Numeracy lesson plans Primary 5, term 2, weeks 11—15

Decimals, measurements, perimeter and area of shapes

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Introduction

It is pertinent to say that teacher training remains the key element in improving schools and increasing learning outcomes.

Jigawa State Ministry of Education Science and Technology (MOEST) and the State Universal Basic Education Board (SUBEB) are working with the United Kingdom (UK) Department for International Development (DFID) and Education Sector Support Programme in Nigeria (ESSPIN), to increase capacity of teachers and head teachers to be effective and accountable on literacy, numeracy and leadership in Primary schools.

This work has focussed on how to make teaching child centred, and the organisational structure needed to improve service delivery. With the introduction of the full lesson plans, which came after the initial pilot abridged version, the story of ineffective methods of teaching literacy and numeracy is changing.

The introduction of lesson plans was to ensure that classroom teachers' capacity was improved.

Among other things, the lesson plans sought to address the issue of poor methods of teaching by offering step-by-step guidance to teachers on how to deliver good quality lessons in literacy and numeracy.

The complete modules of lesson plans for Primary 1—5 were produced through the efforts of the State School Improvement Team (SSIT), with technical assistance from ESSPIN funded by the UK Department for International Development (DFID).

Alongside the plans the new structure and process ensures that teachers are continuously supported by both the SSITs and the Local Government Education Authority (LGEA) based School Support Officers (SSOs).

I am confident that with the correct implementation and targetted support, these lesson plans will raise standards and improve the quality of teaching and learning outcomes.

Salisu Zakar Hadejia
Executive Chairman,
SUBEB, Jigawa 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.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 11: Numbers

Words/phrases

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

backwards
forwards
thousands
ten thousands
digits
greater than
less than

Learning expectations

By the end of the week:

All pupils will be able to:
Multiply whole numbers by 10 and 100.

Most pupils will be able to:
Identify place value and expand five-digit numbers.

Some pupils will be able to:
Write any given number in words and digits.

Assessment task

Instructions:

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

1
Write down two different five-digit numbers.

2
Write the correct headings (Tth Th H T U) above the numbers.

3
Multiply these numbers by 10: 34, 71

Multiply these numbers by 100: 26, 58

Multiply these numbers by 100: 45, 19

4
Complete and explain the following pattern:

3 x 4 = 12
30 x 4 =
300 x 4 =
3000 x 4 =

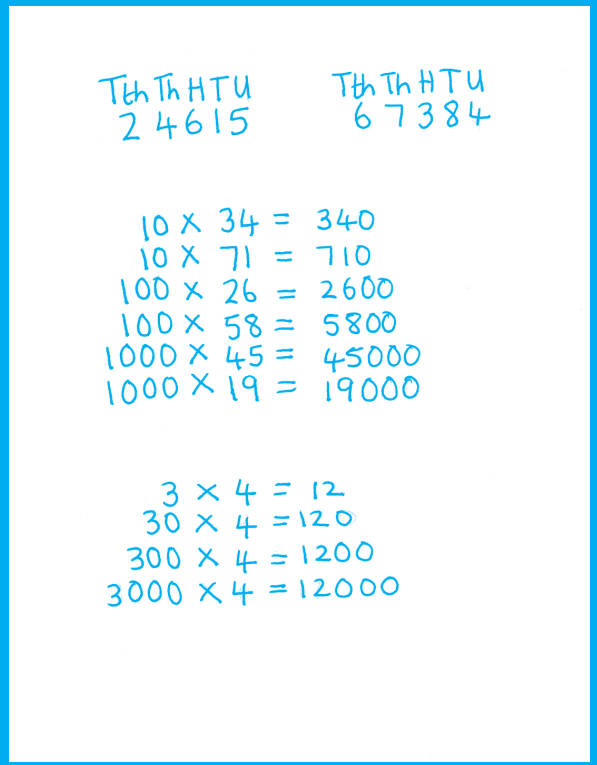
Example of a pupil's work

This pupil can:

Identify the place value of each digit in a five-digit number.

Multiply whole numbers by 10, 100 and 1000.

Complete a pattern of numbers that increases by x 10, x 100 and x 1000 each time.



Lesson title

Week 11: Numbers

Day 1: Place value

0—9 number cards/
Place value chart

Learning outcomes

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

Recall the 8 times table quickly.

Identify the place value of four-digit numbers.

Preparation

Before the lesson:

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

Copy the place value chart, shown opposite, on to the chalkboard.

Read How? Guess my number, as shown below.

How? Guess my number

Draw a place value chart on the chalkboard.

Choose a pupil to write a four-digit number on a piece of paper and keep it secret.

Choose some pupils to say four-digit numbers and write them on the chalkboard.

If any digits match part of the secret number, add them to the chart.

Ask the pupils to continue until they guess the secret number.

10 minutes	10 minutes	25 minutes	0—9 number cards	Chart	15 minutes	How

Daily practice

Whole class teaching

Ask the pupils to stand in a circle and count forwards in eights, starting at zero (0).

Ask them to count backwards in eights, starting at 96.

Ask some individual pupils questions from the 8 times table.

Ask the following questions:

'If you know what 3 x 2 is, what is 30 x 2?'

'If you know the answers to 3 x 2 and 30 x 2, what is 300 x 2?'

Introduction

Whole class teaching

Write the following numbers (with the underlined digits) on the chalkboard:
5632
2341
5764
4782
1047

Write, 'Th H T U' on the chalkboard.

Ask, 'What is the place value of each underlined digit?'

Ask the pupils to write the numbers in the correct place value and say the numbers, eg: five thousand six hundred and thirty-two.

Main activity

Pair task

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

Ask them to put the cards face down.

Tell the pairs to turn over four cards and write all the numbers that they can make with those numbers.

Remind them to say the numbers as they make them.

Ask the pairs to copy the place value chart from the chalkboard into their exercise books.

Tell them to use the following numbers to complete the chart:
1094
3676
4978
8465
6930

Place value chart

	Th	H	T	U	Expand
5632	5	6	3	2	5000 + 600 + 30 + 2
1094					

Plenary

Whole class teaching

Play How? Guess my number, as shown left.

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

Lesson title

Week 11: Numbers

Day 2: Place value to tens of thousands

Place value chart/
0—9 number cards

Learning outcomes

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

Recall the 9 times table quickly.

Identify the place value of five-digit numbers.

Preparation

Before the lesson:

Copy the place value chart, shown opposite, on to the chalkboard.

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

Read How? Tens of thousands, as shown below.

How? Tens of thousands

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

Ask them to choose five cards.

Tell them to make five-digit numbers with the cards.

Show the pairs how to write the numbers in a place value chart.

Tell them to write the chart in their exercise books and expand the numbers.

10 minutes	10 minutes	30 minutes	How	Place value chart	10 minutes	Game

Daily practice

Whole class teaching

Ask the pupils to stand in a circle and count forwards in nines, starting from 0.

Ask the pupils to count backwards in nines, starting from 108.

Ask individual pupils questions from the 9 times table.

Ask, 'If you know that 3 x 9 = 27, what are the answers to the following?'
30 x 9 =
300 x 9 =
30 x 90 =
300 x 90 =

Introduction

Whole class teaching

Remind the pupils that yesterday they identified the place value of four-digit numbers.

Write the following on the chalkboard:
'TTh Th H T U'.

Remind the class that:
Units x Ten = Tens
Tens x Ten = Hundreds
Tens x Hundred = Thousands

Ask, 'What is the next column on the place value chart?' (Tens of Thousands, TTh)

Write, '36426' under the correct place value headings and ask the pupils to say the number, then repeat with: 24548, 38971, 82792.

Main activity

Whole class teaching

Teach How? Tens of thousands, as shown left.

Use the chart below to explain to the class that with the five cards they have chosen they can make many five-digit numbers, eg: 41296, 64921, 91264.

Remind the pupils to say the numbers they have made to their partner, eg: forty one thousand, two hundred and ninety-six.

Repeat with five new cards.

Place value chart

	TTh	Th	H	T	U	Expand
41296	4	1	2	9	6	40000 + 1000 + 200 + 90 + 6
64921						
91264						

Plenary

Whole class teaching

Play guess my number, as shown in Day 1 (yesterday).

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

Lesson title

0—9 number cards/ Calculations

Week 11: Numbers

Day 3: Multiplying by 10, 100 and 1000

Learning outcomes

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

Understand the pattern in the 9 times table.

Multiply whole numbers by 10, 100 and 1000.

Preparation

Before the lesson:

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

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

Read How? Multiply by 10, 100, 1000, as shown below.

How? Multiply by 10, 100, 1000

Ask the pupils to choose two number cards and multiply the numbers.

Multiply one side by 10.

Multiply one side by 100.

Multiply one side by 1000.

Explain the pattern: the multiplication increases by 10, so does the answer.

10 minutes	10 minutes	25 minutes	Calculations	How	0—9 number cards	15 minutes	Game

Daily practice

Whole class teaching

Explain that the 9 times table can be tricky.

Write the following sums on the chalkboard and ask the pupils to complete the pattern:

09 = 9 x 1

18 = 9 x 2

27 = ☐ x ☐

36 = ☐ x ☐

45 = 9 x 5

54 = ☐ x ☐

63 = ☐ x ☐

72 = ☐ x ☐

81 = ☐ x ☐

90 = ☐ x ☐

Look together at the pattern and discuss.

Introduction

Whole class teaching

Remind the pupils of the following:

4 x 6 = 24

40 x 6 = 240 (x 10)

400 x 6 = 2400 (x 100)

4000 x 6 = 24000 (x 1000)

Ask, 'What is happening to the answer in each of these sums?'

Explain that when we multiply by Tens, Hundreds or Thousands then the answer will be 10, 100 or 1000 times bigger.

Repeat with:

3 x 9 =

4 x 7 =

Main activity

Individual task

Ask the pupils to complete the following calculations in their exercise books:

☐ x 8 = 24

☐ x 8 = 240

☐ x 8 = 2400

☐ x 8 = 24000

☐ x 9 = 36

☐ x 9 = 360

☐ x 9 = 3600

☐ x 9 = 36000

Ask the pupils to complete the patterns for the following sum in their exercise books:

☐ x 7 = 21

Whole class teaching

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

Teach How? Multiply by 10, 100, 1000, as shown left.

Repeat the pattern with two new cards.

Plenary

Whole class teaching

Play multiplication bingo, as shown in Week 4, Day 2, with the 9 times table.

Lesson title

Week 11: Numbers

Day 4: Numbers in words and digits

Number words chart

Learning outcomes

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

Recall the 7, 8 and 9 times tables quickly.

Read and write numbers in words and digits.

Preparation

Before the lesson:

Have ready the number words chart used in Week 1, Day 4.

Read How? Read and write numbers to 10000, as shown below.

How? Read and write numbers to 10000

Display the number word chart and choose some pupils to read the number words.

Write some five-digit numbers on the chalkboard.

Choose some pupils to write, 'TTh, Th, H, T, U' in the correct place above the numbers.

Choose some pupils to read the five-digit numbers in words on the chalkboard.

Choose some pupils to write the correct numbers to match the words.

15 minutes	Game	10 minutes	20 minutes	How	Number words chart	15 minutes	Game

Daily practice

Whole class teaching

Play the clock times tables game with the 7, 8 and 9 times tables, as shown in Week 3, Day 2.

Introduction

Whole class teaching

Ask the pupils to stand in a circle and count round the circle in 100s and then in 1000s.

Write the following numbers on the chalkboard:
4539
9371
23645
16593

Choose some pupils to read the numbers.

Choose some pupils to write the TTh, Th, H, T and U place values above the numbers.

Main activity

Whole class teaching

Look together at the number words chart from Week 1, Day 4.

Teach How? Read and write numbers to 10000, as shown left.

Individual task

Tell the pupils to write the following numbers in words in their exercise books:
4539
9371
23645
16593

Remind them to use the number word chart.

Plenary

Whole class teaching

Play guess my number, as shown in Week 11, Day 1.

Lesson title

Week 11: Numbers

Day 5: Using < and >

0—9 number cards/
Flash cards/Number pairs

Learning outcomes

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

Recall the 7, 8 and 9 times tables quickly.

Use the symbols < and > between four- and five-digit numbers.

Preparation

Before the lesson:

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

Write the pairs of numbers from the main activity, shown right, on the chalkboard.

Read How? Less then, greater than, as shown below.

How? Less than, greater than

Ask the pupils to read the numbers and say them correctly.

Ask, 'Which is the greater number in each pair?' and 'How do you know that?'

Explain that the smallest part of the sign points to the smallest number.

Explain that the largest part of the sign points to the largest number.

Ask the pupils to hold up the correct sign to go between the numbers.

Daily practice	Introduction	Main activity		Plenary
10 minutes	15 minutes How	25 minutes Flash cards	Number pairs	10 minutes 0—9 number cards/ Flash cards

Daily practice

Whole class teaching

Ask the pupils to stand in a circle.

Tell them to count around the circle forwards in nines.

If pupils hesitate for too long or give an incorrect number, they sit down.

Play until only two pupils are left standing.

Repeat with smaller groups and the 7 and 8 times tables.

Introduction

Whole class teaching

Write the following on the chalkboard:

2578 ☐ 3472

98457 ☐ 23412

Teach How? Less than, greater than, as shown left.

Main activity

Whole class teaching

Give out the < and > cards.

Write more pairs of numbers on the chalkboard:

4391 ☐ 6828

56483 ☐ 34592

90761 ☐ 90671

Ask the pupils to show the correct symbol to go between the numbers, eg: less than < or greater than >.

Pair task

Ask the pairs to copy the following pairs of numbers into their exercise books and put < or > between them:

2344 ☐ 4763

3462 ☐ 4504

32395 ☐ 19467

87367 ☐ 78364

27930 ☐ 65841

Plenary

Pair task

Give each pair a set of <, > and 0—9 number cards and tell them to put the number cards face down.

Tell one pupil in each pair to choose five cards and make a five-digit number.

Their partner should make a five-digit number with the remaining cards.

Tell the pairs to place their < or > card between the numbers.

Tell the pairs to repeat the exercise with other numbers.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 12: Decimals

Words/phrases

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

digits
forwards
backwards
decimals
difference
sum

Learning expectations

By the end of the week:

All pupils will be able to:
Solve simple addition and subtraction calculations.

Most pupils will be able to:
Solve addition and subtraction calculations involving decimal numbers.

Some pupils will be able to:
Solve word problems involving addition and subtraction.

Assessment task

Instructions:

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

1
Solve these sums using the vertical method:
62.13 + 36.45 =
46.27 + 21.54 =

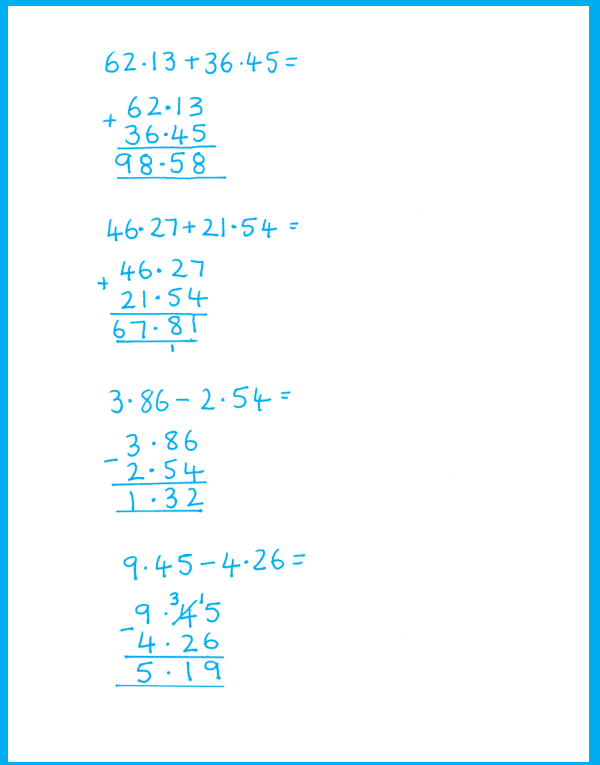
2
Solve these sums using the vertical method:
3.86 – 2.54 =
9.45 – 4.26 =

Example of a pupil's work

This pupil can:

Use the vertical method to add four-digit decimal numbers, including carrying hundredths.

Use the vertical method to subtract four-digit decimal numbers, including renaming tenths.



Lesson title

Week 12: Decimals

Day 1: Addition with decimals

Question and answer cards/ Chart

Learning outcomes

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

Add two-digit numbers quickly.

Add four-digit decimal numbers.

Preparation

Before the lesson:

Prepare 20 question sum cards involving adding two-digit numbers (eg: 39 + 13 =) and 20 answer cards (eg: 52).

Copy the decimal and fraction chart, shown opposite, on to the chalk-board and read How? Fractions and decimals, as shown below.

How? Fractions and decimals

Ask, 'What are the numbers to the right of the Units?' (tenths and hundredths).

Invite some pupils to change decimals to fractions (tenths) on the chalkboard.

Invite some pupils to help you change decimals to fractions (hundredths) on the chalkboard.

Choose some pupils to say decimal numbers, eg: '346.58'.

Ask a pupil to identify the value of each digit.

15 minutes	Addition squares	15 minutes	How	Chart	20 minutes	10 minutes	Game/ Question and answer cards

Daily practice

Whole class teaching

Explain how useful it is to be able to quickly add numbers in your head.

Draw the addition squares, shown below, on the chalkboard and tell the pupils to add the numbers across in the first square: (5 + 7, 4 + 9) and down (5 + 4, 7 + 9).

Add the sums together: (12 + 13) (9 + 16) to find the total sum (25).

Look at the second addition square with the pupils.

Addition squares

5	7	
4	9	

8	10	
11	15	

Introduction

Whole class teaching

Explain to the pupils that we know the place value of whole numbers.

Remind them that fractions and decimals are both part of a whole.

Teach How? Fractions and decimals, as shown left, using the decimal and fraction chart on the chalkboard.

Ask the pupils to write the following numbers as fractions: 452.6, 34.81

Decimal and fraction chart

	tenths	fraction
1	0.1	$\frac{1}{10}$
2	0.2	$\frac{2}{10}$
10		$\frac{10}{10}$

Main activity

Pair task

Look together at the following calculation: 13.252 + 4.347 =

Write the calculation in the vertical form:

```
  T U . t  h th
  1 3 . 2  5  2
+   4 . 3  4  7
```

Write the following calculations on the chalkboard and tell the pupils to complete them in their exercise books:
11.416 + 0.463 =
6.808 + 53.16 =
7.382 + 0.795 =

Remind them to write the place values 'T U.t h th' above the calculations.

Plenary

Whole class teaching

Play find a friend using the question and answer sum cards.

Lesson title

Week 12: Decimals

Day 2: Addition with decimals

Question and answer cards/
Addition squares

Learning outcomes

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

Add two-digit numbers quickly.

Add four-digit decimal numbers.

Preparation

Before the lesson:

Have ready the question and answer cards from Day 1 (yesterday).

Copy the three new addition squares, shown opposite, on to the chalkboard.

Read How? Decimal addition, as shown below.

How? Decimal addition

Look together at the calculation on the chalkboard and ask a pupil to read it.

Write the calculation vertically.

Invite a pupil to calculate the answer and explain each step.

15 minutes	Addition squares	10 minutes	How	25 minutes		10 minutes	Game/ Question and answer cards

Daily practice

Individual task

With the class, look at one of the addition squares on the chalkboard.

Remind the pupils how to add the numbers across and down to find the total sum.

Give the pupils 5 minutes to complete the squares and find the total sums.

Addition squares

13	10	
25	34	

17	22	
15	33	

19	15	
28	13	

Introduction

Whole class teaching

Teach How? Decimal addition, as shown left.

Main activity

Individual task

Ask the pupils to complete the following calculations in their exercise books:

9.782 + 8.467 =
2.765 + 3.218 =
4.345 + 5.324 =

Remind the pupils to write the calculations vertically.

Remind them to write 'U.t h th' place values above the calculations.

Remind them that the rules for crossing boundaries are the same as when adding whole numbers.

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 (✓).

Plenary

Whole class teaching

Play find a friend using the question and answer cards from Day 1 (yesterday).

Lesson title

Calculations/
Addition squares

Week 12: Decimals

Day 3: Subtraction with decimals

Learning outcomes

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

Add two-digit numbers quickly.

Subtract four-digit decimal numbers.

Preparation

Before the lesson:

Write the calculations from today's main activity on the chalkboard.

Copy the six new addition squares, shown opposite, on to the chalkboard.

Read How? Decimal subtraction, as shown below.

How? Decimal subtraction

Look together at the calculation on the chalkboard and ask a pupil to read it.

Write the calculation vertically.

Invite a pupil to write in the place value above the numbers.

Invite a pupil to calculate the answer and explain each step.

15 minutes	Addition squares	10 minutes	How	25 minutes	Calculations	10 minutes	Game

Daily practice

Individual task

With the class, look at one of the addition squares on the chalkboard.

Remind the pupils how to add the numbers across and down to find the total sum.

Give the pupils 10 minutes to complete the squares and find the total sums.

Addition squares

11	25	
42	30	

25	17	
12	33	

41	17	
19	32	

29	12	
15	35	

31	14	
26	45	

22	36	
44	13	

Introduction

Whole class teaching

Teach How? Decimal subtraction, as shown left.

Main activity

Pair task

Ask the pairs to solve the following calculations in their exercise books:
5.23 – 3.21 =
8.469 – 4.253 =
5.42 – 1.37 =
7.636 – 3.342 =

Remind the pairs to write the calculations vertically.

Remind them to write 'U.t h th' place values above the calculations.

Remind them that the rules crossing boundaries are the same as when subtracting whole numbers.

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

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

Plenary

Whole class teaching

Play guess my number, as shown in Week 11, Day 1.

Lesson title

Week 12: Decimals

Day 4: Subtraction with decimals

Question cards/Counters/ Paper circle

Learning outcomes

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

Quickly multiply a two-digit and a three-digit number.

Subtract four-digit decimal numbers.

Preparation

Before the lesson:

Prepare the question cards from today's daily practice and keep them for tomorrow.

Have ready nine counters for each pair and a large paper circle for each group.

Read How? Multiplication bingo, as shown below.

How? Multiplication bingo

Write answers to the question cards on the chalk-board and give out the counters.

Ask the pairs to draw a 3 x 3 grid and choose nine numbers from the chalkboard.

Tell the pairs to write one number in each square.

Ask the questions from the cards. If pairs have the correct answer, they should cover it.

The first pair to cover all the numbers in their grid correctly should shout, 'Bingo!'.

15 minutes	How	Question cards	10 minutes	20 minutes	Calculations	15 minutes	Circles/ Game

Daily practice

Whole class teaching

Teach How? Multiplication bingo, as shown left, using the following question cards:

20 x 4 =
70 x 10 =
4 x 30 =
6 x 70 =
60 x 7 =
35 x 100 =
25 x 3 =
9 x 20 =
10 x 63 =
45 x 3 =
30 x 7 =
4 x 25 =
50 x 5 =
75 x 3 =
80 x 6 =

Introduction

Whole class teaching

Write '3.746 – 2.251 =' on the chalkboard.

Ask a pupil to work through the calculation, explaining what they are doing as they work out the answer.

Main activity

Pair task

Write the following calculations on the chalkboard and ask the pairs to solve them in their exercise books:

4.261 – 3.151 =
6.592 – 3.271 =
2.543 – 3.436 =

Remind the pairs to write the calculations vertically.

Remind them to write 'U.t h th' place values above the calculations.

Remind the pupils that the rules crossing boundaries are the same as when subtracting whole numbers.

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

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

Plenary

Group task

Tell the groups to write the following around the outside of their circles, like a clock face: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120.

Play clock times tables, as shown in Week 3, Day 2, with the 7 times table, working out the answers to the sums around the clock, ie: from 7 x 10 to 7 x 120.

Repeat with the 8 and 9 times tables.

Lesson title

Answers/ Word problems

Week 12: Decimals

Day 5: Word problems

Learning outcomes

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

Quickly multiply two-digit and three-digit numbers.

Solve addition and subtraction word problems.

Preparation

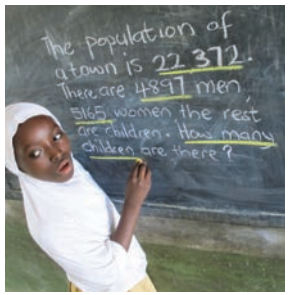
Before the lesson:

Write the answers to the bingo questions, from Week 12, Day 4 (yesterday) on the chalkboard.

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

Read How? Solving word problems, as shown below.

How? Solving word problems



Read the word problem and ask a pupil to underline the key words.

To find the number of children, first add together the number of men and women.

Next, subtract that answer from the total population.

Then write the answer in a sentence.

15 minutes	Game	10 minutes	How	25 minutes	Word problems	10 minutes

Daily practice

Whole class teaching

Play multiplication bingo, as shown in Week 12, Day 4 (yesterday).

Introduction

Whole class teaching

Write the following word problem on the chalkboard:

'The population of a town is 22372. There are 4897 men, 5164 women, and the rest are children. How many children are there?'

Teach How? Solving word problems, as shown left.

Remind the pupils that they have to pick out key information to solve word problems.

Main activity

Whole class teaching

Work through some other word problems together, as a class:

'Mr Aina earned N40600 in January and N46300 in February. His total expenses for the two months were N23700. How much did he have left after paying his expenses?'

'A fruit seller bought 1060 oranges from one market and 2350 from another. He sold 2030 oranges. His sister sold the remaining oranges the next day. How many oranges did his sister sell?'

Pair task

Ask the pairs to answer the following word problems in their exercise books:

'A trader mixed 2250kg of yam flour with 425kg of cassava flour. 1655kg of the flour was sold on market day. How much of the flour was left?'

'A market seller started the day with N960. She sold some goods for N5470 and paid a debt of N390. How much money does she have left?'

Plenary

Whole class teaching

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

Ask the pairs:

'What did you do first?'

'Which numbers did you add together?'

'Which numbers did you subtract?'

Ask the rest of the class if they agree with the answer. If not, go through the method as a class.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 5, numeracy lesson plans

Week 13:

Perimeter and area

Words/phrases

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

length
breadth
width
area
distance
around
centimetres
perimeter
right-angled

Learning expectations

By the end of the week:

All pupils will be able to:
Find the perimeter of squares and rectangles.

Most pupils will be able to:
Find the perimeter and area of squares and rectangles.

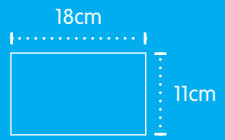
Some pupils will be able to:
Find the perimeter and area of compound shapes.

Assessment task

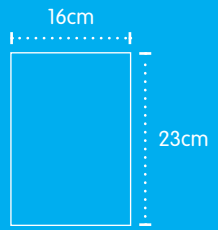
Instructions:

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

1
Find the perimeter of the following rectangle.



2
Find the area of the following rectangle.

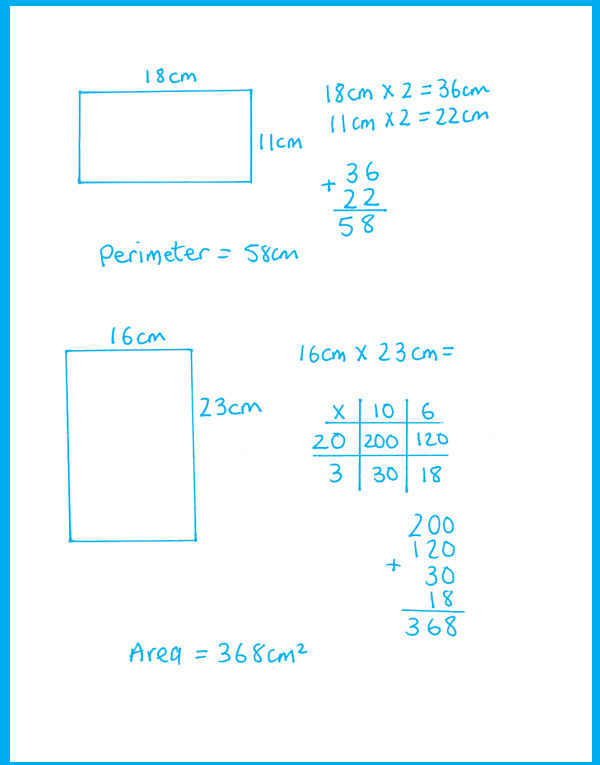


Example of a pupil's work

This pupil can:

Find the perimeter of a rectangle.

Find the area of a rectangle.



Lesson title

Week 13: Perimeter and area

Day 1: The perimeter of shapes

Rulers/Rectangles/Squares/Circles/Chart

Learning outcomes

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

Find patterns in multiplication.

Find the perimeter of squares and rectangles.

Preparation

Before the lesson:

Have ready a 30cm ruler, a card rectangle or square and a paper circle for each group.

Copy the chart from today's main activity on to the chalkboard.

Read How? Find the perimeter, as shown below.

How? Find the perimeter

Explain that the 'perimeter' is the distance around the outside of a shape.

Show the pupils how to measure each side of the shape and record the length and breadth.

Write the formula, 'l + b x 2' (length + breadth x 2).

Invite a pupil to add l + b.

Invite a pupil to multiply the answer by 2 to show the perimeter.

10 minutes	15 minutes	How	20 minutes	Rectangles/Squares/ Rulers/Chart	15 minutes	Circles/ Game

Daily practice

Whole class teaching

Write the following on the chalkboard for the pairs to answer:

26 x 1 =
26 x 2 =
26 x 3 =
26 x 4 =
26 x 10 =
26 x 20 =
26 x 30 =
26 x 40 =

15 x 1 =
15 x 2 =
15 x 3 =
15 x 4 =
15 x 10 =
15 x 20 =
15 x 30 =
15 x 40 =

Ask a pupil to explain the pattern.

Introduction

Whole class teaching

Teach How? Find the perimeter, as shown left.

Demonstrate with another shape with the following measurements:
length = 26cm
breadth = 18.5cm

Main activity

Group task

Give each group a card rectangle or square and a ruler.

Remind the pupils of the formula perimeter = length + breadth x 2 (p = l + b x 2).

Tell the pupils to measure the sides of their shape and record them in their exercise books in a chart like the one drawn on the chalkboard.

Perimeter chart

Length	Breadth	Perimeter = l + b x 2

Tell the groups to swap their shape with another group and find the perimeter of their new shape.

Then tell the groups to exchange their answers to see if they agree.

Plenary

Group task

Give each group a paper circle.

Tell them to write the following around the outside of their circles, like a clock face:
10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120.

Play clock times tables, as in Week 12, Day 4, working out the answers to the 8 times table, from 8 x 10 to 8 x 120.

Repeat with the 4 and 7 times tables.

Lesson title

Rectangles/Squares/Rulers/ Chart/Word problems

Week 13: Perimeter and area

Day 2: The area of shapes

Learning outcomes

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

Multiply two-digit by single-digit numbers.

Find the area of rectangles and squares using the formula l x b.

Preparation

Before the lesson:

Have ready the rectangles and squares from yesterday and a ruler for each group.

Copy the chart from today's main activity and the word problems from today's plenary on to the chalkboard.

Read How? Find the area of a rectangle, as shown below.

How? Find the area of a rectangle

Draw a rectangle on the chalkboard.

Measure each side of the shape. Record the length and breadth.

The formula for area is length x breadth (l x b) and the answer is written as 45cm^2.

Look at another rectangle and invite a pupil to identify the calculation.

Invite a pupil to multiply l x b to find the area.

15 minutes	10 minutes	How	25 minutes	Rectangles/Squares/ Rulers/Chart	10 minutes	Word problems

Daily practice

Individual task

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

42 x 8 =
25 x 3 =
34 x 7 =
19 x 7 =
53 x 5 =

Choose some pupils to share their answers and explain the method they used to solve the calculations.

If the class agrees, they should mark it with a small tick.

Introduction

Whole class teaching

Ask the pupils to discuss their learning from yesterday.

Explain that today they are going to find the area of a shape.

Remind the pupils that area is the measurement of a surface.

Teach How? Find the area of a rectangle, as shown left.

Remind the pupils that a square is a special type of rectangle because all of its sides are equal.

Main activity

Group task

Give each group a card rectangle or square and a ruler.

Remind the pupils of the formula area = length x breadth (a = l x b).

Tell the groups to measure the sides of their shape and record them in their exercise books in a chart like the one on the chalkboard.

Area chart

Length	Breadth	Area (cm²)

Tell the groups to swap their shape with another group and find the area of their new shape.

Then tell the groups to exchange their answers to see if they agree.

Plenary

Pair task

Read the following word problems with the class and ask the pairs to discuss and find the answers:

'A garden is 8 metres long and 2 metres wide. What is the area of the garden?'

'A playground is 20 metres long and 15 metres wide. What is the area of the playground?'

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

Lesson title

Week 13: Perimeter and area

Day 3: The area of squares and rectangles

Rulers/ Chart

Learning outcomes

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

Multiply two-digit numbers by two-digit numbers.

Find the area of shapes using the formula l x b.

Preparation

Before the lesson:

Have ready a ruler for each pair and copy the chart from today's main activity on to the chalkboard.

Read How? Find the area, as shown below.

How? Find the area

Draw a rectangle on the chalkboard and label the sides '19cm' and '12cm'.

Invite a pupil to write the formula to calculate the area: l x b (19cm x 12cm).

Invite a pupil to calculate the answer.

Remind the pupils to record the answer in cm^2.

Look at another rectangle and invite a pupil to calculate the area.

10 minutes	10 minutes	How	25 minutes	Rulers/ Chart	15 minutes

Daily practice

Individual task

Write the following on the chalkboard for the pupils to answer in their exercise books:
27 x 16 =
36 x 28 =
19 x 32 =

Choose some pupils to share their answers and explain the method they used to solve the calculations.

If the class agrees, they should mark it with a small tick.

Introduction

Whole class teaching

Draw a rectangle and a square on the chalkboard.

Ask, 'Can anyone say what is special about the sides of a square? (They are the same length.)

Tell the pupils that to find the area of a square we can use the formula $a = l^2$.

Teach How? Find the area, as shown left.

Main activity

Pair task

Ask the pairs to use their rulers to measure some rectangular classroom objects and find the area of the objects using the chart below.

Remind the pupils that to find the area of a rectangle we use the formula a = l x b.

Area chart

Object	Length	Breadth	Area
exercise book			
textbook			
table			

Plenary

Whole class teaching

Choose some pairs to say their answers and explain how they worked them out.

If the class agrees, they should mark it with a small tick.

Week 13: Perimeter and area

Day 4: The area of compound shapes

Learning outcomes

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

Multiply two-digit numbers by two-digit numbers.

Find the area of compound shapes.

Preparation

Before the lesson:

Copy the compound shapes from today's main activity on to the chalkboard.

Read How? Find the area of a compound shape, as shown below.

How? Find the area of a compound shape

Draw a rectangle (A) and a square (B) on the chalkboard and label the sides.

Write 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.

Remind pupils to record the answer in cm^2.

10 minutes	15 minutes	How	25 minutes	Compound shapes	10 minutes

Daily practice

Individual task

Write the following on the chalkboard for the pupils to answer in their exercise books:
34 x 15 =
28 x 32 =
82 x 12 =

Choose some pupils to share their answers and explain the method they used.

If the class agrees, they should mark it with a small tick.

Introduction

Whole class teaching

Teach How? Find the area of a compound shape, as shown left.

Main activity

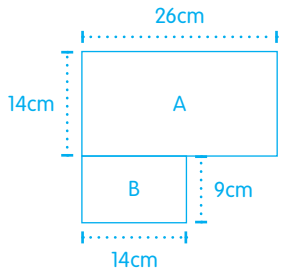
Pair task

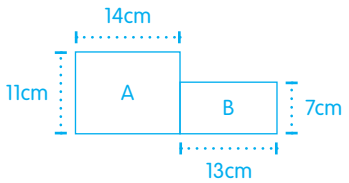
Ask the pairs to find the area of the compound shapes on the chalkboard.

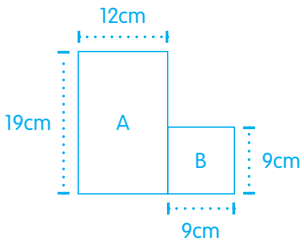
Tell them to record the measurements in a chart in their exercise books as they have done earlier this week.

Remind the pupils to calculate the area of each shape, then add the two together to find the total area.

Compound shapes







Plenary

Whole class teaching

Choose some pairs to say their answers and explain how they worked them out.

If the class agrees, they should mark it with a small tick.

Week 13: Perimeter and area

Day 5: The perimeter of compound shapes

Learning outcomes

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

Recall the 7, 8 and 9 times tables quickly.

Find the perimeter of compound shapes.

Preparation

Before the lesson:

Copy the compound shapes from today's main activity on to the chalkboard.

Read How? Find the perimeter of a compound shape, as shown below.

How? Find the perimeter of a compound shape

Draw a compound shape (A and B) on the chalkboard and label the sides.

To find the perimeter of a shape we calculate the total length around the outside.

Explain how to work out the measurements of the missing length.

Add together the measurements to find the total perimeter.

Look at another compound shape and calculate the perimeter together.

10 minutes	Game	15 minutes	How	25 minutes	Compound shapes	10 minutes

Daily practice

Whole class teaching

Play multiplication bingo, as shown in Week 12, Day 4, with the 7, 8 and 9 times tables.

Introduction

Whole class teaching

Teach How? Find the perimeter of a compound shape, as shown left.

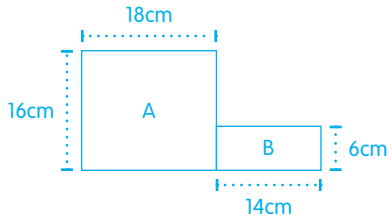
Main activity

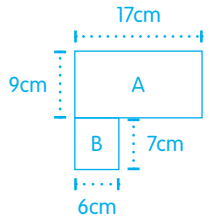
Pair task

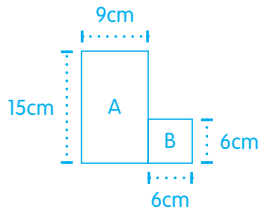
Ask the pairs to find the perimeter of the compound shapes on the chalkboard and record their measurements in a chart in their exercise books.

Remind the pairs to calculate the perimeter of the shapes carefully.

Compound shapes







Plenary

Whole class teaching

Choose some pairs to say their answers and explain how they worked them out.

If the class agrees, they should mark it with a small tick.

Grade/
Type of lesson plan

Lesson
title

Weekly page
Primary 5, numeracy lesson plans

Week 14:
Shapes and measuring

Words/phrases

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

slope
slant
oblique
diagonal
horizontal
vertical
parallel
perpendicular
symmetry
perimeter
intersecting

Learning expectations

By the end of the week:

All pupils will be able to:
Recognise a range of different lines.

Most pupils will be able to:
Find the perimeter and area of triangles and quadrilaterals.

Some pupils will be able to:
Find the perimeter and area of compound shapes.

Assessment task

Instructions:

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

1
Draw the following lines one at a time, saying which one they are drawing:
vertical
horizontal
oblique
parallel
perpendicular

2
Draw two circles and label the radius on one circle and the diameter on the other circle.

3
Draw a quadrilateral and label, or explain, two of its properties.

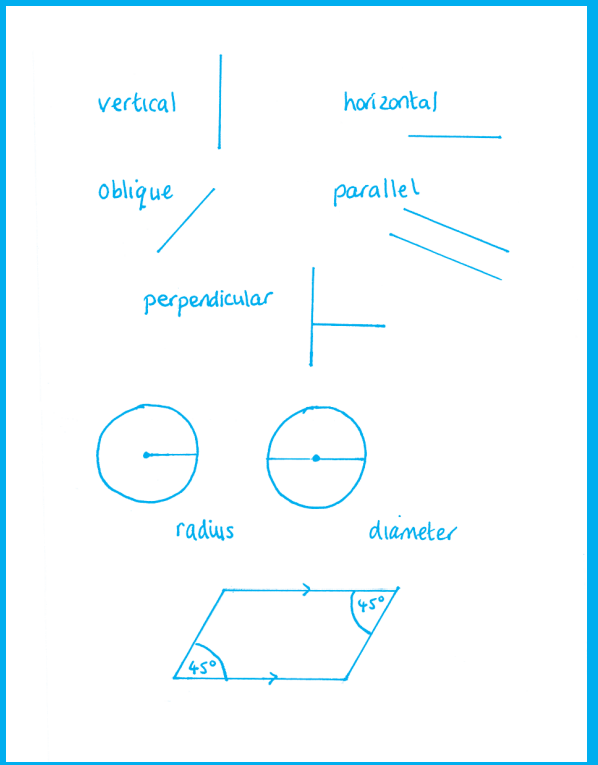
Example of a pupil's work

This pupil can:

Draw examples the following lines:
vertical
horizontal
oblique
parallel
perpendicular

Draw and explain the radius and diameter of a circle.

Draw a quadrilateral and label two of its properties.



Lesson title

Week 14: Shapes and measuring

Day 1: Lines and triangles

String/ Rope

Learning outcomes

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

Position the hands on a clock to make o'clock, half past, quarter past and quarter to.

Recognise different types of lines.

Preparation

Before the lesson:

Draw a large circle on the chalkboard for each group.

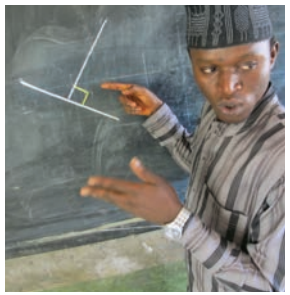
Have ready two long pieces of string or rope for each group.

Read How? Recognising lines, as shown below.

How? Recognising lines

Invite some pupils to the chalkboard to draw a horizontal and vertical line.

'Parallel lines' are lines side by side, always the same distance apart.



'Perpendicular lines' cross or meet (intersect) to make a right angle (90°).

'Oblique lines' slant – they are not horizontal or vertical.

Remind the pupils that 'diagonal lines' are drawn from one corner to another inside a shape.

15 minutes	10 minutes	How	25 minutes	String/ Rope	10 minutes

Daily practice

Whole class teaching

Divide the pupils into small groups, lined up in front of a circle on the chalkboard.

Tell the pupils they will make their circles into clocks.

The first pupil from each group should write 1—6 in the correct place on their clock face and the second pupil should write 7—12.

The third pupil should draw the hour hand on o'clock. The fourth pupil should make the clock show 9 o'clock.

Ask other pupils to set the clock hands at other times, eg: half past 8, quarter to 8.

Introduction

Whole class teaching

Teach How? Recognising lines, as shown left.

Main activity

Group task

Ask the pupils to get into groups of four or five and give each group two long pieces of string or rope.

Call out a type of line, eg: parallel or horizontal, and ask the groups to show the lines.

Then ask the pupils to use the string or rope to make a triangle, a rectangle and a rhombus.

Ask, 'How many lines are parallel?', 'How many lines are perpendicular?'

Individual task

Write: 'horizontal', 'vertical', 'parallel', 'oblique', 'intersecting' and 'diagonal' on the chalkboard.

Ask the pupils to draw these lines and label them in their exercise books.

Tell the pupils to give their books to their partner to check.

Plenary

Whole class teaching

Draw the flag of Nigeria on the chalkboard, including the measurements shown below.

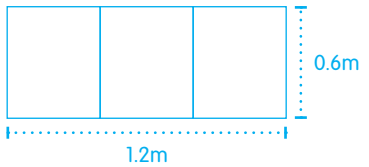
Make sure that each part of the flag is the same.

Ask:

'How many pairs of parallel lines are there?'

'How many perpendicular lines are there?'

Nigerian flag



Lesson title

Week 14: Shapes and measuring

Day 2: Triangles

Card triangles/Clock/Watch

Learning outcomes

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

Convert hours to minutes, minutes to hours and minutes to seconds.

Recognise different types of triangles and know some of their properties.

Preparation

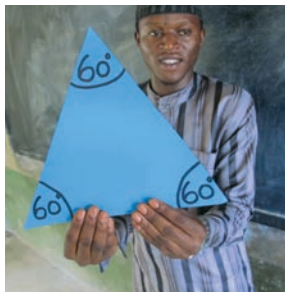
Before the lesson:

Have ready a set of card triangles (equilateral, isosceles, scalene, right-angled) for each group.

Have ready a clock or watch with a second hand.

Read How? Properties of triangles, as shown below.

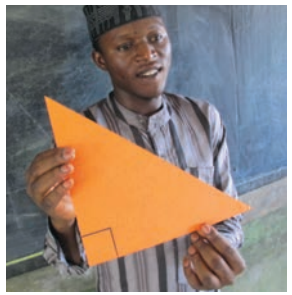
How? Properties of triangles



Explain that an equilateral triangle has three sides of the same length. All angles are 60°.

An isosceles triangle has two sides of the same length and two angles that are equal.

A scalene triangle has no sides of the same length, and all three angles are different.



A right-angled triangle has one angle of 90°.

Angles can be 'obtuse' (more than 90°) or 'acute' (less than 90°).

10 minutes	15 minutes	How	Card triangles	25 minutes	Shape	10 minutes	Clock/ Watch

Daily practice

Group task

Ask the groups to discuss the following questions.

If 1 hour = 60 minutes, how many hours are in:
120 minutes?
360 minutes?
150 minutes?
75 minutes?

How many minutes are in:
1 hour and 20 minutes?
3 hours and 40 minutes?
5 hours and 30 minutes?
12 hours?

If 1 minute = 60 seconds, how many seconds are in:
3 minutes?
5 minutes?
$2\frac{1}{2}$ minutes?

Introduction

Whole class teaching

Ask the class, 'Can you name any triangles?'

Teach How? Properties of triangles, as shown left.

Ask, 'What else do you know about these triangles?'

Give each group of pupils a set of card triangles.

Choose some groups to name one of their triangles and say something about it.

Main activity

Individual task

Tell the pupils to draw and label an equilateral, isosceles, scalene and right-angled triangle in their exercise books.

Tell them to write at least one property of each shape.

Pair task

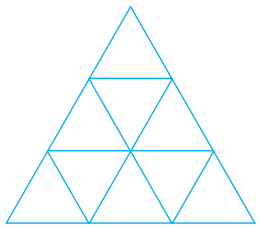
Copy the counting triangles shape, shown below, on to the chalkboard.

Ask the class, 'How many triangles can you find?'

Tell the pupils to discuss in pairs.

Ask, 'How many did you find?' (There are 13 triangles altogether.)

Counting triangles shape



Plenary

Whole class teaching

Explain to the pupils that they are going to estimate time.

Ask them to:

'Put up your hand for 30 seconds.'

'Stand on one leg for 20 seconds.'

'Shake your partner's hand for 10 seconds.'

'Sit perfectly still for 40 seconds.'

Using the clock or watch, tell the pupils when the time for each activity is up.

Choose some pupils to suggest other actions and timings.

Lesson title

Week 14: Shapes and measuring

Day 3: Quadrilaterals

Card quadrilaterals/ Table

Learning outcomes

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

Sort daily activities into a morning, afternoon and evening table.

Name a range of quadrilaterals and explain their properties.

Preparation

Before the lesson:

Have ready a set of card quadrilaterals (square, rectangle, rhombus, parallelogram, trapezium).

Copy the daily activities table from today's daily practice, shown opposite, on to the chalkboard.

Read How? Properties of quadrilaterals, as shown below.

How? Properties of quadrilaterals

Invite a pupil to draw a square on the chalkboard and locate the right angles.

Invite a pupil to draw a rectangle and locate one pair of parallel lines.

Invite a pupil to draw a rhombus and locate one pair of parallel lines.

Invite a pupil to draw a parallelogram and locate one pair of parallel lines.

Invite a pupil to draw a trapezium. Ask, 'Does it have parallel lines and right angles?' (Yes.)

10 minutes | Table

15 minutes | How | Card quadrilaterals

25 minutes | Chart

10 minutes | Shape

Daily practice

Whole class teaching

Ask the pupils to copy the table on the chalkboard into their exercise books.

Ask them to write the following activities in the correct part of their table: breakfast, lunch, dinner, play football, go to the market, play with friends, sleep, watch TV.

Choose some pupils to share what they have written.

Daily activities table

Morning	Afternoon	Evening

Introduction

Whole class teaching

Ask the pupils, 'Can you name any quadrilaterals?'

Teach How? Properties of quadrilaterals, as shown left.

Give each group of pupils a card quadrilateral.

Choose some groups to name the quadrilateral they have and say some of its properties.

Main activity

Individual task

Copy the 2D shapes chart, shown right, on to the chalkboard. Tell the pupils to copy and label the shapes.

Tell them to write at least one property for each shape.

Group task

Ask the pupils to draw a picture using as many quadrilateral shapes as possible.

Choose some groups to show their pictures and name the shapes that they used.

2D shapes chart

Shape	Name
	Square
	Rectangle
	Rhombus
	Parallelogram
	Trapezium

Plenary

Whole class teaching

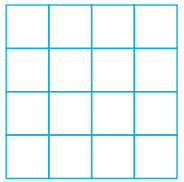
Copy the counting squares shape, shown below, on to the chalkboard.

Ask the class, 'How many squares can you find?'

Tell the pupils to discuss in pairs.

Ask, 'How many did you find?' (There are 30 squares in this diagram.)

Counting squares shape



Lesson title

Week 14: Shapes and measuring

Day 4: Circles

Rulers/Card shapes/
Properties of circles

Learning outcomes

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

Extract information from a timetable.

Recognise the radius, diameter and circumference of a circle.

Preparation

Before the lesson:

Have ready a ruler for each pair and all of the card shapes used this week.

Copy the properties of circles, shown right, on to the chalkboard.

Read How? Reading a timetable, as shown below.

How? Reading a timetable

Divide the pupils into groups for a quiz, and give each group a piece of paper.

Tell the groups to discuss time-table information and be ready to answer questions.

Ask, 'How many assemblies are there each week?'

Tell the groups to write their answer on their paper.

The winner is the group with the highest score.

15 minutes	How	Paper	10 minutes	Properties of circles	20 minutes	String/ Rulers	15 minutes	Shapes

Daily practice

Group task

Explain to the pupils that they are going to use the class weekly timetable for a quiz.

Tell them that for each correct answer their group will win five points, and the group with the most points wins.

Teach How? Reading a timetable, as shown left.

Make up other questions to ask the groups, eg: What time is lunch?, What day is double maths?, How long is the English lesson on Monday?'

Introduction

Whole class teaching

Look with the pupils at the properties of circles on the chalkboard.

Explain that the distance around the outside of a circle is called the 'circumference'.

Explain that the 'radius' is the distance from the centre to any point on the circumference.

Explain that the 'diameter' is the distance across the circle, passing through the centre.

Explain that the diameter of a circle is always 2 x the radius.

Main activity

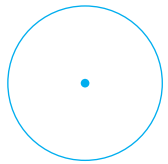
Individual task

Tell the pupils to draw and label the circles on the chalkboard in their exercise books.

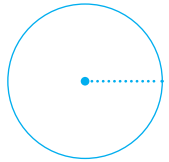
Tell them to take care to draw the radius and diameter inside their circles.

The diagrams below show the various properties of circles:

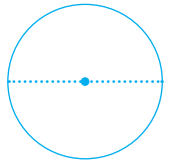
Centre of circle



Radius of circle (r) = 2cm



Diameter of circle (d) = 4cm



Plenary

Group task

Ask the pupils to sit in small groups.

Share all the card shapes you have used this week equally among the groups.

Tell the groups to use all of their shapes to make a design.

Choose some groups to explain the shapes they used in their design.

Lesson title

Shape/Map/Globe
Chart

Week 14:
Shapes and measuring

Day 5:
Perimeter of compound shapes

Learning outcomes

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

Calculate the time difference between Nigeria and some major world cities.

Calculate the perimeter of compound shapes.

Preparation

Before the lesson:

Draw the compound shape, in the main activity, shown opposite, on the chalkboard.

Have ready a world map or a globe and draw the world time chart, shown opposite, on to the chalkboard.

Read How? Perimeter of compound shapes, as shown below.

How? Perimeter of compound shapes

Draw a compound shape on the chalkboard.

Find the missing measurements.

Add all the outside measurements to find the perimeter of the shape.

Repeat with a different compound shape.

10 minutes | Map/Globe/ Chart

Daily practice

Whole class teaching

Show the pupils the world map or globe.

Ask, 'Do you think it is the same time all over the world?'

Ask the pupils to explain their answers.

Explain that there are different time zones across the world, and look together at the world time chart on the chalkboard.

Ask the pupils, 'If it is 11am in Abuja, what is the time in Paris, London and New York?'

Ask other questions about the chart, eg: 'How many hours difference between Abuja and Hong Kong?'

World time chart

Place	Time
Abuja: Nigeria	11am
Beijing: China	6pm
Paris: France	11am
Washington DC: United States of America	6am
Hong Kong: China	6pm
New Delhi: India	3.30pm
Baghdad: Iraq	1pm
London: United Kingdom	10am

10 minutes | How

Introduction

Whole class teaching

Teach How? Perimeter of compound shapes, as shown left.

25 minutes | Shape

Main activity

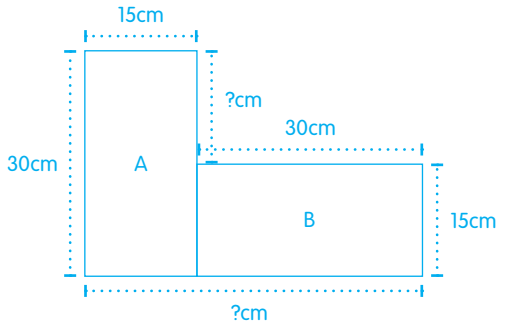
Pair task

Together with the pupils, look at the compound shape on the chalkboard, and add together the measurements.

Ask the pairs to copy the shape in to their exercise books and find the missing measurements.

Ask them to decide how they will divide the shape to find the area.

Compound shape



15 minutes

Plenary

Whole class teaching

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

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

Grade/
Type of lesson plan

Lesson
title

Weekly page
Primary 5, numeracy lesson plans

Week 15:
Multiplication

Words/phrases

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

factors
multiply
decimal
grid method
vertical method

Learning expectations

By the end of the week:

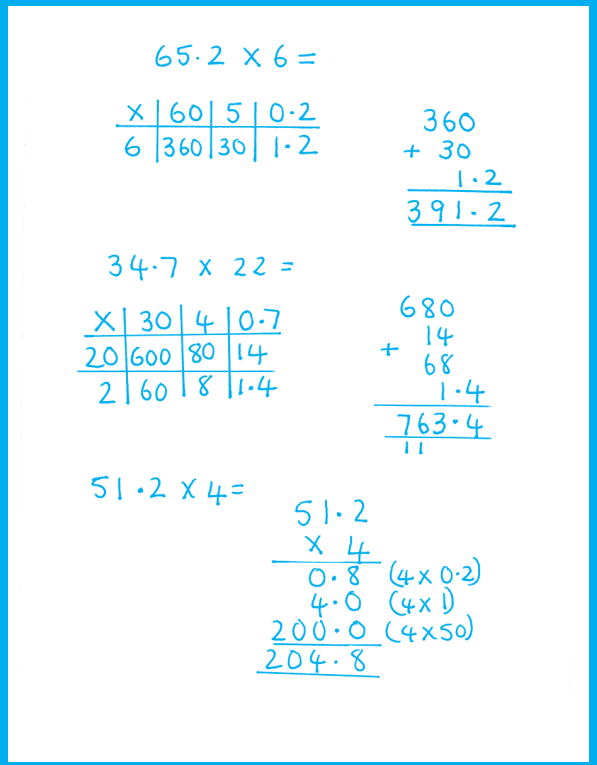
All pupils will be able to:
Multiply a decimal number with a 1-digit number.

Most pupils will be able to:
Multiply a decimal number with a 2-digit number.

Some pupils will be able to:
Solve word problems using multiplication.

Assessment task	Example of a pupil's work

Instructions:	This pupil can:
Ask the individual pupils to complete these tasks in their exercise books.	Multiply a decimal number by a single-digit number using the grid method.
1 Multiply these numbers using the grid method: 65.2 x 6 = 34.7 x 22 =	Multiply a decimal number by a two-digit number using the grid method.
2 Multiply these numbers using the vertical method: 51.2 x 4 =	Multiply a decimal number by a single-digit number using the vertical method.



Week 15: Multiplication

Day 1: Multiplication grid method

Learning outcomes

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

Find the factors for a given product.

Multiply decimal numbers by a two-digit number using the grid method.

Preparation

Before the lesson:

Copy the calculations from today's daily practice and main activity on to the chalkboard.

Read How? Multiply decimals: grid method, as shown below.

How? Multiply decimals: grid method

Ask a pupil to read the calculation on the chalkboard.

Invite a pupil to write the calculation in a multiplication grid.

Choose some pupils to complete the grid.

Choose some pupils to calculate the answer.

10 minutes	Calculations	15 minutes	How	25 minutes		10 minutes

Daily practice

Whole class teaching

Remind the class that factors are numbers you can multiply together to get another number, and a product is the answer when two or more numbers are multiplied.

Ask the pupils to discuss the answers to the following calculations, in pairs:

- ☐ x ☐ = 24
- ☐ x ☐ = 48
- ☐ x ☐ = 100
- ☐ x ☐ = 56
- ☐ x ☐ = 18
- ☐ x ☐ = 63
- ☐ x ☐ = 70

Choose some pairs to share their answers with the class.

Introduction

Whole class teaching

Ask the pupils to expand the following numbers:
28.36
158.34

Teach How? Multiply decimals: grid method, as shown left.

Repeat with the following calculation:
28.36 x 12 =

Main activity

Individual task

Ask the pupils to complete the following calculations in their exercise books using the grid method:
42.50 x 21 =
63.30 x 32 =
28.10 x 75 =

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

Whole class teaching

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

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

Tell the pupils that they have to solve the following sums quickly:

- 23.67 x 10 = ☐
- 23.67 x 100= ☐
- 45.98 x 10 = ☐
- 45.98 x 100 = ☐
- 345.67 x 10 = ☐
- 345.67 x 100 = ☐

Plenary

Pair task

Give the pupils the following word problem to solve in pairs:
'If a sack of rice weighs 1.65 kg, what would 10 sacks of rice weigh? What would 15 sacks of rice weigh?'

Ask, 'How would you solve these problems?'

Discuss the pupils' answers.

Lesson title

Week 15: Multiplication

Day 2: Multiplying decimals

0—9 number cards/
Decimal point cards

Learning outcomes

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

Find factors of numbers.

Multiply a decimal number using the grid method.

Preparation

Before the lesson:

Have ready a set of 0—9 number cards and two decimal point cards for each pair.

Read How? Factor bugs, as shown below.

How? Factor bugs

Explain to the pupils that factor bugs can help to show factors of numbers.

Look at the factor bug for 32.

Invite some pupils to add the factors.

Check by multiplying the factors.

10 minutes	How	10 minutes		30 minutes	0–9 number cards/ Decimal point cards	10 minutes	Grid/ Game

Daily practice

Whole class teaching

Ask the pupils to discuss what a factor is.

Teach How? Factor bugs, as shown left.

Ask the pupils to draw factor bugs in their exercise books to find the factors of 28, 52 and 90.

Introduction

Whole class teaching

Discuss different methods for multiplying decimal numbers.

Demonstrate the following calculation using the grid method:
16.42 x 23 =

Main activity

Pair task

Give each pair a set 0—9 number cards and two decimal point cards.

Tell the pairs to share the number cards equally and take a decimal point card each.

Tell each pupil to make a four-digit number with their cards.

Then tell them to multiply the number they have made with their last digit card and write the answer in their exercise books.

Repeat this exercise three times, choosing new cards each time.

Plenary

Whole class teaching

Copy the grid, shown right, on to the chalkboard and teach the pupils how to play the noughts and crosses game with calculations.

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

Ask them to choose a square and explain that they win the square if they answer the question correctly.

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

Play several times, changing the calculations.

Noughts and crosses grid

13 x 3	40 x 3	22 x 6
5 x 3	6 x 12	52 x 3
30 x 4	3 x 20	5 x 12

Week 15: Multiplication

Day 3: Vertical multiplication

Learning outcomes

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

Find factors of numbers.

Multiply decimal numbers using the vertical method.

Preparation

Before the lesson:

Copy the calculations from today's introduction and main activity on to the chalkboard.

Read How? Decimal multiplication, as shown below.

How? Decimal multiplication

Ask a pupil to read the calculation on the chalkboard.

Invite a pupil to write the calculation vertically.

Ask a pupil to work out the next steps.

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

Calculate the answer.

10 minutes	10 minutes	How	Calculations	30 minutes	Calculations	10 minutes

Daily practice

Whole class teaching

Ask the pupils to discuss what a factor is.

Look at a factor bug for 42 together.

Ask the pupils to help you complete factor bugs for 80, 120 and 144.

Introduction

Group task

Look at the following calculations on the chalkboard with the pupils:

0.2 x 3 = ☐
0.21 x 3 = ☐
0.3 x 2 = ☐
0.32 x 2 = ☐
0.5 x 3 = ☐
0.51 x 3 = ☐
0.6 x 4 = ☐
0.62 x 4 = ☐

Ask the groups to discuss the answers.

Choose some groups to give their answers and explain how they solved the sum.

Teach How? Decimal multiplication, as shown left.

Repeat with 45.16 x 6 =

Main activity

Pair task

Ask the pairs to discuss the following calculations and complete them in their exercise books:

$$\begin{array}{r} 32.61 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 45.61 \\ \times \quad 8 \\ \hline \end{array}$$

$$\begin{array}{r} 32.34 \\ \times \quad 9 \\ \hline \end{array}$$

$$\begin{array}{r} 65.32 \\ \times \quad 3 \\ \hline \end{array}$$

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.

Plenary

Whole class teaching

Explain to the pupils that they have to solve the following calculations quickly:

23.67 x 10 =
23.67 x 100 =
45.98 x 10 =
45.98 x 100 =
345.59 x 10 =
345.59 x 100 =

Choose some pupils to explain how they worked out the answer.

Ask, 'What happens when you multiply decimal numbers by 10?', 'What happens when you multiply decimal numbers by 100?'

Week 15: Multiplication

Day 4: Multiplication

Learning outcomes

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

Understand prime numbers.

Multiply decimal numbers by two-digit numbers.

Preparation

Before the lesson:

Copy the calculations from today's main activity on to the chalkboard.

Read How? Finding prime numbers, as shown below.

How? Finding prime numbers

Draw a Hundred square on the chalkboard or on paper and cross out the number 1.

Leave number 2 but cross out all multiples of 2 (even numbers).

Leave the number 3 but cross out all multiples of 3.

Leave the numbers 5 and 7 but cross out all multiples of 5 and 7.

Look at the numbers you have left. They are called 'prime numbers' .

15 minutes	How	10 minutes	25 minutes	Calculations	10 minutes

Daily practice

Whole class teaching

Explain to the pupils that a 'prime number' has only two factors: itself and the number 1.

Teach How? Finding prime numbers, as shown left.

Ask the pupils, 'How many prime numbers are there?' (25)

Introduction

Whole class teaching

Choose some pupils to demonstrate the grid method and vertical method with the following calculations – let them choose which method to use:
62.36 x 15 =
342.7 x 6 =

Main activity

Pair task

Ask the pairs to complete the following calculations in their exercise books, choosing the method they want for each calculation:
9.66 x 8 =
3.19 x 23 =
14.62 x 37 =
35.45 x 16 =
21.94 x 11 =

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.

Plenary

Group task

Ask the groups to find the factors of the following numbers:
28, 42 and 56.

Choose some groups to share their answers and ask if the class agrees.

Lesson title

Word problems/
0—9 number cards

Week 15: Multiplication

Day 5: Solving word problems

Learning outcomes

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

Identify odd, even and prime numbers.

Solve multiplication word problems involving decimals.

Preparation

Before the lesson:

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

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

Read How? Odd, even, prime?, as shown below.

How? Odd, even, prime?

Give each pair 0—9 cards and tell them to keep them in a pile between them.

Tell the pupils to take turns to take one or two cards.

Tell them to make a single-digit or two-digit number.

Tell them to discuss with their partner whether it is an odd, even or prime number.

Go around and support the pairs, discussing the pupils' thinking.

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

Daily practice

Whole class teaching

Ask the pupils to discuss what a prime number is.

Choose a pupil to explain it to the class.

Teach How? Odd, even, prime?, as shown left.

Introduction

Whole class teaching

Read the following word problems with the pupils and discuss how to work out the answers:

'If an exercise book costs N65.30, what is the cost of 10 exercise books?'

'If 10 exercise books cost N653.00, what is the cost of 20, 30 and 40 exercise books?'

'If each pupil in this class has to have 2 exercise books, what is the total cost?' (Calculate the number of pupils in the class x the cost of 2 exercise books.)

Main activity

Pair task

Ask the pairs to discuss and complete the following word problems:

'The cost of feeding a boarder at secondary school is N125.50 per meal. If she eats three meals a day, what is the cost per day? If she eats three meals a day for 7 days, what is the cost for a week?'

'A man earns N328.60 per day. How much does he earn in: 7 days, 10 days and 31 days?'

Whole class teaching

When most of the pupils have finished, choose some pairs to say their answers and explain how they solved the problem.

If the class agrees, they should mark it with a small tick.

Plenary

Whole class teaching

Remind the pupils that 0.25 is the same as $\frac{1}{4}$

Choose some pupils to work out the answers to the following calculations and explain how they did it:

0.25 x 8 =

$\frac{1}{4}$ x 16 =

0.25 x 64 =

0.25 x 176 =

$\frac{1}{4}$ x 36 =

Credits

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

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

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