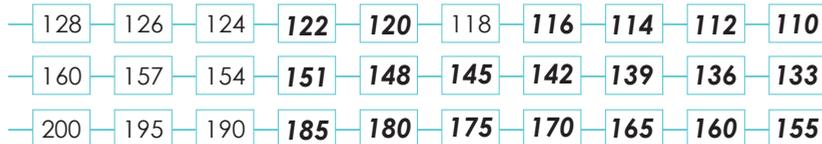
**Grade 3 links:** 9, 29, 47, 64, 76, 79, 82, 86, 88, 111, 114, 116, 119, 121



Learners fill in the missing numbers



Learners must complete the following counting backwards.

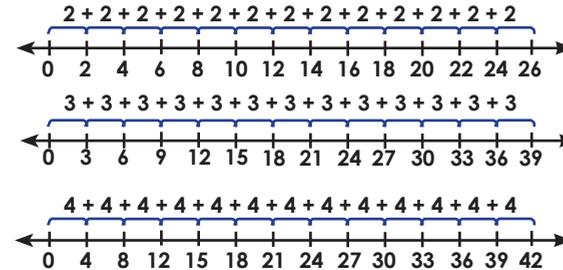


Learners must complete the following:

100, 102, 104, **106, 108, 110, 112, 114**  
 160, 155, 150, **145, 140, 135, 130, 125**  
 115, 118, 121, **124, 127, 130, 133, 136**  
 200, 190, 180, **170, 160, 150, 140, 130**



Learners must complete the number line.



### Homework

Learners do question 6 for homework.

Learners must say in what they are going to count.

**Answers: We count in 4s, 2s, 5s, and 3s**

### Reflection questions

Can the learners do the following?

- Count in 2s, 3s, 4s and 5s from 0 - 200
- Identify and use pattern rules
- Copy, extend and describe simple number sequences up to 200
- Describe, order and compare numbers
- Use numbers to show order, place or position

# 113 Multiply by 3

**Content links:** 29-31, 50, 52, 54, 82-84, 88, 114-115  
**Grade 1 links:** None  
**Grade 3 links:** 27, 55, 78, 81, 84-85, 89, 118

## Objectives

- Multiply numbers 1 to 10 by 3
- Use appropriate symbols (+, −, ×, ÷)

## Resources

**Teacher:** Writing board, 1-100 number boards, counters, place value number cards

**Learner:** Workbook page 104, pencil and colouring pencils



## Dictionary

**Multiplication:** The basic idea of multiplication is repeated addition.  
 E.g.  $3 + 3 + 3 + 3 = 12$ ,  $3 \times 4 = 12$



## Concrete

Ask learners to set out the following on their desk using beads, counters, stones and unifix cubes.

Place three counters on your desk.

Place another three, place another three, place another three.

How many counters do you have?



Let us count: 3, 6, 9, 12.

Let us make an addition sum:  $3 + 3 + 3 + 3 = 12$

Let us make a multiplication sum:  $4 \times 3 = 12$

## Abstract

Place counters on the correct places on the 1 to 100 number board.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Learners look at the picture.

**Answers:**  
**Feet = 36**  
**Ears = 18**

All these animals have 4 feet.      All these animals have 2 ears.



3 blind mice      3 little bears      3 little pigs

What is the total number of feet in this picture?      **36**      What is the total number of ears in this picture?      **18**

# 113 Multiply by 3 *continued*



Learners look at the pictures and complete the following: **Answers:**

3	×	4	=	12
Number of mice		Feet per animal		

3	×	2	=	6
Number of mice		Ears per animal		



Learners fill in the table: **Answers:**

3	6	9	12	15	18	21	24	27	30
30	27	24	21	18	15	12	9	6	3



Learners complete the following: **Answers:**

5 ×  = 15 apples	4 ×  = 12 bananas
6 ×  = 18 bananas	7 ×  = 21 apples



Learners complete the following: **Answers:**

$13 \times 3 = \square$ $\begin{array}{ c c } \hline 1 & 0 \\ \hline \end{array} \begin{array}{ c } \hline 3 \\ \hline \end{array} \times 3$ $= \begin{array}{ c c } \hline 1 & 0 \\ \hline \end{array} \begin{array}{ c } \hline 3 \\ \hline \end{array} + \begin{array}{ c } \hline 3 \\ \hline \end{array} \times 3$ $= \begin{array}{ c c } \hline 1 & 0 \\ \hline \end{array} \begin{array}{ c } \hline 3 \\ \hline \end{array} \times 3 + \begin{array}{ c } \hline 3 \\ \hline \end{array} \times 3$ $= 30 + 9$ $= 39$ 	$15 \times 3 = \square$ $\begin{array}{ c c } \hline 1 & 0 \\ \hline \end{array} \begin{array}{ c } \hline 5 \\ \hline \end{array} \times 3$ $= \begin{array}{ c c } \hline 10 & + & 5 \\ \hline \end{array} \times 3$ $= \begin{array}{ c c } \hline 10 & \times & 3 \\ \hline \end{array} + \begin{array}{ c } \hline 5 \\ \hline \end{array} \times 3$ $= \begin{array}{ c c } \hline 30 & + & 15 \\ \hline \end{array}$ $= 45$
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Sort the dropped stationery into two sets.

**Answer: Each set has: pair of scissors, rubber, eleven pencils**

Complete the following:

<p>Share this chocolate equally between 2 children.</p>  <p>Each get <math>6 \div 2 = 3</math></p>	<p>Share 15 toffees equally between 3 children.</p>  <p>Each get <math>15 \div 3 = 5</math></p>
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<p>Share 9 pencils between 3 children.</p> <p>Each get <math>9 \div 3 = 3</math></p>	<p>Share 16 crayons between 3 children. Will there be any crayons left over?</p> <p>Each get <math>16 \div 3 = 5 \text{ and } 1 \text{ over}</math></p>
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## Homework

Do question 5 for homework

## Reflection questions

Can learners do the following?

- Multiply numbers 1 to 10 by 3
- Use appropriate symbols (+, −, ×, ÷)

# 114 Mixed multiplication

Content links: 29-31, 50, 52, 54, 82-84, 88, 113, 115

Grade 1 links: None

Grade 3 links: 23-24, 27-28, 78, 81, 83-85, 87, 89

## Objectives

- Skip count
- Group objects
- Do repeated addition
- Use arrays to calculate
- Multiply numbers 1 to 10 by 2, 3, 4 and 5

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 106, paper, pencils

## Dictionary

**Skip counting:** Skip Counting is counting by a number that is not 1. E.g. count in twos: 2, 4, 6, 8

**Equal groups:** E.g. Divide 8 into equal sized groups of 2.

**Array:** An array is a systematic arrangement of objects, usually in rows and columns.

**Repeated addition:** E.g.  $2 + 2 + 2 + 2 + 2 = 8$

**Multiplication number sentence:** E.g.  $2 \times 4 = 8$

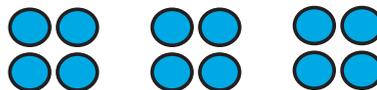


Teach mathematics

## Concrete

Ask learners to make **3 groups of 4** with counters.

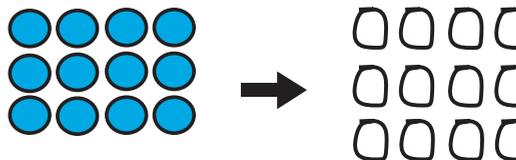
Ask the learners to count it: 4, 8, 12



Do a few more examples like this.

## Representational

Show learners how to draw an array. We will now say **3 rows of 4**. Set it out using counters. Draw it.



## Abstract

Ask the learners to write it as :

- an addition number sentence:  $4 + 4 + 4 = 12$
- a multiplication number sentence:  $3 \times 4 = 12$

## Oral question

Ask the learners to look at the pictures in their workbooks and say what they notice. **Answer:** Different wording that means the same thing.

# 114 Mixed multiplication *continued*

**Content links:** 29-31, 50, 52, 54, 82-84, 88, 113, 115  
**Grade 1 links:** None  
**Grade 3 links:** 23-24, 27-28, 78, 81, 83-85, 87, 89



Ask the learners to complete the table by doing what they see in the example given.

**Answer:**

Skip counting	Equal groups	Repeated addition	Arrays	Facts
3, 6, 9, 12		$3 + 3 + 3 + 3$	4 rows of 3 $\begin{array}{ccc} \times & \times & \times \\ \times & \times & \times \\ \times & \times & \times \\ \times & \times & \times \end{array}$	$4 \times 3 = 12$ $3 \times 4 = 12$
4, 8, 12		$4 + 4 + 4$	3 rows of 4 $\begin{array}{cccc} \times & \times & \times & \times \\ \times & \times & \times & \times \\ \times & \times & \times & \times \end{array}$	$3 \times 4 = 12$ $4 \times 3 = 12$
5, 10, 15, 20, 25, 30		$5 + 5 + 5$ $+ 5 + 5 + 5$	6 rows of 5 $\begin{array}{ccccc} \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times \\ \times & \times & \times & \times & \times \end{array}$	$6 \times 5 = 30$ $5 \times 6 = 30$
2, 4, 6, 8, 10, 12		$2 + 2 + 2$ $+ 2 + 2 + 2$	6 rows of 2 $\begin{array}{cc} \times & \times \\ \times & \times \end{array}$	$2 \times 6 = 12$ $6 \times 2 = 12$



Make this question fun and see who can answer this question fastest. **Answer:**

**2, 4, 6, 8, 10, 12, 14, 16, 18, 20**  
**5, 10, 15, 20, 25, 30, 35, 40, 45, 50**



Ask the learners to complete the questions. **Answer:**

**Four fives = 20 Double 6 = 12**  
**6 times 5 = 30 2 multiplied by 4 = 8**  
**8 times 2 = 16**



Ask the learners to replace the place holder with a number.

**Answer:**  
 $3 \times 2 = 6$   
 $4 \times 3 = 12$   
 $6 \times 3 = 18$

## Homework

Do the problem for homework. There are three counters in a row. There are four rows. How many counters altogether.

**Answer:  $3 \times 4 = 12$**

$\begin{array}{ccc} \times & \times & \times \\ \times & \times & \times \\ \times & \times & \times \\ \times & \times & \times \end{array}$

## Reflection questions

Can learners do the following?

- Skip count
- Group objects
- Do repeated addition
- Use arrays to calculate
- Multiply numbers 1 to 10 by 2, 3, 4 and 5

# 115 More multiplication

**Content links:** 29-31, 50, 52, 54, 82-84, 88, 113-114  
**Grade 1 links:** None  
**Grade 3 links:** 23-24, 27-28, 78, 81, 83-85, 87, 89

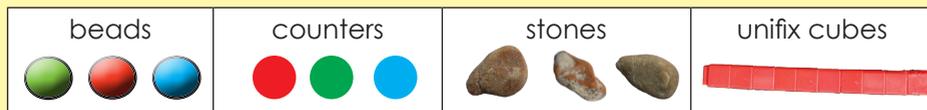
## Objectives

- Multiply numbers 1 to 10 by 2, 3, 4 and 5
- Use appropriate symbols (+, −, ×, ÷)

## Resources

**Teacher:** Writing board, counters, number boards

**Learner:** Workbook page 108, pencil, colouring pencils



## Dictionary

**Multiplying in 2s:** E.g.  $1 \times 2$ ,  $2 \times 2$ ,  $3 \times 2$ , ...

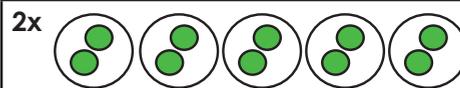
**Multiplying in 3s:** E.g.  $1 \times 3$ ,  $2 \times 3$ ,  $3 \times 3$ , ...

**Multiplying in 4s:** E.g.  $1 \times 4$ ,  $2 \times 4$ ,  $3 \times 4$ , ...

**Multiplying in 5s:** E.g.  $1 \times 5$ ,  $2 \times 5$ ,  $3 \times 5$ , ...

## Introduce 2x, 3x, 4x, 5x

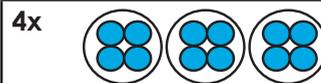
### Semi-abstract and abstract:



Give an addition and multiplication sum  
 $2 + 2 + 2 + 2 + 2 = 10$   
 $5 \times 2 = 10$



Give an addition and multiplication sum  
 $3 + 3 + 3 + 3 = 12$   
 $4 \times 3 = 12$



Give an addition and multiplication sum  
 $4 + 4 + 4 = 12$   
 $3 \times 4 = 12$



Give an addition and multiplication sum  
 $5 + 5 + 5 + 5 = 20$   
 $4 \times 5 = 20$

### Number board

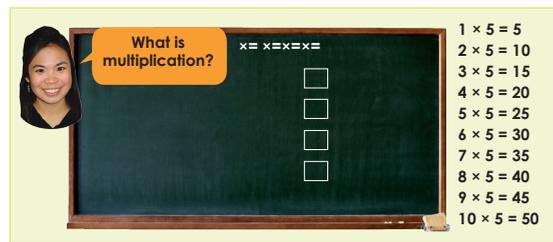
Use the number board to count in 2s, 3s, 4s and 5s.

# 115 More multiplication *continued*

Content links: 29-31, 50, 52, 54, 82-84, 88, 113-114  
 Grade 1 links: None  
 Grade 3 links: 23-24, 27-28, 78, 81, 83-85, 87, 89



Learners look at the picture and discuss it.



Learners complete:

	1	2	3	4	5	6	7	8	9	10
x 2	2	4	6	8	10	12	14	16	18	20

Learners must use their own method to solve this.

**Answers:**  $12 \times 2 = 24$     $16 \times 2 = 32$

Learners complete:

	1	2	3	4	5	6	7	8	9	10
x 3	3	6	9	12	15	18	21	24	27	30

**Answers:**  $13 \times 3 = 39$     $15 \times 3 = 45$

Learners complete:

	1	2	3	4	5	6	7	8	9	10
x 4	4	8	12	16	20	24	28	32	36	40

Learners use their own method to solve this.

**Answers:**  $11 \times 4 = 44$     $14 \times 4 = 56$

Learners complete:

	1	2	3	4	5	6	7	8	9	10
x 5	5	10	15	20	25	30	35	40	45	50

Learners use their own method to solve this.

**Answers:**  $12 \times 5 = 60$     $16 \times 5 = 80$



There are 12 oranges in a bag. There are 4 bags. How many oranges are there? **Answers:**

- 4 bags? 48 oranges
- 5 bags? 60 oranges
- 3 bags? 36 oranges
- 2 bags? 24 oranges

## Homework

Learners can do question 2 for homework.

## Reflection questions

Can learners do the following?

- Multiply numbers 1 to 10 by 2, 3, 4 and 5
- Use appropriate symbols (+, −, ×, ÷)

# 116a Days of the week

Content links: 14, 22, 113-114  
 Grade 1 links: 32  
 Grade 3 links: 80

## Objectives

- Name and sequence the days of the week
- Calculate elapsed time in days

## Resources

**Teacher:** Writing board, flashcards with days of the week, calendar

**Learner:** Workbook page 110, pencil, colouring pencils

## Dictionary

**Days of the week:** Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

**Elapsed time in days:** Note that there are different conventions about how we count the days between two dates based on whether to include the start date and the end date or to exclude them. The most common convention is to include the start date but not the end date.

## Introduce days of the week

### Concrete

Stick or write the days of the week in random order on the board. Ask learners to come to the front and place the days in order. Do the same activity but start with Wednesday, Thursday and Friday. Stick Monday and Wednesday on the board. How many days are between Monday and Wednesday? How many days is it from Monday to Wednesday? Do more examples.



December 2015

Sun	Mon	Tues	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Learners look at the picture and unscramble the letters of the days of the week.

AYUETSD      DNYUAS      ONAYDM

ENEDSDWAY      UAYTSRHD

ASTDAUYR      IFADRY

Learners must fill in the missing days.



Monday	<b>Tuesday</b>	Wednesday	<b>Thursday</b>
Sunday	<b>Monday</b>	Tuesday	<b>Wednesday</b>

# 116a Days of the week *continued*



Learners must write down the days of the week.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
--------	--------	---------	-----------	----------	--------	----------



Learners must say how many days is it from:

**Answers:**

- Monday to Thursday?** 3 [4]
- Tuesday to Friday?** 3 [4]
- Thursday to Saturday?** 2 [3]
- Friday to Saturday?** 1 [2]
- Saturday to Tuesday?** 3 [4]

Note that there are different conventions about whether to include the start date and the end date or to exclude them. The most common convention is to include the start date but not the end date. Thus the number of days from Monday to Thursday would be 3 days. If the end date (Thursday) is included, it would be 4.



Learners say how many days are between:

**Answers:**

- Monday and Friday?** 3
- Tuesday and Saturday?** 3
- Wednesday and Friday?** 1
- Thursday and Sunday?** 2
- Sunday and Thursday?** 3

## Oral question

Name the days of the week. How many days is it from Monday to Wednesday?

## Homework

- Learners complete question 5 for homework

## Reflection questions

Can learners do the following?

- Name and sequence the days of the week
- Calculate elapsed time in days

# 116a Months of the year

Content links: 14, 22, 113-114  
 Grade 1 links: 32  
 Grade 3 links: 80

## Objectives

- Name and sequence the months of the year
- Calculate elapsed time in months

## Resources

**Teacher:** Writing board, flashcards with months of the year, calendar  
**Learner:** Workbook page 111, pencil, colouring pencils

## Dictionary

**Months of the year:** January, February, March, April, May, June, July, August, September, October, November, December



Introduce months of the year.

## Concrete

Put the months of the year on the board. Ask learners to come to the front and place 4 in order. Do the same activity but start with March, April and May. Stick January and April on the board. How many months are there between January and April? How many months are there from January to November? Do more examples.



Learners must look at the picture and unscramble the letters of the months.

AURJNAY	EARUBFRY	JYLU	RBCOTOE
EVEMONBR	MEBERCED	GTUUSA	UEJN
AMCHR	AMY	PRLAI	EEMTSPEBR



Learners must say how many days are there in each month?

**Answers:**

January 31	February 28	March 31	April 30
May 31	June 30	July 31	August 31
September 30	October 31	November 30	December 31

# 116a Months of the year *continued*



Learners answer the following:

**Answers:**

**What comes before March? February**

**What comes after June? July**

## Oral question

- Name the months of the year.
- How many months is it from January to March?
- How many months are between January and July?



If it is July. Learners say how many months is it before:

**Answers:**

**September: one month**

**Your birthday: learner's own answer**

## Homework

- Learners can do question 4 for homework.

## Reflection questions

Can learners do the following?

- Name and sequence the months of the year
- Calculate elapsed time in months

# 116b Days, weeks and months

Content links: 14, 22, 113-114  
Grade 1 links: 32  
Grade 3 links: 80

## Objectives

- Name and sequence the days of the week
- Sequence and name the months of the year
- Calculate the length of time and passing of time

## Resources

**Teacher:** Writing board calendar, empty copy of calendar

**Learner:** Workbook page 112, pencil, colouring pencils

## Concrete

In groups give the learners copies of one calendar month and counters. Ask them to see how many days there are from the 3rd to the 7th. How many days are there between the 11th and 27th. Do more examples like this. They use their counters to put on the two given dates.

## Representational

Give each learner an empty copy of a calendar or let them roughly draw it.

Give them the following information:

- The month starts on a Wednesday
- There are 31 days in this month

Using this information, they complete the whole calendar



Continue discussion of days, weeks and months



Learners must look at the calendar for the month of December 2015 and answer the questions.

December 2015						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

## Answers:

What day is the 1st of December? **Monday**

What day is the 15th of December? **Monday**

What day is the 24th of December? **Wednesday**

What day is the 12th of December? **Friday**



Learners answer the questions? **Answers:**

How many days are there in December? **31**

How many weeks are there in December? **5 [4 weeks 3 days]**

How many days are there in a week? **7**

When is the school closing in December? **Learner's own answers**

What happens on the 25th of December? **Christmas**

**[a public holiday]**

What happens on the 31st of December? **New Year's Eve**

What day comes after the 31st of December? **New Year's Day**

**[a public holiday]**

# 116b

## Days, weeks and months *continued*

Content links: 14, 22, 113-114

Grade 1 links: 32

Grade 3 links: 80

Learners colour the odd numbers yellow and the even numbers red

**Answers:**

December 2015						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			



Learners complete the calendar. **Answer:**

April **2015**

Sun	Mon	Tues	Wed	Thu	Fri	Sat
			1	2		4
5	6		8	9	10	11
12	13	14	15		17	18
	20	21		23	24	
26		28	29	30		



Learners complete the tables. **Answer:**

	Date	Day
	3	Friday
	7	Tuesday
	16	Thursday
	19	Sunday
	22	Wednesday
	25	Saturday
	27	Monday

How many days is it from:

	to		4 [5]
	to		3 [4]
	to		13 [14]
	to		11 [12]

### Homework

Find a calendar in your house. See what day December and September started with.

### Reflection questions

Can learners do the following?

- Name and sequence the days of the week
- Sequence and name the months of the year
- Calculate the length of time and passing of time

# 117 More number patterns

**Content links:** 15, 64, 71, 93, 96, 107  
**Grade 1 links:** 2, 4, 8, 28, 37, 44, 64b, 124-125  
**Grade 3 links:** None

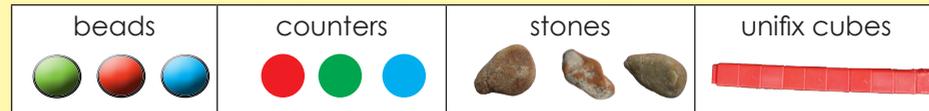
## Objectives

- Copy, extend and describe simple number sequences to at least 200

## Resources

**Teacher:** Writing board, 101 to 200 number boards, counters

**Learner:** Workbook page 114, pencil, colouring pencils



## Dictionary

**Number pattern:** a list of numbers that follows a certain sequence or pattern



Teach number patterns

## Concrete

Learners use a 101 to 200 number board to show the following patterns, using counters:

- start at 103 and add 3 each time
- start at 105 and add 4 each time
- start at 101 and add 10 each time

101	102	●	104	105	●	107	108	●	110
111	●	113	114	●	116	117	●	119	120
●	122	123	●	125	126	●	128	129	●
131	132	●	134	135	●	137	138	●	140
141	●	143	144	●	146	147	●	149	150
●	152	153	●	155	156	●	158	159	●
161	162	●	164	165	●	167	168	●	170
171	●	173	174	●	176	177	●	179	180
●	182	183	●	185	186	●	188	189	●
191	192	●	194	195	●	197	198	●	200

## Representational

Learners write down the number patterns that they have laid out on the number boards using the counters



Learners explain the pattern

**Answer: A 2s pattern and a 3s pattern**

101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200

# 117 More number patterns

Content links: 15, 64, 71, 93, 96, 107  
 Grade 1 links: 2, 4, 8, 28, 37, 44, 64b, 124-125  
 Grade 3 links: None



Learners complete the pattern. **Answer:**

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130
131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150
151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170
171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190
191	192	193	194	195	196	197	198	199	200



Learners circle either odd or even. **Answer:**

4 odd <b>even</b>	19 <b>odd</b> even	21 <b>odd</b> even
26 odd <b>even</b>	20 odd <b>even</b>	18 odd <b>even</b>



Learners complete the pattern. **Answer:**

33, 39, 33, **39**, 33, 39, 33, 39

96, 74, 96, 74, 96, 74, 96, **74**

38, 45, 38, 45, **38**, 45

49, 5, 46, 20, 49, 5, **46**, 20, 49, 5, 46, 20, 49, 5, 46

**11**, 78, 21, 11, 78, 21, 11, 78, 21, 11



Learners complete the pattern. **Answer:**

55, 21, 19, 63, 55, 21, 19, 63, 55, 21, 19, 63, 55, 21, 19, **63**

18, 28, 36, 18, 28, 36, 18, 28, 36, 18, 28, 36, 18, 28, 36, 18, **28**

11, 76, 11, 76, 11, 76, 11, 76, **11**

60, 91, 94, 60, 91, 94, 60, 91, 94, 60, 91, 94, 60, **91**

28, 47, 78, 28, 47, 78, 28, 47, 78, 28, 47, 78, 28, **47**

## Reflection questions

Can learners do the following?

- Copy, extend and describe simple number sequences to at least 200

# 118 Equal sharing leading to fractions

Content links: 121  
Grade 1 links: 29-30, 114  
Grade 3 links: 31, 92-93, 126

## Objectives

- Share objects equally
- Identify and recognise a fraction of a whole number
- Solve problems involving equal sharing in context and explain own solutions

## Resources

**Teacher:** Writing board, unifix cubes

**Learner:** Workbook page 116, pencil

## Dictionary

**Sharing:** It is when we take a number of objects and divide it by a number. E.g. Share 20 sweets between 5 children.

**Grouping:** It is when we take a number of objects and divide them up into smaller sized groups. E.g. You have 12 counters. How many groups of 4 can you make?

## Teach mathematics

### Concrete

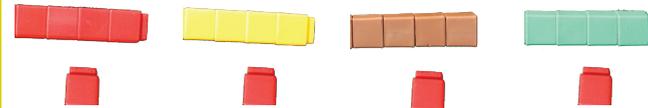
In groups of 4, give learners five unifix trains of 4 cubes each.



Ask the learners to share the train blocks between the 4 members of the group.

## Representational

Ask the learners to make a drawing of what they have shared.



Each gets 5 unifix cubes.

## Abstract

Tell the learners that we say:

- Each learner gets one quarter of the blocks.
- One quarter equals to five blocks
- One quarter of twenty is five. Ask them: Where did the 20 come from?

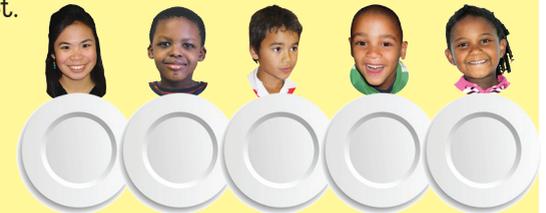


Do the sum with the learners and divide the blocks of chocolate between the children.

**Answer:**  $30 \div 5 = 6$



Share the chocolate slab saying how many blocks each child will get.



# 118 Equal sharing leading to fractions *continued*



Ask the learners to now divide the 6 chocolate slabs each between 3 children. Learners must make a drawing to show their answers.

**Answer:** *Each child gets 2 slabs of chocolate.*

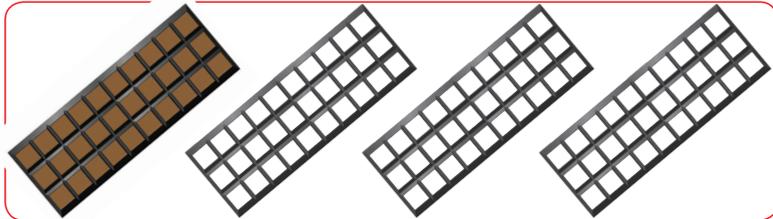


Ask the learners to share the 3 cakes equally between 4 friends.

**Answer:** *3 cakes sliced in 4 equal parts = 12 pieces ÷ 4 friends = 3 pieces each (each friend gets 3 quarters of a whole cake.)*



Ask the learners to colour in the chocolate as requested and then answer the questions.



**Answer:** *One whole slab of chocolate is coloured in (or 7 and a half blocks on each slab is coloured in).*

*30 blocks is one quarter*

*24 blocks is one fifth*



Ask the learners to show one half of each picture.

**Answer:** *1 muffin      1 and a half muffins      2 muffins*



Ask the learners to show one third of the sweets.

**Answer:** *2 sweets*



Ask the learners to show one sixth of the sweets

**Answer:** *1 sweet*



Share 11 chocolate bars among four friends so that they all get the same amount of chocolate and there is nothing left over.

**Answer:** *Each friend will get 2 whole bars and three quarters of a bar.*

## Homework

Ask learners to complete Question 7 at home.

## Reflection questions

Can learners do the following?

- Share objects equally
- Identify and recognise a fraction of a whole number
- Solve problems involving equal sharing in context and explain own solutions

# 119 Length

**Content links:** 10, 40  
**Grade 1 links:** 12a-12b, 74, 96  
**Grade 3 links:** 13, 40, 94, 97

## Objectives

- Estimate, measure, compare, order and record length using non-standard measures
- Use words such as short, long, high, low, and tall to talk about length and height

## Resources

**Teacher:** Writing board, pieces of string (of a set length - 1 metre), metre stick

**Learner:** Workbook page 118, pencil, colouring pencils or crayons

## Dictionary

**Metre:** a standard unit of length used in most countries in the world



## Concrete

Give learners each a piece of string (about 1 metre long). In groups get them to estimate the length (in pieces of string) of objects. Then get them to measure it with their piece of string. The groups check each others' answers.

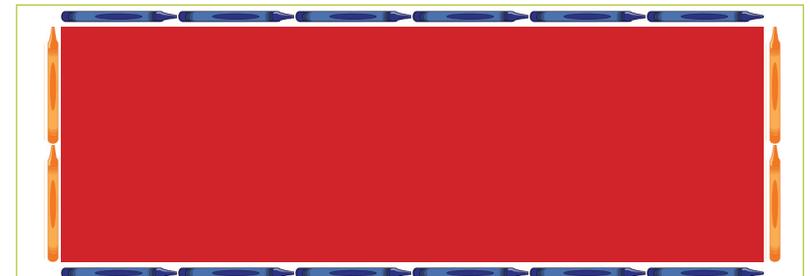
## Representational

Ask the learners to draw the objects they measured and write down their measurements.



Learners say which sides are short and which sides are long.

**Answers:**



The long side is   6   crayons.

The short side is   2   crayons.



Learners say which sides are short and which sides are long?

**Answers:**



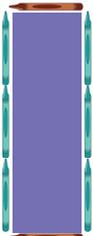
The long side is 4 crayons.

The short side is 1 crayons.



The long side is 3 crayons.

The short side is 2 crayons.



The long side is 3 crayons.

The short side is 1 crayons.



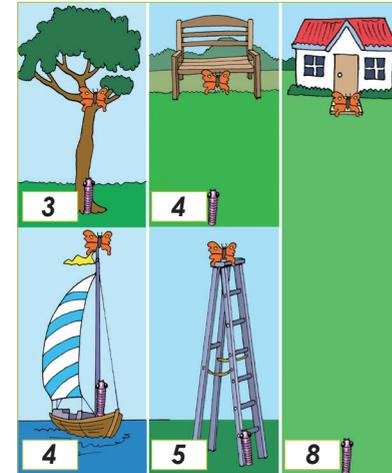
The long side is 5 crayons.

The short side is 1 crayons.



Learners say how many worms will it take to reach the butterfly.

**Answers:**



### Homework

Learners measure the length and width of their beds.

### Reflection questions

Can learners do the following?

- Estimate, measure, compare, order and record length using non-standard measures
- Use words such as short, long, high, low, and tall to talk about length and height

# 120 More heavier and lighter

Content links: 11, 43  
Grade 1 links: 121  
Grade 3 links: 15, 44, 102a-102b

## Objectives

- Estimate, measure, compare, order and record mass using a scale and using non-standard measures
- Use words such as heavy and light to talk about mass

## Resources

**Teacher:** Writing board, pictures of light and heavy objects, magazines

**Learner:** Workbook page 120, pencil, magazines, scissors, glue

## Dictionary

**Mass:** Mass is a measure of how much matter is in an object. This gold bar is quite small but has a mass of 1 kilogram, so it contains a lot of matter. Mass is commonly measured by how much something weighs. But weight can change depending on where you are but mass always stays the same.



Note that a spring scale (or a bathroom scale) measures weight (not mass). Though for practical everyday purposes a spring scale and a balance scale (which measures mass) give us the same results, when teaching mass ideally you should correctly only use a balance scale.

## Oral questions

- Name 5 heavy animals.
- Name 5 light animals.
- Why do you say they are heavy and light?

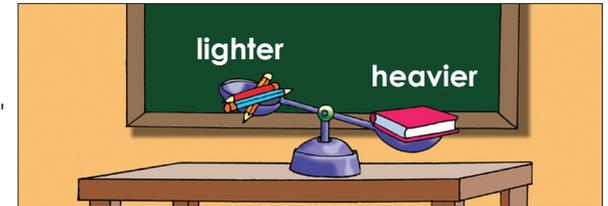
## Introduce symmetry

### Semi abstract

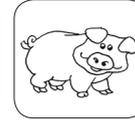
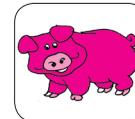
Learners work in groups. Give each group 6-10 pictures of objects. Ask the learners if the objects in the pictures are heavy or light. Learners must explain their answers because they might differ.



Learners look at the picture and discuss what 'heavier' and 'lighter' mean.



Learners colour the picture or pictures that show things that are lighter than the one in the green block.





Learners must look at the picture. Find 5 pictures of objects that are heavier than the lunch box. Paste them here. **Answer: Learners paste their own pictures.**



Learners must look at the picture. Find 2 pictures of objects that are lighter. Paste them here. **Answer: Learners paste their own pictures.**



Say if the balance scales are equal or not.



**Answer: The one on the left side is, the other is not.**



Make the balance scales equal. Learners must make a drawing in the empty scale pan and write a number or numbers below.

**Answers:**  
Learners drawings in the empty scale pans of objects



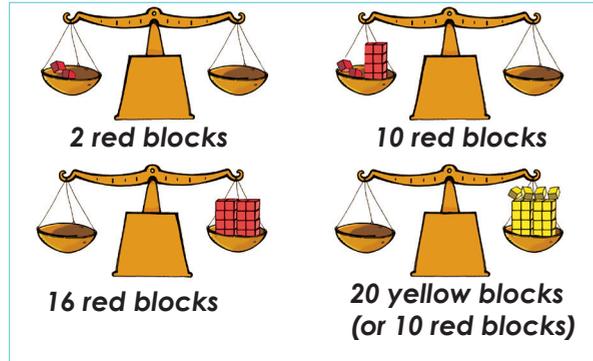
Make drawings to make the balance scales true.

**Answer: The left scale must have a light object on the left pan, a heavier object on the right pan. The numbers must reflect this. The right scale is the reverse.**



Add blocks to balance the scales. =

**Answers:**



### Reflection questions

Can learners do the following?

- Estimate, measure, compare, order and record mass using a scale and using non-standard measures
- Use words such as heavy and light to talk about mass

# 121 More sharing leading to fractions

Content links: 118  
Grade 1 links: 29-30, 114  
Grade 3 links: 31, 92-93, 126

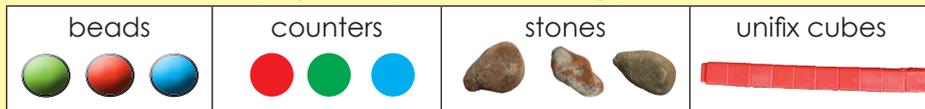
## Objectives

- Share numbers or objects in equal groups
- Identify and recognise a fraction of a whole number
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 122, pencil, colouring pencils



## Dictionary

**Sharing:** It is when we take a number of objects and divide it by a number. E.g. Share 12 counters between 3 children.

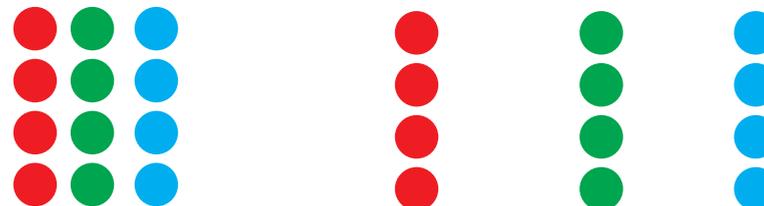
**Grouping:** It is when we take a number of objects and divide them up into smaller sized groups. E.g. You have 12 counters. How many groups of 4 can you make?

**Sharing leading to fractions:** The concept of sharing a whole into parts is similar to the concept of fractions of a whole. E.g. If we share 12 counters between 3 children each child will get one third of the counters. One third of twelve is a fraction of twelve =  $\frac{1}{3}$ .

## Teach mathematics

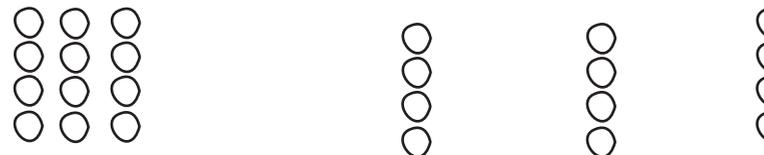
### Concrete

Give learners 12 counters. Ask them to share it between 3 friends.



### Representational

Ask learners to make a drawing of what they did.



Ask them:

- How many counters were there in total?
- How many counters did each get?

### Abstract

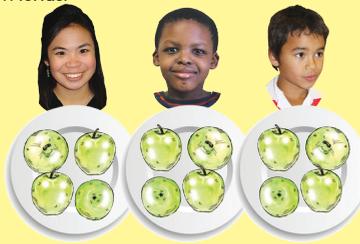
Learners look at their drawings.

- What fraction did each learner get? Each learner got one third of the 12.
- One third of 12 is 4.

Give learners similar activities to do using different numbers and fractions.



Share these apples between the three friends.



How many apples did each get? Four.  
What fractions of all the apples did each get? One third.

Work through the above example with the learners.



Ask the learners to look at the example you just did and share the fruit amongst the friends and then say what fraction each friend got.

**Answer:**

a.  $15 \text{ bananas} \div 5 \text{ friends} = 3 \text{ bananas each}$

*Each friend got 3 fifteenths OR 1 fifth*

b.  $12 \text{ oranges} \div 6 \text{ friends} = 2 \text{ oranges each}$

*Each friend got 2 twelfths OR 1 sixth*

c.  $12 \text{ pears} \div 4 \text{ friends} = 3 \text{ pears}$

*Each friend got 3 twelfths OR 1 quarter*

d.  $9 \text{ pineapples} \div 3 \text{ friends} = 3 \text{ pineapples each}$

*Each friend got 3 ninths OR 1 third*



Ask the learners to work out the word sum.

**Answer:** Kiki used 4 oranges



Ask learners to work out the sum.

**Answer: 6**



Ask the learners to work out the sum.

**Answer: 12**



Ask the learners to work out the sum.

**Answer: 12**



### Homework

Ask the learners to do Question 6 at home. How many oranges are needed?

**Answer: 7**

### Oral questions

How will you work out a word sum

### Reflection questions

Can learners do the following?

- Share numbers or objects in equal groups
- Identify and recognise a fraction of a whole number
- Solve number problems that involve equal sharing and grouping in context and explain own solutions

# 122 Fractions

**Content links:** 90-91, 94a-94b, 123, 125-126  
**Grade 1 links:** None  
**Grade 3 links:** 7, 31, 57-59, 91-93, 122-123, 125-126

## Objectives

- Use and name fractions (halves, thirds, quarters, fifths and sixths)
- Recognise fractions in diagrammatic form
- Recognise fractions equivalent to one whole
- Write fractions in words

## Resources

**Teacher:** Writing board, counters, fraction strips made from coloured paper

**Learner:** Workbook page 124, pencil, coloured pens or crayons

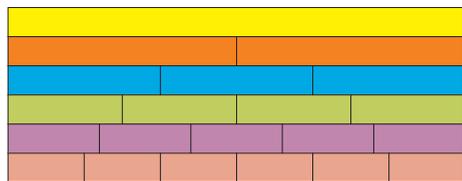
## Dictionary

**Fraction:** a part of a whole

## Teach fractions

### Concrete

Give learners some fraction strips. Ask them to put each fraction strip one below the other as you take them from a whole down to the fraction strip divided into sixths.



## Representational

Ask learners to draw and show that 2 halves make a whole. Note that the representational drawing must be a rough drawing of what the child understands when we say two halves make a whole. Do a similar activity with thirds, quarters, fifths and sixths.



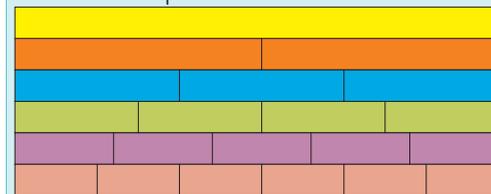
## Abstract

Ask learners to write out "Two halves make a whole."



Work through the example with the learners to show them how to identify the fraction strips in the picture.

What does each strip mean? The words on the right may help you. Match the word with the strip.



One third

One fifth

One half

One sixth

One quarter



Ask the learners to look at the fraction strips on the left and answer the questions. **Answers:**

**2 halves are the same as 1 whole**

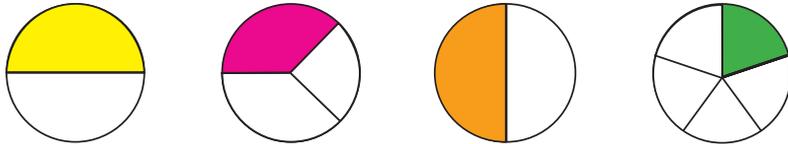
**4 quarters are the same as 1 whole**

**3 thirds are the same as 1 whole**

**5 fifths are the same as 1 whole**



Ask the learners to colour in one part of each circle and say what they notice.



**Answer:**

**2 halves = 1 whole**

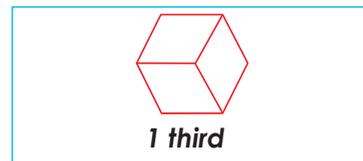
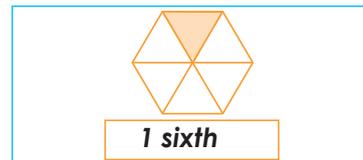
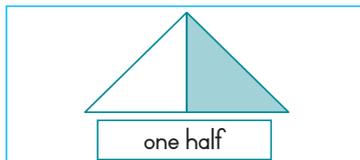
**3 thirds = 1 whole**

**2 halves = 1 whole**

**5 fifths = 1 whole**



Ask the learners to write down which fraction of each shape is shaded by writing it in words.



### Oral questions

Ask learners to describe in their own words what 2 halves, 3 thirds, 4 quarters and 5 fifths mean.



Draw shapes to show what the following words mean. Use squares, rectangles and circles.

**Answer: learner's draw their own pictures**



### Homework

Ask the learners to complete Question 5 at home with assistance from their parents.

**Answer: Each learner's answer will be different depending on what his or her mother or guardian would buy.**

### Reflection questions

Can learners do the following?

- Use and name fractions (halves, thirds, quarters, fifths and sixths)
- Recognise fractions in diagrammatic form
- Recognise fractions equivalent to one whole
- Write fractions in words

# 123 More fractions

**Content links:** 90-91, 94a-94b, 122, 125-126  
**Grade 1 links:** None  
**Grade 3 links:** 7, 31, 57-59, 91-93, 122-123, 125-126

## Objectives

- Recognise and identify fractions in diagrammatic form
- Solve fraction word problems in context

## Resources

**Teacher:** Writing board, fraction circles divided into halves, thirds and quarters, paper

**Learner:** Workbook page 126, pencils and paper

## Dictionary

**Fraction:** a part of a whole

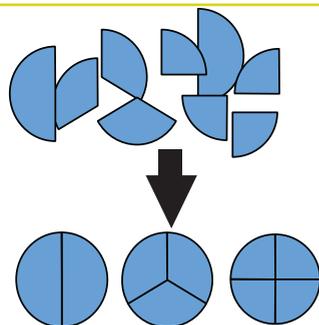
## Teach mathematics

### Concrete

Give learners fractions circle pieces.

Ask them to make circles.

After the learners have made the circles ask them which circles are divided into halves? thirds? quarters?



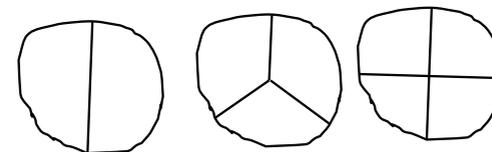
## Teach fractions

### Representational

Give the learners some paper.

Ask them to draw three circles.

Note that the circles don't have to be accurate. Ask the learners to divide the first circle into halves, the second circle into thirds and the last circle into quarters.



### Abstract

Ask the learners to make a sentence for each fraction circle:

- Two halves make a whole.
- Three thirds make a whole.
- Four quarters make a whole.

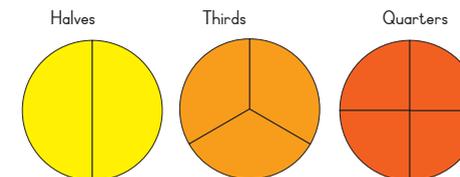


Ask the learners to look at the cakes and say from which cake would they like a slice and why.



Ask the learners to draw three sliced pizzas, one in halves, one in thirds and one in quarters.

**Answer:**



# 123 More fractions *continued*

**Content links:** 90-91, 94a-94b, 122, 125-126  
**Grade 1 links:** None  
**Grade 3 links:** 7, 31, 57-59, 91-93, 122-123, 125-126



Ask the learners to tick the correct box.

**Answer:**

**We ate one whole pizza**

**They ate one whole pizza**

**They ate four quarters**

Ask the learners to answer the questions. **Answer:**

**5 slices pizza**

**6 slices cake**



Ask the learners to complete the table. Each group has a pack of 12 jelly tots. **Answer:**

Group	1	2	3
Children in the group	2	3	4
How many jelly tots will each friend get if the jelly tots are shared equally?	<b>6</b>	<b>4</b>	<b>3</b>
Tick the group that you want to be in. Why?	<input checked="" type="checkbox"/> <b>Get more sweets</b>		
How many sweets will the following be? What do you notice?	Two halves	Three thirds	Four quarters

**There are 12 sweets each in the whole (a pack).**

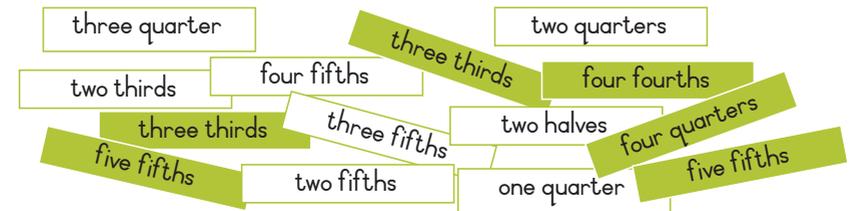
## Oral questions

Ask learners to give you as many fractions as they can that are equal to a whole.



Ask the learners to colour all the fractions that are equal to 1 whole.

**Answer:**



## Homework

Ask the learners to complete Question 5 at home. **Answer: both are same as four quarters is equal to one whole.**

## Reflection questions

Can learners do the following?

- Recognise and identify fractions in diagrammatic form
- Solve fraction word problems in context

# 124 Symmetry and shapes

Content links: 8, 127-128  
Grade 1 links: 94, 128  
Grade 3 links: 48, 115

## Objectives

- Recognise symmetry in 2-D shapes
- Draw a line of symmetry

## Resources

**Teacher:** Writing board, shapes to trace, paper

**Learner:** Workbook page 128, pencil, colouring pencils, scissors, paper

## Dictionary

**Symmetry:** Symmetry means an exact matching of one shape to another shape on the opposite side of a line (or around a centre point). The shape or object corresponds to or matches the other shape exactly, that is, it fits exactly onto itself (if you flip, slide or turn it).



Teach symmetry

## Concrete

Give learners some shapes and paper to trace the shapes on. They must cut out the shapes and fold them in half. They then open the folded shape and draw a line where the fold is. This is the 'line of symmetry'. Ask them if they can fold the shape in another way to get a different line of symmetry.

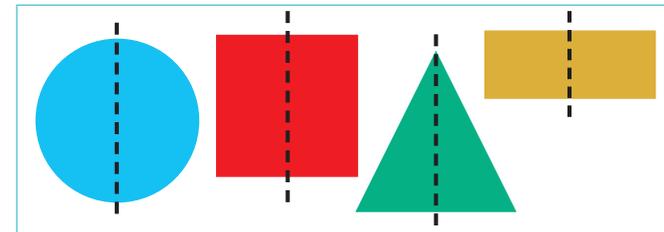
## Representational

Draw the shapes that have been cut out and draw in all the lines of symmetry using different colour.



Learners draw a line so the one side of the shape looks the same as the other side.

**Answers:**



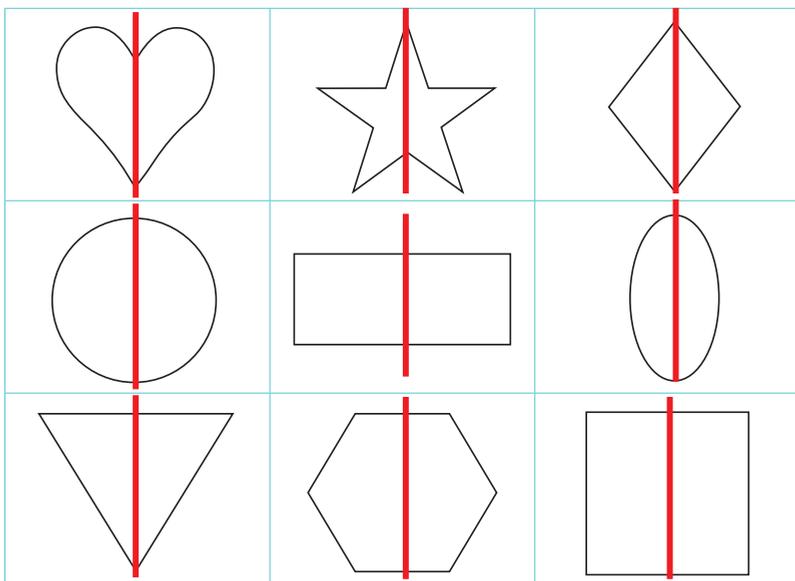
# 124 Symmetry and shapes *continued*

Content links: 8, 127-128  
Grade 1 links: 94, 128  
Grade 3 links: 48, 115



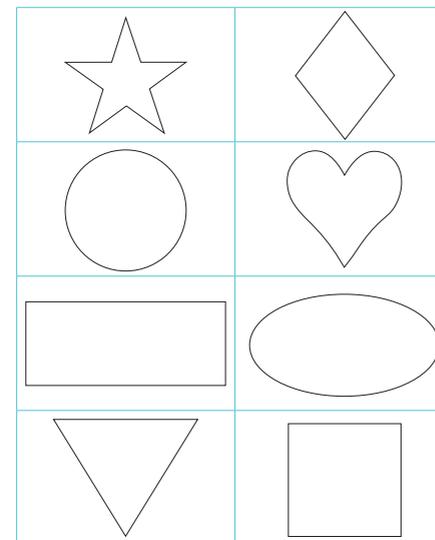
Learners draw a line so the one side of the shape looks the same as the other side.

**Answers:**



Learners draw the other side of the shape

**Answers:**



## Homework

- Do question 5 for homework.

## Reflection questions

Can learners do the following?

- Recognise symmetry in 2-D shapes
- Draw a line of symmetry

# 125 Arrays and fractions

Content links: None  
Grade 1 links: None  
Grade 3 links: 52, 110

## Objectives

- Recognise fractions in diagrammatic form
- Use arrays to determine the fraction of a number
- Use arrays to write addition, multiplication and division number sentences

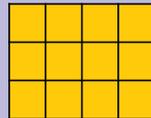
## Resources

**Teacher:** Writing board, counters, paper

**Learner:** Workbook page 130, pencil, colouring pencils or crayons, ruler

## Dictionary

**Array:** a diagram that has rows and columns, e.g. this array has 3 rows and 4 columns.



Show the learners pictures at the top of page 130 and ask them to see how quickly they can count the shapes. Did they make use of the rows and columns in counting?

## Teach arrays and fractions

## Concrete

Give learners some counters. Ask them to set out three counters in a row next to each other. Tell them this is a row.

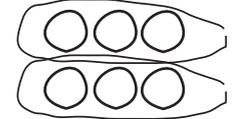
Ask them to set out another row underneath the first.

We can say that we have 2 rows of 3 counters.



## Representational

Ask learners to draw the 2 rows of 3 counters.  
Ask the learners to show one half of the objects.  
One half of the objects is three.



## Abstract

Show learners the following. We can write it as (every time point to the diagram you have drawn on the board):

- an **addition number sentence**:  $3 + 3 = 6$
- a **multiplication number sentence**:  $2 \times 3 = 6$
- a **division number sentence**:  $6 \div 2 = 3$
- a **fraction**: one half of the objects is 3



Ask the learners how many shapes there are and what one half of the shapes is.

**Answer:**

6  $\longrightarrow$  3

25  $\longrightarrow$  12 and a half



Ask the learners how many shapes there are and what one third of the shapes is.

**Answer:**

9  $\longrightarrow$  3

12  $\longrightarrow$  4

30  $\longrightarrow$  10

# 125 Arrays and fractions *continued*

Content links: None  
Grade 1 links: None  
Grade 3 links: 52, 110



Ask the learners how many shapes there are and what one quarter of each of the shapes is. **Answer:**

12  $\longrightarrow$  3  
16  $\longrightarrow$  4  
24  $\longrightarrow$  6



Ask the learners how many shapes there are and what one fifth of each of the shapes is. **Answer:**

15  $\longrightarrow$  3  
10  $\longrightarrow$  2  
35  $\longrightarrow$  7

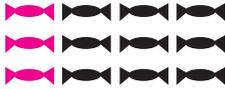


Ask the learners to complete the table. **Answer:**

	Multiplication number sentence	Division number sentence	What is	What is
	$2 \times 3 = 6$ or $3 \times 2 = 6$	$6 \div 2 = 3$ or $6 \div 3 = 2$	one half of the objects? 3	one third of the objects? 2
	$3 \times 4 = 12$ or $4 \times 6 = 12$	$12 \div 3 = 4$ or $12 \div 4 = 3$	one third of the objects?	one quarter of the objects?
	$5 \times 4 = 20$ or $4 \times 5 = 20$	$20 \div 5 = 4$ or $20 \div 4 = 5$	one quarter of the objects?	one fifth of the objects?



Ask learners to draw arrays to show the fractions. **Answer:**

<p>One quarter of 12 sweets.</p> 	<p>One third of 12 sweets.</p> 	<p>One half of 12 sweets.</p> 
----------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------



## Homework

Learners must colour in the fractions of the cup cakes.

**Answer:**

My mother baked 24 cupcakes for each of the following home industries. This is what they ordered. Make use of the cupcake pictures to guide you.

<p>one half strawberry and the rest vanilla</p> 	<p>one quarter chocolate and the rest vanilla</p> 	<p>one third caramel and the rest vanilla</p> 
-------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------

## Reflection questions

Can learners do the following?

- Recognise fractions in diagrammatic form
- Use arrays to determine the fraction of a number
- Use arrays to write addition, multiplication and division number sentences

# 126 A fraction of a collection of objects

## Objectives

- Show a fraction of a collection of objects
- Solve fraction word problems in context and explain own solutions

## Resources

**Teacher:** Writing board, counters

**Learner:** Workbook page 132, pencil, colouring pencils



## Dictionary

**Fraction of a collection of objects:** E.g. one half of 16 objects is 8.



## Teach fractions

### Concrete

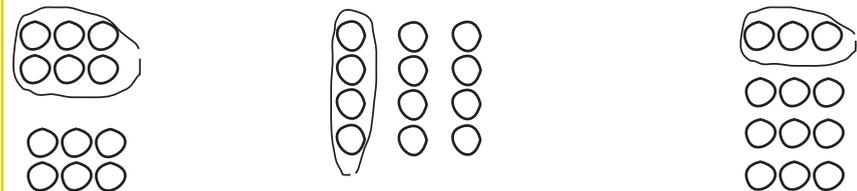
Give learners 12 counters. Ask them to show you:

One half of 12 	One third of 12 	One quarter of 12 
-------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------

Ask them what is one half? one third? and one quarter of 12 counters?

### Representational

Ask the learners to draw what they did above.



### Abstract

Let learners explain what they did:

- One half of 12 counters is 6.
- One third of 12 counters is 4.
- One quarter of 12 counters is 3.

# 126 A fraction of a collection of objects *cont...*

Work through the example at the top of page 132 with your learners.

**Answer:**

**One third of the balls.**

**Half of the boxes.**

**One fifth of the glasses**

**One quarter of the cones.**



Ask the learners to make their own sentences to fit the pictures.

**Answer: Learners need to be creative and make their own sentences to fit with the pictures provided.**

**E.g.**

**One half of the cupcakes were sold.**

**One sixth of the icecream cones were chocolate.**

**One quarter of the biscuits were brown.**

**One third of the lollipops were green.**



Solve the word problems about the clothes sold at the jumble sale by drawing pictures and answering the questions.

**Answer:**

What fraction did she sell?

Key numbers: 15 and 5

**$15 \div 5 = 3 \rightarrow$  one third**

What fraction did she sell?

Key numbers: 18 and 9

**$18 \div 9 = 2 \rightarrow$  one half**

What fraction did she sell?

Key numbers: 12 and 3

**$12 \div 3 = 4 \rightarrow$  one quarter**

What fraction did she sell?

Key numbers: 20 and 4

**$20 \div 4 = 5 \rightarrow$  one fifth**



What fraction of the cupcakes has banana icing/ strawberry icing/ bubblegum icing

**Answer:  $12 \div 4 = 3 \rightarrow$  one third each, so Banana: one third, Strawberry: one third, Bubblegum: one third**

## Homework

Ask the learners to complete Question 3 at home.

## Reflection questions

Can learners do the following?

- Show a fraction of a collection of objects
- Solve fraction word problems in context and explain own solutions

# 127 Symmetry in patterns

Content links: 8, 124, 128  
Grade 1 links: 94, 128  
Grade 3 links: None

## Objectives

- Recognise symmetry in 2-D shapes
- Draw a line of symmetry

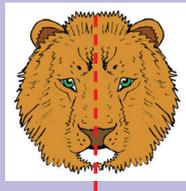
## Resources

**Teacher:** Writing board

**Learner:** Workbook page 134, pencil, colouring pencils, paper

## Dictionary

**Symmetry:** Symmetry means an exact matching of a shape to another shape on the opposite side of a line (or around a centre point). The shape or object corresponds to or matches the other shape or object exactly, that is, it fits exactly onto itself (if you flip, slide or turn it exactly).



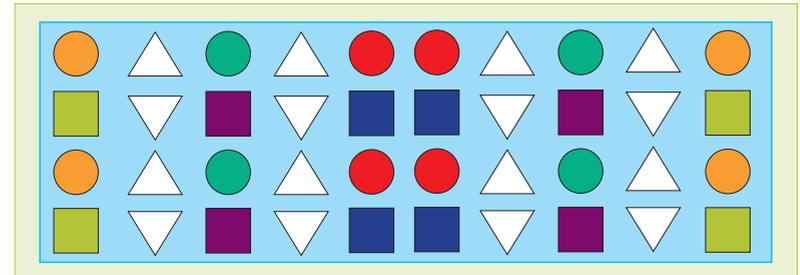
## Teach Symmetry

### Concrete

Make a symmetrical pattern.



Learners must look at the pictures of the quilt and say what they notice.



**Answer:** the pattern on the quilt is symmetrical (left half to right half but not top half to bottom half)



# 128 More symmetry

Content links: 8, 124, 127  
Grade 1 links: 94-128  
Grade 3 links: 48, 115

## Objectives

- Recognise symmetry in 2-D shapes and 3-D objects
- Draw a line of symmetry

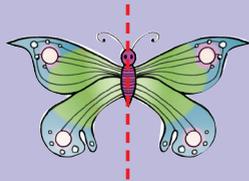
## Resources

**Teacher:** Writing board

**Learner:** Workbook page 136, pencil, colouring pencils

## Dictionary

**Symmetry:** Symmetry is when one shape becomes exactly like another if you flip, slide or turn it. In grade two we do reflection symmetry (flip), as shown in this picture.

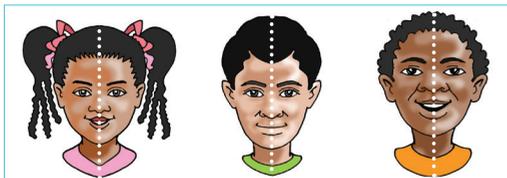


## Teach Symmetry

### Concrete

Give learners a variety of pictures from magazines. In groups learners show the line of symmetry.

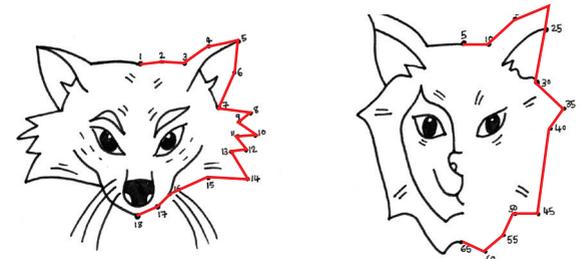
Look at the picture and discuss it.



Draw a line so the one side of the face looks the same as the other side. **Answer:**



Draw the other side of the face. The number patterns will help you.

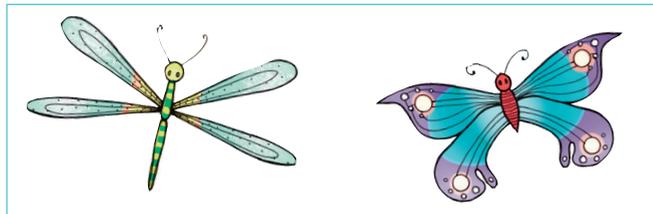


**Answer:**



Look at the pictures of the shapes. Does the one side of the insect look the same as the other side?

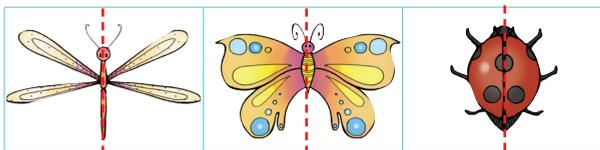
**Answer: learners should talk about symmetry**





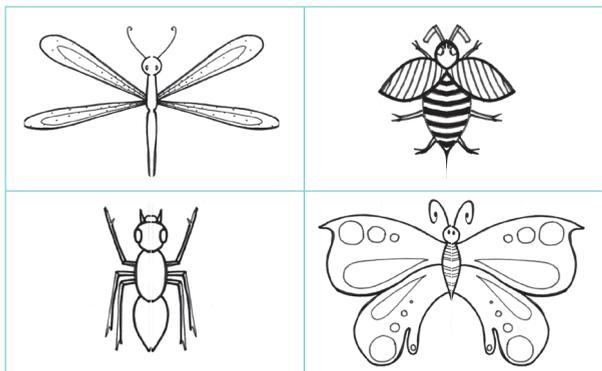
Learners must draw a line so the one side of the insect looks the same as the other side.

**Answer:**



Learners must draw the other side of the insects.

**Answers:**



### Oral questions

Show learners a 3-D object, such as a plastic model of an animal. What will I do to show it is symmetrical?

### Homework

Learners must find 6 pictures in a magazine and show the line of symmetry.

### Reflection questions

Can learners do the following?

- Recognise symmetry in 2-D shapes and 3-D objects
- Draw a line of symmetry



## Teacher's notes



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