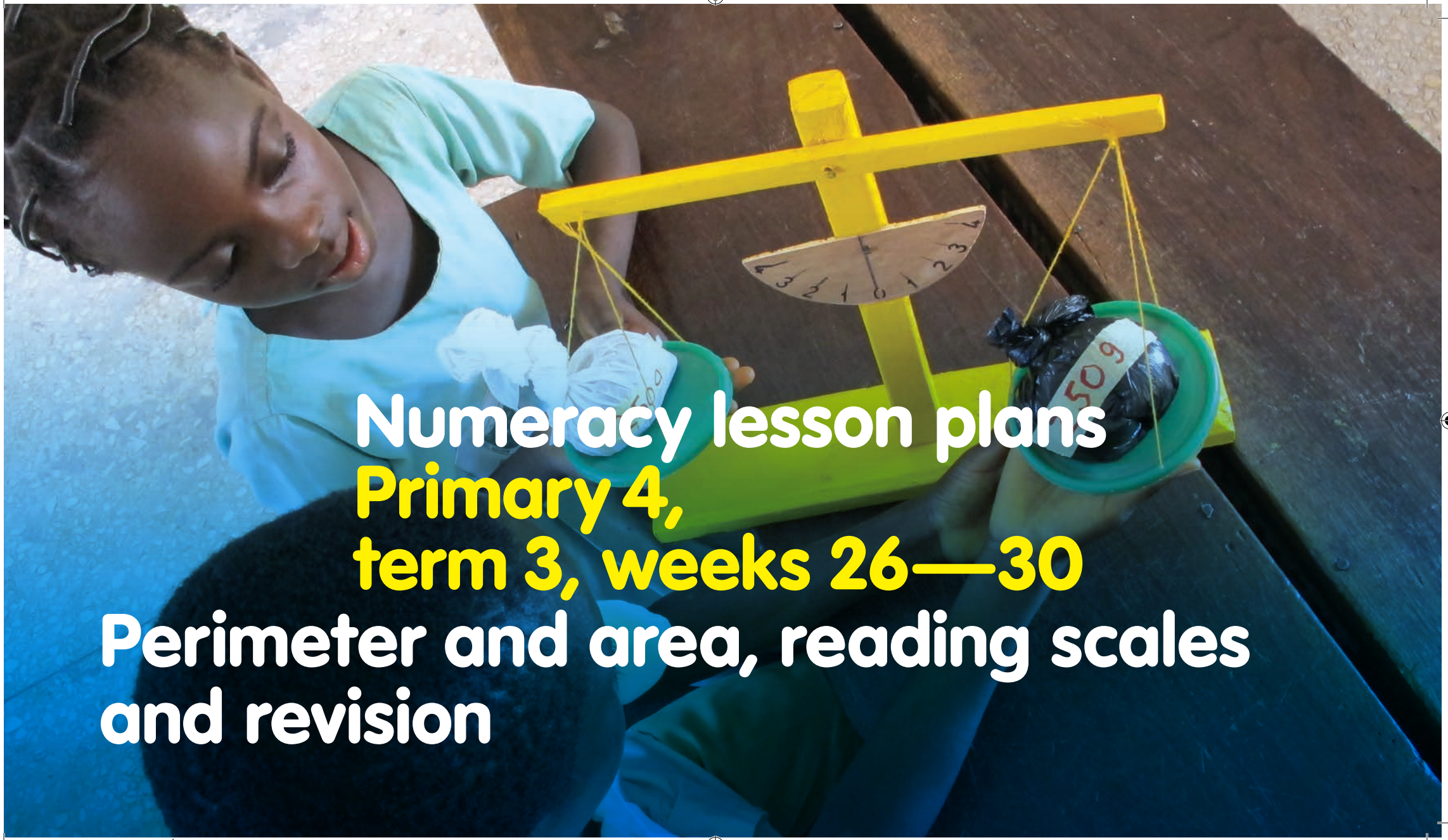


Numeracy lesson plans Primary 4, term 3, weeks 26—30

Perimeter and area, reading scales and revision

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

Perimeter and area, reading scales and revision

Introduction

The commitment of the Lagos State Government towards improving the quality of education has continued to take priority in her efforts to move the state forward. This is evident in successes recorded so far in the School Improvement Programme (SIP), which was initiated for this purpose and supported by the Education Sector Support Programme in Nigeria (ESSPIN).

With the introduction of the full literacy and numeracy lesson plans, which came after the initial pilot abridged version, the story of ineffective methods of teaching literacy and numeracy is changing. The introduction of the lesson plans was to ensure that classroom teachers' capacity was improved. Among other things, the lesson plans sought to address the issue of poor methods of teaching by offering step-by-step guidance to teachers on how to deliver good quality lessons in literacy and numeracy.

The complete modules of the lesson plans for Primary 1 to 3 were produced through the efforts of school improvement personnel such as the State School Improvement Team (SSIT) with technical assistance from ESSPIN, funded by the UK Department for International Development (DFID). Within a short period of being introduced, the Primary 1 to 3 lesson plans have yielded a significant improvement in the teachers' approach to handling literacy and numeracy in our schools. This in turn has impacted positively on the performance of our pupils in the two subjects.

It is therefore with the same expectation of positive results that I introduce the newly produced literacy and numeracy lesson plans for Primary 4 and 5 for use in our 1007 public primary schools, to further improve the quality of primary education as the bedrock of our education system in Lagos State.

Gbolahan K Daodu
Executive Chairman,
Lagos State Universal Basic Education Board

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.

Grade/
Type of lesson plan

Lesson
title

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.

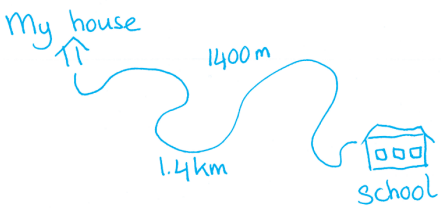
Apply knowledge to a practical situation.

Example answers are:

My teacher's desk has a perimeter of 240 cm 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



Lesson title

Week 26: Length

Day 1: Metres

Rhyme/Bucket/ Metre rulers

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 mark 10cm, 20cm, and so on, on their rulers.

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

15 minutes	Rhyme	10 minutes	Bucket	25 minutes	How	Metre rulers	10 minutes	Metre rulers

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.

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).

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.

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.

Lesson title

Week 26: Length

Day 2: Centimetres

Clock/Metre ruler/ Rulers/Card/Twine

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	10 minutes	Metre ruler/ Ruler	25 minutes	Chart/Rulers/ Twine	How	10 minutes	Metre ruler

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.

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.

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		

Give each group a centimetre ruler and a piece of twine.

Teach How? Centimetre ruler, as shown left, and tell the pupils to take turns measuring one another.

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.

Lesson title

Week 26: Length

Day 3: Millimetres

Digital clock/
Rulers

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.

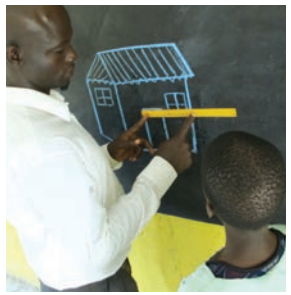
How? Measuring in millimetres

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:
8cm + 8cm + 5cm + 5cm = 26cm.

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.

Lesson title

Week 26: Length

Day 4: Fractions of a metre

Metre rulers/ Chart

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	15 minutes	How	Metre rulers	25 minutes	Metre rulers/ Chart	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).

Introduction

Group task

Give each group a metre ruler.

Take the class outside.

Teach How? Estimating metres, as shown left.

Main activity

Whole class teaching

Write on the chalkboard:

1km = ☐ m or ☐ cm

1m = ☐ cm or ☐ mm

1cm = ☐ 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?'

$\frac{1}{2}$ 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:

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

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

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.

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		

Lesson title

Week 26: Length

Day 5: Kilometres

Rulers/Metre rulers/ Objects

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	10 minutes	How	Rulers/ Metre rulers/ Objects	25 minutes	10 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.

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.

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:

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

$\square$ m = 0.5km

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

750m = $\square$ km

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

$\square$ m = $\square$ km

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

Grade/
Type of lesson plan

Lesson
title

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^2)
square metre (m^2)
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^2.

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

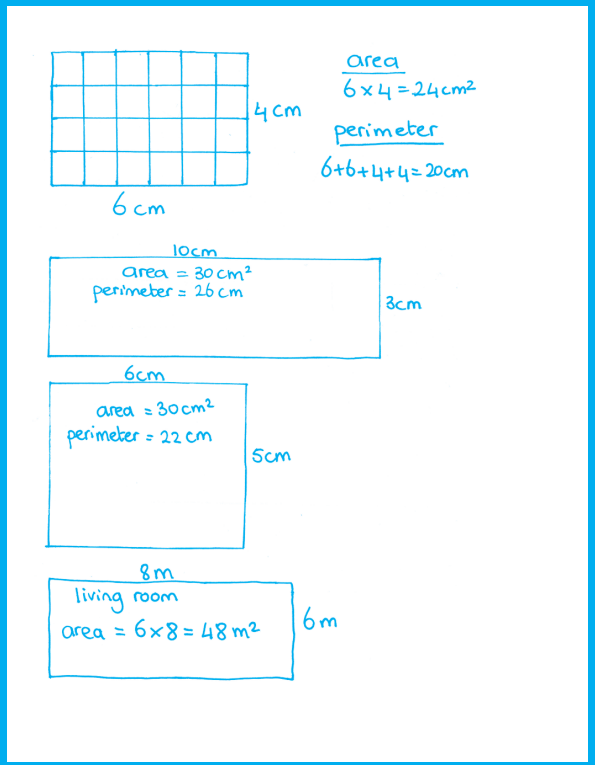
This pupil can:

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.



Lesson title

Week 27: Area and length

Day 1: Square centimetres

Card square/
Ruler

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	10 minutes	How	Card square	25 minutes	10 minutes	Ruler

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 x 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.

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.

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 rows of 4 squares =
3 x 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 x b.

Pair task

Write the following measurements on the chalkboard and ask the pairs to find the areas:
7cm by 4cm
9cm by 5cm
4cm by 5cm
8cm by 6cm
6cm by 7cm

Remind the pairs to write the answers in cm^2.

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.

Lesson title

Week 27: Area and length

Day 2: Perimeters and areas

Buckets/Balls/ Rulers

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	10 minutes	Ruler	25 minutes	Rulers	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.

Draw a rectangle on the chalkboard and ask the pupils to say the quick method for calculating area, ie: l x 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

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.

Lesson title

Week 27:
Area and length

Day 3:
Same area, different perimeter

Rulers

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

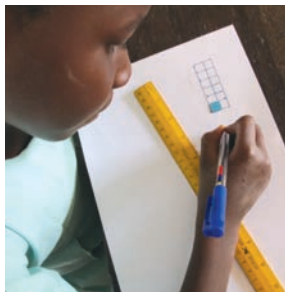
Before the lesson:

Have ready a card ruler for each pair.

Read How? Same area, different perimeter, as shown below.

How? Same area, different perimeter

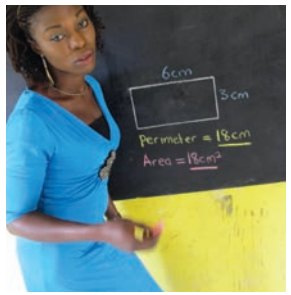
Draw a rectangle measuring 6cm by 2cm.



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	10 minutes	Rulers	25 minutes	How	Rulers	10 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 x 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.

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.

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 x 4, 12 x 2, 8 x 3.

Repeat with an area of 16cm^2.

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.

Plenary

Whole class teaching

Ask some pairs to say the measurements for the length and breadth of their rectangles, eg: 5cm x 4cm, 10cm x 2cm.

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

Lesson title

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.

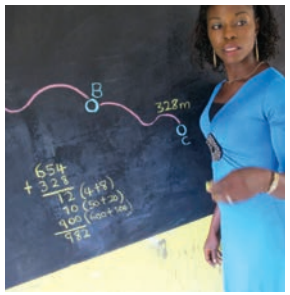
Preparation

Before the lesson:

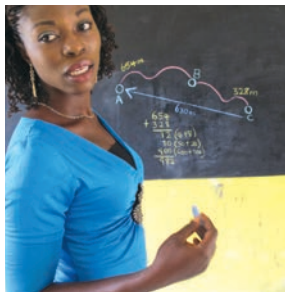
Read How? Length word problems, as shown below.

How? Length word problems

Explain on the chalk-board 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	10 minutes	How	25 minutes	10 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 x 8, 9 x 8, 9 x 9.

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

Introduction

Whole class teaching

Teach How? Length word problems, as shown left.

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: 35cm x 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: 9km ÷ 3 =, and calculate the answer.

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.

Plenary

Whole class teaching

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

Lesson title

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

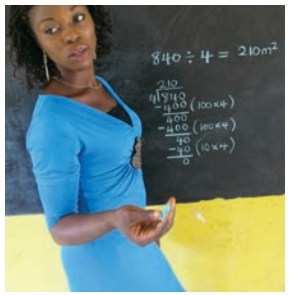
Before the lesson:

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 (÷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	10 minutes	How	25 minutes	10 minutes

Daily practice

Pair task

Write '56 x 70 =' on the chalkboard.

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

x	50	6
7	36	42

350 + 42 = 392

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

Repeat with 24 x 8 =

Write the following calculations on the chalk-board for the pairs to complete in their exercise books:
34 x 7 =
45 x 5 =

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.

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?'

Read and explain each question and ask the groups to say the calculations needed for each one (two calculations are needed for the second and third questions).

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

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:

2300gr = ☐ kg
6050gr = ☐ kg
2.8kg = ☐ gr
7.35kg = ☐ 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 0.08kg	75g = 0.075kg
book	450g 0.45kg	560g = 0.56kg
milk	40g 0.04kg	25g = 0.025kg

2.8kg = 2800g
7.35kg = 7350g

2300g = 2.3kg
6050g = 6.05kg

Lesson title

Scale balance/
Weights/Objects

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	10 minutes	How	Objects/ Scale balance	25 minutes	Weights/Objects/ Scale balance	Chart	10 minutes	Objects/Weights/ Scale balance

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.

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.

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.

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

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.

Lesson title

Week 28: Weight

Day 2: Making weights

Stones/Bags/
Scale balance/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	10 minutes	Weight/Bags/ Stones/Scale balance	25 minutes	How	10 minutes	Scale balance

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.

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.

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:

1kg = 1000g

$\frac{1}{2}$ of 1kg = ☐

$\frac{1}{4}$ of 1kg = ☐

$\frac{3}{4}$ of 1kg = ☐

$\frac{1}{10}$ of 1kg = ☐

$\frac{4}{10}$ of 1kg = ☐

Group task

Ask the groups to discuss the number of grams for each fraction and complete the statements in their exercise books.

Remind them that this is similar to the number of metres in a kilometre.

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.

Lesson title

Week 28: Weight

Day 3: Scales with dials

Dial scales/Weight bags/ Objects

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	10 minutes	How	25 minutes	Dial scales/ Weight bags/Objects	10 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.

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.

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.

Pair task

Ask the pairs to draw a table in their exercise books.

Tell them to estimate the weight of each object and write this in their table.

Let the pairs take turns to weigh the objects on the dial scales and write this in their table.

Remind them to use subtraction to calculate the difference between their estimates and the actual weights.

Plenary

Whole class teaching

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

Lesson title

Dial scales/
Scale dials

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	10 minutes	How	Dial scales	25 minutes	Scale dial/ Dial scales	10 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 + ☐ = 100

100 – ☐ = 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.

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.

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.

Group task

Write the following weights on the chalkboard and ask the groups to write them to the nearest kilogram in their exercise books:

88kg 70g
34kg 678g
20kg 5g
35kg 567g
99kg 980g

Explain that 550g is rounded up to the next kilogram.

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.

Lesson title

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.

1—10 number cards

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

Group task

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

Introduction

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

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

Ask the class to help you complete the following:

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

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

so it needs to move three decimal places = 0.005kg

Main activity

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 chalk-board 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.

Plenary

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 x 500 ml = 40.000 ml

40.000 ml = 40 l

40 l ÷ 20 l = 2

He needs two 20l dispensers.

Lesson title

Week 29: Capacity

Day 1: Litres

Capacity corner/Containers/
Litre bottle/Bucket/Water

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	10 minutes	Containers	25 minutes	How	Bucket/Water/ Containers	10 minutes	Containers/ Litre bottle/Water

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

Write the following questions on the chalkboard and ask the pairs to calculate the answers in their exercise books:

'How many minutes are there in 3 hours?'

'How many hours are there in 10 days?'

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.

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.

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.

Lesson title

Week 29: Capacity

Day 2: Measuring bottle

Bucket/Water/Bottles/ Masking tape

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	10 minutes	Bottle	25 minutes	How	Bottles/ Water	10 minutes	Bottles

Daily practice

Whole class teaching

Write on the chalkboard:

1cm = ☐ mm

1m = ☐ cm or ☐ mm

1km = ☐ m or ☐ cm

Ask some pupils to write in the missing numbers.

Write the following on the chalkboard:

$\frac{1}{2}$ of 1km = ☐

$\frac{1}{4}$ of 1km = ☐

$\frac{3}{4}$ of 1km = ☐

$\frac{4}{10}$ of 1km = ☐

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

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'.

Write the following on the chalkboard:

$\frac{1}{2}$ of 1l = ☐

$\frac{1}{4}$ of 1l = ☐

$\frac{3}{4}$ of 1l = ☐

$\frac{4}{10}$ of 1l = ☐

Choose some pupils to say the answers in millilitres.

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

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.

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.

Lesson title

Week 29: Capacity

Day 3: Measuring jugs

Measuring jug/Bottles/ Bucket/Water/100ml containers

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	10 minutes	25 minutes	How	Measuring jug/ 100ml containers/ Bottles/Water	10 minutes	Bottles

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).

Introduction

Whole class teaching

Write on the chalkboard:
□ ml = 1l

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:

$\frac{1}{2}$ of 1l = □ ml = 0.500l

$\frac{1}{4}$ of 1l = □ ml = □ l

$\frac{3}{4}$ of 1l = □ ml = □ l

$\frac{1}{10}$ of 1l □ ml = 0.100l

$\frac{4}{10}$ of 1l □ ml = 0.400l

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

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.

Lesson title

Week 29: Capacity

Day 4: Measuring capacity

Bottles/Bucket/Water/ Containers/Masking tape

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	10 minutes	How	Bottles/ Containers/Water	25 minutes	Chart/Bottles/ Containers/Water	10 minutes	Containers

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.

Introduction

Group task

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

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

Teach How? Estimating capacity, as shown left, in photos three to five.

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.

Lesson title

Teaspoon/ Word problems

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:

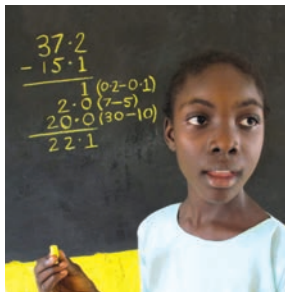
Write the word problems, shown opposite in the main activity, on to the chalkboard.

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.

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.

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 ÷ 5).

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?'

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.

Grade/
Type of lesson plan

Lesson
title

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

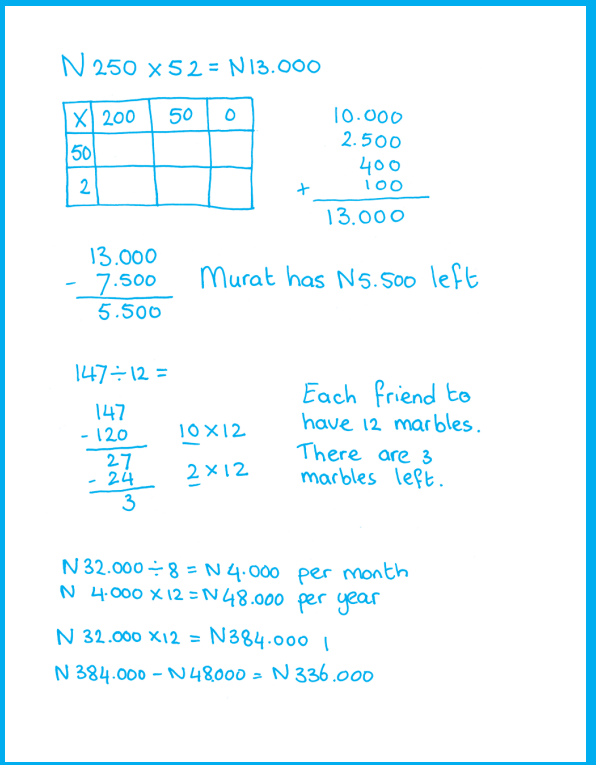
2
Sarah gives a party for 12 friends. She has 147 marbles to share. How many can she give each friend? Are there any marbles left?

3
Precious 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.



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 subtraction word problems involving three-digit numbers.

Preparation

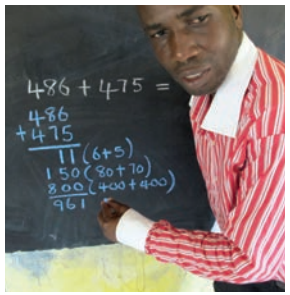
Before the lesson:

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	10 minutes	How	25 minutes	Problems	10 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.

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.

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.

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.

Plenary

Whole class teaching

Choose some groups to explain their calculations on the chalkboard.

Lesson title

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.

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 ='

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 x 6 =

Main activity

Group task

Write the following word problems on the chalkboard:

'Samson travels 50.8km. Joseph travels 3 times as far. How far does Joseph 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?'

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.

Plenary

Whole class teaching

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

Lesson title

Week 30: Revision

Day 3: Division using repeated subtraction

Buckets/ Balls

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.

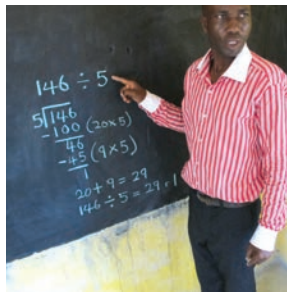
Read How? Repeated subtraction, as shown below.

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 sometimes remainders.

Repeat with 154 ÷ 7 =

15 minutes	Buckets/ Balls	10 minutes	25 minutes	How	10 minutes

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 x 4?'

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

Ask the pupils, 'What is 200 x 6?'

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

Write the following calculations on the chalkboard for the pupils to complete in their exercise books:
90 x 6 =
400 x 7 =
30 x 8 =
700 x 9 =

Main activity

Whole class teaching

Write, '198 ÷ 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 ÷ 7 =
198 ÷ 9 =
684 ÷ 6 =
187 ÷ 8 =

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

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.

Lesson title

Week 30: Revision

Day 4: Fractions

Ball

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.

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 ÷ 4 = 6 and 3 x 6 = 18)

Pair task

Write the following on the chalkboard:

$\frac{1}{4}$ of 48 = ☐

$\frac{3}{4}$ of 48 = ☐

$\frac{1}{8}$ of 48 = ☐

$\frac{5}{8}$ of 80 = ☐

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:

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

'Tola 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.

Lesson title

Word problems/ 3D shapes

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:

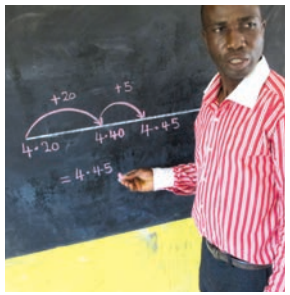
Write the word problems, shown opposite in the main activity, on the chalkboard.

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

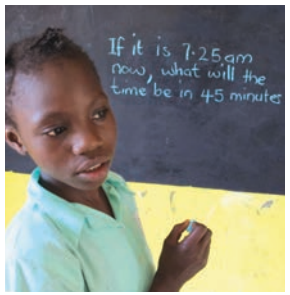
Read How? Time number line, as shown below.

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?'

'Bode 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 x 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.

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

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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