



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

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

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Introduction

Good teaching can help learners achieve positive outcomes, even in difficult circumstances. But learners have little chance of making progress where the teaching is poor.

Throughout 2010 in Kaduna State, the Ministry of Education carried out baseline surveys to assess classroom teachers, headteachers and pupil learning outcomes. Sadly, the findings were alarmingly poor. It was clear that despite substantial inputs into education, the majority of teachers were themselves victims of an education system that was in a serious downward spiral.

Following this research, the State Ministry of Education, the State Universal Basic Education Board and local government education authorities, supported by the Education Sector Support Programme in Nigeria (ESSPIN), embarked on a series of reforms to strengthen schools.

To improve the teaching of basic literacy and numeracy in primary schools, Kaduna is introducing a carefully designed series of literacy and numeracy lesson plans for primary 1—5 teachers. These provide a step-by-step guide to teachers, while ensuring that teaching and learning become more exciting and children become active learners.

Alongside the lesson plans, structures and processes have been put in place so that teachers are continuously supported by the State School Improvement Team and specially-trained school support officers.

I am confident that these lesson plans will raise standards in our schools. I commend all those who have worked hard to produce these plans and train our teachers to use them, and I offer thanks to the UK Department for International Development (DFID) for its ongoing support for education reform in Kaduna State through its ESSPIN programme.

Professor Andrew Jonathan Nok
DSc, PhD, OON, FAS, NNOM
Honourable Commissioner
of Education, Science
and Technology, Kaduna 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:

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

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

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.

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.

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.

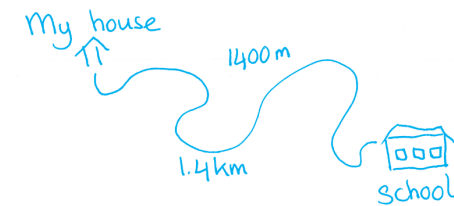
Apply knowledge to a practical situation.

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

10
minutes

Rulers

25
minutes

How

10
minutes

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.

Introduction

Group task

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

Ask the groups to look at trees or buildings outside the classroom.

Tell them to discuss which is the tallest and which is the widest.

Choose pupils to say which is tallest and which is widest.

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.

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 (cm²)
square metre (m²)
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 30cm².

4 Solve the following word problem:
Yara 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

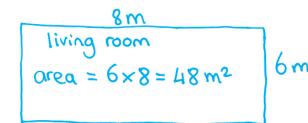
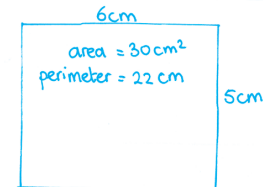
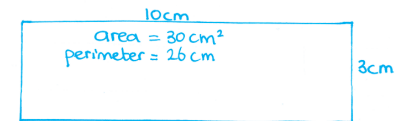
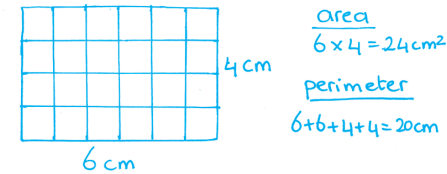
This pupil can:

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

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: cm^2 .

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

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.

Calculate the area
and perimeter 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.



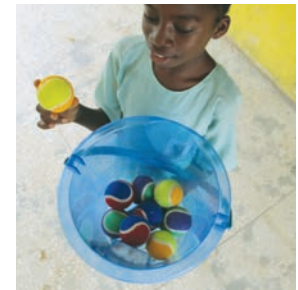
Tell them to throw
the ball and, if it
lands in the bucket,
shout, 'Goal!'



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

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](#).

10
minutes

Ruler

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.

25
minutes

Rulers

Main activity

Pair task

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

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

Draw a rectangle on the chalkboard and ask the pupils to say the quick method for calculating area, ie: $l \times b$.

Write the following measurements on the chalkboard and ask the pairs to find the perimeter and areas:
10cm by 6cm
8cm by 4cm
4cm by 7cm
9cm by 12cm
6cm by 8cm

10
minutes

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:

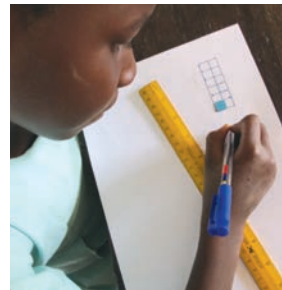
Have ready a card ruler for
each pair.

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

How? Same area, different perimeter



Draw a rectangle
measuring
6cm by 2cm.



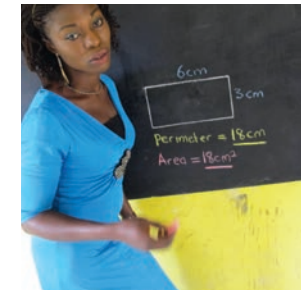
Ask the pupils to
calculate the area
and the perimeter
by counting the
square centimetres.



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 24cm^2 ?'

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

Repeat with an area of 16cm^2 .

Rulers

Pair task

Ask the pairs to draw different rectangles in their exercise books with an area of 20cm^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 18cm^2 , and then 24cm^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

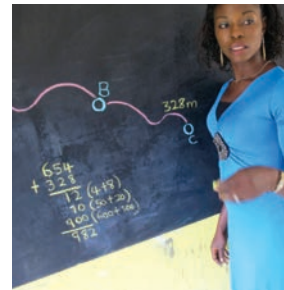
Before the lesson:

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: 8×8 , 9×8 , 9×9 .

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: 'Yemi 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.

Group task

Write the following questions on the chalkboard, then read and explain them to pupils:

'A car does 80km in one hour. How many km does it do in 6 hours?'

'Taiwo makes 3 robes of the same size with 21m of cloth. How much cloth makes one robe?'

'Segun is 155cm. His brother is 123cm. How much taller is Segun?'

Ask the groups to say the calculation needed for each question and complete them in their exercise books.

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.

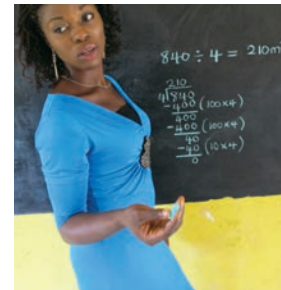
How? Calculations for area



Say, 'Lola 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 100m²,
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.

Grade/
Type of lesson plan

Lesson
title

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



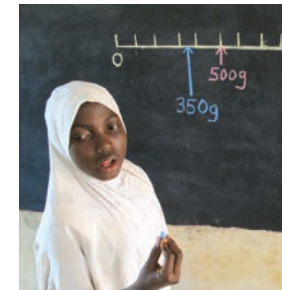
Draw a scale for
measuring weight
from 0kg to 1kg
on the chalkboard.



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.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 4, numeracy lesson plans

Week 29:

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:
Felix 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.



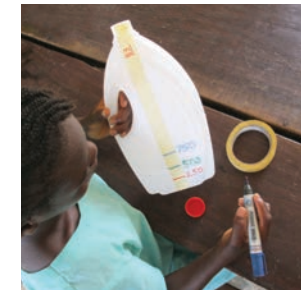
Pour 500ml into
the 1l bottle.
Mark '500ml' on the
masking tape.



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 pupils
to point to 500ml
on the jug.



Choose pupils to
point to 100ml,
as well as other
measurements.

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.

Write the following on the chalkboard:

$$\frac{1}{2} \text{ of } 1\text{l} = \square \text{ ml} = 0.500\text{l}$$

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

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

$$\frac{1}{10} \text{ of } 1\text{l} \square \text{ ml} = 0.100\text{l}$$

$$\frac{4}{10} \text{ of } 1\text{l} \square \text{ ml} = 0.400\text{l}$$

Ask the pupils to complete these statements in their exercise books.

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 plus 328.'

'Increase 406 by 286.'

'What is 573 minus 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.



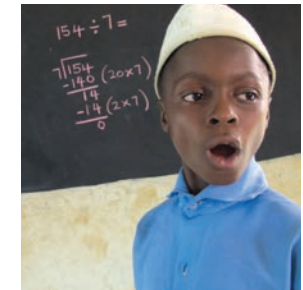
Tell the pupils to
find multiples and
subtract them until
no more multiples
can be found.



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

10
minutes

Daily practice

Introduction

Main activity

Plenary

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.

Group task

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

Ask the pupils, 'What is 20×4 ?''

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

Ask the pupils, 'What is 200×6 ?''

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

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

$$90 \times 6 =$$

$$400 \times 7 =$$

$$30 \times 8 =$$

$$700 \times 9 =$$

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 x 20).

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

Preparation

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

Before the lesson:

Say the 8 and 9 times
tables forwards and
backwards.

Find a [small ball](#).

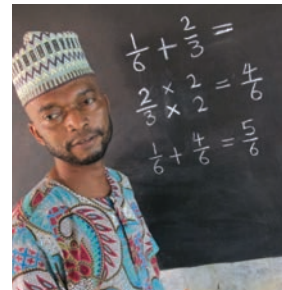
Add and subtract
fractions.

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



Word problems

15 minutes

Daily practice

Introduction

Main activity

Plenary

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.

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.

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.

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

Preparation

**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.

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

Introduction

Main activity

Plenary

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.

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.

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?'

Ask the groups to say the calculations needed for each one.

Explain that they need more than one calculation, eg: for the first one they need to multiply ($9 \times 7 =$) and then subtract the answer from the 100.

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

Choose some pupils to explain their calculations on the chalkboard.

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

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

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

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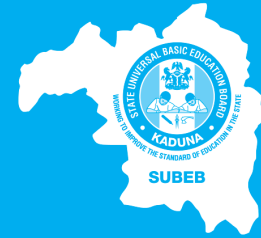
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