



**Numeracy lesson plans**  
**Primary 4,**  
**term 3, weeks 26—30**

**Perimeter and area, reading scales  
and revision**

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## Introduction

Quality education is key to the development of every society. And one essential ingredient in ensuring quality education is the teacher.

The State Ministry of Education conducted baseline surveys to assess Kano teachers, head teachers and pupil learning outcomes. The findings were discouraging, with little difference in outcomes between qualified and unqualified teachers. It was clear that despite substantial inputs into education, most teachers were victims of a shambolic system.

Subsequently, the State Ministry of Education, the State Universal Basic Education Board (SUBEB) and the local government education authorities (LGEAs), supported by the Education Sector Support Programme in Nigeria (ESSPIN), initiated a series of school reforms.

Teaching Skills Program (TSP) was introduced to help: primary teachers deliver competent lessons; head teachers operate effectively; and to strengthen organisational structures to enable SUBEB and LGEAs to provide effective support. TSP phase 1 benefited more than 19,269 participants through cluster- and school-based training.

To consolidate these benefits, 21,000 sets of Primary 1—3 lesson plans and learning outcome benchmarks were shared with 5,728 public and Islamiyya-integrated primary schools. Now, a carefully designed series of Primary 4—6 lesson plans has been developed. These provide step-by-step guides to literacy and numeracy teachers, while ensuring that children become active learners.

We are confident that these lesson plans will strengthen children's learning abilities quickly and considerably, and will improve the quality of children proceeding to higher levels of education. They will enable teaching and learning to be more exciting, and will form an important element in all classes at the primary level.

We commend all those who have worked hard on these plans and training schemes. We thank the UK Department for International Development (DFID) for its ongoing support for education reform in Kano State through its ESSPIN programme. 'Let's make every Kano school an improving school.'

**Professor Hafiz Abubakar**  
Deputy Governor,  
Honourable Commissioner  
for Education, Science  
and Technology,  
Kano State

**Zakari Ibrahim Bagwai**  
Executive Chairman,  
SUBEB, Kano State

# The numeracy lessons teach calculation, shape, symmetry, fractions and time. Each week focuses on one of these topics.

## How?

### How

This section illustrates a key concept through simple instructions and photographs. A sign at the top of the column shows you which part of the lesson uses this resource.

## Learning expectations

Every pupil in the class will be at a different stage of understanding in maths. The first page of each week outlines learning expectations for the week. These learning expectations are broken into three levels:

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What **all** pupils will be able to do.

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What **most** pupils will be able to do.

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What **some** pupils will be able to do.

## Assessment

On each weekly page there is an assessment task for you to carry out with five pupils at the end of the week. This will help you find out whether they have met the learning expectations.

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Next to the task, there is an example of a pupil's work, which shows what a pupil can do if they have met the learning expectations.

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If most pupils have not met the learning expectations, you may have to teach some of the week again.

### Daily practice

Helps the pupils to practise something they have previously learned. It should only last 15 minutes and move at a fairly fast pace.

### Introduction

Provides the focus for the lesson. Often involves a variety of fun, quick activities that prepare the pupils for the main topic.

### Main activity

Gives the pupils the opportunity to explore the main topic in different ways. This usually involves group, pair or individual tasks. Your role as a teacher during the main activity is to work with groups and individuals to help them understand the ideas.

### Plenary

Finishes the lesson with different ways of reviewing learning.

## Weekly page

# Primary 4, numeracy lesson plans

## Week 26:

# Length

### Words/phrases

Write these words on the chalkboard and leave them there for the week.

millimetre (mm)

centimetre (cm)

metre (m)

kilometre (km)

ruler

analogue clock

digital clock

24-hour clock

width

length

height

perimeter

decimal

estimate

### Learning expectations

By the end of the week:

**All pupils will be able to:**

Estimate and measure objects in centimetres and metres.

**Most pupils will be able to:**

Select appropriate units for measuring different lengths.

**Some pupils will be able to:**

Record centimetres as a fraction or decimal part of a metre.

## Assessment task

### Instructions:

Ask an individual pupil to:

1  
Measure the perimeter of a teacher's desk in cm and mm.

2  
Show you 0.30m and 0.83cm on a metre ruler.

3  
Fill in the missing numbers:

$\frac{2}{4}$  of 1 km =

m =  km

$\frac{1}{5}$  of 1 km =

m =  km

4  
Estimate the distance from school to your house in m and decimal fractions of a km.

## Example of a pupil's work

### This pupil can:

Measure the perimeter of a surface in cm and mm.

Record metres as a decimal fraction of a km.

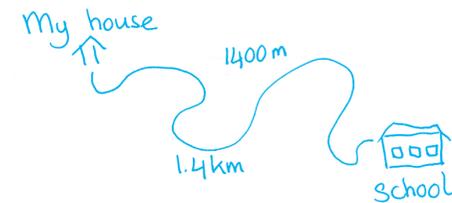
Apply knowledge to a practical situation.

Example answers are:

My teacher's desk has a perimeter of 240cm or 2400 mm.

$\frac{2}{4}$  of 1 km = 500 m = 0.5 km

$\frac{1}{5}$  of 1 km = 200 m = 0.2 km



## Week 26: Length

## Day 1: Metres

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say the units used to  
measure time.

Estimate and measure  
using metres.

### Preparation

**Before the lesson:**

Copy the [Days in the months rhyme](#),  
as shown opposite, on to the chalkboard.

Have ready a [large bucket](#), a [metre  
ruler](#) and start making a metre  
ruler for each group, as shown in  
photo one, below.

Read [How? Making a metre ruler](#),  
as shown below.

### How? Making a metre ruler



Make a 1m strip of  
card for each  
group and mark 10  
equal sections.



Show the pupils  
the metre stick and  
ask, 'How many  
centimetres are in  
a metre?'



Ask the pupils to  
point to half,  
a quarter and  
three quarters of  
a metre.



Tell the groups to  
point to half,  
20cm, and so on,  
on their rulers.



Ask the groups  
to point to different  
measurements  
on their rulers, eg:  
25cm, 49cm.

15  
minutes

Rhyme

## Daily practice

### Whole class teaching

Ask the pupils to say some of the units that we use to measure time, eg: seconds, minutes, hours, days, weeks.

Ask some pupils to help you write the months of the year on the chalkboard.

Ask the class to say the **Days in the months rhyme** with you:  
30 days have September,  
April, June and November.  
All the rest have 31,  
Except February alone,  
Which has 28 days clear,  
And 29 in each leap year.

Write the following on the chalkboard:

- minutes in an hour
- hours in a day
- days in a year
- weeks in a year

Choose some pupils to write in the missing numbers.

10  
minutes

Bucket

## Introduction

### Whole class teaching

Write the following units of measurement on the chalkboard: 'kg', 'g', 'l', 'ml', 'cm', 'm', 'km'.

Choose some pupils to read them out and explain what they are used for.

Ask if anyone knows any other units used to measure, eg: tons, stones.

Ask the pupils to discuss in pairs what they would use to find out how tall the **bucket** is (cm), how heavy it is (g) and how much water it will hold (l).

25  
minutes

How

Metre rulers

## Main activity

### Group task

Teach **How? Making a metre ruler**, as shown left, using the **metre rulers** you have started making.

Ask the groups to estimate the length and width of the classroom in metres and write their ideas in their exercise books.

Choose some pupils to help you measure the classroom with the metre ruler.

Write the results on the chalkboard.

Ask the groups to say if the answers are bigger or smaller than their estimates.

Ask them to calculate the differences in their exercise books.

10  
minutes

Metre rulers

## Plenary

### Group task

Take the groups outside.

Ask each group to estimate and measure a different part of the school with their **metre rulers**, eg: the walls, distance to a tree.

Ask the groups to share their results with the class.

## Week 26: Length

## Day 2: Centimetres

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Tell the time using an  
analogue clock.

Estimate and measure  
using cm.

### Preparation

**Before the lesson:**

Have ready a [large analogue clock](#).

Have ready the [metre ruler](#) from  
Week 26, Day 1 (yesterday) and make  
a [card centimetre ruler](#), as shown  
below, for each group.

Read [How? Centimetre ruler](#), as  
shown below, and have ready some  
[card](#) and [twine](#) for each group.

### How? Centimetre ruler



Explain how to  
use a ruler to mark  
the card strips in  
centimetre sections.



Leave a small  
gap to show 0.  
Measure carefully  
up to 30cm.



Tell the groups  
to place the ruler  
carefully to  
measure a finger.



Tell the groups to  
use the twine to  
measure around  
the head.



Show them how  
to measure the  
twine with the ruler.

15 minutes | Clock

### Daily practice

#### Whole class teaching

Hold up the **large analogue clock**.

Ask the class to say the time as you move the hands to different places on the clock.

Make half past 7 and explain that the clock is 10 minutes fast. Ask, 'What is the real time?'

Make 20 to 4 and explain that the clock is 15 minutes slow. Ask, 'What is the real time?'

Repeat with other fast and slow times.

10 minutes | Metre ruler/ Ruler

### Introduction

#### Whole class teaching

Show the class the **metre ruler** and ask, 'How many centimetres are there in a metre?'

Remind the pupils that we use centimetres to measure smaller objects.

Draw a rectangle measuring 24cm x 12cm on the chalkboard.

Demonstrate how to measure it with a **centimetre ruler**.

Draw other shapes on the chalkboard and ask some pupils to measure them.

Remind the pupils to measure from the point marked '0' on the ruler, not the start of the ruler.

25 minutes | Chart/Rulers/ Twine

### Main activity

#### Group task

Copy the **body measurements chart**, shown below, on to the chalkboard and explain it to the class.

Tell the groups to copy the chart into their exercise books and choose one group member whose body measurements they will estimate and measure.

Body measurements

	Estimate	Measure
Finger		
Foot		
Arm		
Head		
Knee		

How

10 minutes | Metre ruler

### Plenary

#### Whole class teaching

Ask the pupils questions to find out who has the longest foot, largest head and smallest finger.

Tell the pupils to stand up and ask, 'Who is the tallest?', 'Who is the smallest?'

Use the **metre ruler** to measure the tallest and the smallest pupils.

## Week 26: Length

## Day 3: Millimetres

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Tell the time using  
a digital clock.

Calculate the perimeter  
of a 2D shape in centimetres  
and millimetres.

### Preparation

**Before the lesson:**

Have ready a [digital clock](#) or  
mobile phone.

Have ready the [centimetre rulers](#) from  
Week 26, Day 2 (yesterday).

Read [How? Measuring in millimetres](#),  
as shown below.

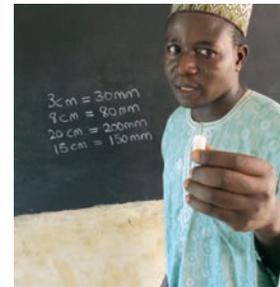
### How? Measuring in millimetres



Show the pupils  
a ruler marked in  
cm and mm.



Show the pupils  
how to mark  
millimetres on their  
centimetre rulers.



Ask the groups to  
convert centimetres  
to millimetres.



Draw a house on  
the chalkboard  
and ask some pupils  
to measure it.



Help the groups  
to measure the  
lines to the nearest  
millimetre.

15  
minutes

Digital clock

## Daily practice

### Whole class teaching

Show the class the **digital clock** and remind them that they have learned how to use digital time.

Ask the some pupils to write the following times as digital times on the chalkboard:  
25 past 6  
5 to 12  
10 to 11

Write the following digital times on the chalkboard: '11.15', '04.05', '02.55', '12.10', '09.50'.

Tell the pupils that these times are 25 minutes fast and ask them to help you work out the real times.

10  
minutes

Rulers/New Method  
Mathematics 4

## Introduction

### Group task

Give each group a **centimetre ruler**.

Ask the groups to open **New Method Mathematics 4, page 165** and look at the pictures.

Ask the groups to point to the tallest object.

Explain the meaning of 'height' and 'width'.

Ask the groups to copy the chart in New Method Mathematics 4, page 165, into their exercise books and complete it.

Remind them to measure from the point marked '0' on the ruler and not the start of the ruler.

25  
minutes

How

## Main activity

### Whole class teaching

Explain to the class that we use millimetres to measure very small objects.

Write on the chalkboard, '10mm = 1cm'.

Teach **How? Measuring in millimetres**, as shown left.

### Group task

Explain the meaning of 'length'.

Ask the groups to draw a rectangle with a width of 5cm and a length of 8cm.

Explain that the 'perimeter' is the distance around a 2D shape.

Tell the pupils that the perimeter of the rectangle they have drawn is the total of the sides added together:  
 $8\text{cm} + 8\text{cm} + 5\text{cm} + 5\text{cm} = 26\text{cm}$ .

Ask them to draw some triangles and rectangles, measure the sides in centimetres and calculate the perimeter of each shape.

10  
minutes

## Plenary

### Group task

Ask each group to explain how they calculated the perimeter of one of their shapes.

Choose some pupils to convert the centimetre measurements into millimetres.

## Week 26: Length

## Day 4: Fractions of a metre

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Tell the time on a 24-  
hour clock.

Record centimetres as  
a fraction or decimal part  
of a metre.

### Preparation

**Before the lesson:**

Have ready the [metre rulers](#) you  
made on Week 26, Day 1.

Copy the [Fractions of a metre  
chart](#), as shown opposite, on to  
the chalkboard.

Read [How? Estimating metres](#), as  
shown below.

### How? Estimating metres



Mark a starting line  
inside or outside.



Tell the groups to  
walk a distance  
they estimate to be  
20m from the line.



Tell the groups to  
measure the distance  
to the nearest m  
with the metre ruler.



Ask them to say  
the difference  
between their  
estimate and 20m.



Repeat this process  
with 15m.

10  
minutes

### Daily practice

#### Whole class teaching

Remind the pupils that 1 o'clock in the afternoon is written '13:00' on a 24-hour clock.

Choose some pupils to change other pm times to the 24-hour clock on the chalkboard, eg: 3pm = 15:00.

Remind the pupils that the minutes are different on a digital clock.

Ask them to help you write the digital times for 5 past 3 (15:05), 10 past 3, quarter past 3, and so on, until you reach 4pm (16:00).

15  
minutes

How

Metre rulers

### Introduction

#### Group task

Give each group a **metre ruler**.

Take the class outside.

Teach **How? Estimating metres**, as shown left.

25  
minutes

Metre rulers/  
Chart

### Main activity

#### Whole class teaching

Write on the chalkboard:

$$1\text{km} = \square \text{ m or } \square \text{ cm}$$

$$1\text{m} = \square \text{ cm or } \square \text{ mm}$$

$$1\text{cm} = \square \text{ mm}$$

Ask some pupils to write in the missing numbers.

Give each group a **metre ruler** and ask them to point to the centre of the ruler.

Ask: 'What fraction is this?'

$$\frac{1}{2} \text{ or } \frac{5}{10}$$

'How many cm is it?'

Explain that one half of a metre is 50cm, which is 0.5m.

Point to a quarter of a metre and explain that this is 25cm, which is 0.25m.

#### Group task

Write on the chalkboard:

$$\frac{3}{4} \text{ of } 1\text{m} =$$

$$\frac{4}{10} \text{ of } 1\text{m} =$$

Ask the groups to say these fractions as centimetres and decimal fractions of a metre.

Explain the **Fractions of a metre chart** on the chalkboard.

Ask the groups to use their metre rulers to help them complete the chart in their exercise books.

10  
minutes

### Plenary

#### Whole class teaching

Ask the pupils, 'What is half of a kilometre?'

Write '500m' on the chalkboard.

Choose a pupil to write the decimal fraction of a kilometre (0.5km).

Repeat for a quarter of a kilometre.

Fractions of a metre chart

cm	Fraction	Decimal
10		
20		
25		
30		
40		
50		
75		

## Week 26: Length

## Day 5: Kilometres

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Convert analogue times to  
digital 24-hour times.

Record metres as a decimal  
fraction of a kilometre.

### Preparation

**Before the lesson:**

Have ready the [centimetre](#)  
and [metre rulers](#).

Read [How? Measurement units](#),  
as shown below.

Find different sized [objects](#) for  
the pupils to measure.

### How? Measurement units



Ask the pupils to  
look at the objects.



Ask the groups to  
suggest a unit  
of measurement  
for each object.



Ask the groups to  
estimate the length  
of each object.



Ask some pupils  
to measure the  
objects.



Tell the pupils to  
use the cm ruler or  
the m ruler.

15  
minutes

## Daily practice

### Pair task

Draw four analogue clock faces on the chalkboard.

Choose pupils to draw on the hands to show:

5 past 7

20 to 8

half past 1

10 to 11

Remind the class that they have been looking at the 24-hour clock.

Explain that the times on the clocks are 'am' times and ask the pairs to write them as 24-hour times in their exercise books, eg: 07:05.

Then tell the pairs that the clocks show 'pm' times and ask them to write them as 24-hour times, eg: 19:05.

10  
minutes

How

Rulers/  
Metre rulers/  
Objects

## Introduction

### Whole class teaching

Give each group a **centimetre ruler**, **metre ruler** and at least one **object** to measure.

Teach **How? Measurement units**, as shown left.

25  
minutes

## Main activity

### Whole class teaching

Ask the class to say how many centimetres there are in a metre.

Explain that we can write '452cm' as '4m 52cm' or '4.52m'.

Write the following measurements on the chalkboard:

136cm

754cm

502cm

Ask the pupils to write them as decimal fractions of a metre in their exercise books.

### Group task

Explain that we use kilometres to measure longer distances between places.

Discuss places that are 1km from the school and remind the class that 1000m = 1km.

Write on the chalkboard and ask groups to discuss the missing numbers:

$$\frac{1}{2} \text{ of } 1\text{km} =$$

$$\square \text{ m} = 0.5\text{km}$$

$$\frac{3}{4} \text{ of } 1\text{km} =$$

$$750\text{m} = \square \text{ km}$$

$$\frac{4}{10} \text{ of } 1\text{km} =$$

$$\square \text{ m} = \square \text{ km}$$

10  
minutes

## Plenary

### Whole class teaching

Write on the chalkboard: '2km 30m =  $\square$  m'

Ask the class to say the missing number.

Explain that it can also be written as a decimal fraction of a kilometre: 2.030km.

Choose some pupils to write the following as metres and decimal fractions of a kilometre:  
7km 186m  
3km 182m  
4km 23m  
52km 3m

## Weekly page

# Primary 4, numeracy lesson plans

## Week 27:

# Area and length

### Words/phrases

Write these words on the chalkboard and leave them there for the week.

area  
surface  
perimeter  
square centimetre (cm<sup>2</sup>)  
square metre (m<sup>2</sup>)  
length  
breadth  
square  
rectangle  
estimate  
actual measurement  
calculations

### Learning expectations

By the end of the week:

**All pupils will be able to:**  
Calculate the area of rectangles in square centimetres.

**Most pupils will be able to:**  
Draw rectangles with the same area but different perimeters.

**Some pupils will be able to:**  
Solve word problems involving area and length.

## Assessment task

### Instructions:

1 Draw a rectangle of 6cm x 4cm and calculate the area by drawing in the cm squares.

2 Check the answer to question 1 by using a ruler.

3 Draw two rectangles with different perimeters but both with an area of 30cm<sup>2</sup>.

4 Solve the following word problem:  
Aisha wants to replace her carpet in the living room. Her living room is 8m long and 6m wide. What is the area of the living room?

## Example of a pupil's work

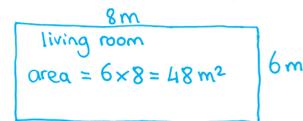
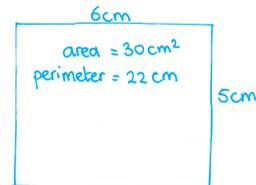
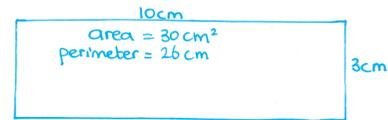
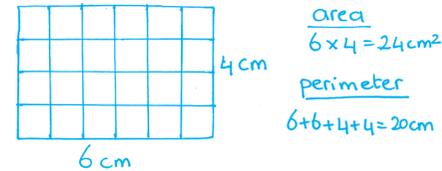
### This pupil can:

Calculate the area of a rectangle without a ruler.

Use a ruler to measure the perimeter of a rectangle.

Understand that you can have two rectangles with the same area but a different perimeter.

Solve a word problem on area and length.



## Week 27: Area and length

## Day 1: Square centimetres

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say answers from  
the 2, 3, 4 and 5 times  
tables quickly.

Calculate the area  
of rectangles in square  
centimetres.

### Preparation

**Before the lesson:**

Make a [card square 1cm x 1cm](#).

Have ready a [centimetre ruler](#).

Read [How? Using square centimetres](#),  
as shown below.

### How? Using square centimetres



Remind the pupils  
how to use a ruler to  
draw rectangles.



Ask the class  
to estimate which  
shape has the  
biggest area.



Measure the areas  
by drawing in  
the cm squares  
and counting the  
squares.



Draw other  
rectangles and ask  
pupils to estimate  
the areas.



Choose some pupils  
to draw in the cm  
squares and calculate  
the areas.

15  
minutes

## Daily practice

### Whole class teaching

Remind the pupils that they need to know the multiplication tables really well.

Choose some pairs to say the 2, 3, 4 and 5 times tables (up to times 10).

Ask some pupils to write the 4 times table on the chalkboard.

Ask the pairs to say questions from the 4 times table for their partners to answer, eg:  $6 \times 4 =$

Ask the pupils to write the answers in their exercise books as you call out 10 questions from the 2, 3, 4 and 5 times tables.

10  
minutes

How

Card square

## Introduction

### Group task

Remind the pupils that area is the size of the surface that a 2D shape covers.

Teach **How? Using square centimetres**, as shown left, using the **card square centimetre**.

25  
minutes

New Method Mathematics 4

## Main activity

### Whole class teaching

Ask the pupils if they can remember a quicker way to calculate the area of a rectangle.

Explain that we can multiply the sides to find out the area.

Demonstrate on the chalkboard:  
 $3 \text{ rows of } 4 \text{ squares} =$   
 $3 \times 4 = 12$

Remind the pupils that we measure area in square centimetres:  $\text{cm}^2$ .

Explain that we are multiplying the length of the rectangle by the breadth:  $l \times b$ .

### Pair task

Draw some rectangles on the chalkboard and choose some pupils to measure the lengths and the breadths with the ruler and calculate the areas, eg:  $6\text{cm} \times 7\text{cm} = 42\text{cm}^2$ .

Ask the pairs to open **New Method Mathematics 4, page 196**, Lesson 2.

Ask them to complete numbers 1—6 in their exercise books.

Remind the pairs to write the answers in  $\text{cm}^2$ .

10  
minutes

Ruler

## Plenary

### Whole class teaching

Choose some pupils to use the **ruler** to draw a rectangle measuring 6cm by 5cm.

Ask the pupils to calculate the area in square centimetres.

Repeat with rectangles of different sizes.

## Week 27: Area and length

## Day 2: Perimeters and areas

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Calculate answers from  
the 6, 7, 8 and 9 times  
tables quickly.

Measure and calculate  
perimeters and areas of  
squares and rectangles.

### Preparation

**Before the lesson:**

Have ready **four buckets** labelled  
'x 6', 'x 7', 'x 8' and 'x 9' and **four small balls**.

Read **How? Multiplication buckets**,  
as shown below.

Make a **card ruler** for each pair.

### How? Multiplication buckets



Give each group  
a bucket and  
tell them to stand  
6 metres away  
from it.



Tell them to throw  
the ball and, if it  
lands in the bucket,  
shout, 'Goal!'



After 5 minutes,  
multiply the  
number of goals  
by the number  
on the bucket.



Ask, 'Which group  
has the best  
chance of getting  
the highest score?'



Repeat the activity,  
giving each  
group a different  
bucket.

15  
minutes

How

Buckets/  
Balls

10  
minutes

Ruler

25  
minutes

Rulers/New Method  
Mathematics 4

10  
minutes

## Daily practice

### Group task

Ask the class to help you to write the 6, 7, 8 and 9 times tables on the chalkboard.

Teach [How? Multiplication buckets](#), as shown left, using the [buckets](#) and [balls](#).

## Introduction

### Whole class teaching

Ask the class to explain the meaning of area and perimeter.

Draw a square on the chalkboard. Ask a pupil to measure the sides with a [ruler](#) and say what they notice (the sides are the same length).

Explain that the quick way to calculate the perimeter of a square is to multiply the length of one side by 4.

Draw a rectangle measuring 10cm by 9cm and ask some pupils to measure the sides.

Choose some pupils to explain how to calculate the perimeter on the chalkboard, ie: 10cm + 10cm + 9cm + 9cm.

## Main activity

### Pair task

Ask the pairs to estimate with their fingers how big a centimetre is.

Show them a centimetre on the [ruler](#).

Ask the pairs to open [New Method Mathematics 4, page 197](#) and look at the shapes.

Ask the pupils to say the quick method for calculating area, ie:  $l \times b$ .

Ask the pairs to estimate the perimeters and areas of each shape in their exercise books.

## Plenary

### Whole class teaching

Ask some pairs to say their estimates for shape 1.

Ask the class to say the difference between the estimates and the actual measurements.

## Week 27: Area and length

## Day 3: Same area, different perimeter

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Calculate answers  
from the 6 and 7 times  
tables quickly.

Draw rectangles with  
the same area but  
different perimeters.

### Preparation

**Before the lesson:**

Have ready a card ruler for  
each pair.

Read [How? Same area, different  
perimeter](#), as shown below.

### How? Same area, different perimeter



Draw a rectangle  
measuring  
6cm by 2cm.



Ask the pupils to  
calculate the area  
and the perimeter  
by counting the  
square centimetres.



Ask the pupils  
to arrange the  
centimetre squares  
to make different  
perimeters.



Repeat with a  
rectangle measuring  
6cm by 3cm.



Ask the pupils  
what they notice  
about the areas  
and the perimeters.

15  
minutes

## Daily practice

### Pair task

Choose some pairs to say the 6 and 7 times tables.

Ask some pupils to write the 6 and 7 times tables on the chalkboard.

Ask the pairs to say questions from the 6 and 7 times tables for their partners to answer, eg:  $9 \times 7 =$

Ask the pupils to write the answers in their exercise books as you call out 10 questions from the 6 and 7 times tables.

10  
minutes

Rulers

## Introduction

### Pair task

Ask the pairs to estimate the perimeter and area of their textbooks.

Ask some pairs to explain their calculations to the class, eg: add the estimated lengths and breadths to find the perimeter.

Give out the **rulers** and ask the pairs to calculate the actual perimeter and area of their textbooks in their exercise books.

25  
minutes

How

## Main activity

### Whole class teaching

Teach **How? Same area, different perimeter**, as shown left.

Ask the class, 'How many different rectangles can you draw with an area of  $24\text{cm}^2$ ?'

Tell the pupils to think of the different factors that make 24 and use them as the measurements, ie:  $6 \times 4$ ,  $12 \times 2$ ,  $8 \times 3$ .

Repeat with an area of  $16\text{cm}^2$ .

Rulers

### Pair task

Ask the pairs to draw different rectangles in their exercise books with an area of  $20\text{cm}^2$ .

Tell them to use their **rulers** to measure carefully.

Ask them to calculate the perimeter of the rectangles they have drawn.

10  
minutes

## Plenary

### Whole class teaching

Ask some pairs to say the measurements for the length and breadth of their rectangles, eg:  $5\text{cm} \times 4\text{cm}$ ,  $10\text{cm} \times 2\text{cm}$ .

Ask some pupils to calculate perimeters for rectangles with an area of  $18\text{cm}^2$ , and then  $24\text{cm}^2$ , on the chalkboard.

## Week 27: Area and length

## Day 4: Length word problems

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Calculate answers  
from the 8 and 9 times  
tables quickly.

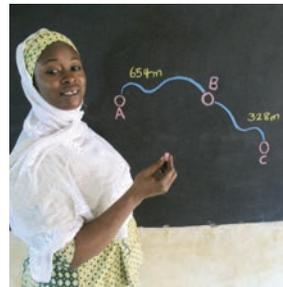
Choose the correct  
calculation to solve length  
word problems.

### Preparation

**Before the lesson:**

Read [How? Length word problems](#),  
as shown below.

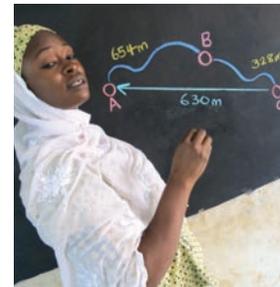
### How? Length word problems



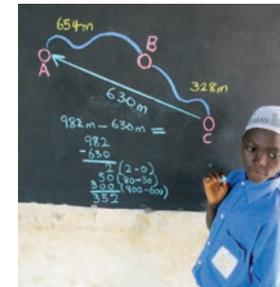
Explain on the chalkboard that a man walks from A to B and then B to C.



Ask the pupils, 'How can I calculate how far he has travelled?'



Explain that he returns home by a direct road.



Ask, 'How can I calculate the difference in length between the two journeys?'



Ask, 'How can I calculate the total distance that he travelled?'

15  
minutes

## Daily practice

### Pair task

Choose some pairs to say the 8 and 9 times tables.

Ask some pupils to write the 8 and 9 times tables on the chalkboard.

Choose some pairs to say the 'tricky' parts, ie:  $8 \times 8$ ,  $9 \times 8$ ,  $9 \times 9$ .

Ask the pairs to say questions from the 8 and 9 times tables for their partners to answer, eg:  $6 \times 9 =$

Ask the pupils to write the answers in their exercise books as you call out 10 questions from the 8 and 9 times tables.

10  
minutes

How

## Introduction

### Whole class teaching

Teach **How? Length word problems**, as shown left.

25  
minutes

## Main activity

### Whole class teaching

Write the following on the chalkboard:  
'A ribbon is 35cm long. What is the total length of 4 ribbons?'

Ask the pupils to say the calculation needed, ie:  $35\text{cm} \times 4 =$ , and help you calculate the answer using the grid method.

Write: 'Sani is walking to school, which is 9km away. He walks a third of the way. How far has he walked?'

Ask the pupils to say the calculation needed, ie:  $9\text{km} \div 3 =$ , and calculate the answer.

10  
minutes

## Plenary

### Whole class teaching

Ask a representative from each group to explain their calculations for one of the questions.

## Week 27: Area and length

## Day 5: Area word problems

### Learning outcomes

By the end of the lesson,  
most pupils will be able to:

Multiply two-digit  
numbers by multiples of  
10 quickly.

Choose the correct  
calculation to solve area  
word problems.

### Preparation

Before the lesson:

Read [How? Calculations for area](#),  
as shown below.

### How? Calculations for area



Say, 'Lami has some  
land 28m by 30m.  
How can we calculate  
the area?'



Ask, 'If she plants  
yams on a quarter  
of the land, what  
is the area that she  
has left?'



Explain that we  
need to find the  
area of the yams  
first ( $\div 4$ ).



Explain that we  
must now subtract  
the yam area from  
the total area.



Ask, 'If she buys  
an extra  $100m^2$ ,  
how much land has  
she got in total?'

15  
minutes

## Daily practice

### Pair task

Write '56 x 70 =' on the chalkboard.

Explain that we can multiply by 7 using the grid method:

$$\begin{array}{r|l} \times & 50 & 6 \\ 7 & 36 & 42 \end{array}$$

$$350 + 42 = 392$$

To multiply by 70 we need to move the digits one place value to the right = 3920.

Repeat with  $24 \times 8 =$

Write the following calculations on the chalkboard for the pairs to complete in their exercise books:

$$34 \times 7 =$$

$$45 \times 5 =$$

10  
minutes

How

## Introduction

### Whole class teaching

Ask the pupils to say the four different calculations we can use to solve word problems, ie: addition, subtraction, multiplication and division.

Teach [How? Calculations for area](#), as shown left.

25  
minutes

## Main activity

### Whole class teaching

Write the following word problems on the chalkboard:

'A book measures 24cm by 20cm. What is its area in square centimetres?'

'A picture covers a quarter of the area of a page measuring 15cm x 30cm. What is the area of the picture?'

'Another book measures 18cm by 20cm. What is the difference between the areas of the pages in these books?'

10  
minutes

## Plenary

### Whole class teaching

Ask a representative from each group to explain their calculations for one of the questions.

## Weekly page

# Primary 4, numeracy lesson plans

## Week 28:

# Weight

### Words/phrases

Write these words on the chalkboard and leave them there for the week.

scale balance  
dial scale  
kilogram (kg)  
gram (g)  
standard weights  
heaviest  
lightest  
estimate  
scale dials  
decimal fractions  
number bonds  
inverse operations  
open sentence

### Learning expectations

By the end of the week:

**All pupils will be able to:**

Estimate and weigh objects in grams and kilograms.

**Most pupils will be able to:**

Read simple dial scales.

**Some pupils will be able to:**

Write grams as a decimal fraction of a kilogram.

## Assessment task

### Instructions:

Ask an individual pupil to:

1  
Pick three objects and estimate their weight in grams and kilograms.

2  
Check their estimations on one of the scales.

3  
Explain to you how a dial scale works and how it can be used.

4  
Change the following grams into kilograms and the kilograms into grams:

$$2300\text{gr} = \square \text{ kg}$$

$$6050\text{gr} = \square \text{ kg}$$

$$2.8\text{kg} = \square \text{ gr}$$

$$7.35\text{kg} = \square \text{ gr}$$

## Example of a pupil's work

### This pupil can:

Estimate and weigh objects on a scale.

Change grams into kilograms and vice versa.

object	estimate	actual weight
 apple	80g 0.08 kg	75g = 0.075kg
 book	450g 0.45 kg	560g = 0.56kg
 milk	40g 0.04 kg	25g = 0.025kg

$$2.8\text{kg} = 2800\text{g}$$

$$7.35\text{kg} = 7350\text{g}$$

$$2300\text{g} = 2.3\text{kg}$$

$$6050\text{g} = 6.05\text{kg}$$

## Week 28: Weight

### Day 1: A scale balance

#### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say the number bonds  
for 20.

Estimate and weigh objects  
in grams and kilograms  
using a scale balance.

#### Preparation

**Before the lesson:**

Make a [scale balance](#) and [weights](#),  
as shown below in [How? Scale balance](#).

Have ready eight [objects](#) of  
different weight, eg: yam, carrot,  
heavy book, large stone.

Have ready the following [weights](#):  
1kg, 500g, 250g, 200g, 100g and 50g.

#### How? Scale balance



Mount a wooden  
pillar on to  
a wooden base.



Loosely fix the  
balancing arm to  
the pillar with  
a nail.



Hang a pan on  
each arm.



Put equal weights  
on both arms  
and the scale should  
balance level.



Use standard weights  
or make some  
bags of sand for 1kg,  
500g, 250g, 200g  
and 100g.

15 minutes

### Daily practice

#### Group task

Ask some pupils to help you say the number bonds to 20, eg: 0 and 20, 1 and 19, 2 and 18, 3 and 17.

Tell the pupils to take turns to say a number below 20 to the group, eg: 7.

The rest of the group must shout out the number needed to add to that number to make 20, eg: 13.

Tell the groups to write the number bond they have made in their exercise books.

Continue until everyone in the group has had a turn at saying a number.

10 minutes

How

Objects/  
Scale balance

### Introduction

#### Group task

Give the groups two **objects** of different weight and ask them to estimate which is the heaviest.

Show the groups the **scale balance** that was prepared before the lesson in **How? Scale balance**.

Ask each group in turn to place their objects on the scales.

Ask them to notice the heaviest object (the pan will be lower).

Tell the class to look at all the objects and estimate how to arrange them from heaviest to lightest.

25 minutes

Weights/Objects/  
Scale balance

### Main activity

#### Whole class teaching

Let the pupils hold the **kilogram weight** and ask, 'Which **object** do you think weighs more than a kilogram?'

Choose some pupils to check their estimates on the **scale balance**.

Ask the pupils, 'How many grams are there in half a kilogram?'

Let them hold the 500g weight and ask, 'Which object do you think weighs more than 500g?'

Choose some pupils to check their estimates on the scale balance.

Repeat this process with 250g and 100g.

Chart

#### Group task

Copy the **Estimating weight chart**, shown below, on to the chalkboard and tell the groups to copy it into their exercise books.

Ask the groups to write in the objects and their estimates in kilograms and grams.

Estimating weight chart

Object	Estimate	Weight

10 minutes

Objects/Weights/  
Scale balance

### Plenary

#### Whole class teaching

Weigh each **object** carefully using the **scale balance** and **weights**.

Tell the groups to write the weights in the chart in their exercise books.

Ask each group to say some of their estimates and discuss if they were heavier or lighter than the real weight.

## Week 28: Weight

## Day 2: Making weights

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say the number bonds  
to 100.

Record fractions of  
a kilogram as grams.

### Preparation

**Before the lesson:**

Have ready enough **stones** or sand  
and **bags** for each group to make a 500g,  
250g, 200g, 100g and 50g weight.

Have ready the **scale balance**  
and the **weights** from Week 28,  
Day 1 (yesterday).

Read **How? Making weights**, as  
shown below.

### How? Making weights



Ask each group to  
use their 500g bag  
to fill two bags  
weighing 250g each.



Tell them to check  
their weights on  
the scale balance.



Ask them to use one  
of their bags to  
fill bags weighing  
200g and 50g.



Check that the  
weights are  
correct on the scale  
balance.



Label the bags  
and keep them with  
the scale balance  
and weights.

15  
minutes

## Daily practice

### Group task

Ask the class to count in fives from 0 to 100.

Remind the pupils that these numbers are called 'multiples of 5'.

Tell the pupils to take turns to say a multiple of 5 to their group.

The rest of the group must shout out the number needed to add to that number to make 100.

Tell the groups to write the number bond they have made in their exercise books.

Continue until everyone in the group has had a turn at saying a number.

10  
minutes | Weight/Bags/  
Stones/Scale balance

## Introduction

### Group task

Let the pupils hold the **500g weight**.

Ask each group to fill a **bag** with **stones** or sand until they estimate it to weigh 500g.

Choose a representative from each group to weigh the bags on the **scale balance**.

Write the actual weights of the bags on the chalkboard and ask the class, 'Which estimate was the nearest to 500g?'

Ask each group to add or remove some stones/sand from their bags so that they weigh 500g exactly.

25  
minutes

How

## Main activity

### Whole class teaching

Teach **How? Making weights**, as shown left.

Remind the class that 1000 grams equals a kilogram.

Write the following on the chalkboard:

$$1\text{kg} = 1000\text{g}$$

$$\frac{1}{2} \text{ of } 1\text{kg} = \square$$

$$\frac{1}{4} \text{ of } 1\text{kg} = \square$$

$$\frac{3}{4} \text{ of } 1\text{kg} = \square$$

$$\frac{1}{10} \text{ of } 1\text{kg} = \square$$

$$\frac{4}{10} \text{ of } 1\text{kg} = \square$$

10  
minutes | Scale balance

## Plenary

### Whole class teaching

Ask the pupils to say objects they can see in the classroom that weigh more than one kilogram.

Ask the pupils to say objects that they think weigh less than 200g and check some of their ideas on the **scale balance**.

## Week 28: Weight

### Day 3: Scales with dials

#### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Use number bonds  
to calculate inverse  
operations.

Read simple scale dials.

#### Preparation

**Before the lesson:**

Read [How? Reading scales](#), as  
shown below.

Find some bathroom or kitchen  
[scales with a dial](#) and have ready  
the [weight bags](#) from Week 28,  
Day 2 (yesterday).

Have ready some [objects](#) for weighing.

#### How? Reading scales



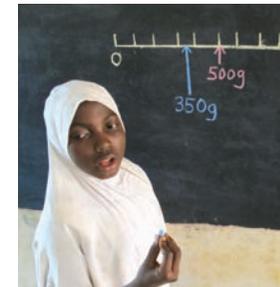
Draw a scale for  
measuring weight  
from 0kg to 1kg  
on the chalkboard.



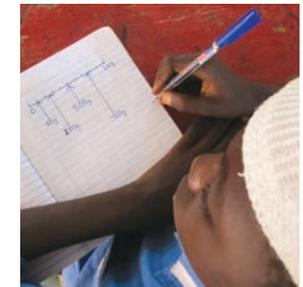
Ask, 'What step  
is the scale going  
up in?'



Ask the pupils,  
'What weight is the  
middle division?'



Choose some pupils  
to point to 200g,  
350g, 50g and 25g  
on the scale.



Ask the pupils  
to copy the scale  
into their exercise  
books and label  
each division.

15  
minutes

## Daily practice

### Pair task

Ask the pupils to say some number bonds for 100.

Write on the chalkboard:  
 $75 + 25 = 100$

Remind the pupils that this helps them to calculate the 'inverse' (subtraction) operations  $100 - 75 =$  and  $100 - 25 =$

Ask the pairs to write some addition calculations with the inverse operation for number bonds to 100 in their exercise books.

10  
minutes

How

## Introduction

### Whole class teaching

Remind the class that they have been using a balance scale to weigh objects.

Explain that we can also record weights on a scale.

Teach [How? Reading scales](#), as shown left.

25  
minutes

Dial scales/  
Weight bags/Objects

## Main activity

### Whole class teaching

Show the class the [dial scales](#).

Tell the pupils to notice how the marker moves on the dial when you put some of the [weight bags](#) on the scales.

Draw part of the scale face on the chalkboard and ask the pupils to say what each division represents.

Show the pupils one of the [objects](#) and ask them to estimate how much it weighs.

Choose a pupil to weigh it on the scales.

10  
minutes

## Plenary

### Whole class teaching

Choose some pairs to explain how they calculated the difference for one of their objects on the chalkboard.

## Week 28: Weight

## Day 4: More weighing scales

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Find missing numbers  
in open sentences using  
number bonds.

Read dial scales to  
the nearest kilogram.

### Preparation

**Before the lesson:**

Read [How? Reading scale dials](#),  
as shown below, and draw different  
[scale dials](#) on the chalkboard,  
some going up in grams and others  
in kilograms.

Have ready the [dial scales](#) from Week  
28, Day 3 (yesterday).

### How? Reading scale dials



Remind the pupils  
the worth of each  
division and continue  
the scale to 100g.



Ask the pupils the  
worth of each division  
and continue  
the scale to 6kg.



Look at the dial  
and ask the pupils  
to say what step  
the dial is going up  
in (20g).



Point to various  
positions on the dial  
and ask pupils  
to read the weight.



Say some weights  
and ask the pupils to  
point to them on  
the different scales.

15  
minutes

## Daily practice

### Pair task

Tell the pupils that an 'open sentence' has an equals sign and a missing quantity or number.

Write on the chalkboard:

$$45 + \square = 100$$

$$100 - \square = 45$$

Ask the pupils to say the missing numbers using their knowledge of the number bonds to 100.

Choose some pupils to write more open sentences using the number bonds to 100.

Tell the pairs to write five open sentences in their exercise books.

Tell them to swap books and write in the missing numbers.

10  
minutes

How

Dial scales

## Introduction

### Group task

Show the class the [dial scales](#).

Explain that dials can be different on scales.

Teach [How? Reading scale dials](#), as shown left.

25  
minutes

Scale dial/  
Dial scales

## Main activity

### Whole class teaching

Look at the kilogram [scale dial](#) on the chalkboard.

Explain that we often round weights to the nearest kilogram.

Demonstrate that 1kg 800g is nearest to 2kg and 2kg 100g is nearest to 2kg.

Ask the pupils to point to the nearest kilogram for 5kg 600g.

Repeat with other weights.

Invite some pupils to weigh themselves to the nearest kg on the [dial scales](#).

Ask them to estimate their weight first.

10  
minutes

## Plenary

### Whole class teaching

Choose some pupils to share their answers with the class.

Ask the class to say if they are correct, and if not ask why.

## Week 28: Weight

### Day 5: Decimal fractions of kilograms

#### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Subtract single-digit  
numbers from two-digit  
numbers quickly.

Change kilograms  
to grams and grams to  
kilograms.

#### Preparation

**Before the lesson:**

Read [How? Final countdown game](#),  
as shown below.

Make a set of [1—10 number cards](#)  
for each group.

#### How? Final countdown game



Give each group  
a set of number  
cards and ask them  
to shuffle them.



Tell the pupils to  
write '99' at the  
top of a page in their  
exercise books.



Tell each pupil in  
the group to  
take turns choosing  
a number card.



Tell them to subtract  
that number  
from 99 and write  
the answer.



Give the groups  
10 minutes to  
continue subtracting  
numbers from  
their answers.

15  
minutes

How

1—10 number  
cards

10  
minutes

25  
minutes

10  
minutes

## Daily practice

## Introduction

## Main activity

## Plenary

### Group task

Teach **How? Final count-down game**, as shown left, using the **1—10 number cards**.

### Whole class teaching

Explain that we can write grams as decimal fractions of a kilogram in the same way as the pupils did for metres and kilometres.

Explain on the chalkboard:  
1kg = 1000g so

$$800\text{g} = \frac{800}{1000} = \frac{8}{10} = 0.800\text{kg}$$

Ask the class to help you complete the following:

$$50\text{g} = \frac{50}{1000} = \frac{5}{100} = 0.050\text{kg}$$

$$5\text{g} = \frac{5}{1000}$$

so it needs to move  
three decimal places =  
0.005kg

### Whole class teaching

Write these amounts on the chalkboard:

1200g  
8300g  
7600g  
5002g  
4022g  
7654g

Choose some pupils to read the amounts and write them as kilograms, eg:

1200g =  
1.200kg  
1kg 200g  
1.2kg

### Pair task

Write these amounts on the chalkboard:

3kg  
8kg  
2kg 350g  
6kg 40g  
9kg 134g  
3kg 200g  
7kg 10g

Choose some pairs to say these amounts as grams.

Ask some pupils to write some of the amounts in grams on the chalkboard and check that they write the digits in the correct place, eg:  
9kg 5g = 9005g

Ask the pairs to write the amounts in grams in their exercise books.

### Whole class teaching

Ask the class the following questions:

'How many grams are in half a kilogram?'

'How many grams are in a quarter of a kilogram?'

'How many grams are in a tenth of a kilogram?'

Say some amounts in grams (eg: 7890g) and choose some pupils to write them as decimal fractions of a kilogram on the chalkboard.

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## Weekly page

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# Primary 4, numeracy lesson plans

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## Week 29:

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# Capacity

### Words/phrases

Write these words on the chalkboard and leave them there for the week.

capacity  
litres (l)  
millilitres (ml)  
measuring jug  
containers  
liquids  
decimal fractions  
scales  
divisions  
appropriate units  
less than (<)  
greater than (>)

### Learning expectations

By the end of the week:

**All pupils will be able to:**

Estimate and measure capacity using litres and millilitres.

**Most pupils will be able to:**

Read a simple scale on a measuring jug.

**Some pupils will be able to:**

Solve capacity word problems.

## Assessment task

### Instructions:

Ask an individual pupil to:

1  
Pick three containers from the capacity corner and estimate their capacity in litres and millilitres.

2  
Check their estimation using a measuring jug.

3  
Solve the following word problem:  
Murat wants to fill 80 bottles of 500ml. How many 20l dispensers does he need?

## Example of a pupil's work

### This pupil can:

Estimate and measure liters and millilitres.

Use a measuring jug.

Solve a capacity word problem.

Object	estimate	actual capacity
 shampoo	500 ml 0.5 l	400 ml 0.4 l
 tin of milk	150 ml 0.15 l	250 ml 0.25 l
 juice	1000 ml 1 l	1000 ml 1 l

$$80 \times 500 \text{ ml} = 40.000 \text{ ml}$$

$$40.000 \text{ ml} = 40 \text{ l}$$

$$40 \text{ l} \div 20 \text{ l} = 2$$

He needs two 20l dispensers.

## Week 29: Capacity

## Day 1: Litres

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say the units used to  
measure time.

Estimate and measure  
with litres.

### Preparation

**Before the lesson:**

Make a **capacity corner** with empty  
**containers** of different capacities,  
eg: buckets, cooking pots, a jerry can,  
bottles, teacups.

Read **How? Measuring in litres**,  
as shown below, and have ready a **litre  
bottle** and a **bucket of water**.

### How? Measuring in litres



Ask a pupil to fill  
the litre bottle  
with water from  
the bucket.



Ask the pupils to  
estimate which  
containers hold more  
than a litre.



Test the estimates  
by pouring water  
from the litre bottle  
into each container.



Ask the pupils to  
estimate how many  
litres each container  
can hold.



Count the number  
of litre bottles  
it takes to fill each  
container.

15  
minutes

## Daily practice

### Pair task

Write the following on the chalkboard and ask the pairs to say the missing numbers:

- seconds in a minute
- minutes in an hour
- hours in a day
- days in a week
- weeks in a year
- months in a year
- days in a year

10  
minutes

Containers

## Introduction

### Whole class teaching

Show the class the **containers** and ask the pupils what they are used for.

Remind the class that 'capacity' means the amount a container can hold.

Ask if anyone can say the units for measuring liquids, ie: litres.

Ask the class to say what we buy in litres, eg: kerosene, water.

Ask the pupils to draw, in their exercise books, the containers in a line from the one they estimate to have the most capacity to the one with the least.

25  
minutes

How

Bucket/Water/  
Containers

## Main activity

### Whole class teaching

Teach **How? Measuring in litres**, as shown left, using the **bucket, water and containers**.

Ask the pupils to draw the containers in order now they have tested them with the litre bottle.

Ask them if these drawings are different from their estimated drawings.

Explain that it is very difficult to estimate capacity.

10  
minutes

Containers/  
Litre bottle/Water

## Plenary

### Whole class teaching

Choose some pupils to point to **containers** that they estimate to have a capacity of less than half a litre.

Let them test the estimates by pouring half a litre of **water** from the **litre bottle**.

## Week 29: Capacity

## Day 2: Measuring bottle

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Change metres to  
decimal fractions of  
a kilometre.

Make a simple  
measuring bottle.

### Preparation

**Before the lesson:**

Read [How? Measuring bottle](#),  
as shown below.

Have ready: [masking tape](#), a [bucket of water](#), a [2 litre bottle](#), a [litre bottle](#)  
and [two smaller bottles](#) of the same size  
and capacity (about 750ml).

### How? Measuring bottle



Fill the litre bottle with  
water and pour it  
into the two smaller  
bottles so they each  
contain 500ml.



Pour 500ml into  
the 1l bottle.  
Mark '500ml' on the  
masking tape.



Pour half of the  
500ml into two  
bottles to make  
250ml.



Pour one of the  
250ml into one of  
the small bottles.  
Mark '250ml' on  
the masking tape.



Pour the 500ml  
and 250ml into  
the 2l bottle. Mark  
'750ml' on the  
masking tape.

15  
minutes

## Daily practice

### Whole class teaching

Write on the chalkboard:

$$1\text{cm} = \square \text{ mm}$$

$$1\text{m} = \square \text{ cm or } \square \text{ mm}$$

$$1\text{km} = \square \text{ m or } \square \text{ cm}$$

Ask some pupils to write in the missing numbers.

Write the following on the chalkboard:

$$\frac{1}{2} \text{ of } 1\text{km} = \square$$

$$\frac{1}{4} \text{ of } 1\text{km} = \square$$

$$\frac{3}{4} \text{ of } 1\text{km} = \square$$

$$\frac{4}{10} \text{ of } 1\text{km} = \square$$

Choose some pairs to say the answers as metres and decimal fractions.

10  
minutes

Bottle

## Introduction

### Whole class teaching

Explain that we measure smaller amounts of liquid in millilitres.

Hold the **litre bottle** and ask, 'How many millilitres do you think are in a litre?'

Write on the chalkboard: '1l = 1000ml'.

25  
minutes

How

Bottles/  
Water

## Main activity

### Whole class teaching

Teach **How? Measuring bottle**, as shown left.

Ask one group to mark 1l on the **measuring bottle** by pouring in a litre of **water**.

Ask the groups to suggest ways to find on 2l: 1l 250ml, 1l 500ml and 1l 750ml. Mark them on a measuring bottle.

Write the following on the chalkboard:

$$\frac{1}{2} \text{ of } 1\text{l} = \square$$

$$\frac{1}{4} \text{ of } 1\text{l} = \square$$

$$\frac{3}{4} \text{ of } 1\text{l} = \square$$

$$\frac{4}{10} \text{ of } 1\text{l} = \square$$

Choose some pupils to say the answers in millilitres.

Ask the pupils to write the answers in their exercise books.

10  
minutes

Bottles

## Plenary

### Whole class teaching

Ask the pupils to point to a quarter of a litre (250ml), half a litre and three quarters of a litre on a **measuring bottle**.

Tell some pupils to mark these fractions next to the millilitre measurements.

Keep the measuring bottles for the next day.

## Week 29: Capacity

## Day 3: Measuring jugs

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Select the correct units  
for measurement.

Read scales on  
measuring jugs.

### Preparation

**Before the lesson:**

Read [How? Measuring jug](#), as  
shown below.

Find a [measuring jug](#) marked in millilitres.

Have ready the [measuring bottles](#)  
and the [bucket of water](#) from Week 29,  
Day 2 (yesterday), and a [100ml container](#)  
for each group.

### How? Measuring jug



Show the pupils  
the measuring  
jug and point  
to the scale used.



Draw different  
scales on the chalk-  
board. Discuss  
the value of the  
divisions.



Choose some  
pupils to point to  
500ml.



Choose some pupils  
to point to 100ml,  
as well as other  
measurements on  
the jug.

15  
minutes

## Daily practice

### Pair task

Write the following units of measurement on the chalkboard: 'kg', 'cm', 'mm', 'days', 'minutes', 'g', 'l', 'hours', 'km', 'ml', 'm', 'seconds'.

Ask the pairs to draw four large squares in their exercise books.

Ask the pairs to give each square a title relating to a different type of measurement, eg: weight.

Tell them to think about what each unit is used to measure and write it in the correct square (ie: time, length, weight, capacity).

10  
minutes

## Introduction

### Whole class teaching

Write on the chalkboard:

$$\square \text{ ml} = 1\text{l}$$

Ask the class to read it and say the missing number.

Explain that we can change millilitres to decimal fractions of a litre in the same way as we changed grams to kilograms.

25  
minutes

How

Measuring jug/  
100ml containers/  
Bottles/Water

10  
minutes

Bottles

## Main activity

### Whole class teaching

Teach **How? Measuring jug**, as shown left.

Ask the groups to discuss how they can use the **100ml containers** to mark more divisions on their **measuring bottles**.

Tell the groups to fill and refill the 100ml containers with **water** and mark '100ml', '200ml', and so on, up to 900ml on their measuring bottles.

## Plenary

### Group task

Ask the groups to point to different measurements on the **measuring bottles** as you say them, eg:

300ml

600ml

1.5l

50ml

$\frac{1}{4}$  of a litre

Ask the groups to discuss some things that are sold in litres and millilitres, eg: petrol, oil, milk, water.

## Week 29: Capacity

### Day 4: Measuring capacity

#### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Use appropriate units  
of measurement.

Estimate and measure in  
litres and millilitres.

#### Preparation

**Before the lesson:**

Read [How? Estimating capacity](#),  
as shown below, and have ready the  
[measuring bottles](#) and [bucket of water](#)  
from Week 29, Day 3 (yesterday).

Find six different sized [containers](#) for  
each group and stick a strip of [masking  
tape](#) down the sides.

#### How? Estimating capacity



Tell the groups to  
mark where they  
think 100ml is  
on their containers.



Ask them to  
check by pouring  
100ml of water  
from a measuring  
bottle.



Tell the groups  
to fill a measuring  
bottle with water.



Tell them to pour  
the water into the  
containers to find  
their capacities.



Tell the groups  
to add amounts in  
the bottles to work  
out the capacity  
of larger containers.

15  
minutes

### Daily practice

#### Pair task

Ask the pairs to say the units used to measure time, length, weight and capacity.

Write the following on the chalkboard:  
water in a bucket  
honey in a jar  
journey time to school  
weight of a pencil  
weight of a yam  
length of a field

Ask the pairs to write the units they would use to measure each item in their exercise books.

Discuss how journey time could be measured in minutes or hours, depending on the distance.

10  
minutes

How

### Introduction

#### Group task

Teach **How? Estimating capacity**, as shown left in photos one and two.

Bottles/  
Containers/Water

25  
minutes

Chart/Bottles/  
Containers/Water

### Main activity

#### Group task

Copy the **Estimating measure chart**, shown below, on to the chalkboard.

Ask the groups to draw the chart in their exercise books.

Tell them to draw the containers and estimate the capacities in litres and millilitres.

Estimating measure chart

Container	Estimate	Measure

10  
minutes

Containers

### Plenary

#### Whole class teaching

Ask each group to hold up one of their **containers** and ask the other groups to estimate its capacity.

Tell the group to say the actual capacity and discuss how near the estimates were.

## Week 29: Capacity

## Day 5: Capacity word problems

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Order numbers to  
two decimal places.

Identify the calculations  
needed to solve capacity  
word problems.

### Preparation

**Before the lesson:**

Write the [word problems](#),  
shown opposite in the main activity,  
on to the chalkboard.

Have ready a [teaspoon](#).

Read [How? Calculating petrol](#),  
shown below and copy the [word  
problems](#) on to the chalkboard.

### How? Calculating petrol



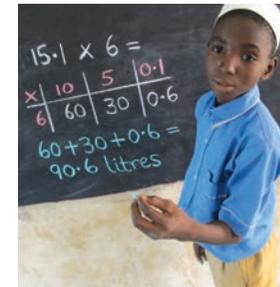
Maryam has 15.3  
litres of petrol in  
her car. She puts in  
21.9 litres. How  
much has she now?



Maryam drives  
home and uses  
15.1 litres. How  
much petrol does  
she have left?



If Maryam does  
the same journey  
6 times, how  
much petrol will  
she need?



Answer the problem.

15  
minutes

## Daily practice

### Pair task

Write the following pairs of measurements on the chalkboard:

0.670kg  500g

2.234m  2456cm

450ml  24l

$\frac{1}{4}$  litres  200ml

$\frac{1}{2}$  kg  700g

Choose a pair to write the signs for less than and greater than (< >).

Tell the pairs to discuss the missing sign for each pair of measurements.

10  
minutes

Teaspoon

## Introduction

### Pair task

Ask the class to say the units that are used to measure capacity.

Show the **teaspoon** and explain that a teaspoon of liquid is about 5 millilitres.

Ask the pairs, 'How many teaspoons are there in 50ml and 100ml?'

Ask the pairs to say the calculation needed to work out the answer, ie: divide ( $50 \div 5$ ).

25  
minutes

How

Word problems

## Main activity

### Whole class teaching

Teach **How? Calculating petrol**, as shown left.

Read out each **word problem** and ask the pupils to say the calculations needed.

Choose some pupils to help you work out each calculation on the chalkboard.

### Pair task

Read out the following **word problems** on the chalkboard for the pairs to complete in their exercise books.

'3.8l of water is poured into a bucket that already contains 2.9l. How much water is in the bucket now?'

'A plant needs 1.2 litres of water every day. How much water does it need in a week?'

'A tank contains 24l of water. This is shared equally between 6 goats. How much water does each goat get?'

10  
minutes

## Plenary

### Whole class teaching

Choose some pairs to explain the different calculations they did on the chalkboard.

Remind the pairs to include litres in their answers, eg: 6.7l.

## Weekly page

Primary 4,  
numeracy  
lesson plans

## Week 30:

Revision

### Words/phrases

Write these words on the chalkboard  
and leave them there for the week.

plus  
total  
increase  
more than  
minus  
subtract  
difference  
decrease  
less than  
divide  
share  
multiply  
product  
groups of  
fraction  
numerator  
denominator

### Learning expectations

By the end of the week:

**All pupils will be able to:**

Use the four basic operations to calculate.

**Most pupils will be able to:**

Say answers to the times tables up to times 10.

**Some pupils will be able to:**

Solve problems involving one or two steps.

## Assessment task

### Instructions:

Ask an individual pupil to solve the following word problems:

1

Murat has saved N250 every week for 1 year. He buys books for N7500. How much does he have left?

2

Samira gives a party for 12 friends. She has 147 marbles to share. How many can she give each friend? Are there any marbles left?

3

Buki earns N32.000 a month. She can save one eighth each year. How much is she saving each year? How much does she spend in a year?

## Example of a pupil's work

### This pupil can:

Use all basic operations to solve one- and two-step word problems.

$$N 250 \times 52 = N13.000$$

X	200	50	0
50			
2			

$$\begin{array}{r} 10.000 \\ 2.500 \\ 400 \\ 100 \\ \hline 13.000 \end{array}$$

$$\begin{array}{r} 13.000 \\ - 7.500 \\ \hline 5.500 \end{array} \quad \text{Murat has N5.500 left}$$

$$147 \div 12 =$$

$$\begin{array}{r} 147 \\ - 120 \\ \hline 27 \\ - 24 \\ \hline 3 \end{array} \quad \begin{array}{l} 10 \times 12 \\ 2 \times 12 \end{array}$$

Each friend to have 12 marbles.  
There are 3 marbles left.

$$N 32.000 \div 8 = N 4.000 \text{ per month}$$

$$N 4.000 \times 12 = N 48.000 \text{ per year}$$

$$N 32.000 \times 12 = N 384.000$$

$$N 384.000 - N 48.000 = N 336.000$$

## Week 30: Revision

## Day 1: Addition and subtraction

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Read and expand four-  
digit numbers.

Solve addition and sub-  
traction word problems  
involving three-digit  
numbers.

### Preparation

**Before the lesson:**

Read [How? Addition and subtraction](#),  
as shown below.

Write the [word problems](#),  
shown opposite in the main activity,  
on the chalkboard.

### How? Addition and subtraction



Write, '486 + 475 ='  
on the chalkboard  
and ask a pupil  
to write it vertically.



Explain adding the  
Units, Tens and  
Hundreds. Add the  
totals, explaining  
place value.



Write, '563 - 247 ='  
on the chalkboard  
and expand  
the numbers.



3 Units cannot be  
taken away from 7  
Units so we rename  
it: 63 = 50 and 13.



To complete the  
calculation, put  
the Tens and Units  
together.

15  
minutes

## Daily practice

### Whole class teaching

Write '9182' on the chalkboard and ask the class to say the number.

Choose some pupils to say the value of each digit and write, 'Th', 'H', 'T' and 'U' above the correct digit.

Ask some pupils to expand the number, ie:  
 $9000 + 100 + 80 + 2$ .

Write, '6', '9', '1' and '8' on the chalkboard.

Ask some pupils to write the biggest and smallest numbers they can make with these digits.

Ask the class to read each four-digit number in words and expand them.

10  
minutes

How

## Introduction

### Whole class teaching

Explain that you are going to revise how to add and subtract three-digit numbers.

Teach [How? Addition and subtraction](#), as shown left.

25  
minutes

## Main activity

### Whole class teaching

Ask the pupils to say some words that mean 'add' and write them on the chalkboard, eg: plus, total, increase, altogether, more than.

Ask the pupils to say words that mean 'take away' and write them on the chalkboard, eg: subtract, minus, difference, decrease, less than.

Problems

### Group task

Read out the following [problems](#) on the chalkboard:

'Calculate  $585 + 328$ .'

'Increase 406 by 286.'

'What is  $573 - 345$ ?'

'What is the total of 477 and 377?'

'Find the difference between 980 and 654.'

'How much less than 885 is 764?'

Ask the groups to say the calculation needed for each problem.

Tell the groups to complete the calculations in their exercise books.

10  
minutes

## Plenary

### Whole class teaching

Choose some groups to explain their calculations on the chalkboard.

## Week 30: Revision

## Day 2: Multiplying decimal numbers

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Add numbers to two  
decimal places.

Multiply decimal numbers  
using the grid method.

### Preparation

**Before the lesson:**

Read How? [Adding numbers to  
two decimal places](#), as shown below.

### How? Adding numbers to two decimal places



Remind the pupils  
how to read decimal  
numbers.



Ask some pupils  
to write in the  
place values and  
expand the decimal  
numbers.



Explain adding the  
hundredths, tenths  
and Units. Add  
the totals, explaining  
place value.



Ask some pupils  
to help you solve  
 $7.39 + 1.65$ .

15  
minutes

How



## Daily practice

### Whole class teaching

Teach **How? Adding numbers to two decimal places**, as shown left.

Write the following calculations on the chalkboard and ask the pupils to complete them in their exercise books:

$$5.74 + 2.38 =$$

$$6.68 + 3.42 =$$

10  
minutes

## Introduction

### Whole class teaching

Revise using the grid method to multiply bigger numbers with decimals.

Write '25.4 x 7 =' on the chalkboard.

Expand the number and draw the grid:

x	20	5	0.4
7	140	35	2.8

Multiply the tenths, Units and Tens.

Add the tenths, Units, Tens and Hundreds and put the number together: 177.8

Repeat with  $36.5 \times 6 =$

25  
minutes

Word problems

## Main activity

### Group task

Write the following **word problems** on the chalkboard:

'Ajarat travels 50.8km. Gambo travels 3 times as far. How far does Gambo travel?'

'A gate is 26.4m long. What is the length of 4 gates?'

'A sack of sugar weighs 3.5kg. How much do 6 sacks of sugar weigh?'

'A village uses 83.2 litres of water every day. How much water does it use in 5 days?'

10  
minutes

## Plenary

### Whole class teaching

Choose some groups to explain on the chalkboard how they calculated two of the word problems.

Read and explain each word problem.

Ask each group to expand the number and draw the grid needed for one of the problems on the chalkboard.

Ask the groups to complete the word problems in their exercise books.

## Week 30: Revision

## Day 3: Division using repeated subtraction

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say answers from the  
6, 7, 8 and 9 times tables.

Use repeated subtraction  
in division calculations.

### Preparation

**Before the lesson:**

Have ready **four buckets** labelled  
'x 6', 'x 7', 'x 8' and 'x 9' and **four small balls**.

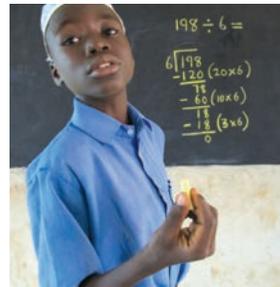
Read **How? Multiplication buckets**,  
as shown in Week 27, Day 2.

Read **How? Repeated subtraction**,  
as shown below.

### How? Repeated subtraction



Demonstrate the  
sign that we can  
use to divide  
larger numbers.



Tell the pupils to  
find multiples and  
subtract them until  
no more multiples  
can be found.



Add the factors  
and write in the  
answer.



Remind the class  
that there are some-  
times remainders.



Repeat with  $154 \div 7 =$

15  
minutes

Buckets/  
Balls

10  
minutes

25  
minutes

How

## Daily practice

### Whole class teaching

Ask the pupils to help you write the 6, 7, 8 and 9 times tables on the chalkboard.

Teach [How? Multiplication buckets](#) using the [buckets](#) and [balls](#), as shown in Week 27, Day 2.

## Introduction

### Group task

Remind the pupils that they can use their times tables to work out division calculations.

Ask the pupils, 'What is  $20 \times 4$ ?''

Remind them to say, ' $2 \times 4 = 8$  so  $20 \times 4 = 80$ '.

Ask the pupils, 'What is  $200 \times 6$ ?''

Remind them to say, ' $2 \times 6 = 12$  so  $200 \times 6 = 1200$ '.

Write the following calculations on the chalkboard for the pupils to complete in their exercise books:

$$90 \times 6 =$$

$$400 \times 7 =$$

$$30 \times 8 =$$

$$700 \times 9 =$$

## Main activity

### Whole class teaching

Write, ' $198 \div 6 =$ ' on the chalkboard.

Remind the pupils that we can use repeated subtraction to solve division with big numbers.

Teach [How? Repeated subtraction](#), as shown left.

### Group task

Write the following calculations on the chalkboard for the groups to complete in their exercise books:

$$170 \div 7 =$$

$$198 \div 9 =$$

$$684 \div 6 =$$

$$187 \div 8 =$$

Remind the groups to use the largest multiples they can find, eg:  $140 (7 \times 20)$ .

10  
minutes

## Plenary

### Whole class teaching

Choose one group to explain the first calculation on the chalkboard.

Ask the class to say some words that mean 'divide' and write them on the chalkboard, eg: share, groups of.

## Week 30: Revision

## Day 4: Fractions

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say the 8 and 9 times  
tables forwards and  
backwards.

Add and subtract  
fractions.

### Preparation

**Before the lesson:**

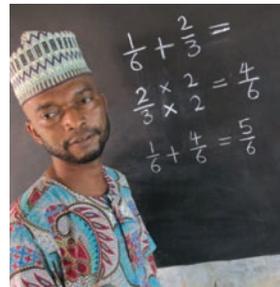
Find a [small ball](#).

Read [How? Adding and subtracting  
fractions](#), as shown below.

### How? Adding and subtracting fractions



Demonstrate  
adding two fractions  
on the chalkboard.



Demonstrate making  
them have the  
same denominator,  
then add them up.



Demonstrate adding  
other fractions.



Demonstrate  
subtracting fractions.

15  
minutes

Ball

10  
minutes

20  
minutes

How

Word problems

15  
minutes

## Daily practice

### Pair task

Ask the pupils to say some words that mean 'multiply' and write them on the chalkboard, eg: times, groups, product of.

Ask the class to say the 8 and 9 times tables forwards and backwards.

Tell the pupils to form a circle and throw the ball to a pupil and say, 'Zero.'

Ask the pupils to add 8 to the new number and throw the ball to the next pupil.

Continue until 80 is reached.

Repeat, counting in 9s.

Do this several times.

## Introduction

### Whole class teaching

Ask the pupils, 'What is a fraction?'

Choose some pairs to write a tenth, a half and three quarters on the chalkboard.

Ask some pairs the following questions:

'How can I find a fifth of 30?' (Divide 30 by 5).

'How can I find three quarters of 24?' ( $24 \div 4 = 6$  and  $3 \times 6 = 18$ )

### Pair task

Write the following on the chalkboard:

$$\frac{1}{4} \text{ of } 48 = \square$$

$$\frac{3}{4} \text{ of } 48 = \square$$

$$\frac{1}{8} \text{ of } 48 = \square$$

$$\frac{5}{8} \text{ of } 80 = \square$$

Ask the pairs to complete these calculations in their exercise books.

## Main activity

### Whole class teaching

Teach **How? Adding and subtracting fractions**, as shown left.

Write the following **word problems** on the chalkboard:

'Sani spent half of his money on food and one sixth on petrol. What fraction of his money did he spend?'

'Adama spent two thirds of her money in the market and one sixth at her tailor's. What fraction of her money did she spend?'

Ask the groups to write the fraction calculation needed to solve each problem in their exercise books.

## Plenary

### Whole class teaching

Choose some groups to write their calculations on the chalkboard and ask the class if they are correct.

Ask the pupils to help you complete the calculations, making the same denominators and adding the fractions.

## Week 30: Revision

## Day 5: Two-step problems

### Learning outcomes

**By the end of the lesson,  
most pupils will be able to:**

Say the properties of 2D  
and 3D shapes.

Solve two-step word  
problems.

### Preparation

**Before the lesson:**

Write the [word problems](#),  
shown opposite in the main activity,  
on the chalkboard.

Have ready a set of [3D shapes](#)  
(a cube, cuboid, triangular prism  
and a square-based pyramid).

Read [How? Time number line](#), as  
shown below.

### How? Time number line



Ask, 'If it is 04:20  
now, what will  
the time be in 25  
minutes?'



Explain how to  
solve the problem  
with a number line.



Ask, 'If it is 07:25  
now, what will  
the time be in 45  
minutes?'



Explain how to  
expand the minutes  
to cross the  
hour boundary.

15  
minutes

3D shapes

15  
minutes

How

25  
minutes

Word problems

5  
minutes

## Daily practice

### Whole class teaching

Ask some pupils to name and draw some 2D shapes on the chalkboard.

Choose some pupils to point to the properties of the shapes, eg: right angles, parallel lines, vertices, symmetrical lines.

Show the class the **3D shapes** and ask the pupils to name them.

Ask some pupils to name the 2D shapes they can see on the 3D shapes.

Say some properties of a 3D shape and ask the pupils to guess the name of the shape.

## Introduction

### Pair task

Say some analogue times for the pairs to write as digital on the chalkboard, eg: ten past 8, five to 11.

Teach **How? Time number line**, as shown left.

## Main activity

### Group task

Read and explain the following **word problems** on the chalkboard:

'A teacher has 100 sheets of paper. She uses 9 sheets every day for 7 days. How many has she got left?'

'Asabe earns N550 a day. He works for 5 days. He spends N650 on food. How much money has he got left?'

'At a party there are 4 boxes with 6 cakes in each. The guests all ate 3 cakes, leaving no leftovers. How many guests were there?'

## Plenary

### Whole class teaching

Praise the pupils for all the mathematics they have learned this year.

Ask the pupils to say what they have enjoyed learning about and any aspects they have found difficult.

## Credits

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Many different stakeholders have contributed to the development and production of these lesson plans.

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Much of the work was done by the Kwara State School Improvement Team.

## Special thanks go to

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Honourable Commissioner of Education and Human Capital Development (MOEHCD), Alhaji Mohammed Atolagbe Raji, the Executive Chairman of the State Universal Basic Education Board (SUBEB), Alhaji (Barr) Lanre Daibu and their staff for their time and valuable input.

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The Teacher Development Division School, MOEHCD, School Improvement Unit, SUBEB and the State School Improvement Team (SSIT) for their contributions.

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Thanks also go to all the teachers who have used these plans and started to bring about change in their classrooms.

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Kano State Government

Produced with the  
support of

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Education Sector  
Support Programme  
in Nigeria



**UKaid**

from the Department for  
International Development