Numeracy lesson plans
Primary 5, term 2, weeks 16—20
Estimating measure, reflecting shape and collecting data

Numeracy lesson plans
Primary 5,
term 2, weeks 16—20
Estimating measure, reflecting shape and collecting data

Introduction

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

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

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

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

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

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

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

Tajudeen A Gambo
Honourable Commissioner for Education, Kano State

Wada Zakari
Executive Chairman, SUBEB, Kano State

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

How?

How

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

Learning expectations

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

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 which 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 to understand the ideas.

Plenary

Finishes the lesson with different ways of reviewing learning.

Weekly page

Primary 5, numeracy lesson plans

Week 16:

Division

Words/phrases

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

division
repeated subtraction
short division
remainder
common factor
common multiple

Learning expectations

By the end of the week:

All pupils will be able to:
Divide a two-digit number by a single-digit number.

Most pupils will be able to:
Divide three-digit numbers by two-digit numbers.

Some pupils will be able to:
Divide three-digit numbers by two-digit numbers, including a remainder.

Instructions:

Ask the individual pupils to complete these tasks in their exercise books.

1
Use times table knowledge to solve the following sum:
81 ÷ 9 =

2
Use the vertical method to solve the following sums:
168 ÷ 24 =
603 ÷ 7 =

3
Choose your own method to solve the following sums:
318 ÷ 6 =
468 ÷ 56 =

This pupil can:

Use the times tables to solve simple division sums.

Solve division sums using the short method.

Solve division sums with a remainder.

1   $81 \div 9 = 9$

2   $168 \div 24 =$

$$
\begin{array}{r}
168 \\
-\ 48 \quad (2 \times 24) \\
\hline
120 \\
-\ 96 \quad (4 \times 24) \\
\hline
24 \\
-\ 24 \quad (1 \times 24) \\
\hline
0
\end{array}
$$

$2 + 4 + 1 = 7$

answer $168 \div 24 = 7$

3   $318 \div 6 =$

$5 \times 6 = 30$
$50 \times 6 = 300$

$$
\begin{array}{r}
53 \\
6\,\overline{)318} \\
-\ 300 \quad (50 \times 6) \\
\hline
18 \\
-\ 18 \quad (3 \times 6) \\
\hline
0
\end{array}
$$

answer $318 \div 6 = 53$

Week 16:
Division

Day 1:
Dividing by 10 and 100

Learning outcomes

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

Use times tables to solve division calculations.

Divide decimal numbers by 10 and 100.

Preparation

Before the lesson:

Have ready nine counters for each pair.

Prepare the question cards from today's introduction, opposite.

Read How? Division bingo, as shown below.

How? Division bingo

Write the answers to the question cards and give out the counters to each pair.

Ask the pairs to draw a 3 x 3 grid in their exercise books.

Ask them to choose 9 numbers from the chalkboard and write one in each square.

Ask questions from the cards. If pairs have the answer they should cover it with a counter.

The first pair to cover all their numbers correctly should shout 'Bingo!'

Daily practice	Introduction	Main activity		Plenary

Individual task

Remind the class that we can use times tables to work out division sums.

Write '56 ÷ 7 =' on the chalkboard.

Ask the pupils what multiplication fact they can use to solve this, ie:
7 x 8 = 56 so 56 ÷ 7 = 8.

Write the following calculations on the chalkboard for the pairs to complete in their exercise books:
72 ÷ 9 =
54 ÷ 6 =
42 ÷ 7 =
72 ÷ 8 =
72 ÷ 6 =
108 ÷ 9 =

Whole class teaching

Ask the class, 'What happens when a number is divided by 10?, 'What happens when a number is divided by 100?' (The numbers becomes 10 times and 100 times smaller.)

Teach How? Division bingo, as shown left, using the following question cards:
160 ÷ 10 =
160 ÷ 100 =
300 ÷ 10 =
300 ÷ 100 =
472 ÷ 10 =
472 ÷ 100 =
509 ÷ 10 =
509 ÷ 100 =
29.8 ÷ 10 =
29.8 ÷ 100 =
56.3 ÷ 10 =
56.3 ÷ 100 =

Whole class teaching

Write the following calculations on the chalkboard:
54.3 ÷ 10 =
923.1 ÷ 100 =
63.2 ÷ 10 =
652.5 ÷ 100 =

Invite some pupils to write the answers on the chalkboard, explaining how they worked it out.

Individual task

Write the following division calculations on the chalkboard:
64.1 ÷ 10 =
465.3 ÷ 10 =
124.6 ÷ 100 =
154.10 ÷ 100 =
433.2 ÷ 100 =
624.1 ÷ 100 =
383.40 ÷ 10 =
546.27 ÷ 100 =

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

Whole class teaching

When most of the pupils have finished, tell the pupils to exchange books with their partner.

Ask one pupil to read out the answers. If the class agrees, they should mark it with a small tick.

Week 16:
Division

Day 2:
Dividing three-digit numbers

Learning outcomes

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

Find common multiples of whole numbers.

Divide three-digit numbers by single-digit numbers.

Preparation

Before the lesson:

Copy the division calculations from today's main activity, shown right, on to the chalkboard.

Read How? Finding common multiples 1, as shown below.

How? Finding common multiples 1

Choose some pupils to write multiples of 4 and 6 on the chalkboard.

Choose some pupils to underline multiples that are in both times tables.

Draw a Venn diagram on the chalkboard.

Write the common multiples of 4 and 6 in the centre of the diagram and explain why.

Write the other multiples of 4 and 6 in the first and last segments of the diagram.

Daily practice	Introduction	Main activity	Plenary

Whole class teaching

Ask the pupils to discuss the multiples of 5 with a partner (5, 10, 15, 20, 25, 30, 35, 40, 45, 50).

Ask the pupils to discuss the multiples of 6 with a partner (6, 12, 18, 24, 30, 36, 42, 48).

Teach How? Finding common multiples 1, as shown left.

Explain that the numbers in the middle of the Venn diagram are called the 'common multiples'.

Choose some pupils to repeat this for the 5 and 10 times tables and then the 3 and 9 times tables.

Pair task

Remind the pupils that they have been dividing using repeated subtraction and their times table knowledge.

Write '516 ÷ 6 =' on the chalkboard.

Choose some pupils to help you answer the calculation.

Whole class teaching

Look together at the following calculations on the chalkboard:
275 ÷ 5 =
711 ÷ 9 =
336 ÷ 7 =
448 ÷ 8 =
553 ÷ 7 =

Ask the pupils to complete these sums in their exercise books using repeated subtraction.

Whole class teaching

Play the circle game.

Ask the pupils to stand in a circle and count round the circle in the 5 times table.

Go round again, starting with a different pupil.

Repeat, counting in sixes.

Remind the pupils that multiplication is the inverse (opposite) of division and can help us to work out division problems.

Week 16:
Division

Day 3:
Division with a remainder

Learning outcomes

Preparation

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

Find common multiples of whole numbers.

Divide three-digit numbers by single-digit numbers with a remainder.

Before the lesson:

Copy the division calculations from today's main activity, shown right, on to the chalkboard.

Read How? Finding common multiples 2, as shown below.

How? Finding common multiples 2

Choose some pupils to write the multiples of 3 and 8 on the chalkboard.

Choose some pupils to underline the common multiples.

Draw a Venn diagram on the chalkboard.

Ask, 'What are the common multiples of 3 and 8?' Write them in the centre.

Write the other multiples of 3 and 8 in the correct places.

Daily practice	Introduction	Main activity		Plenary

Pair task	**Whole class teaching**	**Whole class teaching**	**Individual task**	**Whole class teaching**
Ask the pupils to discuss the multiples of 3 with a partner (3, 6, 9, 12).	Ask the pupils, 'How many fives are there in 48?' (9)	Write '336 ÷ 7 =' on the chalkboard and choose a pupil to answer it, explaining each step as they go.	Ask the pairs to complete the following calculations in their exercise books, using repeated subtraction:	When most of the pupils have finished, tell the pupils to exchange books with their partner.
Ask them to discuss the multiples of 8 with a partner (8, 16, 24).	Tell them that sometimes things cannot be shared equally and there is a remainder.		$614 \div 9 =$ $542 \div 5 =$ $498 \div 8 =$ $763 \div 6 =$	Ask one pupil to read out the answers. If the class agrees, they should mark it with a small tick.
Teach How? Finding common multiples 2, as shown left.	Write the following on the chalkboard: '48 ÷ 5 = 9 r3'.		Remind the pupils to make the multiples they subtract as big as they can.	
Repeat for the common multiples of 3 and 6.	Explain that this is how we write an answer with a remainder.			
	Invite some pupils to the chalkboard to work out: $44 \div 7 =$ $59 \div 8 =$			

Week 16:
Division

Day 4:
Dividing by two-digit numbers

Learning outcomes

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

Find factors of whole numbers.

Divide three-digit numbers by two-digit numbers.

Preparation

Before the lesson:

Copy the division calculations from today's main activity, shown right, on to the chalkboard.

Read How? Noughts and crosses, as shown below.

How?
Noughts and crosses

Draw a 3 x 3 grid on the chalkboard.

Add a different calculation in each square, using +, −, x or ÷

Choose one pupil to be 'O' and another to be 'X'.

Ask them to choose a square. If they answer the question correctly, they win the square.

Explain that the first person to get three correct answers in a line wins the game.

| **Daily practice** | **Introduction** | **Main activity** | **Plenary** |

Whole class teaching

Ask the pupils to discuss with a partner what a factor is.

Look at the factors of 45 together (3, 5, 9, 15).

Choose some pupils to write the factors of 30, 52 and 64 on the chalkboard.

Tell the pupils to write the factors of 36, 48 and 72 in their exercise books.

Whole class teaching

Remind the pupils that using our times table knowledge helps with division.

Demonstrate the following calculation on the chalkboard:
$276 \div 23 =$

```
  H  T  U
  2  7  6
− 2  3  0  (10 x 23)
     4  6
−    4  6  (2 x 23)
        0
```

Write the answer:
$276 \div 23 = 12$

Repeat with another calculation:
$564 \div 12 =$

Pair task

Ask the pupils to complete the following calculations in their exercise books using repeated subtraction:
$427 \div 15 =$
$625 \div 14 =$
$516 \div 24 =$
$735 \div 16 =$

Remind the pupils to begin by subtracting multiples of 10.

Whole class teaching

Teach How? Noughts and crosses, as shown left.

Play several times with different pupils, changing the calculations.

Week 16:
Division

Day 5:
Short division

Learning outcomes

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

Find number facts.

Divide three-digit numbers by single-digit numbers using short division.

Preparation

Before the lesson:

Copy the division calculations from today's main activity, shown right, on to the chalkboard.

Have ready a set of 0—9 number cards for each group.

Read How? short division, as shown below.

How?
Short division

Remind the pupils that they have been dividing using repeated subtraction.

Explain a similar method, short division. Copy the sum shown on to the chalkboard.

Demonstrate where to write the 3 Tens from 30 x 5 = 150.

Demonstrate where to write the 6 Units from 6 x 5 = 30.

Write the answer and discuss the similarities and differences between the two methods.

| **Daily practice** | **Introduction** | **Main activity** | | **Plenary** |

Group task

Write '55' on the chalk-board and ask, 'What facts do you know about this number?' (11 x 5 = 55, 100 – 45 = 55, 25 + 30 = 55, 110 ÷ 2 = 55)

Give each group a set of 0—9 number cards.

Explain that one pupil will choose two cards and the group will record as many facts about that number as they can.

Tell them to include at least one +, –, x and ÷ calculation for each number.

Whole class teaching

Teach How? Short division, as shown left.

Whole class teaching

Demonstrate short division with another calculation:
534 ÷ 9 =

$$
\begin{array}{r}
5\ 9 \\
9\overline{\smash{)}5\ 3\ 4} \\
-\ \underline{4\ 5\ 0}\quad(50 \times 9) \\
8\ 4 \\
-\ \underline{8\ 1}\quad(9 \times 9) \\
3
\end{array}
$$

Write the answer:
534 ÷ 9 = 59 r3

Pair task

Ask the pupils to complete the following calculations in their exercise books, using short division:
245 ÷ 6 =
344 ÷ 8 =
258 ÷ 7 =
627 ÷ 9 =

Pair task

Play noughts and crosses in the same way as yesterday (Day 4), changing the calculations.

When the pupils have played this several times, they can play in small groups.

Weekly page

Primary 5, numeracy lesson plans

Week 17:

2D shapes

Words/phrases

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

measure
line of symmetry
mirror line
reflect
reflection
regular polygons
tangram
perimeter
angles
properties

Learning expectations

By the end of the week:

All pupils will be able to:
Find lines of symmetry on a range of 2D shapes.

Most pupils will be able to:
Draw the reflection of simple shapes in a mirror line.

Some pupils will be able to:
Draw the reflection of more complex shapes in a mirror line.

Assessment task

Instructions:

Ask individual pupils to complete these tasks in their exercise books.

1
Draw a rectangle and add two lines of symmetry.

2
Draw the reflection of the following shape:

3
Draw the reflection of the following shape:
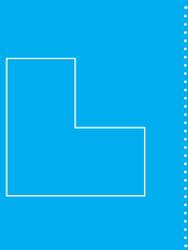
Example of a pupil's work

This pupil can:

Draw a rectangle with two lines of symmetry.

Draw the reflection of a triangle touching the mirror line.

Draw the reflection of a more complex shape.
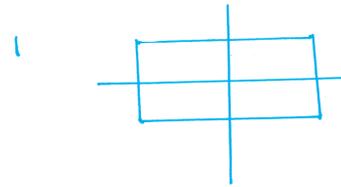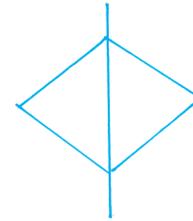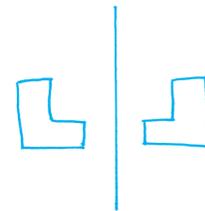
Week 17:
2D shapes

Day 1:
Symmetry

Learning outcomes

Preparation

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

Explain the properties of 2D shapes.

Find lines of symmetry in 2D shapes.

Before the lesson:

Have ready a ruler and a set of large 2D shape cards for each group (square, rectangle, parallelogram, rhombus, trapezium and kite).

Copy the 2D shapes from today's plenary, shown opposite, on to the chalkboard.

Read How? Lines of symmetry, as shown below.

How? Lines of symmetry

Fold the large rhombus in half.

Open it and draw the line of symmetry.

Fold it in half a different way and draw another line of symmetry.
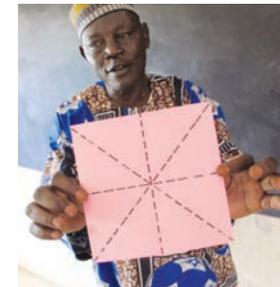
Explain that some shapes have many lines of symmetry, eg: squares, circles.

Explain that some shapes have no lines of symmetry, eg: irregular shapes.

Daily practice

Group task

Show the pupils a set of 2D shape cards and ask them to name them.

Remind the pupils that we describe shapes by their properties.

Hold up the rhombus and say, 'This is a rhombus because all sides are of equal length, opposite sides are parallel and diagonally opposite angles are equal.'

Give each group a set of large 2D shape cards.

Ask them to find the properties of each shape.

Tell them to discuss the angles, sides and diagonals of each shape.

Introduction

Whole class teaching

Remind the pupils that if a shape can be folded into equal parts it is symmetrical.

Teach How? Lines of symmetry, as shown left.

Draw some irregular shapes on the chalkboard to demonstrate shapes that have no lines of symmetry.

Main activity

Group task

Ask the groups to look at their 2D shape cards.

Tell the groups to draw the lines of symmetry on their shapes.

Ask each group to say how many lines of symmetry they found for each shape.

Ask the other groups if they agree. If not, ask them to explain why.

Continue this activity until all the shapes have been discussed.

Plenary

Whole class teaching

Ask the pairs to look at the 2D shapes on the chalkboard.

Ask them to discuss the lines of symmetry in the shapes.

Invite some pairs to the chalkboard to draw on the lines of symmetry.

Ask the class if they agree. If not, ask them to explain why.

2D shapes
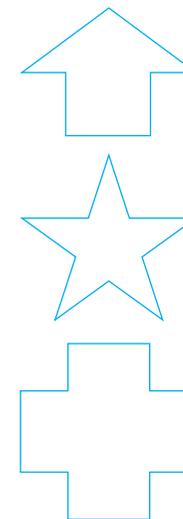
Week 17:
2D shapes

Day 2:
Tangram

Learning outcomes

Preparation

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

Measure and draw quadrilaterals accurately.

Create shapes using tangram pieces.

Before the lesson:

Have ready a 16cm x 16cm square card.
Have ready a ruler for each pupil.

Prepare a large card tangram and a smaller tangram for each group.

Read How? Making a tangram, as shown below.

How?
Making a tangram

Draw a 16cm x 16cm square on paper or card and make the tangram shape.

Cut along the thick lines so that you have seven shapes.

Look at the different shapes in the tangram and ask, 'What shape is this?'

Arrange the shapes in different ways to make a pattern.

Daily practice

Whole class teaching

Ask the pupils to discuss how many different 2D shapes they know.

Draw the following shapes on the chalkboard and look at them with the pupils:

2D shapes

10cm

6cm

12cm

7cm

Ask the pupils to draw one of the shapes carefully in their exercise books, using a ruler.
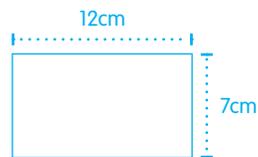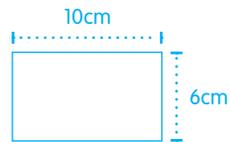
Introduction

Whole class teaching

Explain that a 'tangram' is an ancient Chinese seven-piece puzzle, as shown below.

Teach How? Making a tangram, as shown left.

Tangram puzzle
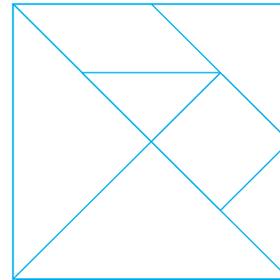
Main activity

Group task

Give each group a set of tangram pieces.

Ask them to make shapes or design pictures using all of the pieces.

Explain that they must use all of the shapes and the shapes must touch each other.

Plenary

Whole class teaching

Ask the groups to lay their designs out for everyone to see.

Tell the pupils to move around the class and look at what other pupils have made.

Keep the tangram pieces safely to use again tomorrow.

Week 17:
2D shapes

Day 3:
More regular plane shapes

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

Calculate the perimeter of regular polygons.

Find lines of symmetry in regular polygons.

Before the lesson:

Prepare a set of pentagon, hexagon, heptagon and octagon shapes for each group and copy the symmetry chart, shown opposite, on to the chalkboard.

Have ready a set of tangram pieces for each group from Week 17, Day 2 (yesterday).

Read How? Regular polygons, as shown below.

**How?
Regular polygons**

Show the pupils the pentagon and the hexagon and count the number of sides.

Show the pupils the heptagon and the octagon and count the number of sides.

Fold the pentagon to find out how many lines of symmetry it has.

Fold the octagon to find out how many lines of symmetry it has.

Daily practice | Introduction | Main activity | Plenary

Pair task

Remind the pupils that the 'perimeter' of a shape is the total distance around the outside of that shape.

Ask the pupils to work out the perimeter of the following shapes:

Regular polygons

7cm

9cm

Explain to the pupils that these shapes are called 'regular polygons'.
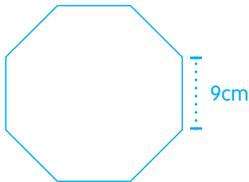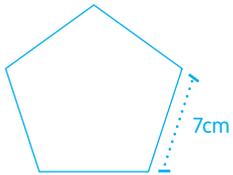
Whole class teaching

Ask the pupils to discuss the different 2D shapes they know.

Explain that many-sided 2D shapes are called 'polygons', eg: pentagon, heptagon, hexagon, octagon.

Teach How? Regular polygons, as shown left.

Ask, 'How many sides does a hexagon have?', 'How many lines of symmetry does a pentagon have?'

Pair task

Tell the pupils to look carefully at their regular polygon shapes.

Ask them to complete the symmetry chart, shown below, in their exercise books.

Symmetry chart

Polygon	Number of sides	Lines of symmetry
Pentagon		
Hexagon		
Heptagon		
Octagon		

Group task

Give each group a set of tangram pieces.

Choose some pupils to name the different shapes in the tangram puzzle.

Ask them to make shapes or design pictures using all of the pieces.

Remind them that the shapes must touch each other.

Week 17:
2D shapes

Day 4:
Reflecting shapes

Learning outcomes

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

Calculate the perimeter of regular shapes.

Sketch the reflection of simple shapes.

Preparation

Before the lesson:

Copy the shapes for reflection, shown opposite, on to the chalkboard.

Have ready a set of tangram pieces from Week 17, Day 2 for each group.

Read How? Reflecting shapes, as shown below.

How?
Reflecting shapes

Draw a shape on the chalkboard.

Draw a dotted line and explain that it represents a mirror. It is a 'mirror line'.

Draw the reflection on the other side of the mirror line.

Explain that both shapes are the same distance from the mirror line.
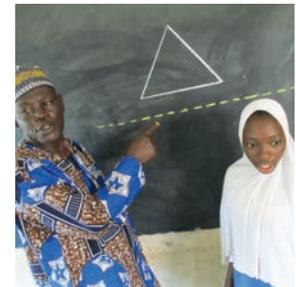
Repeat with another shape and ask a pupil to explain where the shape will be reflected.

Daily practice

Pair task

Write the following on the chalkboard: 'If the perimeter of a regular pentagon is 50cm, what is the length of each side?'

Remind the pupils that the length of each side will be equal and the calculation will be: 50cm ÷ 5 =

Choose a pupil to work out the answer.

Ask the pairs to work out the following: 'If the perimeter of a regular octagon is 88cm, what is the length of each side?'

Choose some pairs to give their answers and explain how they solved the problem.

Introduction

Whole class teaching

Remind the class that a line of symmetry divides a shape in half so that one half is a mirror image (reflection) of the other.

Teach How? Reflecting shapes, as shown left.

Point out that the reflected shape does not touch the mirror line unless the original shape does.

Main activity

Individual task

Ask the pupils to copy the shapes for reflection into their exercise books, leaving space for mirror lines and reflections.

Ask them to draw a mirror line and reflection for each shape.

Remind them that a reflected shape is the same size as the original but flipped over (reversed) on the opposite side of the mirror line.

Choose two or three pupils to share their work with the class and ask the class to say if they are correct.

Shapes for reflection
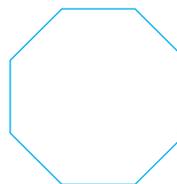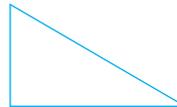
Plenary

Group task

Give each group a set of tangram pieces.

Choose some pupils to name the different shapes in the tangram puzzle.

Ask them to make shapes or design pictures using all of the pieces.

Remind them that the shapes must touch each other.

Week 17:
2D shapes

Day 5:
Mirror lines

Learning outcomes

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

Draw a shape from the perimeter measurement.

Sketch the reflection of simple shapes.

Preparation

Before the lesson:

Copy the shapes for reflection, shown opposite, on to the chalkboard.

Read How? Reflecting shapes 2, as shown below.

How? Reflecting shapes 2

Draw a shape on the chalkboard.

Draw a dotted line and remind the pupils that it is a mirror line.

Draw the reflection on the other side of the mirror line.

Explain that this shape touches the mirror line.

Repeat with another shape and ask a pupil to explain where the reflection will go.

Daily practice	Introduction	Main activity		Plenary

Whole class teaching

Write the following on the chalkboard:
25cm
38cm
8cm

Ask the pupils to draw three shapes that have these measurements as their total perimeter, eg: 25cm could be a pentagon with 5cm sides.

Whole class teaching

Teach How? Reflecting shapes 2, as shown left.

Individual task

Ask the pupils to copy the shapes for reflection into their exercise books, leaving space for mirror lines and reflections.

Ask them to draw a mirror line touching each shape and then draw the reflection in the correct place.

Remind them that a reflected shape is the same size as the original but flipped over (reversed).

Choose two or three pupils to share their work with the class and ask the class to say if they are correct.

Shapes for reflection
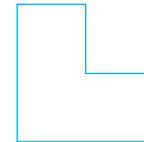
Individual task

Explain that you are going to have a class quiz.

Ask the following questions and tell the pupils to write down the answers:

'How many sides does an octagon have?'

'How many angles does a triangle have?'

'Which has more sides: a hexagon or a pentagon?'

'How many pairs of parallel lines does a trapezium have?'

'Name four polygons.'

Discuss the answers.

Ask, 'Who got more than half of the answers right?'. Congratulate them.

Weekly page

Primary 5, numeracy lesson plans

Week 18:

Capacity

Words/phrases

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

capacity
estimate
measure
container
litre (l)
millilitre (ml)
scale
interval

Learning expectations

By the end of the week:

All pupils will be able to:
Read a simple scale on a measuring jug.

Most pupils will be able to:
Convert millilitres to litres, and litres to millilitres.

Some pupils will be able to:
Solve two-step capacity word problems.

Assessment task

Instructions:

Ask individual pupils to complete these tasks in their exercise books.

1
Convert the following measurements from millilitres to litres:
5000ml
650ml
85ml

2
Convert the following measurements from litres to millilitres:
6 litres
0.4 litres
4.75 litres

3
Solve the following word problem:
Kali drinks one 330ml bottle of Coke every day. How much will he drink in:
1 week
1 month
1 year

Example of a pupil's work

This pupil can:

Convert units of measure for capacity, millilitres to litres and litres to millilitres.

Use multiplication to solve a two-step word problem.

1 5000 ml = 5 litres
   650 ml = 0.65 litres
   85 ml   = 0.085 litres

2 6 litres   = 6000 ml
   0.4 litres = 400 ml
   4.75 litres = 4750 ml

3 7 × 330 ml = 2310 ml = 2.31 l
   30 × 330 ml = 9900 ml = 9.9 l
   12 × 9.9 l = 118.8 l

X	300	30
7	2100	210

   2100
 + 210
   2310

X	300	30
30	9000	900

   9000
 + 900
   9900

Week 18: Capacity

Day 1: Estimating capacity

Learning outcomes

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

Calculate the area of a rectangle.

Estimate and measure in litres.

Preparation

Before the lesson:

Make a capacity corner using empty containers with different capacities, eg: bottles, buckets, cups, spoons.

Read How? Estimating capacity, as shown below, and have ready a cup for each group and a bucket of water.

How? Estimating capacity

Look at different containers in the capacity corner.

Ask, 'How many cups of water do you think we need to fill a 1 litre bottle?'

Record the pupils' ideas in a table on the chalkboard.

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

Repeat with another container from the capacity corner.

Daily practice

Individual task

Ask the pupils, 'Can you remember how to find the area of a rectangle?' (length x breadth, l x b)

Draw the rectangles, shown below, on the chalkboard.

Ask the pupils to work out the areas and write the answers in cm².

Rectangles

8.5cm
5cm

12cm
10cm
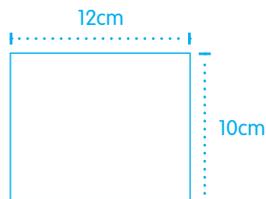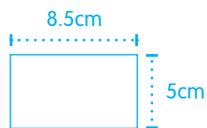
Introduction

Whole class teaching

Remind the class that litres are one way we measure liquids.

Explain that litres can be divided into millilitres – there are 1000 millilitres in a litre.

Write the following on the chalkboard and ask pupils to say the answers in fractions of a litre:

1000ml = ☐ litre

750ml = ☐ litre

500ml = ☐ litre

250ml = ☐ litre

Ask, 'How many millilitres are there in the following?'

2 litres?

$2\frac{1}{2}$ litres?

$1\frac{1}{2}$ litres?

Teach How? Estimating capacity, as shown left.

Main activity

Group task

Copy the capacity chart, shown below, on to the chalkboard and ask the groups to draw it in their exercise books.

Give each group a range of containers and tell them to estimate the capacity of each in cups.

Give each group some water and a cup.

Tell them to fill their containers with cups of water and measure and record the results in the chart.

Capacity chart

Container	Estimate	Measure
Litre bottle		
Jug		
Tin		

Plenary

Whole class teaching

Draw the diagram, shown below, on the chalkboard.

Diagram

20 litres
15 litres
10 litres
5 litres
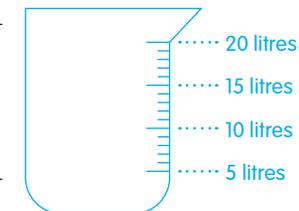
Ask the class to discuss these questions:

'If the container is half full, how much water is there?'

'If it is a quarter full, how many litres would it take to fill it?'

Week 18:
Capacity

Day 2:
Reading scales

Learning outcomes

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

Calculate the area of a rectangle.

Read scales on measuring jugs.

Preparation

Before the lesson:

Copy the reading scales from today's main activity, shown right, on to the chalkboard.

Read How? Reading scales, as shown below.

How? Reading scales

Look at the scale on a measuring jug and ask a pupil to say what the intervals are.

Remind them that they need to look carefully at each number.

Draw different scales on the chalkboard and discuss.

Choose some pupils to point to the 500ml and 750ml marks.

Daily practice

Whole class teaching

Draw the rectangles shown below on the chalkboard.

Ask the pupils to work out the area of the rectangles and write the answer as cm^2.

Rectangles

21cm

8.6cm

16.2cm

11cm
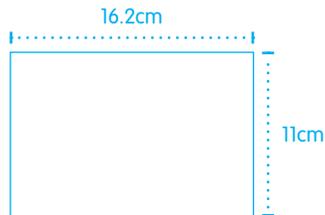
Introduction

Whole class teaching

Teach How? Reading scales, as shown left.

Main activity

Group task

Look at the following scale on the chalkboard.

Scale 1

1000ml
800ml
600ml
400ml
200ml
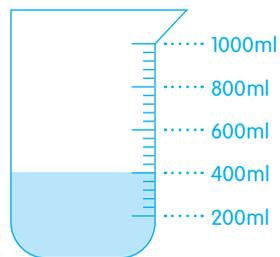
Ask, 'How many millilitres of liquid are there in this jug?'

Tell the pupils to discuss the answer and remind them that they need to look carefully at the intervals.

Choose one pupil to share their answer with the whole class.

Tell the groups to read the following scales and write the answers in their exercise books.

Scale 2

500ml
400ml
300ml
200ml
100ml

Scale 3

500ml
400ml
300ml
200ml
100ml

Plenary

Pair task

Ask the pairs to discuss what they would buy that measured 50ml, 250ml, 500ml and 5 litres.

Choose some pairs to share their answers with the whole class.
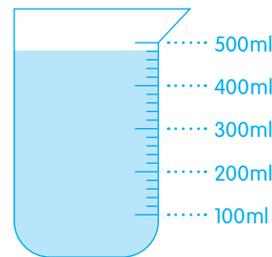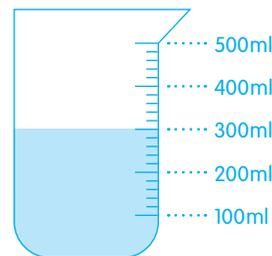
Week 18: Capacity

Day 3: Litres and millilitres

Learning outcomes

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

Calculate the area of compound shapes.

Convert millilitres to litres and litres to millilitres.

Preparation

Before the lesson:

Copy the reading scales from today's plenary, shown right, on to the chalkboard.

Read How? Compound shapes, as shown below.

How? Compound shapes
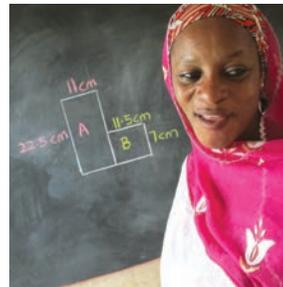
Draw rectangles (A) and (B) on the chalkboard and label the sides.

Ask, 'What is the formula to calculate the area for each shape?' (l x b).

Invite a pupil to calculate the answer for each shape (A and B).

Add the answers together to find the area of the compound shape.

Daily practice

Whole class teaching

Teach How? Compound shapes, as shown left.

Ask the pupils to work out the area of the compound shape shown below.

Compound shape

7cm

A   11.5cm

B   11cm

16.2cm
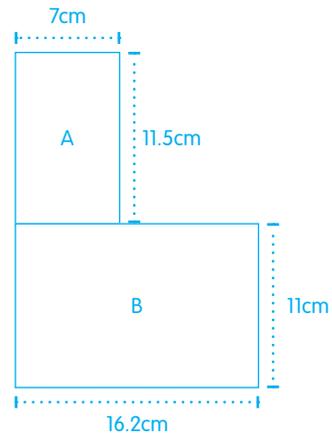
Introduction

Whole class teaching

Write the following on the chalkboard:

□ ml = 1 litre

Tell the pupils to explain to their partner how many millilitres there are in a litre.

Write the following on the chalkboard and ask the pupils to convert them to litres or millilitres:
1250ml
6.5 litres

Main activity

Pair task

Ask the pairs to convert the following to litres and write the answers in their exercise books:
1600ml
2500ml
1396ml
4550ml

Ask them to convert the following to ml and write the answers in their exercise books:

1.5 litres

0.5 litre

4750 litres

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

Plenary

Whole class teaching

Choose some pupils to look carefully at the scales on the chalkboard.

Remind them to look carefully at the intervals.

Ask, 'How many millilitres of liquid are there in this jug?'

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

Scale 1

500ml
400ml
300ml
200ml
100ml

Scale 2

500ml
400ml
300ml
200ml
100ml
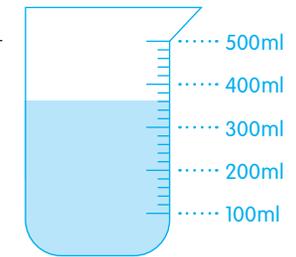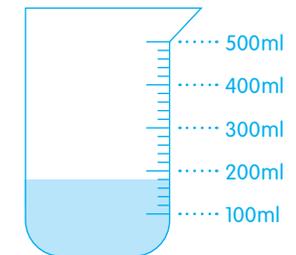
Week 18:
Capacity

Day 4:
Two-step
word problems

Learning outcomes

Preparation

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

Draw rectangles with the same area but sides of different lengths.

Solve capacity word problems.

Before the lesson:

Copy the word problems from today's main activity, shown right, on to the chalkboard.

Read How? Solving word problems, as shown below.

How? Solving word problems

Read the word problem together on the chalkboard.

Ask the pupils, 'What do we already know?' and underline the key information.

Ask them, 'What do we need to find out?' and write the calculation.

Remind them to answer the question.

10 minutes	15 minutes **How**	25 minutes	Word problems	10 minutes

Daily practice

Introduction

Main activity

Plenary

Group task

Ask the pupils, 'How many different rectangles can you draw with an area of 24cm^2?'

Tell the groups to think of the different factors of 24 and use them as the measurements, ie:
6cm x 4cm
12cm x 2cm
8cm x 3cm

Repeat, asking the groups to think of rectangles with an area of:
16cm^2
36cm^2
54cm^2

Whole class teaching

Write the following word problem on the chalk-board: 'A can of drink holds 275ml. How many litres are there in 8 cans?'

Teach How? Solving word problems, as shown left.

Pair task

Ask the pairs to discuss the calculations needed for the following word problems.

Remind them to ask the following questions about the problem:

'What do we already know?'

'What do we need to find out?'

Ask the pupils to write the answers to the problems in their exercise books:

'Mr Bala is making his famous sauce. He adds 60ml of a secret ingredient to the 475ml he already has. How much sauce does he have altogether?'

'If a bucket holds 10 litres of water, how many litres do 15 buckets hold?'

'A small carton of juice holds 320ml. A large carton holds five times as much. How much juice does the large carton hold?'

'A car petrol tank is empty. It can hold 62 litres. If a litre of petrol costs N92, how much will it cost to fill the tank?'

Whole class teaching

Choose some pairs to say their answers and explain how they completed the problem.

Ask if the class agrees. If not, ask them to explain why.

Week 18:
Capacity

Day 5:
Word problems

Learning outcomes

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

Convert millilitres to litres and litres to millilitres.

Solve capacity word problems involving two steps.

Preparation

Before the lesson:

Copy the word problems from today's main activity, shown right, on to the chalkboard.

Read How? Solving two-step word problems, as shown below.

How? Solving two-step word problems

Read the word problem on the chalk-board together.

Underline the key information.

Invite a pupil to work out step one.

Invite a pupil to work out step two.

Look back through each step of the calculation together.

Daily practice

Introduction

Main activity

Plenary

Pair task

Write the following on the chalkboard and ask the pairs to discuss which is more?

3.5 litres or 3200ml

750ml or $\frac{1}{2}$ litre

300ml or $\frac{1}{4}$ litre

Ask the pairs to convert the following to litres and write the answers in their exercise books:
1450ml
7400ml

Ask them to convert the following to ml and write the answers in their exercise books:
2.75 litres
0.7 litres
3350 litres

Whole class teaching

Write the following word problem on the chalkboard: 'There are 90 pupils in Primary 1. Each pupil drinks 250ml of water during the school break. How much water did they drink in two days?'

Teach How? Solving two-step word problems, as shown left.

Pair task

Ask the pairs to discuss the calculations needed for the following word problems.

Tell the pupils to solve the word problems in their exercise books:

'Mrs Aboki buys a 6 litre container of cooking oil. She uses 600ml each day when cooking kosai. How much does she have left after one week?'

'Yusef drinks a 330ml cup of coffee every morning. How much will he drink in one week? What is this in litres?'

'A full tank of water will fill 50 bottles. Each bottle holds 750ml. How much water does the tank hold in litres? How much water will there be in half a tank? How much water will there be in a quarter of a tank?'

Whole class teaching

Choose some pairs to say their answers and explain how they completed the problem.

Ask if the class agrees. If not, ask them to explain why.

Weekly page

Primary 5, numeracy lesson plans

Week 19: Statistics

Words/phrases

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

bar chart
tally
label
title
axis
axes
data
mode
median
range
common denominator

Learning expectations

By the end of the week:

All pupils will be able to:
Draw a bar chart.

Most pupils will be able to:
Find the range and mode of a set of data.

Some pupils will be able to:
Find the range, mode and median of a set of data.

Instructions:

Ask individual pupils
to complete these tasks in
their exercise books.

1
Use the shoe size
information to draw
a bar graph:

Shoe size	Number of pupils
3	6
4	4
5	7
6	7
7	14
8	9
9	3
10	2
11	1

2
Find the range,
mode and median of
the following data:
12, 5, 23, 6, 3, 8, 23,
11, 13

Example of a pupil's work

This pupil can:

Use information
to draw a bar graph.

Find the range,
mode and median
of a set of data.

1
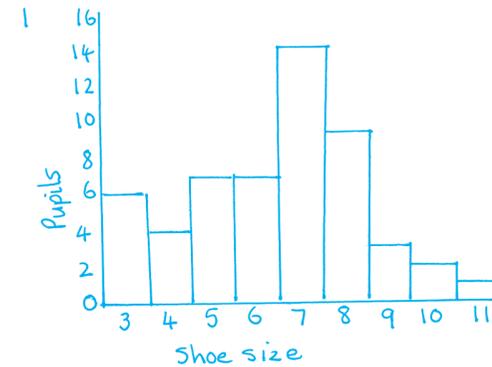
2   3, 5, 6, 8, 11, 12, 13, 23, 23

Range = 23 − 3 = 20
Mode = 23
Median = 11

Week 19:
Statistics

Day 1:
Bar charts

Learning outcomes

Preparation

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

Find fractions of whole numbers.

Understand information to draw a bar chart.

Before the lesson:

Copy the Primary 5 test score table, shown opposite, on to the chalkboard and keep it there for the week.

Have ready an A4 piece of paper and a ruler for each pair.

Read How? Drawing a bar chart, as shown below.

How?
Drawing a bar chart

Look at the test scores table together and look for the largest group of pupils.

Ask the pupils to think about the intervals for each axis.
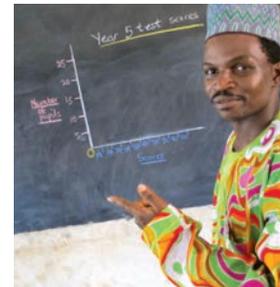
Remind the pupils that a bar chart needs a title and labels for each axis.

Invite a pupil to add the first piece of information to the bar chart.

| 10 minutes | 15 minutes | **How** | 25 minutes | Paper/ Rulers | 10 minutes | Bar charts |

Daily practice

Individual task

Remind the pupils that a fraction is part of a whole.

Write the following on the chalkboard and ask the pupils to write the answers in their exercise books:

$\frac{1}{2}$ of 20 =

$\frac{1}{2}$ of 46 =

$\frac{1}{4}$ of 20 =

$\frac{3}{4}$ of 20 =

$\frac{3}{4}$ of 40 =

Choose some pupils to share their answers with the class.

Introduction

Pair task

Ask the pairs to discuss the following questions:

'Name three different ways of recording number information.' (eg: pictogram, table, bar chart, graph, tally)

'What is a bar chart?'

'What kinds of information can be recorded in a bar chart?'

Teach How? Drawing a bar chart, as shown left.

Main activity

Pair task

Give each pair a piece of paper and a ruler.

Ask the pupils to work in pairs to finish adding the test score information to their own bar chart.

Remind the pairs that a bar chart needs a title, labels on the axes, a key and a scale.

Primary 5 test scores

Scores	Number of pupils
100	2
90	5
80	8
70	8
60	11
50	19
40	5

Plenary

Whole class teaching

Tell the pupils to put their bar charts on the table and invite the class to walk around and see how other pairs made their bar charts.

Keep the bar charts to work with tomorrow.

Week 19:
Statistics

Day 2:
Collecting data

Learning outcomes

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

Find fractions of whole numbers.

Draw a bar chart.

Preparation

Before the lesson:

Have ready the pupils' bar charts from Week 19, Day 1 (yesterday).

Have ready a large piece of paper and a ruler for each pair.

Read How? Collecting data, as shown below.

How? Collecting data

Remind the pupils that a tally chart is a quick way to gather information.

Ask, 'What is your favourite wild animal?' Write their ideas on the chalkboard.

Ask them to put up their hand if their favourite animal is an elephant.

Invite a pupil to record the answer on the tally chart.

Look at the information and ask, 'What can you tell me about this information?'

| **Daily practice** | **Introduction** | **Main activity** | **Plenary** |

Pair task

Remind the pupils to divide the numerator by the denominator to find a whole number from a fraction.

Explain how to find one fifth of 30:

$\dfrac{30}{5}$ = numerator = denominator

$30 \div 5 = 6$

$\dfrac{1}{5}$ of 30 = 6

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

$\dfrac{2}{5}$ of 50 =

$\dfrac{2}{5}$ of 75 =

$\dfrac{3}{5}$ of 100 =

$\dfrac{4}{5}$ of 175 =

Whole class teaching

Ask the pupils to look at their bar charts from yesterday.

Ask the following questions:

'How many pupils are there in that class?'

'What is the highest score in the class?'

'What is the most common score in the class?'

Teach How? Collecting data, as shown left.

Group task

Explain to the pupils that they will collect data from their group and make a bar chart with the information.

Tell them to ask each other, 'How many people live in your home?' and collect the information in a tally chart.

Tell the pupils they will then draw a bar chart to represent the information they have collected.

Whole class teaching

Choose some groups to show their bar charts and explain how they made them.

Week 19: Statistics

Day 3: Mode

Learning outcomes

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

Find the fraction of a whole number.

Find the mode of a set of numbers.

Preparation

Before the lesson:

Have ready the Primary 5 test scores table from Week 19, Day 1.

Copy the sets of data from today's main activity, shown opposite, on to the chalkboard.

Read How? Finding the mode, as shown below.

How? Finding the mode

Look at the set of numbers on the chalkboard.

Invite a pupil to underline the number that occurs most often.

The mode is 21 since it occurs three times.

Repeat with another set of data.

Daily practice	Introduction	Main activity		Plenary
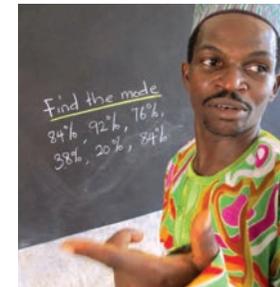
Individual task

Explain to the class that if we know that:

$\frac{1}{6}$ of 66 = 11

then we can work out that:

$\frac{2}{6}$ of 66 = 22

Write the following on the chalkboard and ask the pupils to write the answers in their exercise books:

$\frac{1}{6}$ of 60 =

$\frac{2}{6}$ of 36 =

$\frac{3}{6}$ of 24 =

$\frac{4}{6}$ of 72 =

Whole class teaching

Explain to the class that the 'mode' is the number that occurs most often in a set of data (information or numbers).

Teach How? Finding the mode, as shown left.

Whole class teaching

Look together at the test score table from Week 19, Day 1.

Ask, 'What is the mode?'

Choose a pupil to explain their understanding of mode.

Pair task

Look together at the sets of data on the chalkboard and ask the pairs to find the mode of each.

Tell them to write the answers in their exercise books:

Set 1
3, 6, 2, 4, 3, 5, 2, 8, 2, 5

Set 2
18, 15, 14, 15, 12, 18, 13, 15

Set 3
32°, 65°, 83°, 33°, 65°, 47°

Set 4
20, 56, 12, 20, 34, 23, 17

Set 5
37kg, 32kg, 35kg, 35kg, 30kg, 40kg

Whole class teaching

Go through the answers together as a class.

Choose some pupils to explain to the class how they worked out their answers.

Week 19: Statistics

Day 4: Range

Learning outcomes

Preparation

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

Add simple fractions with the same denominator.

Find the range of a set of numbers.

Before the lesson:

Copy the data sets from today's main activity, shown opposite, on to the chalkboard.

Have ready the Primary 5 test scores table from Week 19, Day 1.

Read How? Finding the range, as shown below.

How? Finding the range

Look at the set of data on the chalkboard.

Ask a pupil to arrange all the numbers in numerical order.

Ask a pupil to underline the smallest number.

Ask a pupil to underline the greatest number.

Explain that the difference between the smallest and the greatest number is the range.

Daily practice | Introduction | Main activity | | Plenary

Individual task

Ask the pupils to work out the following mentally:

What is $\frac{2}{3}$ of 9?

What is $\frac{1}{5}$ of 25?

Explain that adding fractions that have the same denominator is simple, that the 'common denominator' stays the same and we add the numerators together.

Write the folllowing on the chalkboard and ask the pupils to work them out:

$\frac{3}{10} + \frac{1}{10} =$

$\frac{4}{12} + \frac{6}{12} =$

Whole class teaching

Remind the pupils that yesterday they were looking at the mode of a set of data.

Teach How? Finding the range, as shown left.

Whole class teaching

Look together at the Primary 5 test scores table.

Ask, 'What is the range?'

Choose a pupil to explain their understanding of range.

Pair task

Look together at the sets of data on the chalkboard and ask the pairs to find the range of each.

Tell them to write the answers in their exercise books:

Set 1
9, 17, 8, 23, 7, 2, 12

Set 2
48, 37, 23, 54, 32, 28

Set 3
12°, 35°, 3°, 53°, 32°, 65°

Set 4
21, 66, 12, 40, 38, 26, 17

Set 5
17kg, 32kg, 49kg, 35kg, 30kg, 70kg

Whole class teaching

Go through the answers together as a class.

Choose some pupils to explain to the class how they worked out their answers.

Week 19:
Statistics

Day 5:
Range, mode and median

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

Subtract simple fractions with the same denominator.

Find the range, mode and median of a set of numbers.

Before the lesson:

Copy the sets of data from today's main activity, shown opposite, on to the chalkboard.

Read How? Finding the median, as shown below.

**How?
Finding the median**
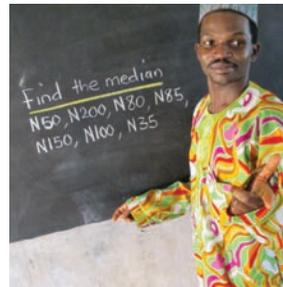
Look together at the set of data on the chalkboard.

Ask a pupil to arrange all the numbers in numerical order.

Ask a pupil to under-line the number in the middle. Explain that this is the median.

Repeat with another set of data.

| **Daily practice** | **Introduction** | **Main activity** | **Plenary** |

Individual task

Explain that subtracting fractions that have the same denominator is simple, that the common denominator stays the same and we subtract the numerators.

Write the folllowing on the chalkboard and ask the pupils to work them out:

$$\frac{5}{6} - \frac{1}{6} =$$

$$\frac{4}{8} - \frac{2}{8} =$$

$$\frac{7}{12} - \frac{3}{12} =$$

$$\frac{3}{9} - \frac{2}{9} =$$

Whole class teaching

Remind the pupils that they have been looking at data this week and have been finding the mode and the range.

Explain that they are now going to find the 'median'.

Teach How? Finding the median, as shown left.

Pair task

Look together at the sets of data on the chalkboard and ask the pupils to find the range, mode and median of each.

Ask the pupils to set out their answers in the following way, eg:
Data set
13, 18, 13, 14, 16, 21, 19
Range = 8 (21 – 13 = 8)
Mode = 13
Median = 16

Ask the pairs to write the answers in their exercise books:

Set 1
The football team scored the following number of goals in their games this season:
6, 2, 5, 9, 11, 4, 5, 8, 6, 7, 5.

Set 2
Class 2 kept a record of the temperatures in the classroom for 7 days:
23°, 29°, 19°, 24°, 21°, 29°, 28°.

Set 3
Bala ran every day last week. He ran 2km, 1km, 5km, 4km, 1km, 7km, 10km.

Whole class teaching

Go through the answers together as a class.

Choose some pupils to explain to the class how they worked out their answers.

Weekly page

Primary 5, numeracy lesson plans

Week 20: Weight

Words/phrases

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

weight
mass
estimate
lightest
heaviest
kilogram (kg)
gram (g)
scale

Learning expectations

By the end of the week:

All pupils will be able to:
Read simple dial scales.

Most pupils will be able to:
Convert grams to kilograms and kilograms to grams.

Some pupils will be able to:
Read a range of scales accurately.

Instructions:

Ask individual pupils to complete these tasks in their exercise books.

1
Convert the following measurements from grams to kilograms:
350g
1050g

2
Convert the following measurements from kilograms to grams:
2.5kg
12kg

3
Show the following dial to the pupils and ask them to say the weight that it shows.

0kg   100kg

4
Show the following scale line to the pupils and ask them where 500g would go.

0g   1000kg

This pupil can:

Convert units of measure for weight, grams to kilograms and kilograms to grams.

Understand where 500g is on a 0kg to 1kg number line.

Read a scale accurately.

1   350g = 0.35kg
    1050g = 1.05 kg

2   2.5 kg = 2500g
    12 kg   = 12000g

3   10kg

4   _____
    0g   ↑   1000g
             500g
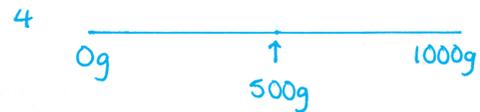
Week 20: Weight

Day 1: Estimate weights

Learning outcomes

Preparation

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

Multiply whole numbers by 10, 100 and 1000.

Estimate and measure the weight of an object.

Before the lesson:

Have ready some kitchen weighing scales and objects of different weights for each group, eg: yam, carrot, cup.

Copy the estimating weight table from today's main activity, shown opposite, on to the chalkboard.

Read How? Estimating weight, as shown below.

How? Estimating weight

Look at a range of objects and ask, 'Which is the heaviest?'

Ask, 'Which is the lightest?'

Draw a scale on the chalkboard and explain that it is a scale for measuring 0kg to 1kg.

Ask, 'What is the middle division?'

Choose some pupils to estimate and record where their objects will go.

Daily practice | Introduction | Main activity | Plenary

Whole class teaching

Write the following on the chalkboard:
3 x 10 = 30
3 x 100 =
3 x 1000 =

Remind the pupils that when we multiply by 10 the numbers move one place to the left.

When we multiply by 100 the numbers move two places to the left.

When we multiply by 1000 the numbers move three place to the left.

Ask the pupils to multiply the following numbers by 10, 100 and 1000 in their exercise books:
56
79
231
463

Whole class teaching

Give each group a range of different objects.

Teach How? Estimating weight, as shown left.

Group task

Tell the groups to copy the estimating weight table into their exercise books and complete the object and estimate columns based on their objects.

Give each group a turn to weigh their objects using the weighing scales and complete the weight column in their table.

Weight table

Object	Estimate	Weight

Whole class teaching

Tell the groups to record the actual weight of their objects on their own scale line, as shown below:

Scale line

0kg   0.5kg   ↑   1kg

Yam

Pair task

Ask the pupils to discuss their results, and to discuss the following questions:

'What was the difference between the estimate and actual weight?'

'Did your estimates get better?'
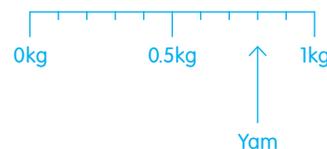
Week 20: Weight

Day 2: Estimating weight

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

Divide whole numbers by 10, 100 and 1000.

Convert grams to kilograms and kilograms to grams.

Before the lesson:

Copy the grams and kilograms table from today's main activity, shown right, on to the chalkboard.

Read How? Measuring scales 1, as shown below.

How? Measuring scales 1

Look at the scale on the chalk-board and ask, 'What is the middle division?'

Ask the pupils, 'What measurement is this?' and 'How did you work it out?'

Ask, 'Where would $\frac{1}{4}$ kg be?'

Ask, 'Where would $\frac{3}{4}$ kg be?'

Daily practice

Whole class teaching

Write the following on the chalkboard:
2000 ÷ 10 = 200
2000 ÷ 100 =
2000 ÷ 1000 =

Remind the pupils that when we divide by 10 the numbers move one place to the right.

When we divide by 100 the numbers move two places to the right.

When we divide by 1000 the numbers move three places to the right.

Ask the pupils to divide the following numbers by 10, 100 and 1000 in their exercise books:
34
870
64892

Introduction

Whole class teaching

Write the following on the chalkboard, then choose some pupils to complete the answers and discuss:

0.25 kilogram =

1 kilogram = 1000 grams

$1\frac{1}{4}$ kilogram = 1250 grams

$\frac{1}{4}$ kilogram =

Ask the the pupils to think of another way to say 500g, eg: 0.5kg, $\frac{1}{2}$ kg

Teach How? Measuring scales 1, as shown left.

Main activity

Pair task

Tell the pairs to copy the grams and kilograms table into their exercise books and complete it.

Grams and kilograms table

	Grams	Kilograms
1	1000g	
2	1400g	
3	1587g	
4	3490g	
5		$\frac{1}{10}$ kg
6		$\frac{3}{10}$ kg
7		$\frac{3}{4}$ kg
8		$\frac{1}{4}$ kg

Plenary

Pair task

Ask the pairs to briefly discuss the following questions:

'Which is heavier: $\frac{3}{4}$ kg or 700g?'

'Which is lighter: $\frac{1}{4}$ kg or 400g?'

'Why is 1000g less than $1\frac{1}{4}$ kg?'

Choose some pairs to give their answers to the class.

Week 20: Weight

Day 3: Grams and kilograms

Learning outcomes

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

Multiply two-, three- and four-digit numbers by 10.

Understand, read and write standard metric units for weight.

Preparation

Before the lesson:

Copy the conversion chart from today's main activity, shown opposite, on to the chalkboard.

Read How? Measuring scales 2, as shown below.

How? Measuring scales 2

Look at the scale on the chalkboard and ask, 'What is the value of each interval?'

Confirm that each interval is $\frac{1}{10}$ of 1kg.

Invite a pupil to place 0.7kg on the scale.

Explain that the range of the scale now represents the range 0kg to 2kg.
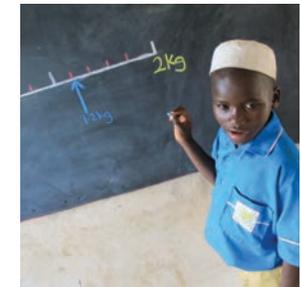
Invite a pupil to place 1.2kg on the scale.

Daily practice | Introduction | Main activity | Plenary

Whole class teaching

Ask the pupils to say the 10 times table.

Ask a pupil to explain what happens when a number is multiplied by 10.

Ask the pupils to help you solve the following calculations on the chalkboard:
1542 x 10 =
63.7 x 10 =

Write the following calculations on the chalkboard and ask the pupils to complete them in their exercise books:
586 x 10 =
32.7 x 10 =
70.05 x 10 =
942.1 x 10 =

Whole class teaching

Write '0.5kg' on the chalkboard and ask the pupils to discuss another way we could write that weight.

Remind the pupils that $\frac{1}{2}$ kg represents 0.5kg

Remind them that this is equivalent to $\frac{5}{10}$ kg and 500g

Repeat with other weights involving quarters or tenths of 1kg, eg:
0.7kg
0.25kg
0.43kg

Teach How? Measuring scales 2, as shown left.

Pair task

Ask the pairs to copy and complete the conversion chart in their exercise books.

Conversion chart

Kg	Kg and g	g
1.35kg	1kg 350g	1350g
1.5kg		
	1kg 800g	
		270g
0.45kg		
		2090g
0.6kg		

Pair task

Choose some pairs to explain their answers.

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

Ask the pairs to discuss the following question:
'How many grams do we have if we add $\frac{1}{4}$ kg to 500g?'

Choose some pairs to give their answers to the class.

Week 20:
Weight

Day 4:
Reading a
weight scale

Learning outcomes

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

Divide two-, three- and four-digit numbers by 10.

Read scales accurately.

Preparation

Before the lesson:

Copy the scales from today's main activity, shown opposite, on to the chalkboard.

Read How? Reading scale dials, as shown below.

How?
Reading scale dials

Draw this scale on the chalkboard and ask, 'What is the value of each interval?'

Ask, 'What weight does the scale show?'

Draw this scale on the chalkboard and ask, 'What is the value of each interval?'

Ask, 'What weight does the scale show?'

Point to an interval and ask, 'What is the value of the interval here?'

Daily practice | Introduction | Main activity | Plenary

Whole class teaching

Write '4500 ÷ 10 =' on the chalkboard and ask a pupil to answer it.

Ask a pupil to explain what happens when a number is divided by 10.

Ask the pupils to help you solve the following calculations on the chalkboard:
3641 ÷ 10 =
73.1 ÷ 10 =

Write the following calculations on the chalkboard and ask the pupils to complete them in their exercise books:
837 ÷ 10 =
4385 ÷ 10 =
27.10 ÷ 10 =
294.5 ÷ 10 =

Whole class teaching

Remind the pupils that they have been looking at the relationship between grams and kilograms and converting weights between the two.

Teach How? Reading scale dials, as shown left.

Individual task

Ask the pupils to copy the reading scales into their exercise books.

Ask them to write the weight on each scale:

Scale 1

0kg   200kg

Scale 2

0kg   15kg

Scale 3

0kg   110kg

Whole class teaching

When most of the pupils have finished, tell the pupils to exchange books with their partner.

Ask one pupil to read out the answers. If the class agrees, they should mark it with a small tick.

Week 20:
Weight

Day 5:
Word problems

Learning outcomes

Preparation

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

Recall the 7, 8 and 9 times tables quickly.

Find the range, mode and median of a set of numbers.

Before the lesson:

Have ready some weighing scales.

Copy the questions from today's main activity, shown right, on to the chalkboard.

Read How? Reading weighing scales, as shown below.

How? Reading weighing scales

Look at the scale on a set of weighing scales.

Invite a pupil to stand on the scales.

Write the pupil's weight to the nearest whole kilogram in a chart on the chalkboard.

Invite another pupil to stand on the scales and write their weight in the chart.

Repeat with another 8 pupils and leave the chart on the chalkboard.

15 minutes	Game	15 minutes	How	25 minutes	Chart	5 minutes	

Daily practice

Whole class teaching

Play multiplication bingo using the 7, 8 and 9 times tables.

Introduction

Whole class teaching

Teach How? Reading bathroom scales, as shown left.

Main activity

Pair task

Look at the completed weight chart on the chalkboard and ask the pairs to answer the following questions in their exercise books:

'What is the range of weight in this class?'

'What is the mode weight of the pupils?'

'What is the median weight of the pupils?'

'What is the total weight of the pupils?'

Plenary

Pair task

Ask the pairs to discuss the following question: 'Lami's mother wants to make a cake. She bought 580 grams of flour, 290 grams of eggs and 580 grams of sugar. What is the total weight of the things that Lami's mother bought?'

Choose some pairs to give their answers to the class.

Special thanks go to

This publication is not for sale

These numeracy lesson plans belong to:

Kano State Government