Numeracy lesson plans Primary 4, term 3, weeks 21—25

Fractions, decimals, money and word problems

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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 leader-ship 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 Improve-ment 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 understand the ideas.

Plenary

Finishes the lesson with different ways of reviewing learning.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 4, numeracy lesson plans

Week 21: Fractions

Multiplication square

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Words/phrases

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

equivalent fractions
multiples
factors
improper fractions
mixed numbers
oblong
vertices
right angle
parallel
symmetry
vertical
horizontal
diagonal
quadrilateral

Learning expectations

By the end of the week:

All pupils will be able to:
Find fractions of numbers using counters.

Most pupils will be able to:
Find fractions of a number when the numerator is 1, using division.

Some pupils will be able to:
Find fractions of a number when the numerator is more than 1, using division and multiplication.

Assessment task

Instructions:

Ask an individual pupil to:

1
Add and subtract the following fractions:

$\frac{1}{4} + \frac{2}{4} =$

$\frac{5}{7} - \frac{2}{7} =$

2
Solve the following sums:

$\frac{1}{3}$ of 15 =

$\frac{1}{3}$ of 27 =

$\frac{1}{8}$ of 64 =

3
Solve the following sums:

$\frac{3}{5}$ of 25 =

$\frac{2}{6}$ of 12 =

4
Write the following as mixed numbers:

$\frac{4}{3} =$

$\frac{12}{4} =$

Example of a pupil's work

This pupil can:

Add and subtract fractions with the same denominator.

Find fractions of a number when the numerator is 1, using division.

Find fractions of a number when the numerator is more then 1, using division and multiplications.

Convert fractions into whole numbers.

$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$

$\frac{5}{7} - \frac{2}{7} = \frac{3}{7}$

$\frac{1}{8}$ of 64 = 8 (64 ÷ 8 = 8)

$\frac{3}{5}$ of 25 = 15 ($\frac{1}{5}$ of 25 = 5 → 3 × 5 = 15)

$\frac{12}{4} = 3$ ($\frac{4}{4} = 1 \rightarrow \frac{8}{4} = 2 \rightarrow \frac{12}{4} = 3$)

Lesson title

Week 21: Fractions

Day 1: Counting stick fractions

Tape/ Stick

Learning outcomes

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

Use mathematical terms to describe 2D shapes.

Add and subtract fractions with the same denominator.

Preparation

Before the lesson:

Have ready some masking tape for labels and a long stick.

Read How? Counting stick, as shown below.

How? Counting stick

Using sticky tape, label one end of a counting stick 0 and the other end 1.

Ask a pupil to point to the halves and label them.

Choose some pupils to label the quarters.

Choose some pupils to label the eighths.

Ask the pupils to point to any equivalent fractions.

15 minutes	10 minutes	How	Tape/ Stick	25 minutes	Stick	10 minutes

Daily practice

Whole class teaching

Ask the class to name some 2D shapes.

Remind the pupils that an oblong is a rectangle with two long sides and two short sides.

Draw an oblong on the chalkboard and ask some pupils to point to the sides and vertices (corners).

Choose some pupils to draw on the parallel lines, right angles and lines of symmetry.

Draw another oblong and choose some pupils to draw horizontal, vertical and diagonal lines on it.

Introduction

Whole class teaching

Remind the class what a 'fraction' means.

Teach How? Counting stick, as shown left, using the masking tape and the stick.

Remove the labels and repeat the activity using halves, fifths and tenths.

Main activity

Whole class teaching

Remove all the labels from the counting stick.

Put on two eighths and ask, 'How many more eighths do I need to make a whole?'

Write on the chalkboard:

$\frac{3}{8} + \square = 1$

$\frac{2}{10} + \frac{4}{10} = \square$

Choose some pupils to help you to find the missing numbers using the counting stick.

Remind the class that the numerator is the top number of a fraction and the denominator is the bottom number.

Pair task

Explain to the pupils that we can add or subtract fractions easily if the denominators are the same.

Look together at the following example:

$\frac{2}{5} + \frac{1}{5} = \square$

$\frac{4}{6} + \frac{2}{6} = \square$

Give the pupils further examples to complete in their exercise books, eg:

$\frac{5}{8} + \frac{2}{8} = \square$

$\frac{3}{4} + \frac{1}{4} = \square$

Plenary

Pair task

Write the following word problems on the chalkboard:

'Musa eats a quarter of his dinner. What fraction has he got left?'

'Adamu gave an eighth of his cake to Sabo, two eighths to his father and two eighths to his teacher. What fraction did he have left?'

Read and explain the questions and ask the pairs to discuss the answers.

Choose some pairs to explain their answers on the chalkboard.

Lesson title

Week 21: Fractions

Day 2: Fractions and division

Chart/Paper/ Multiplication square

Learning outcomes

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

Identify the properties of 2D shapes.

Begin to relate fractions to division.

Preparation

Before the lesson:

Copy the shape chart in today's daily practice on to the chalkboard.

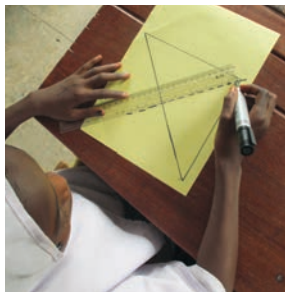
Copy the multiplication square from this week's weekly page on to the chalkboard.

Read How? Properties of 2D shapes, as shown below, and have ready a sheet of paper for each group.

How? Properties of 2D shapes

Ask each group to draw a different 2D shape on their piece of paper.

Tell them to mark the shape with its properties: parallel lines,



lines of symmetry, right angles.

Ask each group to read out the properties of their shape, without showing the shape.

Ask the rest of the class to guess the name of each shape.

15 minutes	How	Chart	10 minutes	Multiplication square	25 minutes		10 minutes	Multiplication square

Daily practice

Group task

Explain the shape chart to the class and then teach How? Properties of 2D shapes, as shown left.

Shape chart

shape	name
	square
	oblong
	triangle
	circle
	pentagon
	hexagon
	parallelogram
	trapezium

Introduction

Pair task

Show the class the multiplication square and remind them that it shows us the times tables multiples (answers).

Ask the pairs to find different ways to make the multiple 30 (5 x 6, 10 x 3).

Explain that 5, 6, 10 and 3 are 'factors of' 30 because they multiply together to make 30.

Ask the pairs to find the factors of 12 and 24 and choose some pairs to write their factors on the chalkboard.

Main activity

Whole class teaching

Write on the chalkboard:

$\frac{1}{3}$ of 30 =

Explain the link with division (30 ÷ 3 = 10) and multiplication (3 x 10 = 30).

Ask:

'What number will I divide by to find a half?'

'What number will I have to divide by to find a fifth?'

Write on the chalkboard:

$\frac{2}{3}$ of 30 =

Explain that we know that:

$\frac{1}{3}$ of 30 = 10, so:

$\frac{2}{3}$ of 30 = 10 x 2 = 20

Individual task

Write the following fraction problems on the chalkboard and ask the pupils to complete them in their exercise books:

$\frac{1}{3}$ of 12 =

$\frac{2}{3}$ of 12 =

$\frac{2}{4}$ of 20 =

$\frac{2}{5}$ of 40 =

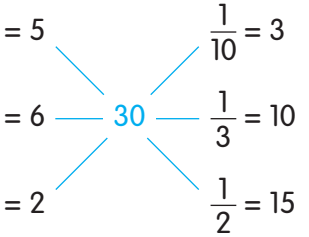
$\frac{2}{3}$ of 18 =

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

Plenary

Whole class teaching

Ask the pupils to find fractions to divide 30 and write them on the chalkboard like this:



Remind them to use the multiplication square to find the fractions.

Lesson title

Week 21: Fractions

Day 3: Fractions of numbers

Chart/Rulers/ Counters

Learning outcomes

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

Draw regular and irregular quadrilaterals.

Find fractions of numbers.

Preparation

Before the lesson:

Have ready the shape chart from Week 21, Day 3 (yesterday) but do not display it.

Have ready a ruler for each group.

Read How? Finding fractions with counters, as shown below, and collect 24 counters/stones for each group.

How? Finding fractions with counters

Ask the groups to divide 12 counters into different fractions.

Write the fractions on the chalkboard. Ask groups to make the biggest fraction with their counters.

Tell the groups to use 24 counters to find two eighths of 24.

Ask them to name the fraction that is left.

Tell them to use the counters to find three quarters of 24.

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

Daily practice

Group task

Give the groups 5 minutes to draw and name as many 2D shapes as they can in their exercise books.

Display the shape chart and read the shapes with the pupils.

Remind the class that a 'polygon' is any closed 2D shape with straight sides.

Explain that a 'quad-rilateral' is any polygon with four sides.

Give out the rulers and ask the groups to draw and label regular and irregular quadrilaterals in their exercise books.

Introduction

Group task

Teach How? Finding fractions with counters, as shown left.

If there is time, ask the groups to find other fractions with the counters.

Main activity

Whole class teaching

Ask the class, 'How can I find a fifth of 20?' (Divide by 5).

Demonstrate on the chalkboard how to find three quarters of 60:

$\frac{1}{4} = 60 \div 4$

$60 \div 4 = 15$

$\frac{1}{4} = 15$

$\frac{3}{4} = 15 \times 3 = 45$

$\frac{3}{4} = 45$

Group task

Ask the groups to complete the following problems in their exercise books:

$\frac{1}{2}$ of 1 hour

$\frac{1}{2}$ of 12 months

$\frac{7}{10}$ of 60 seconds

$\frac{3}{8}$ of 48 apples

$\frac{1}{10}$ of 80 sweets

Plenary

Whole class teaching

Choose some pupils to help you solve the following question:

$\frac{3}{8}$ of 48 apples =

Lesson title

Week 21: Fractions

Day 4: Fraction word problems

3D shapes/ Counters

Learning outcomes

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

Identify 3D shapes according to their properties.

Solve word problems involving fractions.

Preparation

Before the lesson:

Have ready these 3D shapes: a cube, a cuboid, a sphere, a cylinder, a cone, a triangular prism and a square-based pyramid.

Read How? More fractions with counters, as shown below, and have ready the counters from Week 21, Day 3 (yesterday).

How? More fractions with counters

Demonstrate with the counters how to find one fifth of 20.

Take one fifth away from 20 and explain that four fifths remain.

Ask the groups to find three fifths of 20 and say the remaining fraction.

Ask them to find two tenths of 20 and say the remaining fraction.

15 minutes	10 minutes	25 minutes	10 minutes
3D shapes	How / Counters		

Daily practice

Whole class teaching

Hold up the 3D shapes and ask the class to name them.

Give each group a shape but do not let the others see which one.

Write 'vertices, edges, faces' on the chalkboard and ask each group to use these words to describe their shape.

Ask the class to guess each shape.

Write 'right angles, parallel lines, symmetry' on the chalkboard and ask each group to use these words to describe one of the faces on their shape.

Introduction

Group task

Teach How? More fractions with counters, as shown left.

Main activity

Whole class teaching

Write this problem on the chalkboard and ask the groups to discuss it:
'Adamu had 48 goats. He sold three quarters of them. How many did he have left?'

Write this method:

$\frac{1}{4}$ of 48 goats = 12 goats

$\frac{3}{4}$ of 48 = 3 x 12 = 36 goats

48 – 36 = 12 goats left.

Ask, 'If Adamu sold three quarters of his goats, what fraction has he kept?' (one quarter)

Write:

$\frac{1}{4}$ of 48 goats = 12 goats.

Group task

Write the following problems on the chalkboard, and read and explain them to the class:

'Asabe has 24 oranges. She sells $\frac{3}{4}$ How many are left?'

'Yakub has 24 eggs. He sells $\frac{1}{6}$ How many are left?'

'There are 30 pupils in a class. $\frac{2}{5}$ are late. How many are on time?'

Ask the groups to work out the answers in their exercise books.

Plenary

Whole class teaching

Choose two groups to explain the answers to two different problems.

Ask the class if they think they have chosen the quickest method.

Lesson title

Week 21: Fractions

Day 5: Improper fractions

Compass/Object/
Fraction cards

Learning outcomes

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

Follow directions using compass points.

Convert improper fractions to mixed numbers.

Preparation

Before the lesson:

Make a card compass, as shown right, and hide an object in the classroom.

Make fraction cards for the following:

$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$

Read How? Improper fractions, as shown below.

How? Improper fractions

Demonstrate adding three halves.

Put the halves together to make a mixed number.

Demonstrate adding 10 eighths.

Put the eighths together to make a mixed number.

15 minutes	Compass/ Game/Object	10 minutes	How	Fraction cards	25 minutes	MacMillan New Primary Mathematics 4	10 minutes

Daily practice

Whole class teaching

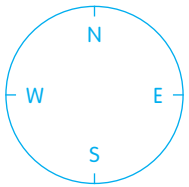
Ask the class to say the compass points with you.

Place the compass on the floor where all the pupils can see it and line it up with north.

Explain to the pupils that they are going to play a treasure hunt game.

Ask the pupils to stand by the door and, using the compass points, direct them to the hidden object, eg: 'Go four steps north, two steps east.'

Compass points



Introduction

Whole class teaching

Write these fractions on the chalkboard:

$\frac{3}{4}$ $\frac{4}{5}$ $\frac{5}{8}$ $\frac{9}{10}$ $\frac{1}{2}$

Ask some pupils to point to the numerators and the denominators.

Write the following fractions on the chalkboard:

$\frac{4}{3}$ $\frac{10}{8}$ $\frac{6}{4}$ $\frac{8}{6}$

Explain that these are called 'improper fractions' because the numerator is greater than the denominator.

Teach How? Improper fractions, as shown left, using the fraction cards.

Main activity

Whole class teaching

Explain that an improper fraction can be changed into a 'mixed number' by dividing the numerator by the denominator.

Demonstrate on the chalkboard:

$\frac{8}{5} = 8 \div 5 =$

$8 \div 5 = 1\ R3$

$\frac{8}{5} = 1\frac{3}{5}$

Pair task

Ask the pairs to open MacMillan New Primary Mathematics 4, page 25 and answer questions 1—10 in their exercise books.

Plenary

Whole class teaching

Write the following problem on the chalkboard:

'Each day Adamu drinks $\frac{1}{4}$ of a litre of water.

How much does he drink in nine days?'

Choose some pupils to help you calculate the answer on the chalkboard:

$\frac{9}{4} = 2\frac{1}{4}$

Grade/
Type of lesson plan

Lesson
title

Weekly page
Primary 4, numeracy lesson plans

Week 22:
Fractions and decimals

Words/phrases

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

mixed numbers
improper fractions
numerator
denominator
tenths
hundredths
equivalent
decimal fractions
zero
less than <
greater than >

Learning expectations

By the end of the week:

All pupils will be able to:
Change tenths into decimal fractions.

Most pupils will be able to:
Change fractions into equivalent fractions.

Some pupils will be able to:
Add and subtract mixed fractions.

Assessment task

Instructions:

1
Change these fractions into mixed numbers:

$\frac{7}{3} =$

$\frac{15}{4} =$

$\frac{22}{6} =$

2
Change these fractions into equivalent fractions:

$\frac{1}{2} =$

$\frac{2}{8} =$

$\frac{3}{6} =$

3
Add or subtract these fractions:

$\frac{2}{3} + \frac{4}{6} =$

$\frac{6}{10} - \frac{1}{5} =$

4
Change these fractions into decimal numbers:

$\frac{7}{10} =$

$\frac{24}{10} =$

$\frac{57}{100} =$

$\frac{88}{100} =$

Example of a pupil's work

This pupil can:

Change fractions into equivalent fractions.

Change tenths into decimal fractions and vice versa.

Add and subtract mixed fractions.

$\frac{7}{3} = 2\frac{1}{3}$

$\frac{15}{4} = 3\frac{3}{4}$

$\frac{1}{2} = \frac{3}{6}$ or $\frac{4}{8}$

$\frac{2}{8} = \frac{1}{4}$ or $\frac{4}{16}$

$\frac{2}{3} + \frac{4}{6} = \frac{8}{12} + \frac{8}{12} = \frac{16}{12} = 1\frac{4}{12} = 1\frac{1}{3}$

$\frac{6}{10} - \frac{1}{5} = \frac{3}{5} - \frac{1}{5} = \frac{2}{5}$

$\frac{7}{10} = 0.7$

$\frac{24}{10} = 2.4$

$\frac{57}{100} = 0.57$

Lesson title

Week 22: Fractions and decimals

Day 1: Word problems

Paper/ Scissors

Learning outcomes

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

Use times tables to solve division calculations.

Add fractions with different denominators.

Preparation

Before the lesson:

Cut four strips of paper for each group.

Have ready scissors for each group.

Read How? Making mixed numbers, as shown below.

How? Making mixed numbers

Tell the groups to cut two strips of paper into quarters and write $\frac{1}{4}$ on each part.

Tell them to add two of the quarters and three of the quarters.

Ask them to put the quarters together to make a mixed number.

Tell groups to cut two strips of paper into tenths and write $\frac{1}{10}$ on each.

Tell them to add seven tenths and eight tenths and make a mixed number.

15 minutes	10 minutes	How	Paper/ Scissors	25 minutes	10 minutes

Daily practice

Pair task

Ask the pupils to help you 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

Group task

Teach How? Making mixed numbers, as shown left, using the paper strips and scissors.

Main activity

Whole class teaching

Remind the class how to change an improper fraction into a mixed number by dividing the numerator by the denominator.

Demonstrate on the chalkboard:

$\frac{9}{6} = 9 \div 6 =$

$9 \div 6 = 1\ R3$

$\frac{9}{6} = 1\frac{3}{6}$

Group task

Write the following word problems on the chalkboard and explain:

'Nura eats $\frac{1}{2}$ an apple a day. How many apples does he eat in 15 days?'

'Garba uses $\frac{1}{3}$ of a metre to make a scarf. How many metres does he need to make 8 scarves?'

'Lami works $\frac{1}{3}$ of every day. She works for a week. How many days does she work altogether?'

Ask the groups to write the calculation needed for each problem in their exercise books.

Plenary

Group task

Choose some groups to write their calculations on the chalkboard and ask the class if they are correct.

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

Lesson title

Times tables

Week 22: Fractions and decimals

Day 2: Making equivalent fractions

Learning outcomes

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

Multiply Tens using times tables.

Change fractions into equivalent fractions.

Preparation

Before the lesson:

Write the 4, 5 and 6 times tables on the chalkboard and leave them there for the rest of the week.

Have ready large pieces of paper for the groups.

Read How? Adding fractions, as shown below.

How? Adding fractions

Show pupils that adding fractions with the same denominator can be simple.

Then demonstrate adding fractions with different denominators.

Multiply the numerator and denominator by 4.

Add the fractions together.

Repeat with different fractions.

15 minutes	Times tables	10 minutes	How	25 minutes	MacMillan New Primary Mathematics 4	10 minutes

Daily practice

Whole class teaching

Read the 4, 5 and 6 times tables with the pupils.

Write '70 x 3 =' on the chalkboard.

Ask, 'What is 7 x 3?' (21). Explain that 70 is 10 times bigger, so 70 x 3 = 210.

Repeat with 40 x 4 =

Write the following calculations on the chalkboard for the pairs to complete in their exercise books:
40 x 6 =
70 x 5 =
90 x 6 =
30 x 4 =
50 x 5 =

Remind the pairs to use the times tables to help them.

Introduction

Group task

Teach How? Adding fractions, as shown left.

Main activity

Whole class teaching

Explain that we often need to change fractions into equivalent fractions when we are doing calculations.

On the chalkboard, demonstrate dividing the numerator and the denominator of a fraction to make an equivalent fraction:

$$\frac{6}{10} = \frac{6 \div 2}{10 \div 2} = \frac{3}{5}$$

Demonstrate multiplying the numerator and the denominator of a fraction:

$$\frac{3}{5} = \frac{3 \times 3}{5 \times 3} = \frac{9}{15}$$

Group task

Ask the pairs to open MacMillan New Primary Mathematics 4, page 21, Exercise B and answer questions 1—6 in their exercise books.

Plenary

Whole class teaching

Choose some pupils to write their pairs of equivalent fractions on the chalkboard and draw pictures for each fraction.

Lesson title

Week 22: Fractions and decimals

Day 3: Add and subtract fractions

Learning outcomes

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

Divide multiples of 10.

Add and subtract mixed fractions.

Preparation

Before the lesson:

Read How? Mixed number fractions, as shown below.

How? Mixed number fractions

Write some improper and proper fractions on the chalkboard.

Ask some pupils to circle the improper fractions.

Ask some pupils to change some of the improper fractions into mixed numbers.

Look at the improper fraction on the chalkboard and ask, 'How many halves are there?'

Remind pupils that to make a mixed number fraction you divide the numerator by the denominator.

15 minutes	Times tables	10 minutes	How	25 minutes	10 minutes

Daily practice

Pair task

Read the 4, 5 and 6 times tables with the pupils.

Write '210 ÷ 3 =' on the chalkboard.

Ask, 'What is 21 ÷ 3?' (7). Explain that 210 is 10 times bigger, so 210 ÷ 3 = 70.

Repeat with 360 ÷ 6 =

Write the following sums on the chalkboard for the pairs to complete in their exercise books:
450 ÷ 5 =
180 ÷ 3 =
360 ÷ 4 =
540 ÷ 6 =

Remind the pairs that they can use the times tables to help with division.

Introduction

Whole class teaching

Teach How? Mixed number fractions, as shown left.

Main activity

Pair task

Write the following sums on the chalkboard and ask the pairs to complete them in their exercise books:

$\frac{1}{2} + \frac{1}{8} =$

$\frac{5}{8} - \frac{1}{2} =$

$\frac{1}{5} - \frac{1}{10} =$

$\frac{1}{6} + \frac{3}{12} =$

$\frac{3}{4} - \frac{1}{8} =$

$\frac{2}{5} - \frac{3}{10} =$

Write the following word problems on the chalkboard and explain them:

'This is how Taibat spent her money:
$\frac{1}{2}$ on food, $\frac{1}{6}$ on clothes.
What fraction of her money did she spend?'

'This is what Hassan did with his money:
He gave $\frac{2}{3}$ to his mother.
He gave $\frac{1}{6}$ to his sister.
What fraction of his money did he give to his family?'

Ask the pairs to solve each problem in their exercise books.

Plenary

Whole class teaching

Choose some pairs to write their calculations on the chalkboard and ask the class if they are correct.

Ask the class to help you complete the calculations, making the same denominators and adding the fractions.

Lesson title

Times tables

Week 22: Fractions and decimals

Day 4: Decimal fractions

Learning outcomes

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

Multiply Hundreds.

Use decimal notation for tenths.

Preparation

Before the lesson:

Write the 8 and 9 times tables on the chalkboard.

Read How? Fraction number line, as shown below.

How? Fraction number line

Draw a number line on the chalk-board and divide it into tenths.

Ask the pupils to mark the fractions on the number line from 0—1.

Remind the pupils that 10 tenths is the same as a whole.

Ask pupils to point to other divisions and to say them as improper fractions and mixed numbers.

Ask the pupils to write them on the chalkboard.

15 minutes	Times tables	10 minutes	How	25 minutes	MacMillan New Primary Mathematics 4	10 minutes

Daily practice

Whole class teaching

Read the 8 and 9 times tables with the pupils.

Write '600 x 8 =' on the chalkboard.

Ask, 'What is 6 x 8?' (48). Explain that 600 is 100 times bigger, so 600 x 8 = 4800.

Repeat with 400 x 8 =

Write the following sums on the chalkboard for the pairs to complete in their exercise books:

800 x 8 =
400 x 9 =
700 x 8 =
900 x 9 =
300 x 8 =
500 x 8 =
700 x 9 =

Introduction

Whole class teaching

Teach How? Fraction number line, as shown left.

Explain that one tenth can also be written as 0.1 (zero point one) and that this is called a 'decimal fraction'.

Choose some pupils to write decimal fractions on the number line.

Explain that the decimal point separates the whole and the fraction number.

The first number before the point is the Unit, and after the point the numbers are tenths.

Main activity

Pair task

Draw a number line as shown in How? Fraction number line, step 1.

Point to different positions on the number line and ask the pairs to name each point as a fraction or mixed number, and also as a decimal.

Ask some pairs to come and point to these decimal fractions on the number line:

1.7
0.2
1
0.5
1.5
0.9
1.4
1.9

Ask the pairs to open MacMillan New Primary Mathematics 4, page 41, Exercise A and answer questions 8—13 in their exercise books.

Plenary

Whole class teaching

Draw a fraction number line from 0—10.

Say some decimal fractions and ask some pupils to point to them on the number line, eg: 3.7, 5.2.

Remind the class of the meaning of > and <.

Write the following sets of numbers on the chalkboard and ask some pupils to write the correct symbol between them:

5.8 ☐ 2.5
0.8 ☐ 1.3
1.8 ☐ 1.5
8.9 ☐ 9.8

Lesson title

Week 22: Fractions and decimals

Day 5: Two decimal places

Times tables/ Hundred square

Learning outcomes

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

Divide multiples of a Hundred.

Solve three-digit number problems.

Preparation

Before the lesson:

Write the 8 and 9 times tables on the chalkboard.

Read How? Fraction number square, as shown below, and draw the blank Hundred square on the chalkboard.

How? Fraction number square

Shade in one square on the blank Hundred square.

Ask a pupil to write the fraction.

Explain that one hundredth is 0.01 as a decimal fraction.

Shade in 10 squares and write the fractions.

Choose some pupils to shade in other amounts and write the decimal fractions.

15 minutes	Times tables	10 minutes	How	Hundred square	25 minutes	10 minutes	Hundred square

Daily practice

Pair task

Write '4800 ÷ 8 =' on the chalkboard.

Ask, 'What is 48 ÷ 8?' (6). Explain that 4800 is 100 times bigger, so 4800 ÷ 8 = 600.

Repeat with 8100 ÷ 9 =

Write the following sums on the chalkboard for the pairs to complete in their exercise books:
4000 ÷ 8 =
1800 ÷ 9 =
5600 ÷ 8 =
5400 ÷ 9 =

Remind the pairs that they can use the times tables to help with division.

Introduction

Whole class teaching

Write the following on the chalkboard:

$\frac{1}{10}$

$\frac{13}{10}$

$\frac{5}{10}$

Choose some pupils to write them as decimal fractions.

Teach How? Fraction number square, as shown left, using the blank Hundred square.

Main activity

Whole class teaching

Write the following decimal fractions on the chalkboard:
0.46
0.05
0.34
0.6

Ask the pupils to read them with you.

Make sure they read the numbers correctly, eg: 0.46 is zero point four six, not zero point forty-six.

Choose some pupils to write the decimal fractions as fractions.

Pair task

Write the following fractions on the chalkboard and ask the pairs to change them into decimal fractions in their exercise books:

$\frac{3}{100}$

$\frac{54}{100}$

$\frac{8}{100}$

$\frac{20}{100}$

$\frac{36}{100}$

$\frac{9}{100}$

$\frac{1}{100}$

Plenary

Whole class teaching

Say some decimal fractions and ask the pupils to point to their position on the blank Hundred square.

Remind the class of the meaning of > and <.

Write the following sets of decimal fractions on the chalkboard and ask some pupils to write the correct symbol between them:
0.8 ☐ 0.46
2.2 ☐ 0.2
0.05 ☐ 0.5
0.59 ☐ 0.9

Grade/
Type of lesson plan

Lesson
title

Weekly page
Primary 4, numeracy lesson plans

Week 23:
Money

Words/phrases

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

multiples
factors
money
Naira
Kobo
bank notes
price
labels
change
seller
shopping list
vertical addition
grid method

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:
Count back change.

Some pupils will be able to:
Find the total cost of a shopping list with three items.

Assessment task

Instructions:

Ask an individual pupil to:

1
Explain which bank note they will use for the following products:
Book N35
Bottle of water N80
Cloth N485

2
Find the total cost of the next 3 items:
Tomato N85
Slippers N345
Towels N380

3
Calculate the following sums:
I spend N2370. What is my change from N2500?
I spend N765. What is my change from N1500?

4
Ask pairs to show you how to use the shopping corner and price list in class to buy items. The shopkeeper should give the correct change.

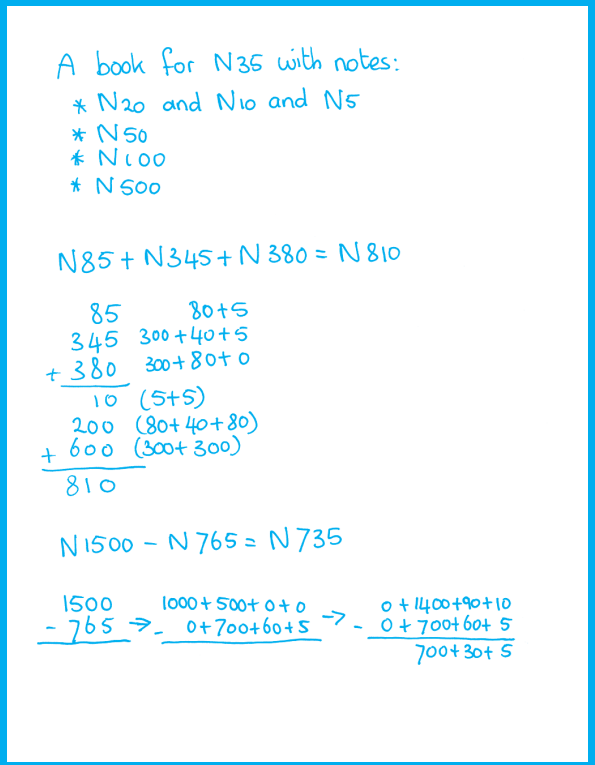
Example of a pupil's work

This pupil can:

Identify the correct bank notes to pay for an item.

Count back change.

Find the total cost of a shopping list with three items.



Lesson title

Week 23: Money

Day 1: Naira

Paper money/ Money/Paper

Learning outcomes

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

Identify factors of multiples.

Choose the correct bank notes to buy food items.

Preparation

Before the lesson:

Have ready some real N100, N200 and N500 notes.

Have ready a large piece of paper.

Read How? N100, as shown below, and make the paper money listed in step 1.

How? N100

Make paper money for each group – two N50 notes, five N20s, 10 N10s and 10 N5s.

Ask the groups to find different ways to make N100 with the paper money.

Tell them to record their results in their exercise books.

Ask them to show you how to make N100 with the least number of notes.

Ask them to show you how to make N100 with four notes.

15 minutes	10 minutes	How	Money/ Paper money	25 minutes	Paper	10 minutes

Daily practice

Whole class teaching

Ask the pupils to say the 8 and 9 times tables as you write them on the chalkboard.

Remind the pupils that 'multiples' are answers in the times tables and 'factors' are the numbers needed to make the answers.

Say, '72 is a multiple. 8 and 9 are the factors that make 72.'

Ask the pairs to write a list of any 10 multiples from the 8 and 9 times tables in their exercise books.

Tell the pairs to swap books and ask write the factors next to each multiple.

Introduction

Group task

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

Show them the real Naira notes and ask them to say the other bank notes that people use.

Explain that people no longer use Kobo coins.

Teach How? N100, as shown left, using the paper money.

Main activity

Whole class teaching

Choose some pupils to draw on the chalkboard. 10 items of food people can buy in markets.

Ask the groups to discuss how much each item costs.

Choose some groups to say their ideas and ask the class if they agree.

Decide on a price for each item.

Create a price list for the 10 food items on the large piece of paper.

Group task

Ask the groups to write and draw some items from the price list in their exercise books.

Ask them to write the names of the Naira notes they would use to pay for each item underneath each drawing.

Plenary

Whole class teaching

Ask each group to say the Naira notes they would use for one of their items.

Ask the class to say if they could use different Naira notes.

Keep the price list for the next day.

Lesson title

Week 23: Money

Day 2: The shop

Price list/Paper money/ Shopping items/Labels

Learning outcomes

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

Use times tables to solve division calculations.

Give the correct money for items and count back change.

Preparation

Before the lesson:

Display the price list from Week 23, Day 1.

Have ready the paper money from Week 23, Day 1 (yesterday) and make one N1000, two N500, five N200 and 10 N100 notes for each group.

Read How? Shopping, as shown below and have ready items and labels for a shopping corner.

How? Shopping

Set up a shopping corner near the price list with packets and tins.

Ask the pupils to help you make price labels for the items in the shop.

Ask the pupils to take turns to be the buyer and the seller.

Tell the buyer to choose an item and give the paper notes to the seller.

Tell the seller to count back the change with the paper money.

15 minutes	10 minutes	Paper money	25 minutes	Paper money	How	Paper money/Paper/ Shopping items	10 minutes	Shopping corner

Daily practice

Pair task

Ask the pupils to help you write the 8 and 9 times tables on the chalkboard.

Ask the class, 'If we know that 8 x 9 = 72, what division calculations do we know?' (72 ÷ 9 = 8 and 72 ÷ 8 = 9)

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

Tell them to swap their books and write the multiplication sum and the answer for each division calculation.

Introduction

Group task

Ask the class to name the bank notes people use today, eg: N1000, N500.

Give each group a full set of paper money from today and yesterday.

Ask the groups to find as many ways as they can to make N1000.

Tell them to record their results in their exercise books.

Choose a group to show the smallest amount of notes that are needed to make N1000.

Ask the other groups to say different ways to make N1000.

Main activity

Whole class teaching

Revise giving change with the paper money.

Demonstrate giving change from N1000 when you have bought an item for N750.

Count on from N750, ie: give N50 and say, 'N800', give N200 and say 'N1000'.

Repeat with an item costing N70, giving change from N200.

Group task

Teach How? Shopping, as shown left, using the paper money, paper and shopping items.

Plenary

Whole class teaching

Ask the class to watch a pupil from each group buying an item from the shopping corner.

Ask them to check the buyer gives the correct money and the seller gives the correct change.

Keep the shopping corner for the next day.

Lesson title

Week 23: Money

Day 3: Shopping lists

Flash cards/Shopping corner/ Paper money

Learning outcomes

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

Answer questions from the 8 and 9 times tables.

Work out the total price of three items in a shop.

Preparation

Before the lesson:

Make sets of flash cards for the multiples of 8 and 9 for each group and shuffle each set well.

Have ready the shopping corner and paper money from Week 23, Day 2 (yesterday).

Read How? Multiplication relay, as shown below.

How? Multiplication relay

Mark a starting line outside and place the sets of flash cards at intervals.

Tell the groups to stand in lines behind the starting line.

Shout, 'Go!' and tell the pupils to run, in turn, to collect a card.

Tell each group to arrange their cards into the 8 and 9 times tables.

Tell them to put the multiples in order. The first group ready is the winner.

15 minutes	How	Flash cards	10 minutes	25 minutes	Shopping corner/ Paper money	10 minutes	Paper money

Daily practice

Group task

Ask the class to say the 8 and 9 times tables with you.

Ask each group two questions from the 8 and 9 times tables.

Teach How? Multiplication relay, as shown left, using the flash cards.

Introduction

Whole class teaching

Revise vertical addition.

Write on the chalkboard:
N250 + N75 + N35 =

	H	T	U	
	2	5	0	
		7	5	
+		3	5	
		1	0	(5 + 5)
+	1	5	0	(50 + 70 + 30)
	2	0	0	(200 + 0)
	3	6	0	

Choose some pupils to help you solve N470 + N280 + N35 = on the chalkboard.

Main activity

Group task

Ask a pupil to choose three items from the shopping corner.

Ask another pupil to write the price of each item on the chalkboard.

Demonstrate how to find the total price using the vertical addition method.

Give each group a set of the paper money.

Ask the groups to hold up the paper money needed to pay the total price.

Tell the groups to choose three items from the shopping corner and write the total price for them in their exercise books.

Tell them to draw the Naira notes needed to pay the total price under-neath their calculation.

When they have finished, tell them to choose three different items and repeat the process.

Plenary

Whole class teaching

Ask each group to say one of their total prices and show the class the paper money they needed.

Ask the class if they could have used different notes and if they needed any change.

Lesson title

Week 23: Money

Day 4: The correct change

Times table/Shopping corner/ Paper money

Learning outcomes

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

Answer questions from the 7 times table.

Find the total price of items and give the correct change.

Preparation

Before the lesson:

Write the 7 times table on the chalkboard.

Have ready the shopping corner and paper money from Week 23, Day 3 (yesterday).

Read How? Spending N500, as shown below.

How? Spending N500

Give each group a set of paper money and tell them they have N500 to spend.

Tell them to choose some items from the shopping corner.

Ask them to find the total of their items and any change they have.

Ask them to arrange their items and the paper money change on their desks.

Tell the groups to check if the other groups' totals and change are correct.

15 minutes	Times table	10 minutes	How	Paper money	25 minutes	Paper money	10 minutes	Shopping corner

Daily practice

Whole class teaching

Ask the pupils to read the 7 times table with you.

Choose some pupils to underline the parts they already know from the other times tables.

Ask, 'What is 7 x 7, 9 x 7 and 8 x 7?'

Ask the pupils to read the 7 times table going forwards and backwards.

Rub it off the chalkboard.

Write 10 multiplication and division calculations from the 7 times table for the pupils to complete in their exercise books, eg: 4 x 7 =, 49 ÷ 7 =

Introduction

Group task

Teach How? Spending N500, as shown left, using the paper money.

Main activity

Whole class teaching

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

Write on the chalkboard:
'I spend N750. What is my change from N2000?'

Explain we can work this out using a number line, using the following steps:
750 to 800 = 50
800 to 1000 = 200
1000 to 2000 = 1000
50 + 200 + 1000 = 1250

Tell the pupils the answer = N1250.

Group task

Write the following money problems on the chalkboard:

'I spend N1800. What is my change from N2000?'

'I spend N565. What is my change from N2000?'

'I spend N2560. What is my change from N4000?'

'I spend N35. What is my change from N1000?'

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

Tell them to use the paper money and number lines to help them.

Plenary

Whole class teaching

Ask the class, 'What could I buy if I had N1000 to spend?'

Tell the pupils to choose items from the shopping corner and add up the prices on the chalkboard.

Lesson title

Week 23: Money

Day 5: Multiplying money

Flash cards/Books/ Fruit/Shopping corner

Learning outcomes

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

Give answers to questions from the 7 and 8 times tables.

Multiply amounts of money less than N1000.

Preparation

Before the lesson:

Make a set of flash cards for the multiples of 7 and 8 for each group.

Put seven books and three apples (or other fruit) in the shopping corner used on Week 23, Day 4 (yesterday).

Read How? Money multiplication, as shown below, and How? Multiplication relay, from Week 23, Day 3.

How? Money multiplication

Say, 'One book costs N750. How much do seven books cost?'

Ask a pupil to write the calculation needed on the chalkboard.

Help the pupils to use the grid method to work out the answer.

Say, 'One apple costs N35. How much do three apples cost?'

Choose some pupils to work out the answer on the chalkboard.

15 minutes	10 minutes	25 minutes	10 minutes
Game	How		

Daily practice

Group task

Ask the class to say the 7 and 8 times tables with you.

Ask each group two questions from the 7 and 8 times tables.

Play multiplication relay with multiples of the 7 and 8 times tables, as shown on Week 23, Day 3.

Introduction

Whole class teaching

Teach How? Money multiplication, as shown left.

Main activity

Whole class teaching

Write this problem on the chalkboard:
'Adamu pays N330 for one bus journey. How much do six journeys cost him?'

Read and explain the problem and ask the pupils to say what calculation is needed.

Write 'N330 x 6 =' and ask some pupils to help you work it out using the grid method.

Group task

Write the following problems on the chalkboard for the groups to complete in their exercise books:

'Alimot earns N650 for one day's work. How much does she earn in five days?'

'A headtie costs N250. How much do six headties cost?'

'One book costs N750. How much do six books cost?'

'Petrol for one journey costs N485. How much does the petrol cost for seven journeys?'

Plenary

Group task

Choose one group to explain on the chalkboard how they calculated one of the problems.

Choose some pupils to draw the Naira notes needed for the total.

Grade/
Type of lesson plan

Weekly page

Primary 4, numeracy lesson plans

Lesson
title

Week 24:

Money word problems

Words/phrases

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

profit
loss
gain
item
trader
selling price (SP)
cost price (CP)
total
calculation
round numbers
two-step

Learning expectations

By the end of the week:

All pupils will be able to:
Calculate profit and loss.

Most pupils will be able to:
Use a range of calculations to solve money problems.

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

Assessment task

Instructions:

Ask an individual pupil to solve these word problems:

1
Mahmud buys a book for N450. He sells the book for N390. How much is his loss?

2
Hadiza buys a bucket for N225. She sells the bucket for N250. How much is her profit?

3
Yousuf works 7 days a week. He get N350 a day. How much does he have at the end of the week?

4
Zafina buys 50 oranges for N1000. She sells each orange for N40. How much profit does she make after selling all of the oranges?

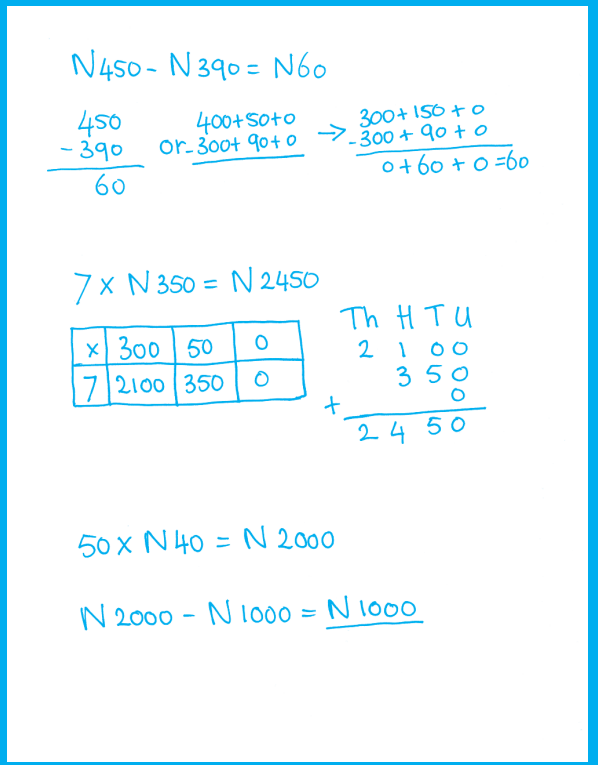
Example of a pupil's work

This pupil can:

Calculate profit and loss.

Use multiplication to solve money problems.

Solve two-step money problems.



Lesson title

Week 24: Money word problems

Day 1: Profit

Learning outcomes

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

Read and write numbers higher than 999.

Calculate the profit made selling an item.

Preparation

Before the lesson:

Read How? Subtraction revision, as shown below.

How? Subtraction revision

Write '788 – 475 =' on the chalkboard and revise the vertical method.

Remind the pupils to expand the numbers.

Ask a pupil to write '363 – 318 =' vertically on the chalkboard.

Remind the pupils that we sometimes have to rename numbers.

15 minutes	10 minutes	How	25 minutes	10 minutes

Daily practice

Whole class teaching

Tell the class to write '996' in their exercise books and continue writing numbers, counting on one each time, for 3 minutes.

The pupil with the highest number is the winner.

Tell the pupils to write '1999' in their exercise books and write the numbers, counting back in ones, for 3 minutes.

The pupil with the lowest number is the winner.

Ask the class to look at their numbers and answer the following questions: 'Who can read a number with six Units? With eight Tens? With nine Hundreds?'

Introduction

Whole class teaching

Teach How? Subtraction revision, as shown left.

Main activity

Whole class teaching

Explain that a 'trader' is someone who buys and sells items.

Explain that the 'cost price' (CP) is the price the trader pays for an item.

The 'selling price' (SP) is the price the trader sells the item for.

If the selling price is more than the cost price, the trader makes money, or a 'profit'.

The profit is calculated by subtracting the CP from the SP.

Group task

Write the following word problems on the chalkboard:

'I buy cloth for N255 and sell it for N480. What is my profit?'

'I buy a yam for N325 and sell it for N470. What is my profit?'

'I buy a book for N665 and sell it for N780. What is the profit?'

Ask the groups to say the calculations needed for each word problem.

Tell the groups to set the calculations out vertically in their exercise books.

Plenary

Group task

Chose some groups to say their answers and ask the others if they agree.

Ask the groups, 'Which item made the most profit?' (the cloth).

Lesson title

Week 24: Money word problems

Day 2: Profit and loss

Stick/Tape/ Chart

Learning outcomes

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

Round numbers to the nearest Ten and the nearest Hundred.

Calculate profit and loss.

Preparation

Before the lesson:

Find a long stick and cut pieces of masking tape for labels.

Copy the profit and loss chart from the introduction, shown oppposite, on to the chalkboard.

Read How? Rounding, as shown below.

How? Rounding

Show the pupils a labelled 0—100 counting stick, with 10 equal divisions.

Ask some pupils to label 50, 10, 80 and the other multiples of 10.

Ask the pupils to use the counting stick to round numbers to the nearest Ten.

Remove the labels and replace with multiples of 100.

Ask the pupils to round numbers to the nearest Hundred.

15 minutes | How

10 minutes | Chart

25 minutes

10 minutes

Daily practice

Whole class teaching

Tell the class they are going to revise rounding numbers.

Teach How? Rounding, as shown left.

Introduction

Pair task

Ask the class to look at the profit and loss chart on the chalkboard.

Remind them of the meaning of CP and SP.

Ask the pairs to say which items made a profit and which items made a loss.

Ask them to calculate the total profit or loss for each item in their exercise books.

Ask the pairs to say which item made the greatest profit and which item made the greatest loss.

Ask them to think of reasons why the oranges made the greatest loss.

Profit and loss chart

Item	CP	SP	Profit	Loss
Headtie	N250	N300		
Plantains	N500	N450		
2 yams	N1000	N1100		
Rice	N800	N1000		
Oranges	N600	N170		

Main activity

Group task

Read the following word problems on the chalkboard:

'A basket of pawpaws was sold for N1250 at a profit of N200. What was the cost price?'

'Mr Ojo sold a generator for N12000. He made a profit of N3000. How much did he buy it for?'

'Adamu made a loss of N500 when he sold his bicycle for N4000. How much did he pay for it?'

Ask the groups to write the calculations needed for each word problem in their exercise books.

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

Plenary

Group task

Draw four different sizes of pineapple on the chalkboard.

Ask each group to say what the CP and the SP might be for a different pineapple and work out the profit.

Lesson title

Week 24: Money word problems

Day 3: Dividing money

Learning outcomes

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

Read and order four-digit numbers.

Use division to solve money word problems.

Preparation

Before the lesson:

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

How? Dividing three-digit numbers

Write '275 ÷ 5 =' on the chalkboard. Ask the pupils to think of a multiple of 5 nearest to 275.

Tell them to subtract 100 from 275.

Continue subtracting multiples.

Ask a pupil to count the factors.

Write in the answer.

15 minutes	10 minutes	How	25 minutes	10 minutes

Daily practice

Pair task

Write '3, 8, 9, 6' on the chalkboard.

Ask the pairs to make the biggest and the smallest numbers they can with these four digits (9863 and 3689).

Repeat with other sets of four digits, eg: 9, 2, 8, 7 and 4, 0, 5, 2.

Ask the pairs to write four numbers greater than 999 in their exercise books.

Choose some pairs to say their numbers.

Ask the pairs to write four numbers less than 999 in their exercise books.

Choose some pairs to say their numbers.

Introduction

Whole class teaching

Tell the class they are going to revise how to divide using repeated subtraction.

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

Repeat with 492 ÷ 4 =

Main activity

Whole class teaching

Write the following word problem on the chalkboard: 'Adamu pays N80 for five breakfasts. How much does one breakfast cost?'

Read the problem and ask the class to discuss the calculation needed to solve it, ie: division.

Choose some pupils to write the division calculation and help you solve it using repeated subtraction.

Group task

Write the following word problems on the chalkboard and read and explain them:

'Eight eggs cost N240. How much does one egg cost?'

'Petrol for six journeys costs N320. How much does one journey cost?'

'Adamu is paid N2100 for five days of work. How much is he paid for one day?'

'Four rulers cost N240. How much does one ruler cost?'

Ask the groups to discuss the calculations needed and work out the answers in their exercise books.

Plenary

Group task

Choose one group to explain on the chalkboard how they solved one of the problems.

Remind the pupils that they have used division to solve some money word problems.

Lesson title

Week 24: Money word problems

Day 4: Two-step money problems

Flash cards

Learning outcomes

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

Order numbers to two decimal places.

Solve two-step money problems.

Preparation

Before the lesson:

Make sets of flash cards with the following decimal numbers for each group: 0.02, 0.12, 0.6, 0.2, 0.48, 0.5, 1.5, 2.53, 2.35, 5.0.

Read How? Order decimal numbers, as shown below.

How? Order decimal numbers

Flash the decimal number cards and ask the pupils to say them.

Check that they say them correctly, eg: 2.53 is two point five three.

Choose some pupils to write the place values above some of the numbers.

Ask the groups to order the decimal number cards from the smallest to the largest.

Ask each group to read their numbers.

15 minutes	How	Flash cards	10 minutes	25 minutes	10 minutes

Daily practice

Group task

Teach How? Order decimal numbers, as shown left, using the flash cards.

Introduction

Whole class teaching

Write on the chalkboard:
'Kande has N1000.
She buys food for N600
and books for N250.
How much money has
she got left?'

Ask some pupils to read the question and say the calculation needed.

Explain that this word problem needs two calculations.

Say, 'We need to add the money she spends and take this total away from the money she has.'

Ask some pupils to work out the calculations on the chalkboard, ie:
N600 + N250 = N850
N1000 – N850 = N150
Answer = N150

Main activity

Group task

Write the following word problems on the chalkboard and read them to the class:

'Adamu earns N750 a day. He works five days. He spends N500 on food. How much money has he got left?'

'Eggs cost N35 each. Taibat has N500. She buys six eggs. How much change does she get?'

'Sani has N100 every week. Breakfast costs N15. He buys five. How much money has he got left?'

Ask the groups to discuss the calculations needed for each of the word problems.

Choose some groups to explain the calculations, eg: for number one, you need to multiply N750 by 5 and take N500 from this total.

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

Remind them to use the methods they have learned for subtraction, multiplication and division, and to count on when calculating change or money left.

Plenary

Group task

Choose different groups to explain the answers to the last two word problems.

Week 24: Money word problems

Day 5: Adamu goes to Abuja

Learning outcomes

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

Order numbers to two decimal places.

Identify the calculations needed to solve money problems.

Preparation

Before the lesson:

Have ready N2000 in paper money, with notes of various value.

Read How? Adamu goes to Abuja, as shown below.

How? Adamu goes to Abuja

Adamu's mother gives him N2000.

In the morning he gets on a bus to Abuja and pays N700.

In Abuja he pays N50 for a snack and N10 for a drink.

Later he gets the bus to Kano and pays N700.

When he gets home he gives his sister N40.

Daily practice

Pair task

Write these sets of decimal numbers on the chalkboard and ask the pupils to read them:

Set 1
1.3, 2.4, 1.9, 0.9

Set 2
2.5, 2.0, 2.4, 0.95

Set 3
1.99, 2.98, 3.51, 3.5

Set 4
4.25, 4.02, 4.15, 4.90

Choose some pairs to say the place value of the digits in the last set of numbers.

Ask the pairs to write in their exercise books the decimal numbers in each set in order, from the highest to the lowest.

Introduction

Group task

Explain the story in How? Adamu goes to Abuja, as shown left.

Ask the groups, 'Do you think Adamu has enough money left to go to Abuja again?'

Give some pupils the paper money and ask them to role play Adamu going to Abuja.

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

Ask: 'How much money has Adamu got at the end of the story?'

Main activity

Whole class teaching

Write this word problem on the chalkboard:
'One egg costs N35 but the seller offers six eggs for N180. Is this a good deal? How much money will I save?'

Tell the class to read the word problem carefully and think about the calculations needed for each step.

Choose some pupils to help you work out the answer on the chalkboard:

N180 ÷ 6 = N30
(30 x 6 = 180)
N35 – N30 = N5

You will save N5 on each egg, making a saving of 6 x 5 = N30 in total.

Group task

Write the following word problems for the groups to solve in their exercise books:

'Sani has N200. A snack costs N10. He buys 12 snacks. How many more snacks can he buy?'

'Nura has N1750 for petrol. Each journey costs N500. He goes on three journeys. Has he got enough money for another journey?'

'Taibat has N2500. A skirt costs N600. Has she got enough money to buy four skirts?'

Help each group to choose the correct calculations.

Plenary

Group task

Choose representatives from each group to explain how they calculated one of the word problems.

Grade/
Type of lesson plan

Lesson
title

Weekly page

Primary 4, numeracy lesson plans

Week 25:

Multiplication and division

Words/phrases

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

multiply
times
product
multiple
factor
groups of
divide
share
grid method
repeated subtraction
decimal number
tenths

Learning expectations

By the end of the week:

All pupils will be able to:
Say the 6, 7, 8 and 9 times tables.

Most pupils will be able to:
Use the grid method to multiply decimal numbers to one place.

Some pupils will be able to:
Divide larger numbers using repeated subtraction.

Assessment task

Instructions:

Ask an individual pupil to:

1
Solve the following sums using grid method:
23 x 6 =
67 x 8 =

2
Solve the following sums using grid method:
24.6 x 3 =
631.5 x 6 =

3
Solve the following sums using repeated subtraction:
182 ÷ 7 =
516 ÷ 6 =

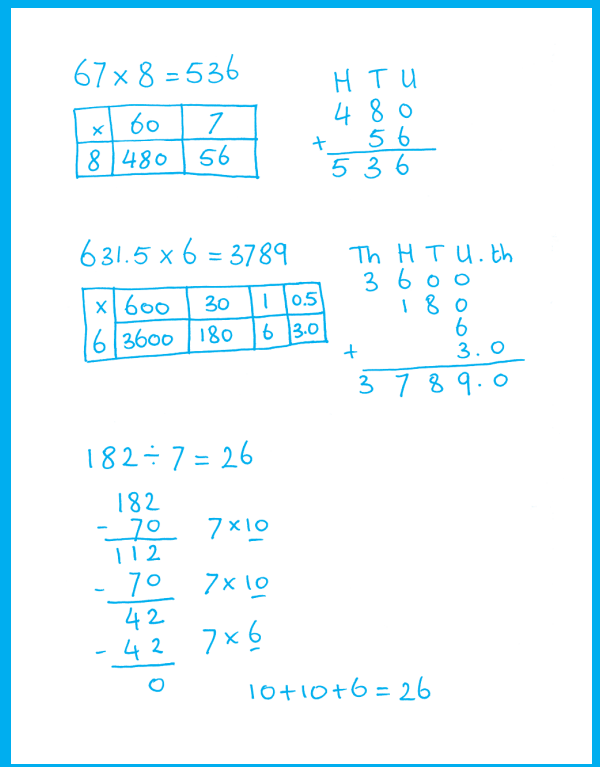
Example of a pupil's work

This pupil can:

Use the 6, 7, 8 and 9 times tables.

Use the grid method to multiply decimal numbers to one decimal place.

Divide larger numbers using repeated subtraction.



Lesson title

Week 25: Multiplication and division

Day 1: The grid method

Ball

Learning outcomes

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

Say the answers in the 8 and 9 times tables.

Use the grid method to multiply three-digit numbers.

Preparation

Before the lesson:

Have ready a ball for the daily practice.

Read How? Grid method with HTU, as shown below.

How? Grid method with HTU

Ask the pupils to help you expand some three-digit numbers on the chalkboard.

Write '233 x 8 =' on the chalkboard.

Ask the pupils to help you calculate the answer using the grid method.

Repeat with 253 x 9 =

15 minutes	10 minutes	25 minutes	10 minutes
Ball		How	

Daily practice

Whole class teaching

Ask the pupils to help you write the 8 and 9 times tables on the chalkboard.

Ask the class to say them forwards and backwards.

Take the class outside and ask them to form a circle.

Throw the ball to a pupil and say, 'Zero'.

Ask the pupil to add 8 to the new number and throw the ball to the next pupil.

Continue until 80 is reached.

Repeat, but this time count in 9s.

Do this several times.

Introduction

Pair task

Write '6 x 9 =' on the chalkboard and ask a pupil to say the answer.

Remind the class that if they know that 6 x 9 = 54 they can calculate 60 x 9 = 540 by moving the digits one place to the left.

Explain that to work out 600 x 9 = 5400 we need to move the digits two places to the left.

Write these calculations for the pairs to complete in their exercise books:
70 x 9 =
800 x 8 =
50 x 8 =
700 x 9 =
40 x 9 =
300 x 8 =

Main activity

Whole class teaching

Teach How? Grid method with HTU, as shown left.

Pair task

Write the following sums on the chalkboard for the pairs to complete in their exercise books:
422 x 9 =
862 x 8 =
843 x 9 =
543 x 9 =

Plenary

Whole class teaching

Choose some pairs to explain on the chalkboard how they completed two of the calculations.

Week 25: Multiplication and division

Day 2: Multiplying decimal numbers

Learning outcomes

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

Use the times tables to solve division calculations.

Multiply decimal numbers using the grid method.

Preparation

Before the lesson:

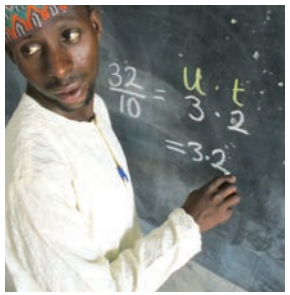
Write the 8 and 9 times tables on the chalkboard.

Read How? Grid method with decimal numbers, as shown below.

How? Grid method with decimal numbers

Write '0.4' and ask a pupil to write on the place value of the 4.

Write '0.4 x 8 =' and explain that we now have 32 tenths.



Explain that 32 tenths is equal to 3 Units and 2 tenths, which is 3.2.

Ask some pupils to help you solve 0.6 x 9.

15 minutes	Times tables	10 minutes	How	Times tables	25 minutes	10 minutes

Daily practice

Pair task

Remind the class that we can use times tables 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 pairs 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

Teach How? Grid method with decimal numbers, as shown left.

Write the following sums on the chalkboard for the pupils to complete in their exercise books:
0.7 x 9 =
0.6 x 8 =
0.5 x 9 =
0.4 x 8 =

Remind them to look at the 8 and 9 times tables if they need to.

Main activity

Whole class teaching

Write '54.3 x 8 =' on the chalkboard.

Ask some pupils to help you expand the number, draw the grid underneath and write 'x 8'.

Choose some pupils to multiply the tenths, Units and Tens.

Ask the class to add the tenths, Units, Tens and Hundreds.

Ask a pupil to put the number together:
400 + 32 + 2.4 = 434.4

Pair task

Write the following sums on the chalkboard for the pairs to complete in their exercise books:
83.6 x 8 =
65.5 x 9 =
86.5 x 9 =
23.3 x 8 =

Plenary

Whole class teaching

Choose some pairs to explain on the chalkboard how they completed two of the calculations.

Lesson title

Week 25: Multiplication and division

Day 3: Division using repeated subtraction

Ball

Learning outcomes

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

Say the answers in the 6 and 7 times tables.

Divide larger numbers using repeated subtraction.

Preparation

Before the lesson:

Have ready a ball.

Read How? Dividing larger numbers, as shown below.

How? Dividing larger numbers

Demonstrate the sign that we can use to divide larger numbers.

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

Add the factors and write in the answer.

Repeat with 684 divided by 6.

15 minutes	Ball	10 minutes	Times tables	25 minutes	How	Times tables	10 minutes

Daily practice

Whole class teaching

Ask the pupils to help you write the 6 and 7 times tables on the chalkboard.

Ask the class to say them forwards and backwards.

Take the class outside and ask them to form a circle.

Throw the ball to a pupil and say, 'Zero'.

Ask the pupil to add 6 to the new number and throw the ball to the next pupil.

Continue until they reach 60.

Repeat, but this time count in 7s.

Do this several times.

Introduction

Group task

Ask the pupils to read the 6 and 7 times tables on the chalkboard.

Ask the pupils, 'What is 20 x 7?'

Remind them that 2 x 7 = 14, so 20 x 7 = 140.

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

Remind them that 2 x 6 = 12, so 200 x 6 = 1200.

Write these calculations for the groups to complete in their exercise books:
70 x 6 =
800 x 7 =
50 x 7 =
700 x 6 =

Main activity

Whole class teaching

Teach How? Dividing larger numbers, as shown left.

Pair task

Write the following calculations on the chalkboard for the pairs to complete in their exercise books:
791 ÷ 7 =
690 ÷ 6 =
154 ÷ 7 =
168 ÷ 6 =

Remind them to look at the 6 and 7 times tables on the chalkboard if they need to.

Tell them to make the multiples as big as they can.

Plenary

Whole class teaching

Choose some pairs to show on the chalkboard how they completed two of the calculations.

Week 25: Multiplication and division

Day 4: Multiply or divide?

Learning outcomes

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

Say the answers in the 7, 8 and 9 times tables.

Write the correct calculation for multiplication and division problems.

Preparation

Before the lesson:

Write the 7 and 8 times tables on the chalkboard.

Read How? Multiplication bingo, as shown below.

How? Multiplication bingo

Ask the pupils to write multiples from the 7, 8 and 9 times tables.

Ask the pairs to write 10 of the multiples in their exercise books.

Call out questions from the 7, 8 and 9 times tables.

If a pupil has the correct answer to a question, tell them to cross it out in their exercise book.

Tell them to shout 'Bingo' when all their numbers are crossed out.

15 minutes	How	10 minutes	20 minutes	Times tables	15 minutes

Daily practice

Pair task

Teach How? Multiplication bingo, as shown left.

Introduction

Whole class teaching

Write on the chalkboard:

36 ☐ 6 = 6

7 ☐ 6 = 42

Choose some pupils to write in the missing signs.

Ask the pupils to say other words for multiply, ie: times, product of, multiple of, groups of.

Ask the pupils to say other words for divide, ie: share, put in groups.

Write the following calculations and ask the pupils to complete them in their exercise books:

42 ☐ 7 = 6

8 ☐ 8 = 64

54 ☐ 9 = 6

72 ☐ 8 = 9

Main activity

Whole class teaching

Write the following word problems on the chalkboard and explain them to the pupils:

'Kande spends N200 each day. How much does she spend in a week?'

'A tray contains eight eggs. How many trays are needed to pack 896 eggs?'

'A teacher gives eight pens to each pupil in a class of 44 pupils. How many pens are there altogether?'

Group task

Ask each group to write the sign needed by one of the word problems (x or ÷).

Ask the groups to complete the word problems in their exercise books.

Remind them to use the method to divide and multiply that they have learned this week and to look at the 7 and 8 times tables on the chalkboard if they need to.

Plenary

Whole class teaching

Choose some groups to write their calculations on the chalkboard and ask the class if they agree.

Ask some pupils to help you calculate a division problem.

Lesson title

Week 25: Multiplication and division

Day 5: Amina's story

Story/ Paper money/ Buckets/Balls/Labels

Learning outcomes

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

Answer questions from the 6, 7, 8 and 9 times tables.

Identify methods for multiplication and division.

Preparation

Before the lesson:

Write Amina's story, as shown opposite in the introduction, on the chalkboard.

Have ready some paper money.

Read How? Bucket game, as shown below, and have ready four buckets, 10 small balls and some labels.

How? Bucket game

Label the buckets with the numbers 6, 7, 8 and 9.

Tell each of the groups to throw 10 balls into any of the buckets.

Look into each of the buckets and count the number of balls.

Tell the groups to multiply the number of balls by the numbers on the bucket.

Add up the scores. The group with the highest score wins the game.

15 minutes	How	Buckets/ Balls	10 minutes	Story/ Paper money	25 minutes	10 minutes

Daily practice

Group task

Teach How? Bucket game, as shown left, using the buckets and balls.

Introduction

Whole class teaching

Read Amina's story to the class:
'Amina works in a shop for 5 days of the week. She is paid N750 every day. Every week she spends N50 on snacks and N700 on travel. At the end of the week she shares the money she has left equally between herself, her mother and her father.'

Give some of the pupils the paper money and ask them to role play Amina receiving her pay, buying the snacks and getting her change.

Ask some pupils to calculate on the chalkboard how much money Amina gets at the end of the week, how much she spends and how much she has left.

Ask some of the pupils to calculate how much money Amina keeps at the end of the week.

Main activity

Group task

Write the following calculations on the chalkboard:
465 x 6 =
58.6 x 6 =
585 ÷ 5 =
80 x 6 =
400 x 7 =
250 ÷ 10 =

Ask the groups to discuss and say the methods they can use for each calculation, ie: the grid method, repeated subtraction and moving the place value.

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

Plenary

Whole class teaching

Choose some pupils to say the 6, 7, 8 and 9 times tables backwards.

Ask 10 questions from the 6, 7, 8 and 9 times tables and ask the pupils to write the answers in their exercise books, eg: 7 x 6, 9 x 8.

Credits

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

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