



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

**Fractions, decimals, money
and word problems**

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Introduction

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

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

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

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

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

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

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

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

Zakari Ibrahim Bagwai
Executive Chairman,
SUBEB, Kano State

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

How

How?

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

Learning expectations

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

What **all** pupils will be able to do.

What **most** pupils will be able to do.

What **some** pupils will be able to do.

Assessment

On each weekly page there is an assessment task for you to carry out with five pupils at the end of the week. This will help you find out whether they have met the learning expectations.

Next to the task, there is an example of a pupil's work, which shows what a pupil can do if they have met the learning expectations.

If most pupils have not met the learning expectations, you may have to teach some of the week again.

Daily practice

Helps the pupils to practise something they have previously learned. It should only last 15 minutes and move at a fairly fast pace.

Introduction

Provides the focus for the lesson. Often involves a variety of fun, quick activities which prepare the pupils for the main topic.

Main activity

Gives the pupils the opportunity to explore the main topic in different ways. This usually involves group, pair or individual tasks. Your role as a teacher during the main activity is to work with groups and individuals to help them understand the ideas.

Plenary

Finishes the lesson with different ways of reviewing learning.

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:

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

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

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

3

Solve the following sums:

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

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

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 than 1, using division and multiplications.

Convert fractions into whole numbers.

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

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

$$\frac{1}{8} \text{ of } 64 = 8 \quad (64 \div 8 = 8)$$

$$\frac{3}{5} \text{ of } 25 = 15 \quad (\frac{1}{5} \text{ of } 25 = 5 \rightarrow 3 \times 5 = 15)$$

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

Week 21: Fractions

Day 1: Counting stick fractions

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.

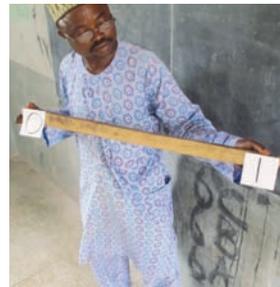
Preparation

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

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.

10
minutes

How

Tape/
Stick

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.

25
minutes

Stick

New Method Mathematics 4

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:

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

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

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.

Ask the pupils to open **New Method Mathematics 4, page 50, lesson 3**.

Tell the pairs to complete questions 1—10 in their exercise books.

10
minutes

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.

Week 21: Fractions

Day 2: Fractions and division

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.

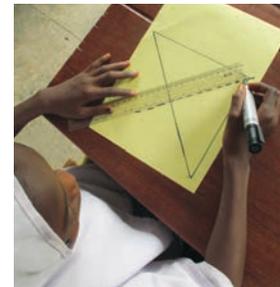
How? Properties of 2D shapes



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

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

10 minutes

Multiplication square

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.

25 minutes

Main activity

Whole class teaching

Write on the chalkboard:

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

Explain the link with division ($30 \div 3 = 10$) and multiplication ($3 \times 10 = 30$).

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:

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

Explain that we know that:

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

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

10 minutes

Multiplication square

Plenary

Whole class teaching

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

$$\begin{array}{ccc} \frac{1}{6} = 5 & & \frac{1}{10} = 3 \\ & \diagdown & / \\ & 30 & \\ & / & \diagdown \\ \frac{1}{5} = 6 & & \frac{1}{3} = 10 \\ \frac{1}{15} = 2 & & \frac{1}{2} = 15 \end{array}$$

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

Week 21: Fractions

Day 3: Fractions of numbers

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

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 'quadrilateral' 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.

10 minutes | **How** | Counters

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](#).

25 minutes

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:

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

$$60 \div 4 = 15$$

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

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

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

New Method Mathematics 4

Group task

Ask the groups to open New [Method Mathematics 4, page 52](#), lesson 5 and complete questions 10—15 in their exercise books.

10 minutes | New Method Mathematics 4

Plenary

Whole class teaching

Choose some pupils to help you solve question 14 from [New Method Mathematics 4, page 52](#) on the chalkboard:

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

Week 21: Fractions

Day 4: Fraction word problems

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 | 3D shapes

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.

10 minutes | How Counters

Introduction

Group task

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

25 minutes

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:

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

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

$$48 - 36 = 12 \text{ goats left.}$$

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

Write:

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

10 minutes

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.

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.

Week 21: Fractions

Day 5: Improper fractions

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

New Method Mathematics 4

10 minutes

Daily practice

Whole class teaching

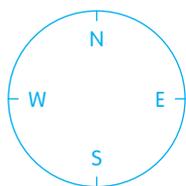
Ask the class to say the compass points with you.

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:

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

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

Write the following fractions on the chalkboard:

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

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:

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

$$8 \div 5 = 1 \text{ R}3$$

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

Pair task

Ask the pairs to open **New Method Mathematics 4, page 49**, lesson 2 and solve questions 21—30 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.

$\frac{1}{4}$

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.

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

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

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

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

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

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

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

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

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

Week 22: Fractions and decimals

Day 1: Word problems

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

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 $8 \times 6 = 48$, what division calculations do we know?' ($48 \div 6 = 8$ and $48 \div 8 = 6$).

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.

10
minutes

How

Paper/
Scissors

Introduction

Group task

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

25
minutes

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:

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

$$9 \div 6 = 1 \text{ R}3$$

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

10
minutes

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.

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.

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

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:

$$40 \times 6 =$$

$$70 \times 5 =$$

$$90 \times 6 =$$

$$30 \times 4 =$$

$$50 \times 5 =$$

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

10 minutes How

Introduction

Group task

Teach **How? Adding fractions**, as shown left.

25 minutes

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:

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

New Method Mathematics 4

10 minutes

Plenary

Whole class teaching

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

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

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:

$$\begin{aligned}450 \div 5 &= \\180 \div 3 &= \\360 \div 4 &= \\540 \div 6 &= \end{aligned}$$

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

10 minutes **How**

Introduction

Whole class teaching

Teach **How? Mixed number fractions**, as shown left.

25 minutes

Main activity

Pair task

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

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

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

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

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

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

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

10 minutes

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.

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.

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

New Method Mathematics 4

10 minutes

Daily practice

Introduction

Main activity

Plenary

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 =

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.

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 **New Method Mathematics 4, page 57, lesson 3** and complete questions 3—9 in their exercise books.

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

Week 22: Fractions and decimals

Day 5: Two decimal places

Learning outcomes

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

Divide multiples of
a Hundred.

Use decimal notation
for hundredths.

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

Introduction

Main activity

Plenary

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.

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**.

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:

$$\frac{3}{100}$$

$$\frac{54}{100}$$

$$\frac{8}{100}$$

$$\frac{20}{100}$$

$$\frac{36}{100}$$

$$\frac{9}{100}$$

$$\frac{1}{100}$$

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.

A book for N35 with notes:

* N20 and N10 and N5

* N50

* N100

* N500

$$N85 + N345 + N380 = N810$$

$$\begin{array}{r} 85 \quad 80+5 \\ 345 \quad 300+40+5 \\ + 380 \quad 300+80+0 \\ \hline 10 \quad (5+5) \\ 200 \quad (80+40+80) \\ + 600 \quad (300+300) \\ \hline 810 \end{array}$$

$$N1500 - N765 = N735$$

$$\begin{array}{r} 1500 \\ - 765 \\ \hline \end{array} \Rightarrow \begin{array}{r} 1000+500+0+0 \\ - 0+700+60+5 \\ \hline \end{array} \rightarrow \begin{array}{r} 0+1400+90+10 \\ - 0+700+60+5 \\ \hline 700+30+5 \end{array}$$

Week 23: Money

Day 1: Naira

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

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.

10
minutes

How

Money/
Paper money

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**.

25
minutes

Paper

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.

10
minutes

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.

Week 23: Money

Day 2: The shop

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

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 $8 \times 9 = 72$, what division calculations do we know?' ($72 \div 9 = 8$ and $72 \div 8 = 9$)

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.

10
minutes | Paper money

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.

25
minutes | Paper money

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.

How | Paper money/Paper/
Shopping items

Group task

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

10
minutes | Shopping corner

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.

Week 23: Money

Day 3: Shopping lists

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

Introduction

Main activity

Plenary

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**.

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.

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 underneath their calculation.

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

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.

Week 23: Money

Day 4: The correct change

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

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 7×7 , 9×7 and 8×7 ?'

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: $4 \times 7 =$, $49 \div 7 =$

10 minutes | **How** | Paper money

Introduction

Group task

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

25 minutes | 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.

10 minutes | Shopping corner

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.

Week 23: Money

Day 5: Multiplying money

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

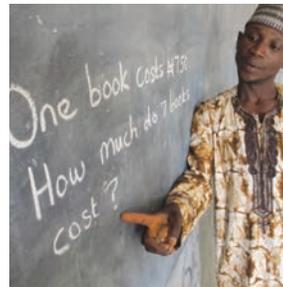
Before the lesson:

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?'



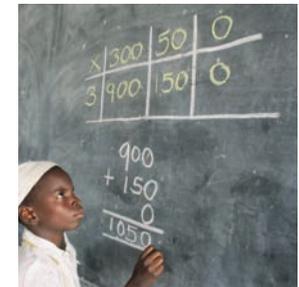
Ask a pupil to
write the calculation
needed on the
chalkboard.



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



Say, 'One apple costs
N350. How much
do three apples cost?'



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

15 minutes | Game

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.

10 minutes | How

Introduction

Whole class teaching

Teach [How? Money multiplication](#), as shown left.

25 minutes

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 ' $N330 \times 6 =$ ' and ask some pupils to help you work it out using the grid method.

10 minutes

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

Lesson
title

Weekly page

Primary 4, numeracy lesson plans

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 gets 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.

$$N450 - N390 = N60$$

$$\begin{array}{r} 450 \\ -390 \\ \hline 60 \end{array} \quad \text{or } \begin{array}{r} 400+50+0 \\ -300+90+0 \\ \hline 100+60+0=160 \end{array} \rightarrow \begin{array}{r} 300+150+0 \\ -300+90+0 \\ \hline 0+60+0=60 \end{array}$$

$$7 \times N350 = N2450$$

x	300	50	0
7	2100	350	0

$$\begin{array}{r} \text{Th H T U} \\ 2100 \\ + 350 \\ \hline 2450 \end{array}$$

$$50 \times N40 = N2000$$

$$N2000 - N1000 = \underline{N1000}$$

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 some-
times have to
rename numbers.

15
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?'

10
minutes

How

Introduction

Whole class teaching

Teach [How? Subtraction revision](#), as shown left.

25
minutes

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.

10
minutes

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).

Week 24: Money word problems

Day 2: Profit and loss

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 opposite, 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

Daily practice

Whole class teaching

Tell the class they are going to revise rounding numbers.

Teach **How? Rounding**, as shown left.

10
minutes

Chart

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.

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		

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.

25
minutes

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.

10
minutes

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.

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 ' $275 \div 5 =$ '
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

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.

10
minutes

How

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 $492 \div 4 =$

25
minutes

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.

10
minutes

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.

Week 24: Money word problems

Day 4: Two-step money problems

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

Introduction

Main activity

Plenary

Group task

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

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

Group task

Write the following word
problems on the chalk-
board 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.

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.

15
minutes

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.

10
minutes

How

Paper money

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?'

25
minutes

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:

$$N180 \div 6 = N30$$

$$(30 \times 6 = 180)$$

$$N35 - N30 = N5$$

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

10
minutes

Plenary

Group task

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

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.

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

Example of a pupil's work

Instructions:

Ask an individual pupil to:

1
Solve the following sums using grid method:
 $23 \times 6 =$
 $67 \times 8 =$

2
Solve the following sums using grid method:
 $24.6 \times 3 =$
 $631.5 \times 6 =$

3
Solve the following sums using repeated subtraction:
 $182 \div 7 =$
 $516 \div 6 =$

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.

$$67 \times 8 = 536$$

x	60	7
8	480	56

$$\begin{array}{r} \text{H T U} \\ 480 \\ + 56 \\ \hline 536 \end{array}$$

$$631.5 \times 6 = 3789$$

x	600	30	1	0.5
6	3600	180	6	3.0

$$\begin{array}{r} \text{Th H T U . th} \\ 3600 \\ 180 \\ 6 \\ + 3.0 \\ \hline 3789.0 \end{array}$$

$$182 \div 7 = 26$$

$$\begin{array}{r} 182 \\ - 70 \\ \hline 112 \\ - 70 \\ \hline 42 \\ - 42 \\ \hline 0 \end{array}$$

$$7 \times 10$$

$$7 \times 10$$

$$7 \times 6$$

$$10 + 10 + 6 = 26$$

Week 25: Multiplication and division

Day 1: The grid method

Learning outcomes

Preparation

**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.

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 ' $233 \times 8 =$ ' on
the chalkboard.



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



Repeat with
 $253 \times 9 =$

15 minutes | Ball

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.

10 minutes

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 $6 \times 9 = 54$ they can calculate $60 \times 9 = 540$ by moving the digits one place to the left.

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

Write these calculations for the pairs to complete in their exercise books:

$$70 \times 9 =$$

$$800 \times 8 =$$

$$50 \times 8 =$$

$$700 \times 9 =$$

$$40 \times 9 =$$

$$300 \times 8 =$$

25 minutes

How

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:

$$422 \times 9 =$$

$$862 \times 8 =$$

$$843 \times 9 =$$

$$543 \times 9 =$$

10 minutes

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:

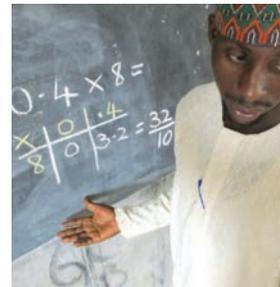
Write the **8 and 9 times tables** on
the chalkboard.

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 ' $0.4 \times 8 =$ '
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
 0.6×9 .

15 minutes Times tables

Daily practice

Pair task

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

Write ' $40 \div 8 =$ ' on the chalkboard.

Ask the pupils what multiplication fact they can use to solve this, ie:
 $8 \times 5 = 40$, so
 $40 \div 8 = 5$.

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

$$\begin{aligned}81 \div 9 &= \\48 \div 8 &= \\54 \div 9 &= \\64 \div 8 &= \\63 \div 9 &= \end{aligned}$$

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

10 minutes **How** Times tables

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:

$$\begin{aligned}0.7 \times 9 &= \\0.6 \times 8 &= \\0.5 \times 9 &= \\0.4 \times 8 &= \end{aligned}$$

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

25 minutes

Main activity

Whole class teaching

Write ' $54.3 \times 8 =$ ' on the chalkboard.

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

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:
 $400 + 32 + 2.4 = 434.4$

10 minutes

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 3: Division using repeated subtraction

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.

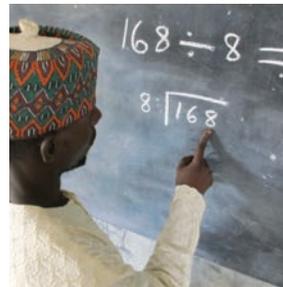
Preparation

Before the lesson:

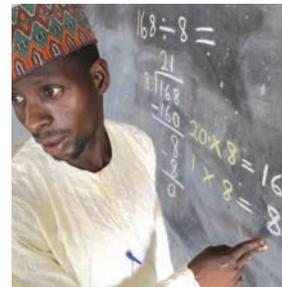
Have ready a [ball](#).

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

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.

10 minutes | Times tables

Introduction

Group task

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

Ask the pupils, 'What is 20×7 ?'

Remind them that $2 \times 7 = 14$, so $20 \times 7 = 140$.

Ask the pupils, 'What is 200×6 ?'

Remind them that $2 \times 6 = 12$, so $200 \times 6 = 1200$.

Write these calculations for the groups to complete in their exercise books:

$$70 \times 6 =$$

$$800 \times 7 =$$

$$50 \times 7 =$$

$$700 \times 6 =$$

25 minutes

How

Main activity

Whole class teaching

Teach **How? Dividing larger numbers**, as shown left.

Times tables

Pair task

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

$$791 \div 7 =$$

$$690 \div 6 =$$

$$154 \div 7 =$$

$$168 \div 6 =$$

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.

10 minutes

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

Daily practice

Pair task

Teach **How? Multiplication bingo**, as shown left.

10 minutes

Introduction

Whole class teaching

Write on the chalkboard:

$$36 \square 6 = 6$$

$$7 \square 6 = 42$$

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:

$$42 \square 7 = 6$$

$$8 \square 8 = 64$$

$$54 \square 9 = 6$$

$$72 \square 8 = 9$$

20 minutes

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?'

Times tables

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.

15 minutes

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.

Week 25: Multiplication and division

Day 5: Amina's story

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

Daily practice

Group task

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

10
minutes

Story/
Paper money

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.

25
minutes

Main activity

Group task

Write the following calculations on the chalkboard:

$$465 \times 6 =$$

$$58.6 \times 6 =$$

$$585 \div 5 =$$

$$80 \times 6 =$$

$$400 \times 7 =$$

$$250 \div 10 =$$

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.

10
minutes

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: 7×6 , 9×8 .

Credits

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