Numeracy lesson plans Primary 5, term 3, weeks 21—25

Constructing shapes, angles, ratio and proportion

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Introduction

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

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

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

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

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

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

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

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

Zakari Ibrahim Bagwai
Executive Chairman,
SUBEB, Kano State

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

How

How?

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

Learning expectations

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

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 understand the ideas.

Plenary

Finishes the lesson with different ways of reviewing learning.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 21:

Multiplication and division

Words/phrases

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

multiply
divide
short method
grid method
vertical method
remainder
decimal

Learning expectations

By the end of the week:

All pupils will be able to:
Begin to multiply and divide two-digit numbers by single-digit numbers.

Most pupils will be able to:
Solve three-digit by single-digit multiplication and division sums.

Some pupils will be able to:
Solve word problems that involve dividing three-digit numbers by two-digit numbers.

Assessment task

Instructions:

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

1
Solve the following calculations:
348 x 8 =
148 x 6 =
21.16 x 9 =

2
Solve the following calculations:
534 ÷ 6 =
508 ÷ 9 =

3
Solve the following word problem:
A goat farmer has 876 goats. He sells all goats equally to 8 market sellers. How many goats does each seller get? Are there any goats left for the farmer?

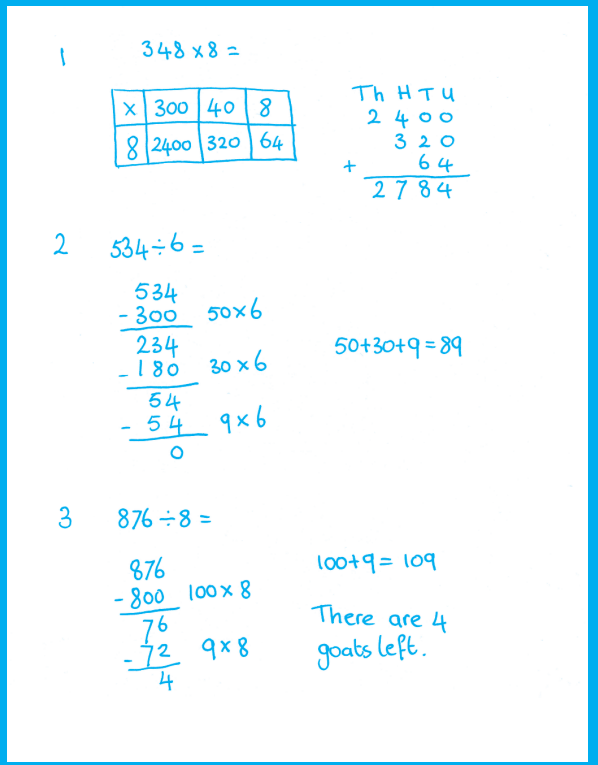
Example of a pupil's work

This pupil can:

Multiply three-digit by one-digit numbers.

Divide three-digit by one-digit numbers.

Solve a word problem on division.



Week 21: Multiplication and division

Day 1: Multiplication

Learning outcomes

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

Use times tables to solve division calculations.

Multiply a three-digit number by a single-digit number.

Preparation

Before the lesson:

Copy the calculations for today's main activity, shown opposite, on to the chalkboard.

Read How? Multiplication, as shown below.

How? Multiplication

Ask a pupil to read the calculation on the chalkboard.

Draw a grid and set the calculation out.

Ask the pupils, 'What do you do first?'

Choose some pupils to complete the grid.

Ask a pupil to calculate the answer.

15 minutes	15 minutes	How	20 minutes	Calculations	10 minutes

Daily practice

Pair task

Ask the pupils to help write the 4, 5 and 6 times tables on the chalkboard.

Ask the class, 'If we know that 8 x 6 = 48, what division calculations do we know?' (48 ÷ 6 = 8 and 48 ÷ 8 = 6)

Ask the pairs to write five division calculations in their exercise books using the times tables on the chalkboard.

Tell the pairs to swap their books. Ask them to write the multiplication calculation to help solve each division calculation and the answer.

Introduction

Whole class teaching

Teach How? Multiplication, as shown left.

Repeat with the following examples:
238 x 9 =
745 x 8 =

Main activity

Pair task

Ask the pupils to complete the following calculations in their exercise books using the grid method:
325 x 4 =
169 x 8 =
253 x 7 =
420 x 9 =
540 x 6 =

Tell the pupils to discuss how to work out the answers with their partner.

Plenary

Whole class teaching

When most of the pupils have finished, tell the pairs to exchange books.

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

Week 21: Multiplication and division

Day 2: Multiplying decimal numbers

Learning outcomes

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

Use times tables to solve division calculations.

Multiply decimal numbers.

Preparation

Before the lesson:

Copy the calculations for today's introduction and main activity, shown opposite, on to the chalkboard.

Read How? Multiply decimals, as shown below.

How? Multiply decimals

Ask a pupil to read the calculation.

Invite a pupil to complete the calculation using the grid method.

Ask a pupil to calculate the answer vertically.

Remind the pupils to set out the numbers in their correct place value.

Calculate the answer.

15 minutes	10 minutes	Calculations	25 minutes	How	Calculations	10 minutes

Daily practice

Individual task

Remind the class that the times tables can be used to work out division sums.

Write '40 ÷ 8 =' on the chalkboard.

Ask the pupils what multiplication fact they can use to solve this, ie:
8 x 5 = 40, so 40 ÷ 8 = 5

Write the following sums on the chalkboard for the pupils to complete in their exercise books:
81 ÷ 9 =
48 ÷ 8 =
54 ÷ 9 =
64 ÷ 8 =
63 ÷ 9 =

Remind them to use the 8 and 9 times tables to help them.

Introduction

Whole class teaching

Show the pupils the following calculations on the chalkboard:
0.2 x 10 =
2 x 10 =
20 x 10 =
12 x 10 =
1.2 x 10 =

Ask the pairs to discuss the pattern in these calculations.

Choose a pupil to explain the pattern.

Main activity

Whole class teaching

Teach How? Multiply decimals, as shown left.

Using the vertical method, repeat with the following calculations:
20.54 x 7 =
63.42 x 8 =

Pair task

Read through the following calculations with the pupils and ask the pairs to complete them in their exercise books:
35.21 x 4 =
61.35 x 6 =
42.82 x 2 =
123.34 x 5 =

Plenary

Whole class teaching

When most of the pupils have finished, tell the pairs to exchange books.

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

Week 21: Multiplication and division

Day 3: Dividing three-digit numbers

Learning outcomes

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

Use the times tables to solve division calculations.

Divide a three-digit number using the short method.

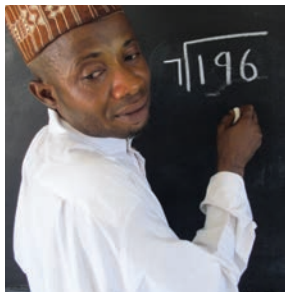
Preparation

Before the lesson:

Copy the calculations for today's main activity, shown opposite, on to the chalkboard.

Read How? Dividing three-digit numbers, as shown below.

How? Dividing three-digit numbers



Remind the pupils how to set out a short division calculation.

Demonstrate where to write the 2 Tens from 20 x 7 = 140.

Demonstrate where to write the 8 Units from 8 x 7 = 56.

Repeat with 495 ÷ 9 =

Remind the pupils to set the calculation out carefully.

Daily practice

Individual task

Write the 3 and 6 times tables on the chalkboard with the pupils.

Remind pupils that if they know one multiplication fact, then they know 3 more number facts. For example if they know 3 x 8 = 24, then they also know:
8 x 3 = 24
24 ÷ 8 = 3
24 ÷ 3 = 8

Write the following calculations on the chalkboard for the pupils to write the corresponding number facts in their exercise books:
3 x 12 =
6 x 7 =
12 x 3 =
6 x 8

Introduction

Pair task

Write the following on the chalkboard:
10000 ÷ 2 = 5000
10000 ÷ 20 = 500
10000 ÷ 200 = 50

Ask the pairs to look at the sums and discuss the pattern.

Choose a pupil to explain the pattern.

Write the following on the chalkboard and choose some pupils to complete them:
30000 ÷ 2 =
30000 ÷ 20 =
30000 ÷ 200 =

Main activity

Whole class teaching

Teach How? Dividing three-digit numbers, as shown left.

Pair task

Read through the following calculations with the pupils and ask the pairs to complete them in their exercise books:
366 ÷ 6 =
432 ÷ 4 =
343 ÷ 7 =
648 ÷ 4 =
852 ÷ 6 =

When the pupils have finished, tell them to check their answers with another pair.

Plenary

Whole class teaching

Choose some pairs to explain how they worked the sums out on the chalkboard.

Week 21: Multiplication and division

Day 4: Division with a remainder

Learning outcomes

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

Use number knowledge to work out the operation in a sum.

Solve division calculations with a remainder.

Preparation

Before the lesson:

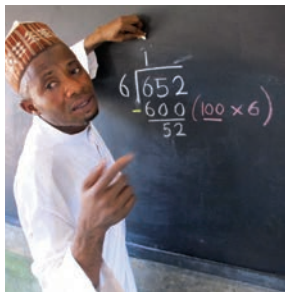
Copy the calculations for today's main activity, shown opposite, on to the chalkboard.

Read How? Short division with remainder, as shown below.

How? Short division with remainder

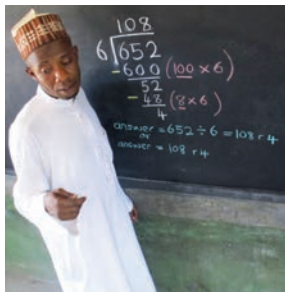
Remind the pupils how to set out a short division calculation.

Ask the pupils to think of a multiple of 100 nearest to 600, in the 6 times table (100 x 6 = 600).



Demonstrate where to write the 1 Hundred from 100 x 6 = 600.

Demonstrate where to write the 8 Units from 8 x 6 = 48.



Write the answer, reminding pupils to include the remainder.

15 minutes	15 minutes	How	25 minutes	Calculations	5 minutes

Daily practice

Whole class teaching

Write the four operations (+ – x ÷) on the chalkboard and choose some pupils to say all the different vocabulary they know for them.

Write the following sums on the chalkboard and invite some pupils to complete the calculations by adding the correct operation:

125 ☐ 20 = 105
18 ☐ 6 = 12
36 ☐ 3 = 12
20 ☐ 5 = 25

Introduction

Whole class teaching

Teach How? Short division with remainder, as shown left.

Main activity

Pair task

Read through the following calculations with the pupils and ask the pairs to complete them in their exercise books:

254 ÷ 4 =
344 ÷ 6 =
268 ÷ 7 =
379 ÷ 8 =
642 ÷ 9 =

Plenary

Whole class teaching

Choose some pairs to come to the chalkboard and explain to the class how they solved the calculations.

Week 21: Multiplication and division

Day 5: Solving word problems

Learning outcomes

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

Find number facts.

Solve division word problems.

Preparation

Before the lesson:

Copy the word problems for today's main activity, shown opposite, on to the chalkboard.

Read How? Solving word problems, as shown below.

How? Solving word problems

Write the problem on the chalkboard.

Ask the pupils to underline the key words to answer the word problem.

Invite a pupil to begin working out the calculation.

Ask them to explain what calculation will be needed and then write it on the chalkboard.

Remind them to answer the question.

Daily practice

Group task

Divide the class into small groups and give each group a two-digit number, eg: 25, 32, 44, 55 or 64.

Explain that they have 5 minutes to write down all the different calculations they can think of where the answer will be the number they have been given.

Remind them they can use all four operations (+ – x ÷) and fractions or decimals.

Share some examples with the whole class, eg:
25 =
100 ÷ 4
5 x 5
20 + 5
50 – 25

Introduction

Whole class teaching

Use the following word problem to teach How? Solving word problems, as shown left:

'Mrs Ahmed has N600 to spend on oranges that cost N50 each. How many oranges can she buy?'

Main activity

Whole class teaching

Read out the following word problem with the pupils and ask one of them to complete it on the chalkboard.

'A chicken farmer collected 24080 eggs each week. He sold them to 50 market women. Each woman bought the same number of eggs. How many did he sell to each woman? How many eggs will he have left over?'

Pair task

Read out the following word problems on the chalkboard and ask the pairs to complete them in their exercise books:

'The total weight of 70 equal bags of rice is 7500kg. Find the weight of one bag of rice.'

'30 students each gave a school donation of the same amount. The total donation was N3630. How much did each student give?'

'A stallholder had 1.85m of ribbon. She cut it into 25cm lengths. How many lengths did she have?'

Plenary

Whole class teaching

When most of the pupils have finished, go through the answers as a class.

If the pupils have the correct answer, they should mark it with a small tick.

Ask the pupils to make up a word problem for 675 ÷ 15 =

Choose some pupils to share their word problem with the class.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 22:

Ratio and proportion

Words/phrases

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

mode
range
median
proportion
ratio
simplest form
probability
unlikely
likely
equally likely
certain
impossible

Learning expectations

By the end of the week:

All pupils will be able to:
Solve simple problems involving proportion.

Most pupils will be able to:
Describe the relationship between two quantities.

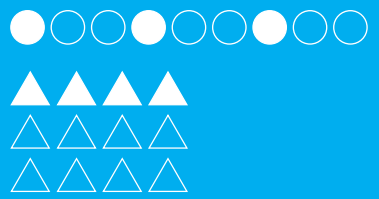
Some pupils will be able to:
Solve problems involving the ratio and proportion of quantities.

Assessment task

Instructions:

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

1
Write the proportion for the following diagrams:



2
Write the following ratios in their simplest form:
24:8
18:6
32:4

3
Mark the likelihood of the following events on individual probability lines:

Seeing a wild monkey in the forest

Seeing goats on the way home after school

Seeing an elephant in real life

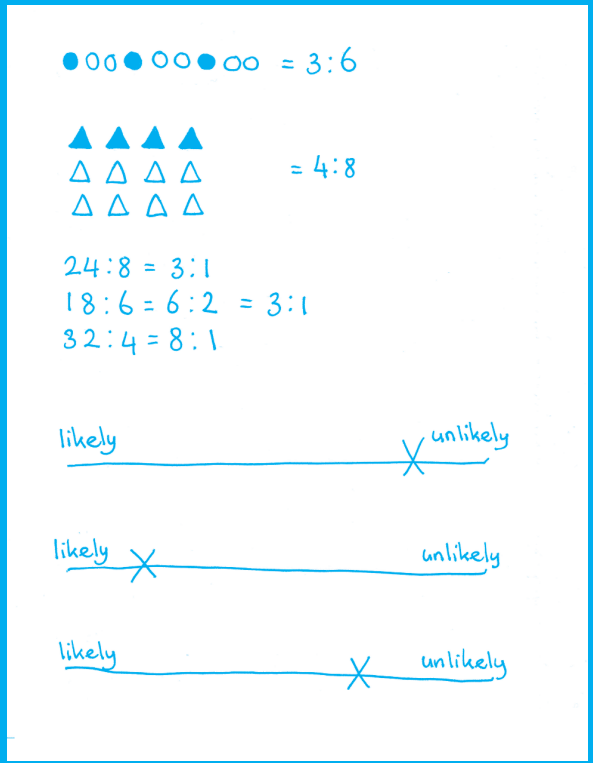
Example of a pupil's work

This pupil can:

Work out the proportion of shaded shapes.

Simplify ratio to its simplest form.

Explain probability in different situations.



Lesson title

Week 22: Ratio and proportion

Day 1: Ratio

Circles/Questions/ Word problem

Learning outcomes

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

Work out the mode, range and median of a set of numbers.

Describe the relationship between two numbers using a ratio.

Preparation

Before the lesson:

Draw the circles and questions for today's main activity, shown opposite, on to the chalkboard.

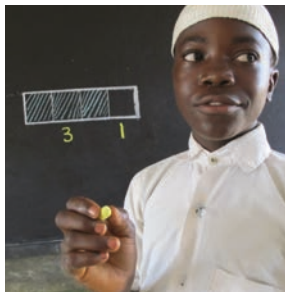
Copy the word problem for today's plenary, shown opposite, on to the chalkboard.

Read How? Ratio, as shown below.

How? Ratio

Look at the squares on the chalkboard (3 blue squares and 1 white square).

Ask, 'How many blue squares are there?' Invite a pupil to write the number.



Ask, 'How many white squares are there?' Invite a pupil to write the number.

Explain that the ratio of blue to white squares is written like this: 3:1.

Draw 5 bananas and 3 apples. Invite a pupil to write the ratio of bananas to apples.

15 minutes	10 minutes	How	25 minutes	Circles/ Questions	10 minutes	Problem

Daily practice

Pair task

Write the following set of numbers on the chalkboard and look at them with the pupils:
'2, 9, 5, 4, 2, 6, 10, 12, 2'.

Ask the pairs to write the numbers in order, from smallest to largest, in their exercise books.

Tell them to underline the number that occurs most often and ask, 'What is this number called?' (The mode)

Ask the pairs to say the range of the numbers.

Ask them to find the median of the numbers.

Introduction

Whole class teaching

Explain that 'ratio' is a way of directly comparing the value or frequency of two or more things.

Teach How? Ratio, as shown left.

Main activity

Pair task

Ask 10 pupils (6 girls and 4 boys) to come to the front of the class.

Ask: 'How many pupils are standing here?', 'What is the ratio of girls to boys?' (6:4)

Explain that the ratio is written to answer the question, the smaller number does not always come first.

Ask, 'How can we show the pupils in groups of 3:2?'

Repeat with 16 pupils (10 girls and 6 boys).

Whole class teaching

Draw 10 small circles on the chalkboard and colour them in a ratio of 3:2.

Explain the ratio of these circles to the pupils.

Tell the pupils to complete the following questions in their exercise books:

Draw 8 small circles and colour them in a ratio of 1:3.

Draw 16 small circles and colour them in a ratio of 5:3.

Draw 18 small circles and colour them in a ratio of 2:4.

Plenary

Whole class teaching

Read out the following problem on the chalkboard:
'A recipe for pancakes uses 3 cups of flour to 2 cups of milk.'

Ask, 'What would the ratio be if four times as much was needed?'

Choose some pupils to answer.

Lesson title

Week 22: Ratio and proportion

Day 2: Reducing ratio

Circles/ Questions

Learning outcomes

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

Quickly recall number facts.

Reduce a ratio to its simplest form.

Preparation

Before the lesson:

Draw the circles and questions for today's main activity, shown opposite, on to the chalkboard.

Read How? Number facts, as shown below.

How? Number facts

Look at the number 64 on the chalkboard and ask the pupils, 'What could the calculation be?'

Invite some pupils to write answers around the number, eg: 8 x 8 = 64.

Look at the number facts and ask, 'Are they correct?' Invite some pupils to check.

Repeat with the number 100.

Repeat with the number 93.

15 minutes	How	10 minutes	25 minutes	Circles	Questions	10 minutes

Daily practice

Whole class teaching

Teach How? Number facts, as shown left.

Introduction

Whole class teaching

Ask 6 girls and 8 boys to come to the front of the class and ask the following questions:

'Altogether, how many pupils are standing here?'

'What is the ratio of girls to boys?'

Explain that there are 6 girls to every 8 boys and write '6:8' on the chalkboard.

Explain that ratios can be reduced to their simplest form.

Ask the standing pupils to divide themselves in half so there is the same ratio of girls to boys in each group. Write '3:4' under 6:8.

Main activity

Whole class teaching

Have ready 14 circles on the chalkboard, 6 white and 8 blue.

Write the following on the chalkboard: '6:8'.

Say, 'There are 6 white circles to every 8 blue circles'.

Explain that to write the ratio in its simplest form, each side is divided by the same number:
$6 \div 2 = : 8 \div 2 =$

Explain that the ratio in its simplest form is 3:4.

Repeat with the ratio of 4:12.

Pair task

Read the following questions with the pupils and demonstrate how to write the first example in its simplest form:
5:10
6:18
20:10
25:15
16:24
52:40

Tell the pairs to complete the questions in their exercise books.

Plenary

Whole class teaching

Write the following on the chalkboard:
'A class contains 30 girls and 20 boys.'

Ask, 'What is the ratio of girls to boys in its simplest form?'

Choose some pupils to answer.

Lesson title

Week 22: Ratio and proportion

Day 3: Proportion

Word problem

Learning outcomes

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

Use the symbols < and > between decimal numbers.

Understand proportion.

Preparation

Before the lesson:

Copy the word problem for today's plenary, shown opposite, on to the chalkboard.

Read How? Proportion, as shown below.

How? Proportion

Look at the pattern on the chalkboard (4 yellow circles and 1 white circle).

Ask, 'What is the proportion of yellow circles to white circles?'

Say: '4 out of 5 circles are yellow', '1 out of 5 circles is white'.

Repeat with another pattern.

15 minutes	15 minutes	How	20 minutes	10 minutes	Word problem

Daily practice

Whole class teaching

Write '<' and '>' on the chalkboard and ask the pupils what they mean.

Write the following pairs of numbers on to the chalkboard and choose some pupils to read them out:

54.6 ☐ 56.4

74.83 ☐ 32.91

34.2 ☐ 34.21

Invite some pupils to put the correct < or > symbol between the numbers.

Tell the pupils to copy the following pairs of numbers into their exercise books and add < or > between each pair:

43.5 ☐ 34.5

62.73 ☐ 62.77

21.9 ☐ 21.96

Introduction

Whole class teaching

Tell the pupils that 'proportion' compares part of something to the whole.

Teach How? Proportion, as shown left.

Main activity

Whole class teaching

Draw a row of 12 identical boxes on the chalkboard.

Demonstrate colouring 2 of every 6 squares blue.

Pair task

Tell the pupils to draw the row of 12 boxes 5 times in their exercise books and complete the following:

Colour 1 out of every 3 squares blue.

Colour 2 out of every 4 squares blue.

Colour 2 out of every 3 squares blue.

Colour 4 out of every 6 squares blue.

Plenary

Pair task

Read out the following word problem on the chalkboard and ask the pairs to discuss the answer:

'One ticket to see a show costs N25. How much would it cost for 3 people, 5 people, 7 people to see the show?'

Choose a pair of pupils to explain how they worked out their answer.

Lesson title

Week 22: Ratio and proportion

Day 4: Probability

Flash cards/Die/ Coin/Table

Learning outcomes

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

Quickly recall number facts.

Understand a line of probability.

Preparation

Before the lesson:

Have ready probability flash cards: 'unlikely', 'likely', 'equally likely', 'certain', 'impossible', a die and an N1 coin.

Copy the table for today's main activity, shown opposite, on to the chalkboard.

Read How? Probability, as shown below.

How? Probability

Look at the line of probability on the chalkboard.

Ask a pupil to mark on the line the probability that it will rain tomorrow.

Ask, 'What is the probability that the sun will shine tomorrow?'

Invite a pupil to mark the probability on the line.

Show the pupils a die and ask, 'What is the probability that I will roll an odd number?'

15 minutes	Questions	10 minutes	How	Flash cards	25 minutes	Coin/ Table	10 minutes

Daily practice

Whole class teaching

Copy these questions on to the chalkboard:
Is it odd?
Is it higher than 100?
Is it lower than 50?
Is it a multiple of 5?
Is it between 70 and 90?

Say, 'I am thinking of a number.' (eg: 72)

Tell the pupils that they must guess what the number is by asking questions like the ones on the chalkboard.

Tell the pupils to notice the answers to help them guess the number.

When a pupil guesses correctly, repeat with another number.

Introduction

Whole class teaching

Explain to the pupils that the 'probability' of an outcome or event is a measure of how likely it is to happen.

Show the pupils the probability flash cards.

Teach How? Probability, as shown left.

Main activity

Whole class teaching

Ask the pupils to discuss where the following events will fit on the line of probability:

'You will see a lizard in the playground.'

'You will eat yam today.'

'You will go to the moon one day.'

'It will get dark tonight.'

'You will go to the shop today.'

Go round the class and show the pupils a 1 Naira coin.

Ask, 'What is the probability that it will land head up?' (Herbert Macaulay).

Ask, 'What is the probability that it will land tails up?' (coat of arms)

Flip the coin and show the pupils which side up it landed.

Ask one pupil to flip the coin 5 times and another pupil to record the result in the table on the chalkboard.

Table

Throw	heads	tails
1		
2		
3		
4		

Plenary

Pair task

Ask each pair to think of things that are certain, unlikely and impossible.

Choose some pairs to say what they have discussed.

Ask the other pupils in the class if they agree or disagree, and explain why.

Lesson title

Week 22: Ratio and proportion

Day 5: Making a die

Card squares/Paper/Scissors/ Tape/Score card

Learning outcomes

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

Find the value of 'x'.

Investigate probability.

Preparation

Before the lesson:

Have ready a 2cm x 2cm card square, a piece of paper, scissors and tape for each pair of pupils.

Draw the score card, shown opposite, on the chakboard.

Read How? Making a die, as shown below.

How? Making a die

Give each pair a 2cm x 2cm square of card and a piece of paper.

Tell the pairs to draw round the square to make the net of a cube.

Show them how to add the die dots, taking care that the dots on opposite sides add up to 6.

Tell them to cut round the net and tape the edges carefully.

Roll the die to check that it works.

15 minutes	15 minutes	How	Card squares/ Paper/Scissors/ Tape/	25 minutes	Flash cards/ Score card	Die	5 minutes

Daily practice

Pair task

Write, 'x + 37 = 110' on the chalkboard and ask, 'What is the value of x?'

Choose a pupil to explain how they worked out the answer.

Tell the pairs to discuss the answers to the following number sentences:

If x = 6, what is 6x?

If x = 7, what does 8x + 20 =

Choose some pairs to explain how they worked out the answers on the chalkboard.

Introduction

Whole class teaching

Teach How? Making a die, as shown left, using the card squares, paper, scissors and tape.

Main activity

Pair task

Show the pupils the probability flash cards.

Ask, 'What is the probability that you will roll a 6 on your die?' (There is a one in six chance, so it is unlikely.)

Show the pupils the score card on the chalkboard and tell them to copy it into their exercise books.

Score card

Number of 1s	**Number of 4s**
Number of 2s	**Number of 5s**
Number of 3s	**Number of 6s**

Tell each pair to roll the die 10 times and record each result with a small tick in the right place on the score card.

Ask a pair which number had the highest and lowest score (ie: which number appeared most and least often).

Say, 'The probability of rolling a _____ is higher than _____.'

Ask pupils to say the number they think has a higher probability.

Roll the die to see if you are correct.

Plenary

Whole class teaching

Ask the pupils to discuss where the following events will fit on a line of probability:

'One person in the class will become a famous footballer.'

'It will be sunny tomorrow.'

'You will find a N100 note on your way home today.'

'You will walk to school in the morning.'

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 23: Angles

Words/phrases

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

angle
acute
obtuse
right angle
straight line
degrees (°)
estimate
measure
protractor
calculate

Learning expectations

By the end of the week:

All pupils will be able to:
Understand angles as a measurement of turn.

Most pupils will be able to:
Identify different types of angles.

Some pupils will be able to:
Use a protractor to measure angles to the nearest 5°.

Assessment task

Instructions:

Draw the angles in the assessment questions and ask individual pupils to:

1
Explain what a protractor is and where it is used for.

2
Calculate the following angles on a straight line:
90°
120°
45°

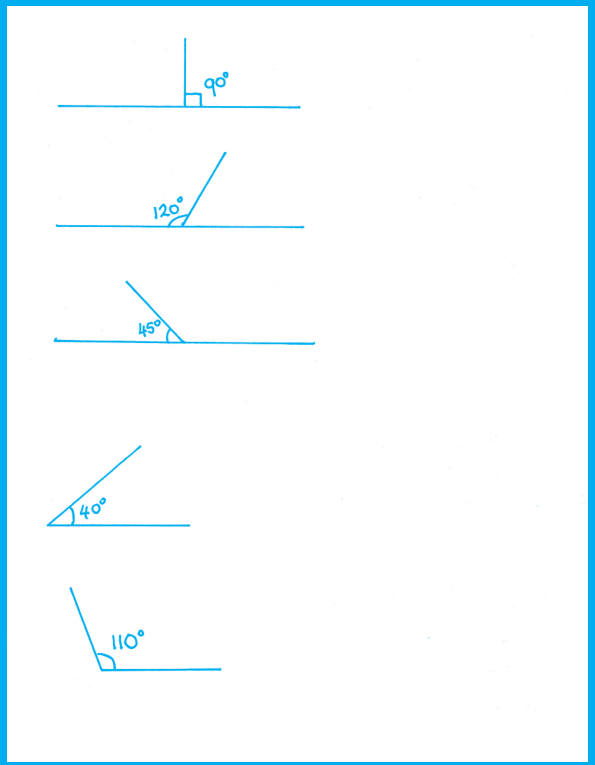
3
Use a protractor to calculate angles of:
40°
110°

Example of a pupil's work

This pupil can:

Calculate an angle on a straight line.

Use a protractor to measure different angles.



Lesson title

Sticks

Week 23: Angles

Day 1: Understanding angles

Learning outcomes

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

Order sets of numbers.

Understand angles as a measurement of turn.

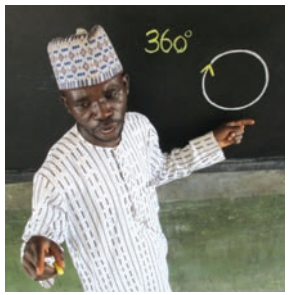
Preparation

Before the lesson:

Have ready a small stick for each pupil.

Read How? Angles, as shown below.

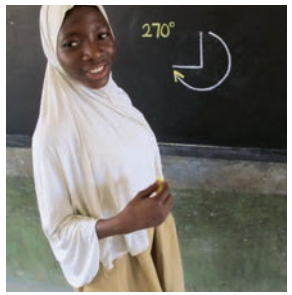
How? Angles



Write '360°' on the chalkboard. Explain that there are 360° in a circle or complete turn.

Ask, 'How many degrees are there in a half turn?'

Ask, 'How many degrees are there in a quarter turn?'



Ask, 'How many degrees are there in a three-quarter turn?'

Ask a pupil to hold their arms out to show a quarter turn (90°).

15 minutes | 15 minutes How | 25 minutes Sticks | 5 minutes

Daily practice

Pair task

Tell the pairs to order the following sets of numbers in the following ways:

from coldest to hottest:
34°, 25°, 17°, 23°, 52°, 43°

from heaviest to lightest:
539kg, 593kg, 359kg, 395kg

from emptiest to fullest:
254ml, 425ml, 245ml, 524ml

Write the following digits on the chalkboard: '5 7 3 2'.

Tell the pairs to use these digits to make as many numbers as they can.

Ask, 'What is the largest and the smallest number you can make?'

Introduction

Whole class teaching

Teach How? Angles, as shown left.

Ask the pupils to stand up and turn themselves to make a half turn (180°), a three-quarter turn (270°) and a complete turn (360°).

Explain that 90° is also called a 'right angle'.

Main activity

Pair task

Take the pupils outside and give each pair a small stick.

Turn a stick on the ground to demonstrate the following angles: 90°, 180°, 270°, 360°.

Tell the pupils to do the same. Repeat several times in a different order.

Individual task

Tell the pupils to draw the following angles in their exercise books and label them: 90°, 180°, 270°, 360°.

Show the pupils how to draw the following angles:

45° (by dividing a right angle in half)

135° (by extending a right angle by 45°)

Ask the pupils to draw a 45° and a 135° angle in their exercise books.

Plenary

Pair task

Ask the pupils to look around the classroom for angles.

Ask, 'Where can you see 90° angles in the classroom?'.

Choose some pupils to say where they have found right angles.

Lesson title

Week 23: Angles

Day 2: Different types of angles

0—9 number cards/ Rulers/Chart

Learning outcomes

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

Double and halve numbers.

Identify different types of angles.

Preparation

Before the lesson:

Have ready a set of 0—9 number cards and a ruler for each pair.

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

Read How? Different angles, as shown below.

How? Different angles

Explain that an angle is made when two straight lines meet or cross each other.

Explain that angles are measured in degrees (°) with a protractor.

Ask a pupil to make a right angle with their arms.

Ask a pupil to demonstrate an 'acute' angle (an angle less than 90°).

Ask a pupil to demonstrate an 'obtuse' angle (an angle larger than 90°).

Daily practice	Introduction	Main activity		Plenary
15 minutes	15 minutes	20 minutes		10 minutes
0—9 number cards	How	Rulers	Chart	

Pair task

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

Tell them to lay the cards face-down on the table.

Tell the pupils to take turns to choose two cards and turn them over to make a number, eg: 52.

Tell the pupils to double and halve the number and tell their partner the answer, eg: 104 and 26.

Tell the pairs to repeat this several times with different numbers.

Pair task

Teach How? Different angles, as shown left.

Choose some pupils to answer the following questions:

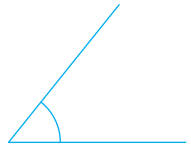
'What is an acute angle?' (smaller than a right angle)

'What is an obtuse angle?' (bigger than a right angle)

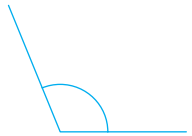
Individual task

Tell the pupils to draw and label an acute angle and an obtuse angle in their exercise books, using a ruler.

Acute angle



Obtuse angle



Pair task

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

Tell the pupils to copy the shape chart and label the acute and obtuse angles.

2D shape chart

shape	name
	hexagon
	parallelogram
	trapezium

Whole class teaching

Invite some pupils to the chalkboard to draw and label examples of different types of angles.

Lesson title

Week 23: Angles

Day 3: An angle on a straight line

Scissors/Newspaper/ Instructions

Learning outcomes

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

Double and halve numbers.

Calculate angles on a straight line.

Preparation

Before the lesson:

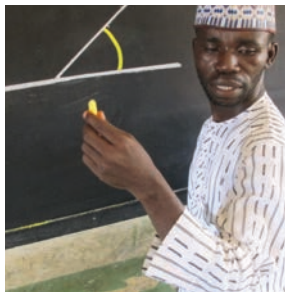
Have ready scissors and a piece of newspaper approximately 10cm x 10cm for each pupil.

Copy the instructions for today's daily practice, shown opposite, on to the chalkboard.

Read How? Angle on a straight line, as shown below.

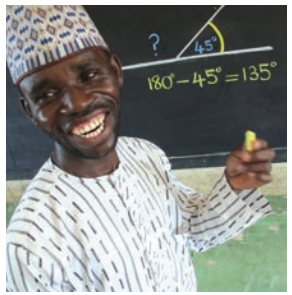
How? Angle on a straight line

Invite a pupil to draw an angle on a straight line.



Ask, 'What is the size of this angle?'

Invite a pupil to estimate the missing angle.



Explain there are 180° in a half turn so the other angle can be calculated without measuring.

Repeat with another example.

15 minutes	Instructions	15 minutes	How	20 minutes	Diagrams	10 minutes	Newspaper/ Scissors

Daily practice

Whole class teaching

Read out the following instructions from the chalkboard:

'Think of a number between 1 and 100.'

'Double the number.'

'Add 6 to the number.'

'Divide the number in half.'

'Subtract the number that you started with.'

'The number you have is 3.'

Choose a pupil to come to the chalkboard and demonstrate with the number 16.

Ask the pupils to follow the instructions with a partner.

Introduction

Whole class teaching

Teach How? Angle on a straight line, as shown left.

Main activity

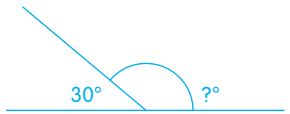
Pair task

Draw the missing angles diagrams on the chalkboard with 3 further examples.

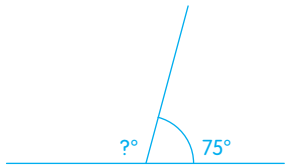
Ask the pupils to copy them into their exercise books.

Ask the pupils to work out the missing angles.

Missing angle 1



Missing angle 2



Plenary

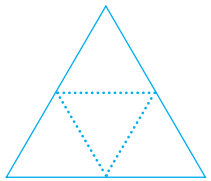
Pair task

Give each pair a piece of newspaper and some scissors.

Ask them to draw a triangle on the newspaper.

Tell them to cut out the triangle, and then cut the triangle into four parts, as shown below.

Investigating angles



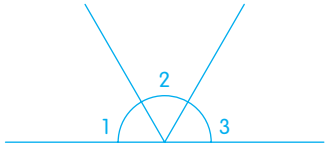
Tell the pupils to lay the angles on a line, as shown below.

Ask, 'What can you say about the three angles in your triangle?'

Ask the pupils to estimate the size of each angle.

Remind them that the angle of a straight line equals 180°.

Angles on a straight line



Lesson title

Week 23: Angles

Day 4: Measuring angles

Protractors/ Newspaper

Learning outcomes

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

Round numbers to the nearest Ten and Hundred.

Use a protractor to measure angles to the nearest 5°.

Preparation

Before the lesson:

Have ready a large protractor to use on the chalkboard, and a protractor for each pair of pupils.

Have ready a piece of newspaper approximately 10cm x 10cm for each pupil.

Read How? Using a protractor 1, as shown below.

How? Using a protractor 1

Look at the protractor and show pupils the inside scale for measuring angles.

Ask some pupils to estimate the angle on the chalkboard.

Place the protractor over the angle and measure it carefully.

Write the measurement of the angle.

Choose some pupils to estimate and carefully measure angles on a straight line.

15 minutes	15 minutes	How	Protractors	20 minutes	Protractors	10 minutes	Newspaper

Daily practice

Whole class teaching

Remind the pupils that 'rounding' numbers to the nearest Ten or Hundred helps us to estimate the answer.

Remind them how to round 432 to the nearest Ten and Hundred.

Write the following numbers on the chalk-board and ask the pairs to round them to the nearest Ten and Hundred in their exercise books:
347
263
168
321
445
776

Introduction

Whole class teaching

Teach How? Using a protractor 1, as shown left, using the protractors.

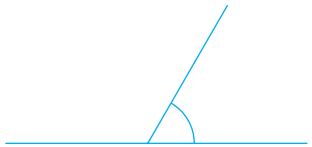
Ask the pairs to discuss how close their estimate was to the actual measurement.

Main activity

Pair task

Tell the pupils to draw a straight line in their exercise books and add an angle line, as shown below.

Estimating angles



Ask them to estimate the size of the angle and swap exercise books with a partner.

Tell them to measure their partner's angle carefully with a protractor.

Ask them to compare the estimate and the actual measurement.

Repeat the activity and go round the class to support the pupils.

Plenary

Whole class teaching

Give each pupil a piece of newspaper.

Tell them to fold it in half, fold again into a quarter, and fold in half again diagonally, as shown below.

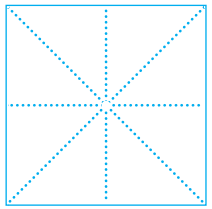
Ask the pupils to discuss the following questions:

'How many angles are there?'

'What will one angle equal?'

'What will four angles equal?'

Discussing angles



Lesson title

Week 23: Angles

Day 5: Using a protractor

Paper/Protractors/ Ruler

Learning outcomes

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

Find factors of numbers.

Use a protractor to measure angles to the nearest 5°.

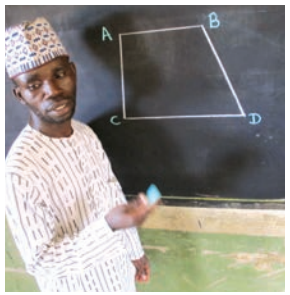
Preparation

Before the lesson:

Have ready a piece of paper for each pupil, and a protractor and a ruler for each pupil or pair.

Read How? Using a protractor 2, as shown below.

How? Using a protractor 2



Draw a trapezium on the chalkboard and label each inside angle.

Ask, 'Which angle is the smallest'?

Ask, 'Which angles are obtuse?'

Invite some pupils to estimate the size of each angle.

Ask the pupils to measure the angles and compare them with the estimates.

15 minutes	Game	15 minutes	How	20 minutes	Paper/Protractors/ Rulers	10 minutes

Daily practice

Whole class teaching

Ask the pupils to discuss what a factor is.

Write '36' on the chalkboard and choose some pupils to write the factors for it.

Invite some pupils to write the factors for the following numbers on the chalkboard:
27
48
50
88
144

Introduction

Whole class teaching

Teach How? Using a protractor 2, as shown left.

Main activity

Individual task

Give each pupil a piece of paper, a protractor and a ruler (pairs can share if necessary).

Tell them to draw a quadrilateral with at least one obtuse angle on the paper.

Tell them to carefully measure each angle with their protractor and record the measurement next to the angle.

Go round the class to support the pupils.

Plenary

Pair task

Tell the pairs to swap their work and check their partner's measurements.

Tell them to put a small tick if they are correct.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 24: Shape

Words/phrases

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

polygon
vertices
edges
faces
quadrilateral
square-based pyramid
triangular prism
cuboid
cone
tessellation
net

Learning expectations

By the end of the week:

All pupils will be able to:
Say some properties of 2D and 3D shapes.

Most pupils will be able to:
Make tessellated patterns with two regular polygons.

Some pupils will be able to:
Construct a range of 3D shapes from nets.

Assessment task

Instructions:

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

1
Fill in the following template:

Shape	Sides	Vertices	Angles
Triangle			
Pentagon			
Octagon			
Heptagon			

2
Draw a tessellation with a triangle and square.

3
Draw the net of one of the following shapes:
Cuboid
Square based pyramid
Cone

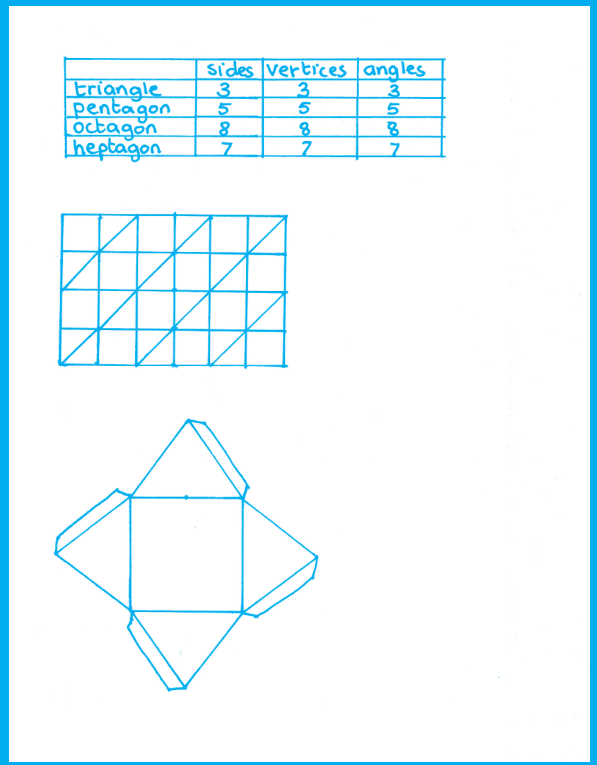
Example of a pupil's work

This pupil can:

Identify properties of 2D shapes.

Draw a tessellation pattern with two given shapes.

Draw the net of a shape.



	sides	vertices	angles
triangle	3	3	3
pentagon	5	5	5
octagon	8	8	8
heptagon	7	7	7

Lesson title

Week 24: Shape

Day 1: Properties of 2D shapes

Table/ 2D shapes

Learning outcomes

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

Identify 2D shapes.

Explain the properties of 2D shapes.

Preparation

Before the lesson:

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

Prepare a set of small 2D shapes for each group and a large set of 2D shapes.

Read How? What can you tell me about...?, as shown below.

How? What can you tell me about...?

... this equilateral triangle? (It has three equal sides, three vertices, three equal angles.)

... this rectangle? (Its opposite sides are parallel.)

... this octagon?' (All of its sides are equal. It has 8 equal angles.)

... this rhombus? (Its opposite angles are equal.)

Give each group a set of 2D shapes and ask them to discuss their properties.

15 minutes	2D shapes	15 minutes	How	20 minutes	Table	10 minutes	Game/ 2D shapes

Daily practice

Whole class teaching

Show the pupils the large 2D shapes, one at a time.

Ask the pupils to tell the person next to them the name of each shape as it is shown.

Remind them that a 2D-shape has two measurements or dimensions (length and width).

Tell the pupils to draw and label three 2D shapes in their exercise books.

Introduction

Whole class teaching

Teach How? What can you tell me about...?, as shown left.

Main activity

Individual task

Tell the pupils to complete the 2D shape table, as shown below, in their exercise books.

2D shape table

Shape	Sides	Vertices	Angles
Triangle			
Square			
Rectangle			
Pentagon			
Hexagon			
Heptagon			
Octagon			
Rhombus			
Trapezium			

Plenary

Group task

Remind the pupils how to play What am I?

Choose a 2D shape but don't let the pupils see it. Ask, 'What am I?'

Give clues to help them answer, eg: 'I am a 2D shape. I have four equal sides.'

Give the groups a set of 2D shapes to play the game several times.

Lesson title

Week 24: Shape

Day 2: Properties of 3D shapes

Table/ 3D shapes

Learning outcomes

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

Identify 3D shapes.

Explain the properties of 3D shapes.

Preparation

Before the lesson:

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

Have ready a set of 3D shapes.

Read How? What can you tell me about...?, as shown below.

How? What can you tell me about...?

... a cylinder? (It has three faces, no vertices and two edges.)

... a cube and a cuboid? (Both have six faces, eight vertices and 12 edges.)

... a sphere? (It has one face, no vertices and no edges.)

... a cone? (It has two faces, no vertices and one edge.)

... a triangular prism? (It has five faces, six vertices and nine edges.)

15 minutes	Game	15 minutes	How	Table	20 minutes	Table	10 minutes

Daily practice

Whole class teaching

Ask the pupils to say the names of some 3D shapes and write them on the chalkboard.

Give the groups time to play What am I? several times to guess different 3D shapes.

Remind them to give clues, eg: 'I am a 3D shape. I have no edges, no vertices and one curved face.'

Introduction

Whole class teaching

Look together at the 3D shape table on the chalkboard and explain the meaning of faces, vertices and edges.

Teach How? What can you tell me about...?, as shown left.

Main activity

Pair task

Tell the pupils to complete the 3D shape table, as shown below, in their exercise books.

3D shape table

Shape	Faces	Vertices	Edges	Names of faces
Cylinder				
Cuboid				
Sphere				
Cone				
Triangular prism				

Plenary

Whole class teaching

Tell the pupils to look around the classroom for examples of 2D and 3D shapes.

Ask the pupils to share the shapes they have found with the whole class.

Lesson title

Week 24: Shape

Day 3: Tessellation

2D shapes/card shapes/ Paper/Rulers/Scissors

Learning outcomes

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

Identify lines of symmetry on 2D shapes.

Make tessellations with two regular polygons.

Preparation

Before the lesson:

Prepare a set of 2D shapes for each group: an equilateral triangle, square, rectangle, pentagon, hexagon, octagon, rhombus, trapezium.

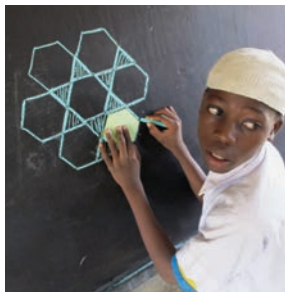
Have ready a card rectangle, square and octagon, a large piece of paper, a ruler and scissors for each pair.

Read How? Tessellation, as shown below.

How? Tessellation

Draw a tile pattern on the chalkboard with hexagons. Make sure there are no gaps.

Ask a pupil to help you draw a triangle tile pattern with no gaps.



Ask a pupil to help you make a tile pattern with a hexagon and a triangle.

Tell the pairs to draw round their rectangle and square to make a tile pattern.

Tell the pairs to draw round their octagon and square to make a tile pattern.

15 minutes	2D shapes	15 minutes	How	25 minutes	Card shapes/Paper/ Rulers/Scissors	5 minutes

Daily practice

Group task

Give each group a set of 2D shapes.

Remind them that if a shape can be folded into equal parts it is 'symmetrical'.

Tell them they are going to investigate how many lines of symmetry each shape has.

Explain that they can fold the shapes horizontally, vertically and diagonally to check for symmetry.

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

Introduction

Whole class teaching

Remind the pupils that fitting shapes together in a pattern with no spaces is called 'tessellation'.

Teach How? Tessellation steps 1, 2 and 3, as shown left.

Remind the pupils that 'regular tessellations' use the same regular polygon.

Explain that 'semi-regular tessellations' use two or more types of regular polygons.

Main activity

Group task

Give each group a card rectangle, square and octagon, a large piece of paper, a ruler and scissors.

Teach How? Tessellation steps 4 and 5, as shown left.

Plenary

Whole class teaching

Ask each group to show the class their tile patterns.

Ask the pupils to discuss where they have seen tessellation, eg: bricks, floor tiles.

Lesson title

Week 24: Shape

Day 4: Constructing 3D shapes

2D shapes/Scissors/ Nets/Glue

Learning outcomes

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

Explain the properties of 2D shapes.

Construct 3D shapes and say some properties of the shape.

Preparation

Before the lesson:

Have ready a set of large 2D shapes for each group.

Have ready scissors, tape or glue and nets of cuboids or square-based pyramids for each group.

Read How? Constructing 3D shapes 1, as shown below.

How? Constructing 3D shapes 1

Show the pupils the net of a cuboid.

Give half of the groups a cuboid net to cut out.

Show the pupils the net of a square-based pyramid.

Give half of the group a square-based pyramid net to cut out.

Tell the groups to fold their nets to make cuboids and square-based pyramids.

15 minutes	10 minutes	25 minutes	10 minutes
2D shapes/ Game	How / Scissors/ Nets/Glue		

Daily practice

Group task

Give each group a set of 2D shapes to play What am I? several times.

Remind them to give useful clues, eg: 'I am a 2D shape. I have six equal sides.'

Introduction

Group task

Remind the pupils that the faces of 3D shapes are 2D shapes.

Tell the groups to think about the 2D shapes in a cuboid and a square-based pyramid and ask them to name them.

Give the groups scissors, a net and tape or glue.

Teach How? Constructing 3D shapes 1 steps 1, 2, 3 and 4, as shown left.

Main activity

Group task

Remind the pupils to think about how they will need to fold the nets to make their 3D shapes.

Teach How? Constructing 3D shapes 1 step 5, as shown left.

Tell the pupils to discuss the properties of their 3D shapes.

Plenary

Whole class teaching

Ask the pupils to leave their 3D shapes on their tables.

Tell them to walk around the classroom and look at the shapes other groups have made.

Tell them to discuss what they found difficult when constructing their 3D shapes.

Ask them to think about what they might do differently next time they make a net.

Keep the shapes to make a display.

Lesson title

Week 24: Shape

Day 5: Constructing 3D shapes

3D shapes/Scissors/ Nets/Glue

Learning outcomes

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

Say the properties of 3D shapes.

Construct 3D shapes and say some properties of the shape.

Preparation

Before the lesson:

Have ready a set of 3D shapes.

Have ready scissors, tape or glue and nets of triangular prisms or cones for each group.

Read How? Constructing 3D shapes 2, as shown below.

How? Constructing 3D shapes 2

Show the pupils the net of a triangular prism.

Give half of the groups a triangular prism net to cut out.

Show the pupils the net of a cone.

Give half of the groups a cone net to cut out.

Tell the groups to make triangular prisms and cones from their nets.

Daily practice	Introduction	Main activity	Plenary
15 minutes	15 minutes	25 minutes	5 minutes
3D shapes/ Game	How Scissors/ Nets/Glue		

Group task

Show the pupils the 3D shapes and choose some pupils to name them.

Tell them they should look at the 3D shapes to decide which one they are going to describe to play What am I?

Give the groups time to play the game several times.

Group task

Ask the pupils to think about the activities they did yesterday constructing 3D shapes.

Choose some pupils to say what they would do differently when constructing 3D shapes.

Give the groups scissors, a net and tape or glue.

Teach How? Constructing 3D shapes 2 steps 1, 2, 3 and 4, as shown left.

Group task

Remind the pupils to think about how they will need to fold the nets to make their 3D shapes.

Teach How? Constructing 3D shapes 2 step 5, as shown left.

Tell the pupils to discuss the properties of their 3D shapes.

Whole class teaching

Ask the pupils to leave their 3D shapes on their tables.

Tell them to walk around the classroom and look at the shapes other groups have made.

Keep the shapes to make a display.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 25: Money

Words/phrases

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

shopping
money
Naira
kobo
bank notes
calculation
two-step

Learning expectations

By the end of the week:

All pupils will be able to:
Give the correct bank notes to pay for an item.

Most pupils will be able to:
Find the total cost of three or more items on a shopping list.

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

Assessment task

Instructions:

Ask an individual pupil to:

1
Go to the shopping corner and write the amount for each item on their list and write the total of the six items.

If you pay with N2000, how much change would you get?

2
Solve the following word problem:
Faris goes to a shop and buys a book of N450, a notebook of N280 and a set of biro's for N75. If he pays with N1000, how much change will he get?

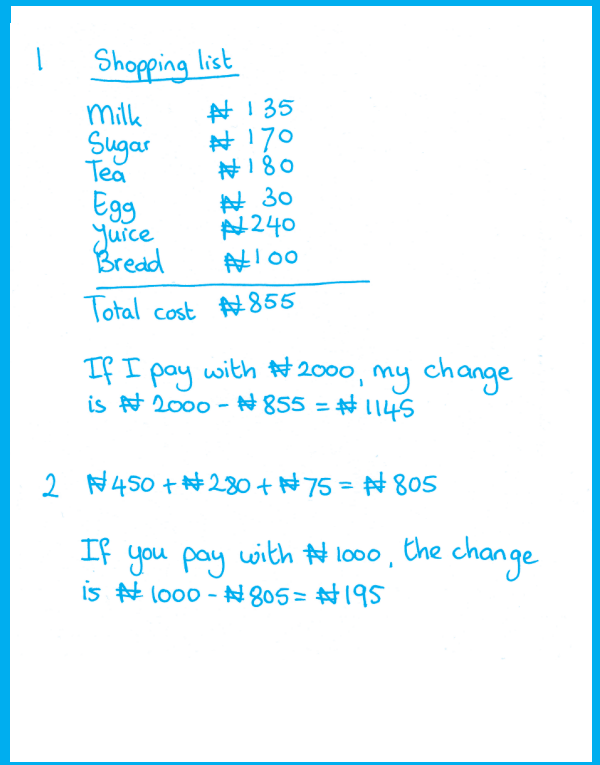
Example of a pupil's work

This pupil can:

Make a shopping list with realistic prices.

Calculate the correct change.

Solve a two-step word problem.



1 Shopping list

Milk	₦135
Sugar	₦170
Tea	₦180
Egg	₦30
Juice	₦240
Bread	₦100
Total cost	₦855

If I pay with ₦2000, my change is ₦2000 - ₦855 = ₦1145

2 ₦450 + ₦280 + ₦75 = ₦805

If you pay with ₦1000, the change is ₦1000 - ₦805 = ₦195

Lesson title

Week 25: Money

Day 1: Naira

Grid/Bank notes/ Paper/Crayons

Learning outcomes

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

Multiply numbers by 10 and 100 and describe what happens.

Work out the cost of items to buy at the shop.

Preparation

Before the lesson:

Copy the place value grid, shown right, on to the chalkboard and keep it there for the week.

Have ready some bank notes, a large piece of paper, and enough paper and crayons for pupils to make their own bank notes.

Read How? Naira, as shown below.

How? Naira

Show the pupils different bank notes.

Invite pupils to draw some of the bank notes on the chalkboard.

Give the pupils paper and crayons to make their own paper money.

Ask the pupils to show you ways to make N100 using different notes.

Ask the pupils to show you ways to make N200 using different notes.

15 minutes	Grid	15 minutes	How	20 minutes	10 minutes	Paper

Daily practice

Whole class teaching

Ask the class:

'What happens when we multiply numbers by 10?'

'What happens when we multiply numbers by 100?'

Choose a pupil to write '452' in the place value grid and another pupil to multiply it by 10 and 100 and write the answers in the grid.

Place value grid

Tth	Th	H	T	U	.	t	u

Ask, 'What has happened to the place value of the 5 Tens?'

Tell the pupils to multiply the following numbers by 10 and 100 in their exercise books:

583
160
467
791

Introduction

Whole class teaching

Ask the pupils to discuss the Naira notes that people use.

Choose some pupils to describe the bank notes and ask questions to prompt them if needed, eg: 'What colour is the N100 note?', 'Who is on the N500 note?'

Remind the pupils that kobo coins are very rarely used now.

Teach How? Naira, as shown left.

Main activity

Pair task

Ask the pairs to discuss the things they go to the shop to buy.

Tell them to think about how much each item costs.

Ask them to draw some items in their exercise books and write the price each item would cost.

Tell them to add together the cost of their items and draw the notes they would use to pay for them.

Plenary

Whole class teaching

Explain to the class that they are going to create a price list for a shopping corner.

Choose some pupils to say the items they have drawn and the prices of their items.

Ask the class if they agree, then write the agreed price on the large piece of paper.

Price list

Item	Cost
Eggs	
Bread	
Indomie	
Biscuits	
Tea	

Lesson title

Week 25: Money

Day 2: Shopping corner

Grid/Price list/Paper money/ Items/Labels

Learning outcomes

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

Multiply decimal numbers by 10 and 100 and describe what happens.

Give the correct money for items and count back change.

Preparation

Before the lesson:

Make sure the place value grid from Week 25, Day 1 is on the chalkboard.

Have ready the price list and paper money prepared yesterday, some items and labels for a shopping corner.

Read How? Shopping corner, as shown below.

How? Shopping corner

Set up a shopping corner and display the price list made yesterday.

Ask the pupils to write price labels for the items in the shop.

Choose some pupils to take turns to buy and sell items in the shop.

Tell the buyer to choose some items and pay for them.

Tell the seller to count back the change.

10 minutes	Grid	15 minutes	How	20 minutes	15 minutes

Daily practice

Whole class teaching

Ask, 'What happens when we multiply numbers by 10 and 100?'

Choose a pupil to write '72.4' in the place value grid and another pupil to multiply it by 10 and 100 and write the answers in the grid.

Ask, 'What has happened to the place value of the 4 tenths?'

Tell the pupils to multiply the following numbers by 10 and 100 in their exercise books:
23.6
46.10
37.8

Introduction

Whole class teaching

Teach How? Shopping corner, as shown left.

Main activity

Group task

Explain to the pupils that they are going to prepare a shopping list for another group.

Tell them that the shopping list must have between 4 and 6 items from the shopping corner, and their prices.

Let the pupils go to the shopping corner to look at the items and prices while they are working.

Plenary

Whole class teaching

Choose a shopping list from one of the groups and write it on the chalkboard.

Invite a pupil to add the items together and write the total price.

Ask the following questions:

'How much money altogether does this group need to take to the shop?'

'How much change will they get from N2000?'

Tell the pupils to keep their shopping lists for the next day.

Lesson title

Week 25: Money

Day 3: Shopping lists

Grid/Shopping corner/
Paper money/Shopping lists

Learning outcomes

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

Divide numbers by 10 and 100 and describe what happens.

Give the correct money for items and count back change.

Preparation

Before the lesson:

Make sure the place value grid from Week 25, Day 1 is on the chalkboard and the shopping corner is ready.

Have ready paper money for each group and their shopping lists from Week 25, Day 2 (yesterday).

Read How? Shopping lists, as shown below.

How? Shopping lists

Choose some pupils to take their shopping list and paper money to the shopping corner.

Tell them to pick the items on their shopping list.

Tell them to work out how much money to give the shopkeeper.

Tell them to pay the shopkeeper.

10 minutes	Grid	15 minutes	25 minutes	Shopping lists/ Paper money	How	10 minutes

Daily practice

Whole class teaching

Ask, 'What happens when we divide numbers by 10 and 100?'

Choose a pupil to write '455' in the place value grid and another pupil to divide it by 10 and 100 and write the answers in the grid.

Ask, 'What has happened to the place value of the 4 Hundreds?'

Tell the pupils to divide the following numbers by 10 and 100 in their exercise books:
36
74
126
339

Introduction

Whole class teaching

Remind the pupils that when they give change they count on from the total spent.

Write on the chalkboard:
'If I spend N1220, what is my change from N1500?'

Explain that we count on using the following steps:
1220 to 1250 = 30
1250 to 1300 = 50
1300 to 1500 = 200
30 + 50 + 200 = 280

The answer = N280

Work through other examples together, eg:
'If I spend N1665, what is my change from N2000?'

Main activity

Group task

Tell each group to swap their shopping list with another group.

Give the groups paper money and choose two pupils in each group to be the buyer and shopkeeper.

Ask each group to work out the total cost of their shopping and show the paper money they will need.

Ask the class if they could use different notes and if they will need any change.

Whole class teaching

Teach How? Shopping lists, as shown left.

Give each group time to go to the shopping corner and buy the items on their list.

Ask the class to check that the buyer gives the correct money and that the shopkeeper gives the correct change.

Plenary

Whole class teaching

Ask the pupils to think about the following problem:
'Which two items could I buy from the class shop if I had N200 to spend?'

Invite some pairs to go to the shopping corner to show the two items to the class.

Lesson title

Calculations/
Paper money

Week 25:
Money

Day 4:
Rakiya goes to the zoo

Learning outcomes

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

Write a family of facts for simple sums.

Identify the calculations needed to solve word problems.

Preparation

Before the lesson:

Write the family of facts calculations from today's daily practice, shown opposite, on the chalkboard.

Have ready paper money for each group.

Read How? Rakiya goes to the zoo, as shown below.

How?
Rakiya goes to the zoo

Rakiya has N2000 to go to the zoo.

She pays N450 for the bus.

She pays N850 to get into the zoo.

She buys a drink and snack for N175.

Later she gets a bike home and pays N200.

15 minutes	Calculations	15 minutes	How	Paper money	20 minutes	10 minutes

Daily practice

Whole class teaching

Remind the pupils that when they know one number fact they know a whole family of facts.

If they know the answer to 3 x 4 =, they also know the answer to three more calculations:
4 x 3 =
12 ÷ 3 =
12 ÷ 4 =

Ask the pupils to write the family of facts for these calculations in their exercise books:
9 x 3 =
7 x 6 =
10 x 8 =
20 ÷ 5 =
36 ÷ 3 =

Introduction

Group task

Explain the story in How? Rakiya goes to the zoo, as shown left.

Give some pupils the paper money and ask them to role play Rakiya going to the zoo.

Ask the groups to check that the correct change is given in each part of the story.

Ask, 'How much money has Rakiya got at the end of the story?'

Choose a pupil to show the class how much money Rakiya had left by working it out on the chalkboard.

Main activity

Pair task

Tell the pupils they are going to write their own character story word problem.

Give them some examples, eg: Lawan takes his sister to the park or Kamil takes a boat trip.

Remind them to think about the following:

How much money will their character start the day with?

What will the money be spent on?

How much money will be left?

Tell the pairs to write their problem in their exercise books.

Plenary

Whole class teaching

Choose one or two pairs to read out their story problem.

Invite other pupils to write the amount of money and what was spent on the chalkboard.

Ask the pupils to work out how much is left at the end of the story problem.

Week 25: Money

Day 5: Two-step word problems

Learning outcomes

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

Recall answers to the 5 and 10 times tables quickly.

Solve two-step word problems.

Preparation

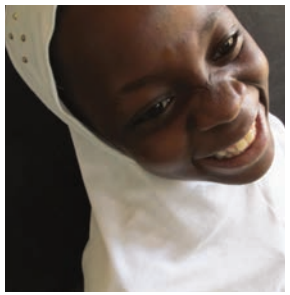
Before the lesson:

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

Read How? Play the fizz buzz game, as shown below.

How? Play the fizz buzz game

Tell the pupils to stand in a circle and count round from 1.



When a pupil reaches a multiple of 5, they say 'fizz'.

When they reach a multiple of 5 and 10, they say 'fizz buzz'.

If anyone forgets to say 'buzz' or 'fizz buzz', or says it in the wrong place, they are out.

This can be played in smaller groups with two different times tables.

15 minutes	How	Game	15 minutes	Word problem	20 minutes	Word problems	10 minutes

Daily practice

Whole class teaching

Play Fizz buzz with the class, as shown left in How? Play the fizz buzz game.

Introduction

Whole class teaching

Read out the following word problem on the chalkboard:
'A teacher is planning a surprise party for the 34 pupils in her class. She is going to buy a soda and a meat pie for each pupil. The sodas cost N110 each and the meat pies cost N60 each. How much will she spend altogether?'

Ask a pupil to underline the key information.

Explain that this word problem needs two calculations.

Invite some pupils to the chalkboard to write the calculations needed to solve the problem, ie:
34 x N110 = N3740
34 x N60 = N2040
N3740 + N2040 = N5780
The answer = N5780

Main activity

Individual task

Read out the following word problems for the pupils to solve in their exercise books:

'For a birthday party, a baker has to bake 35 small cakes at a cost of N75 each and one large iced cake at a cost of N4500. He adds N600 to his bill for the cost of transport. How much is his bill?'

'Mr Yakubu is celebrating the birth of a grandchild. He has N10000 and buys 23 cakes at a cost of N115 each, and 23 cans of Malta at a cost of N120 each on his way to work. How much change will he have?'

Plenary

Whole class teaching

Choose one or two pupils to explain how they calculated one of the problems.

Credits

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

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