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**Numeracy
lesson plans**
Primary 3

Term 2
Involving pupils in
their learning

Weeks
11—15

Type of lesson plans/
Grade

Term/
Learning theme

Numeracy lesson plans Primary 3 Term 2 ▶ Involving pupils in their learning

This is the third
in a series of six
numeracy lesson
plan publications,
designed to be
used throughout
the three academic
school terms.



Introduction

Over the years, the citizens of Lagos have benefited from a government orchestrated free basic education programme. This has resulted in mass enrolment of school-age children in public primary institutions across the state, and significant expense on education facilities and continuous teacher improvement programmes.

However, the learning outcomes of these public primary schools have not justified the colossal amount of money that has been spent on education in the state. The school system has inadequately equipped our school leavers for everyday life. A baseline assessment of teachers revealed a general weakness around effective teaching methodologies to improve learning outcomes in our schools.

The State Government, with the support of the Education Sector Support Programme in Nigeria (ESSPIN) and with funding from UK Aid from the Department for International Development, has recently introduced pilot literacy and numeracy lesson plans in public primary schools (starting with Primary 1—3) to improve classroom teachers' capacity. These lesson plans sought to address the challenges by offering step-by-step guidance to teachers on how to deliver good quality literacy and numeracy lessons effectively.

Now, the hard work of all our personnel – the State School Improvement Team, the school support officers and technical partners from ESSPIN – has brought about the production of a complete module of lesson plans.

I am convinced that the use of these complete versions of the literacy and numeracy lesson plans by teachers in all our 1,003 public primary schools will further raise the standards of education to which we are wholly committed.

Mrs Olayinka Oladunjoye
Honourable Commissioner
for Education
Lagos State

**Numeracy
lesson plans
Primary 3**

**Term 2
Involving pupils in
their learning**

**Weeks
11—15**

Introduction

▶ Involving pupils in their learning

Learning must be an active process on the part of the learner.

How children learn

These lesson plans provide you with a variety of techniques to make learning faster, fun and more effective. The plans use activities that reflect the way in which pupils naturally learn, and attempt to bring the joy back into learning for children.

Every individual in your class responds to activities differently and learns their own way, but generally children learn best when they:

Have objects to see and hold.

Take part in the lesson.

Can talk to each other to share ideas and learning.

Practise what they have learned individually, in pairs and in groups.

Are given activities that challenge them and make them think.

Receive encouragement and praise.

Realise that making mistakes is an important part of the learning process.

This third set of lesson plans contains lots of activities to encourage learning through different methods.

**Numeracy
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Primary 3**

**Term 2
Involving pupils in
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11—15**

Introduction

▶ Essential low-cost or free teaching aids

Counters

Ask the pupils to help you collect together as many bottle tops, small sticks and small stones as they can. Put them into jars to keep in the classroom and use to help with counting.

Number cards

Make sets of cards numbered from 1—200. Cut up cardboard cartons into squares and write numbers on them. Make as many sets as you can so the pupils can use them to play games.

Metre sticks

Cut strips of card to the same size as a metre stick and carefully mark the centimetres (cms) on the card in the correct place.

These can then be used for measuring.

Cut lengths of string to the same size as a metre stick, to be used for measuring.

Ask a local carpenter if they have any long ends of wood that can be turned into a metre length.

Ask the carpenter to make marks for centimetres, with longer marks for 10, 20, 30, etc, then write the numbers next to them.

If you write the numbers from 1—100 on the other side, these can also be used as longer-lasting 1—100 number lines.

Measuring correctly

Show pupils how to measure the length in metres using their stick or rope.

Put one end of the rope/ stick right up against the end of the length and stretch it out until it reaches the metre mark.

Ask a pupil to put their finger on the floor at the metre mark, then lift up the rope/ stick and put the end right up against their finger to measure the next metre (there should be no space between the pupil's finger and the measuring tool).

Repeat the process until they have finished measuring the length.

**Numeracy
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Primary 3**

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**Weeks
11—15**

Introduction

▶ Essential low-cost or free teaching aids

Place value cards

Use card to construct the cards below.

If possible, make one set per pair of pupils.

You could also make one large class set.

Clocks

Collect old wall clocks that are no longer working for the pupils to use.

Hang a working clock in your classroom which the pupils can see. Use it to mention the times at different points in the day, eg: when they arrive in the morning, at the end of lessons, at break time, etc.

Make clocks out of cardboard.

Try to make at least one for each pair in your class, they will be used in literacy as well as numeracy lessons.

On a piece of cardboard, draw around a large circle and cut it out.

Find the middle of the circle and draw a dot.

Draw lines through the middle of the circle to divide it into quarters.

Write the numbers around the edge of the clock starting with 12, 6, 9 and 3 as they will be on the ends of the lines you have drawn.

Work out where the other numbers would be and write them on.

Make a hole in the middle of the circle.

Cut out two hands, a short one and a long one.

Attach them to the middle of the circle so they can move around.

Hundred card
1 set 100—900

Ten card
1 set 10—90

Unit card
1 set 0—9





Week
11
Subtracting
three-digit numbers

Words/phrases

clock
half past
time
hour
half hour
minutes
subtract
take away

How many less than?

How many more than?

What's the difference between?

Assessment

During the lesson, walk round the classroom and ask questions to see if the pupils clearly understand what you have taught them. If not, help them to understand by explaining the idea to them again, or asking other pupils to help them. You may need to use some different examples of the idea.

Lesson
title

Subtracting three-digit numbers

15
minutes

Learning outcomes

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

Explain how to tell the time on the hour and half hour.

Subtract three-digit numbers.

Teaching aids

Before the lesson:

Have ready a large clock with moveable hands.

Look at the weekly words, particularly the different terms for subtraction.

Daily practice

Whole class teaching

Show the pupils a clock and ask them to tell you anything they can about clocks and how to tell the time.

Write their ideas on the chalkboard.

Remind them that the long hand tells the hour and the short hand shows the minutes.

Make some o'clock and half past times on the clock and ask individual pupils to tell you the time they make.

10
minutes

Introduction

Whole class teaching

Ask the pupils to list some of the terms used for subtraction, eg: How many more than?, take away, What's the difference?

Explain that you are going to remind them how to subtract three-digit numbers.

25
minutes

Main activity

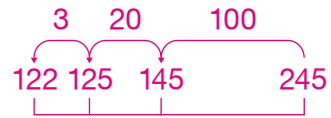
Whole class teaching

Write the following sum on the chalkboard,
 $245 - 123 =$

Ask them what you do first (draw a number line, writing the biggest number on the left hand end).

Ask them the next step (expand the smallest number) $123 = 100 + 20 + 3$.

Ask them what they do next. (use the number line to do the sum):



10
minutes

Plenary

Whole class teaching

Ask four pupils to share what they have learned with the rest of the class.

Lesson
title

Subtracting three-digit numbers

15
minutes

Learning outcomes

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

Use a clock to tell the time on the hour and half hour.

Use a number line to subtract three-digit numbers.

Teaching aids

Before the lesson:

Find or make a dummy clock, with moveable hands to show the hours and minutes.

Read Macmillan New Primary Mathematics 3, page 42, questions 1—3.

Daily practice

Whole class teaching

Show the pupils a dummy clock.

Make different times involving o'clock and half past on the clock and ask the pupils to write each time down in their exercise books.

After each question, tell them the answer and ask them to check if they are correct.

10
minutes

Introduction

Whole class teaching

Write the following sum on the chalkboard and ask the pupils to remind you how to complete it:
 $642 - 521 =$

25
minutes

Macmillan
New Primary
Mathematics 3

Main activity

Pair task

Ask pupils to complete Macmillan New Primary Mathematics 3, page 42, questions 1—3, using number lines.

Ask two or three pupils to explain how they did this to the rest of the class.

10
minutes

Plenary

Pair task

Give the pupils the following sums to answer orally, without using pencil and paper:

$$5 + 5$$

$$6 + 4$$

$$3 + 7$$

$$8 + 2$$

$$1 + 9$$

$$2 + 8$$

Lesson
title

Subtracting three-digit numbers

15
minutes

Learning outcomes

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

Tell the time on the hour and the half hour.

Use a number line to answer the question 'How many less than?'

Teaching aids

Before the lesson:

Collect dummy or cardboard clocks with moveable hands for each pair.

Daily practice

Pair task

Hand out the clocks with moveable hands to each pair.

Ask all pairs to make the different o'clock and half past times that you tell them and hold up their clocks for everyone to see.

10
minutes

Introduction

Group task

Ask each group to make as many sums as they can that make the number 50 in 5 minutes.

Time them carefully, telling them to stop as soon as the 5 minutes is finished.

25
minutes

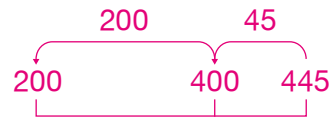
Main activity

Whole class teaching

Remind the pupils how to answer the question, 'How many less than?'

Ask them, 'How many less than 445 is 200?'

Ask them if they can remember how to do it.



200 is 245 less than 445

10
minutes

Plenary

Pair task

Give pairs the following sums to answer without pencil and paper:

60 + 40
30 + 70
50 + 50
20 + 80
80 + 20
40 + 60
90 + 10
10 + 90

Give them a question to try in pairs, eg: 'How many less than 658 is 543?'

Come together and ask pupils how they answered it.

Give pupils some more questions, one at a time to answer in pairs and discuss after each one has been completed:

'How many less than 563 is 232?'

'How many less than 777 is 444?'

'How many less than 569 is 343?'

Lesson
title

Subtracting two-digit numbers, crossing the Ten

15
minutes

Learning outcomes

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

Tell the time in 5-minute intervals.

Use a number line to subtract two-digit numbers.

Teaching aids

Before the lesson:

Find a clock with moveable hands to use to make different times.

Make sure that you can easily explain the method below to subtract two-digit numbers when the Unit in the second number is larger than the first.

Daily practice

Whole class teaching

Ask the pupils if they can remember how many minutes there are in an hour.

Explain that there are 60 minutes in an hour and that to tell the time people often talk in sets of 5 minutes; eg: 5 minutes past, 10 minutes past, etc.

Count in fives up to 60.

Repeat, this time moving the hands around the clock as you do so.

10
minutes

Introduction

Whole class teaching

Remind the pupils how to do the following sum, by expanding the smallest number and using the number line to work out the answer:

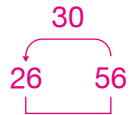
$$56 - 37 =$$

$$37 = 30 + 7$$

Explain that you can break this down into steps further to make it easier.

Firstly,

$$56 - 30 = 26$$



25
minutes

Main activity

Pair task

Ask them to try the following in pairs, using the same method:

$$45 - 28$$

$$67 - 59$$

$$83 - 46$$

$$34 - 27$$

$$57 - 19$$

Ask each pair to find another pair and compare answers.

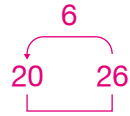
10
minutes

Plenary

Pair task

Ask each pupil to say one thing they have learned from the lesson.

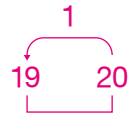
To make the next jump easier, make a jump of 6 to 20.



Ask them,

'How many more do you need to take away so that you have taken 7 altogether?'

$$7 - 1 = 6$$



Complete the sum,

$$56 - 37 = 19$$

Lesson
title

Subtracting two-digit numbers

15
minutes

Learning outcomes

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

Use the clock to tell the time in 5-minute intervals.

Subtract two-digit numbers that cross the Ten.

Teaching aids

Before the lesson:

Have ready 0—9 number cards for each pair.

Find enough clocks with moveable hands for each pair to use.

Make sure that you can explain how to subtract two-digit numbers when the Unit is larger in the second number, using the method from Day 4.

Daily practice

Whole class teaching

Give out dummy clocks to each pair.

Read out times in jumps of 5 minutes in order, and ask pupils to make those times on their clocks using the minute hand (the long hand), eg: 5 minutes past, 10 minutes past, 15 minutes past, etc.

10
minutes

Introduction

Whole class teaching

Ask the pupils to remind you how to subtract the following:

$$54 - 35 =$$

$$36 - 18 =$$

25
minutes

Main activity

Pair task

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

Ask them to choose four cards and make two, two-digit numbers using those cards.

Tell them to take the smallest number away from the largest number, drawing a number line to help them.

Tell them to repeat the task until they have completed about 10 sums.

Ask one or two pupils to show the rest of the class the sums they have made.

10
minutes

Plenary

Pair task

Stand the pupils in a circle.

Throw a ball to a pupil and ask them a simple addition or subtraction sum which they can do without pencil and paper.

Ask that pupil to throw the ball to someone else and say another sum.

Continue until about six or seven pupils have had a turn.



Week
12
Subtracting
three-digit numbers



Words/phrases

subtraction
take away
minus

What's the difference?

How many less than?

quarter to
quarter past

Assessment

During the lesson, walk round the classroom and ask questions to see if the pupils clearly understand what you have taught them. If not, help them to understand by explaining the idea to them again, or asking other pupils to help them. You may need to use some different examples of the idea.

Subtracting two- and three-digit numbers

Learning outcomes

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

State how many minutes there are
in a quarter hour and a half hour.

Use a number line to subtract
two-digit numbers from three-
digit numbers.

Teaching aids

Before the lesson:

Find or make dummy clocks, with
moveable hands to show hours and
minutes, for each pair.

Make sure you can explain
the method to subtract three-digit
numbers as shown on the
next page.

Daily practice

Whole class teaching

Ask the pupils to help you draw a
clock on the chalkboard, including
the numbers.

Ask them to help you divide the
clock in half by drawing a line from
the 12 to the six.

Label the right half 'past' and the
left half 'to'.

Ask the pupils to explain why you
have done this.

Ask them where the lines would
be to divide the clock into quarters.

Ask them,

'How many minutes in one half?'

'How many minutes in one quarter?'

Leave the clock on the chalkboard
for the rest of the week.

10
minutes

Introduction

Whole class teaching

Write the following sum on the chalkboard and ask the pupils to remind you how to answer it:

$$75 - 69 =$$

25
minutes

Main activity

Whole class teaching

Tell the pupils that you are going to show them how to subtract two-digit numbers from three-digit numbers.

Write the following sum on the chalkboard:

$$245 - 27 =$$

$$27 = 20 + 7$$

$$\begin{array}{r} 7 \quad 20 \\ \overline{218 \quad 225 \quad 245} \end{array}$$

10
minutes

Plenary

Whole class teaching

Ask the pupils to put their hands up when they have worked out the answers to the following questions:

$$50 + 60 =$$

$$70 - 30 =$$

$$120 - 40 =$$

$$130 + 50 =$$

Ask them to tell you how they worked out the answers.

Subtracting two-digit numbers

Learning outcomes

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

Tell the time using quarter past and quarter to.

Subtract two-digit numbers using a number line.

Teaching aids

Before the lesson:

Find or make dummy clocks, with moveable hands to show hours and minutes, for each pair.

Read Macmillan New Primary Mathematics 3, page 132.

Read Macmillan New Primary Mathematics 3, page 44.

Daily practice

Whole class teaching

Review yesterday's work, by looking at the clock and asking the pupils to tell you what the time is when the long hand is on the six (half past) and the 12 (o'clock).

Explain that when the long hand is on the three it is 'quarter past' and when it is on the nine it is 'quarter to'.

Read Macmillan New Primary Mathematics 3, page 132, Exercise 1 with the pupils and ask them to tell you the answers.

10
minutes

Introduction

Whole class teaching

Recap yesterday's work by asking the pupils to do the following sum in their exercise books using a number line to help them:
 $564 - 72 =$

Ask the pupils to look at each other's work and discuss how they found their answer.

25
minutes

Macmillan
New Primary
Mathematics 3

Main activity

Pair task

Ask pupils to complete Macmillan New Primary Mathematics 3, page 44, questions 4, 5 and 7, using the method they practised on Day 1.

10
minutes

Plenary

Whole class teaching

Ask some pupils to share their answers with the rest of the class.

Lesson
title

Making 100

15
minutes

Learning outcomes

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

Recognise quarter to and quarter past on the clock.

Make up their own subtraction sums.

Identify number facts about the number 100.

Teaching aids

Before the lesson:

Find or make dummy clocks, with moveable hands to show hours and minutes, for each pair.

Daily practice

Whole class teaching

Use a clock to make different times using quarter to and quarter past.

Ask pupils to tell the class what times you have made.

Give each pair a clock with moveable hands.

Tell them to make the following times:

quarter past 6
quarter to 5
quarter to 7
quarter past 4

10
minutes

Introduction

Whole class teaching

Write the number 100 on the chalkboard.

Ask the pupils to tell you anything they know about the number 100 and record their ideas around the number, eg:

100 is the same as 10 times 10.

100 is a very large number.

I can jump 100 times in 1 minute, etc.

25
minutes

Main activity

Group task

Ask the pupils to work in groups to see how many subtraction sums they can write whose answer equals 100, eg:

$$101 - 1 = 100$$

$$137 - 37 = 100$$

Tell the pupils they have 20 minutes to finish the task.

10
minutes

Song

Plenary

Whole class teaching

Sing '100 green bottles' with the pupils, stopping when you reach 90.

Subtracting three-digit numbers

Learning outcomes

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

Draw quarter to and quarter past on a clock.

Subtract three-digit numbers.

Teaching aids

Before the lesson:

Find or make dummy clocks, with moveable hands to show hours and minutes, for each pair.

Read Macmillan New Primary Mathematics 3, page 133, Exercise 3.

Read Macmillan New Primary Mathematics 3, page 46, Exercise 1, questions 1—5.

Daily practice

Pair task

Explain that some people also use the word 'after' instead of 'past', so quarter **past** 3 can also be quarter **after** 3.

Ask pupils to complete Macmillan New Primary Mathematics 3, page 133, Exercise 3, using the clocks with moveable hands to help them and drawing clocks in their exercise books to record the answers.

10
minutes

Introduction

Whole class teaching

Write the following numbers on the chalkboard:

145
232
787
985
436
563

Ask the pupils to explain how to expand them.

25
minutes

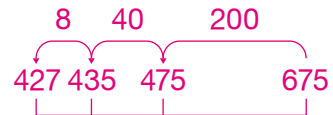
Main activity

Whole class teaching

Explain how to subtract two, three-digit numbers using the following example:

$$675 - 248 =$$

$$248 = 200 + 40 + 8$$



Complete the sum,
 $675 - 248 = 427$

Macmillan
New Primary
Mathematics 3

Pair task

Ask the pupils to complete Macmillan New Primary Mathematics 3, page 46, Exercise 1, questions 1—5 in pairs.

10
minutes

Plenary

Whole class teaching

Ask pupils to explain how they completed the sums.

Lesson
title

What's the difference?

15
minutes

Learning outcomes

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

Write the time in two different ways.

Answer the question 'What's the difference?'

Teaching aids

Before the lesson:

Find or make dummy clocks, with moveable hands to show hours and minutes, for each pair.

Daily practice

Whole class teaching

Ask pupils to move the long hand on their clock around the numbers, counting in intervals of 5 minutes as they do so.

Remind them that each number means 5 minutes have passed.

Ask the pupils if they can tell you how many minutes there are in quarter of an hour.

Explain that quarter past can also be expressed as **15 minutes past**.

Ask them to make the following times on their clocks:

15 minutes past 1

15 minutes past 2

15 minutes past 3

15 minutes past 4, etc

Repeat these times, saying them in a random order, to check the pupils understand.

10
minutes

Introduction

Whole class teaching

Ask the pupils to answer the following questions without using pencil and paper:

$$25 - 3$$

$$32 - 7$$

$$45 + 8$$

$$57 - 6$$

$$23 + 16$$

$$16 + 17$$

$$65 - 34$$

$$43 - 27$$

25
minutes

Main activity

Individual task

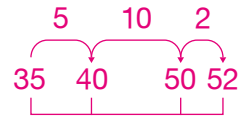
Remind the pupils how to answer the question, 'What's the difference between 35 and 52?'

Start at the lowest number.

Jump to the nearest Ten.

Jump up in Tens.

Count on until you reach the largest number, ie:



Add up the number of jumps.

Remind them to answer the question, 'The difference between 35 and 52 is 17.'

10
minutes

Plenary

Whole class teaching

Ask the pupils to tell you something they have learned during the past week about time or subtraction.



Week
13
Metres and
centimetres



Words/phrases

Assessment

estimate
length
metres
m
centimetres
cms
record
table
measure
width
length
units of measurement

During the lesson, walk round the classroom and ask questions to see if the pupils clearly understand what you have taught them. If not, help them to understand by explaining the idea to them again, or asking other pupils to help them. You may need to use some different examples of the idea.

Lesson
title

Estimating length and width

15
minutes

Learning outcomes

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

Add three-digit numbers.

Use the vocabulary 'width' and 'length' to estimate and measure.

Teaching aids

Before the lesson:

Have ready a metre ruler for each pair.

Draw the following table on the chalkboard.

	Guess/estimate	Actual measurement
Length of the chalkboard		
Length of the desk		
Width of the chalkboard		
Width of the desk		

Daily practice

Whole class teaching

Give the pupils the following sums to answer using a number line:

$140 + 162$

$236 + 471$

$489 + 143$

$186 + 233$

$818 + 191$

10
minutes

Introduction

Whole class teaching

Write the words 'width' and 'length' on the chalkboard.

Ask the pupils to look at their bench and tell you which part is the width and which is the length.

When measuring, the **width is always the short side**, and the **length is always the long side**.

Show the pupils a metre stick and explain that the measurement is a **metre** and they are going to estimate, or guess the length and width of classroom objects in metres.

25
minutes

Main activity

Pair task

Show the pupils a metre ruler and ask them if they know what it is used for.

Show them how to measure accurately with the ruler.

Put the end of the metre stick at the end of the object they want to measure and make a small mark at the other end of the ruler.

Move the metre stick so that the 0 is against the mark and repeat as above.

Count how many metre lengths the space that you are measuring is.

Provide each pair with a metre ruler.

10
minutes

Plenary

Whole class teaching

Ask pupils to use the tips of their fingers to measure the length and width of their table.

Lesson
title

Measuring in centimetres

15
minutes

Learning outcomes

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

Subtract three-digit numbers.

Explain why we need centimetres
to measure objects.

Teaching aids

Before the lesson:

Have ready a metre ruler, with the
centimetres clearly marked, for
each pair.

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

Daily practice

Pair task

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

Ask them to each choose
three numbers.

Tell one pupil to make the largest
number they can with their cards.

Tell the other pupil to make the
smallest number they can with
their numbers.

Tell the pairs to add their
two numbers together using
a number line.

Ask them to repeat this process
four or five times.

10
minutes

Introduction

Whole class teaching

Ask the pupils to remind you how to use a metre stick to measure the length and width of objects.

Ask,
'How many metres long is the classroom?'

Make sure they measure correctly according to the instructions from Day 1.

Ask them what they do if the metre stick is too long for the last measurement.

Explain that on the stick there are smaller measurements called **centimetres** and these can be used to measure smaller lengths.

25
minutes

Main activity

Pair task

Give each pair a metre stick and ask,
'How many centimetres are there in one metre?'

Tell them they can find out by counting the number of marks on the ruler.

When they have told you the answer ask,
'Did anyone find an easier way of counting such a large number?'

Explain that the centimetres are broken into Tens so that they are easier to count.

Ask them to point to each Ten and count as they do, 10, 20, 30, 40, etc.

Tell each pair to measure their pencil.

Tell them to put the ruler flat on the table and put the end of the pencil right up against the 0.

Ask them to look at the place where the tip of the pencil finishes and count the number of centimetres to that point.

10
minutes

Plenary

Whole class teaching

Ask pupils to share their tables with the rest of the class.

Object	Number of cms
Length of book	
Width of book	
Length of left hand	
Length of right foot	

Lesson
title

Metres and centimetres

15
minutes

Learning outcomes

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

Add three-digit numbers.

Measure in centimetres.

Teaching aids

Before the lesson:

Read Macmillan New Primary
Mathematics 3, page 38, Activity 2.

Have ready a metre ruler, with the
centimetres clearly marked, for
each pair.

Have ready a small centimetre ruler
for each pair.

Daily practice

Individual task

Give the pupils the following sums
to do, in any way they can:

$$521 + 294 =$$

$$232 + 118 =$$

$$362 + 151 =$$

$$481 + 309 =$$

Ask some pupils to tell you how they
answered the sums.

10
minutes

Introduction

Whole class teaching

Ask the pupils,
'What is the smaller
measurement than metres
that we learned yesterday?'

Ask them to explain how
to measure their finger using
a metre ruler.

Explain that when you are
measuring small things it is
easier to use a smaller ruler.

Give each pair a centimetre
ruler and a metre ruler.

Ask them to compare
the centimetres on both
and check that the
measurements are the
same size.

Ask:

'How many cms on the
smaller ruler?'

'How many small rulers are
the same as one metre
ruler?'

'How many cms is the same
as one metre?'

25
minutes

Macmillan
New Primary
Mathematics 3

Main activity

Pair task

Ask the pupils to measure
the lines in Macmillan New
Primary Mathematics 3,
page 38, Activity 2.

Ask them to record their
answers in the table below.

Make sure that they
write cms after each
measurement recorded.

Line	Measurement
Line (i)	
Line (ii)	
Line (iii)	
Line (iv)	

10
minutes

Plenary

Pair task

Ask the pupils to find
another pair and see if their
results are the same.

Tell them to check that
cms is written after each
measurement.

Lesson
title

Metres and centimetres

15
minutes

Learning outcomes

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

Add three-digit numbers.

Measure in centimetres and metres.

Teaching aids

Before the lesson:

Have ready a metre ruler, with the centimetres clearly marked, for each pair.

Have ready a small centimetre ruler for each pair.

Daily practice

Whole class teaching

Write the following sums one at a time on the chalkboard and ask the pupils to answer them without using pencil or paper:

$$100 + 145$$

$$200 + 145$$

$$300 + 145$$

$$400 + 145$$

$$500 + 145$$

$$600 + 145$$

$$700 + 145$$

$$800 + 145$$

Write down the answers as the pupils say them and ask if anyone can notice a pattern.

Ask if anyone can tell you why the answers have that pattern.

10
minutes

Introduction

Whole class teaching

Remind the class that estimate means to guess and the reason why we estimate is to help us if numbers are too big to count or if we don't have anything to measure with.

Practise using the word estimate so they understand its meaning.

Ask:
'Can you estimate the number of pupils in the class today?'

'Can you estimate the number of chairs/benches in the room?'

'Can you estimate the height of the door in metres?'

'Can you estimate the width of the door in centimetres?'

Record their answers on the chalkboard in a table like the one below.

Ask a pupil to count the number of pupils and the number of chairs and record their answers on the table on the chalkboard.

Object	Estimate	Actual measurement/number
Number of pupils		
Number of chairs/benches		
Height of door		
Width of door		

25
minutes

Macmillan
New Primary
Mathematics 3

Main activity

Pair task

Ask pupils to copy and complete the table at the top of Macmillan New Primary Mathematics 3, page 41 using a centimetre ruler to measure the lines.

Explain that first they have to estimate the length in centimetres and then measure it.

Remind them that they should make their best estimate but shouldn't change it if they find they are not correct when they measure the lines.

10
minutes

Plenary

Whole class teaching

Ask the pupils to say how close to the correct measurement their estimate was.

Ask them to compare answers to check they are correct.

**Numeracy
lesson plans**
Primary 3

Term 2
Involving pupils in
their learning

Week 13
Metres and
centimetres
Day 5

Lesson
title

Metres and centimetres

15
minutes

Macmillan
New Primary
Mathematics 3

Learning outcomes

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

Add three-digit numbers.

Measure in metres and centimetres
and record the measurement.

Teaching aids

Before the lesson:

Have ready a metre ruler, with the
centimetres clearly marked, for
each pair.

Have ready a small centimetre ruler
for each pair.

Have ready some large blank paper
for each group to draw and write on.

Daily practice

Whole class teaching

Ask pupils to complete Macmillan
New Primary Mathematics 3,
page 25, questions 1—5 using
a number line.

Ask them to write the sum as
a horizontal sum first and then
draw a number line to answer the
questions, eg: $223 + 645 =$

10
minutes

Introduction

Whole class teaching

Ask,
'Can someone tell me what we do when we estimate a length?'

Ask:

'Which two units of measurement have we been using this week?'
(Metres and centimetres)

'Which is the largest unit of measurement?'

'Which would we use to measure the length of the classroom?'

'Which would we use to measure the width of a book?'

25
minutes

Main activity

Group task

Give each group a large sheet of paper, and tell them they will need both their metre rulers and centimetre rulers.

Explain that they are going to measure some objects and draw a table to record their measurements.

Write the following list:
Length of the book
Width of the classroom
Width of your chair seat
Length of your table

Tell them to draw a table on the back of their paper like the ones they have been completing all week.

10
minutes

Plenary

Whole class teaching

Ask each group to show the rest of their class their tables and then display them in the classroom.



Week
14
Working with metres
and centimetres

Words/phrases

metre
centimetre
tallest
shortest
widest
thinnest
longest

Assessment

During the lesson, walk round the classroom and ask questions to see if the pupils clearly understand what you have taught them. If not, help them to understand by explaining the idea to them again, or asking other pupils to help them. You may need to use some different examples of the idea.

Lesson
title

Measuring in metres and centimetres

15
minutes

Learning outcomes

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

Subtract three-digit numbers.

Measure in centimetres.

Teaching aids

Before the lesson:

Have ready a centimetre and a
metre ruler for each group.

Have ready a large sheet of blank
paper for each group.

Daily practice

Whole class teaching

Give the pupils the following sums
to answer using a number line:

$$162 - 140 =$$

$$471 - 236 =$$

$$489 - 143 =$$

$$237 - 186 =$$

$$818 - 191 =$$

Walk around the room and help
pupils who are finding it difficult.

10
minutes

Introduction

Whole class teaching

Ask,
'Show me the length, width
and height of your table.'

Ask the pupils to tell you
something they learned
about measurement the
previous week.

25
minutes

Main activity

Group task

Give each group a metre
ruler and a small centimetre
ruler. Ask them to tell you
how many centimetres
there are in a metre (100).

Ask them to measure the
length of the classroom in
centimetres (using the metre
ruler, not the small ruler).

Remind them that the
easiest way is to count
a Hundred for each metre
they measure.

Ask them to record
their measurement in
centimetres, eg: 750cms.

Ask them to measure the
following in centimetres
and record their answers
in a table:

Width of the classroom

Height of the window

Width of the door

Height of the teacher's table

10
minutes

Plenary

Whole class teaching

Ask groups to report their
measurements back to the
rest of the class.

Lesson
title

Measuring in metres and centimetres

15
minutes

Learning outcomes

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

Subtract three-digit numbers.

Measure in metres and centimetres and record those measurements in a table.

Teaching aids

Before the lesson:

Have ready metre rulers and centimetre rulers for each group.

Have ready a large sheet of blank paper for each group.

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

Daily practice

Whole class teaching

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

Ask them to each choose three numbers.

Tell one member of each pair to make the largest number they can with their numbers.

Tell the other member of each pair to make the smallest number they can with their numbers.

Tell pupils to subtract the smallest number from the largest number.

Ask them to repeat this process four or five times.

10
minutes

Introduction

Whole class teaching

Ask, 'How did you measure in centimetres yesterday?'

Remind them that instead of counting all the centimetres separately they counted each metre length as 100 because they know that one metre is the same as 100cms.

Ask them to find the tables recording their measurements from yesterday.

Ask them to repeat the measurements.

Explain that this time they are going to measure in metres and centimetres and record it on the table.

Ask them to make an extra column in their table headed 'metres and centimetres', so their table should look like the one below, with the 'centimetres' column already completed.

	Centimetres	Metres and centimetres
Width of the classroom	750cms	7m 50cms
Height of the window		
Width of the door		
Height of the teacher's table		

25
minutes

Main activity

Group task

Tell the groups to measure in metres, using their metre ruler and write down the number of full metres.

If the final measurement is not a full metre they should measure it in centimetres.

This means they will have a measurement that is written in metres and centimetres, eg: 7 metres 50 centimetres or 7m 50cms.

10
minutes

Plenary

Whole class teaching

Tell pupils to compare the two columns where they have recorded the measurements in centimetres and then in metres and centimetres.

Ask if there is any connection between the numbers.

Lesson
title

Recording measurements

15
minutes

Learning outcomes

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

Subtract three-digit numbers.

Measure in metres and centimetres.

Record measurements in a table.

Teaching aids

Before the lesson:

Have ready metre rulers and centimetre rulers for each pair.

Daily practice

Whole class teaching

Give the pupils the following sums to do, in any way they can:

$$521 - 294 =$$

$$232 - 118 =$$

$$362 - 171 =$$

$$481 - 300 =$$

Ask some pupils to tell you how they answered the sums.

10
minutes

Introduction

Whole class teaching

Ask the pupils if they can remember what they learned on Day 2 about metres and centimetres.

Explain that sometimes it is easier to write a measurement in centimetres and sometimes it is easier to write a measurement in metres and centimetres.

25
minutes

Main activity

Pair task

Tell the pairs to measure the following:

Length of their arm

Width of their foot

Height to the top of the window in the classroom

Length of two desks/tables joined together

Length of the school building they are in

Ask them to record their measurements on a table in centimetres, and in metres and centimetres.

10
minutes

Plenary

Whole class teaching

Ask if anyone found an easy way of converting/changing centimetres to metres and centimetres.

Explain that if they look at the digit in the Hundreds column when they have measured in centimetres, that will tell them how many metres there are in the measurement.

The digits in the Tens and Units columns will tell them how many centimetres, eg:

HTU

234cms can be written as
2m 34cms.

Converting centimetres into metres

Learning outcomes

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

Subtract Hundreds from a three-digit number.

Convert centimetres into metres and centimetres.

Teaching aids

Before the lesson:

Read Macmillan New Primary Mathematics 3, page 39, Exercise 3, questions 1—6.

Daily practice

Whole class teaching

Write the following sums one at a time on the chalkboard and ask the pupils to answer them without using pencil or paper:

$$973 - 100$$

$$973 - 200$$

$$973 - 300$$

$$973 - 400$$

$$973 - 500$$

$$973 - 600$$

$$973 - 700$$

$$973 - 800$$

Write down the answers as pupils say them and ask if anyone can notice a pattern.

Ask if anyone can tell you why the numbers have that pattern.

10 minutes | Macmillan
New Primary
Mathematics 3

25 minutes | Macmillan
New Primary
Mathematics 3

10 minutes

Introduction

Whole class teaching

Remind the pupils that
1 metre = 100 centimetres.

Ask them if they can
remember what they learned
on Day 3 about converting
centimetres into metres and
centimetres.

Remind them that if they
look at the centimetres the
number of Hundreds will tell
them how many metres.

Ask,
'Can you tell me why?'
(There are 100 centimetres
in a metre)

Go through the examples
in the box in Macmillan
New Primary Mathematics
3, page 39 with the class.

Main activity

Pair task

Ask the pupils to complete
Macmillan New Primary
Mathematics 3, page 39,
Exercise 3, questions 1—6
in their exercise books.

Plenary

Whole class teaching

Ask the pupils to share
their work and see who has
understood it.

Lesson
title

Converting metres into centimetres

15
minutes

Macmillan
New Primary
Mathematics 3

Learning outcomes

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

Add and subtract three-digit numbers.

Convert metres and centimetres into centimetres.

Teaching aids

Before the lesson:

Read Macmillan New Primary Mathematics 3, pages 29 and 43.

Have ready a metre ruler and a centimetre ruler for each pair.

Daily practice

Whole class teaching

Ask pupils to complete Macmillan New Primary Mathematics 3, page 29, (E2) and page 43 (B2), writing them in numerals first.

Ask pupils to explain how they got the answers.

10
minutes

Introduction

Pair task

Give each pair a centimetre ruler and a metre ruler.

Ask them to write down the number of centimetres there are in the following:

- 1 metre = (100cms)
- 2 metres = (200cms)
- 3 metres
- 4 metres
- 5 metres
- 6 metres
- 7 metres
- 8 metres
- 9 metres
- 10 metres

Share their answers and check that they are correct.

25
minutes

Main activity

Individual task

Explain that they can change metres and centimetres back to centimetres by using their knowledge of metres and centimetres and Hundreds, Tens and Units, eg:
'How many centimetres are there in 2m 40cms?'

Explain that to get that answer you need to expand the metres and then put the number together, eg:
 $2\text{m } 40\text{cms} = 200 + 40 = 240\text{cms}$

Ask the class,
'How many centimetres are there in:
3m 20cms
2m 50cms
5m 43cms?'

Macmillan
New Primary
Mathematics 3

Pair task

Ask pupils to complete Macmillan New Primary Mathematics 3, page 39, Exercise 4, questions 1—4.

Go through the answers with them and check they are correct.

10
minutes

Plenary

Whole class teaching

Ask each pupil to tell you one thing they have learned about measuring during the past two weeks.

A young girl with dark hair is looking intently at a notebook. The notebook is open to a page with a grid pattern, and she is holding a pencil. The page contains several math problems, including multiplication and division. The background is a soft-focus image of the girl's face, overlaid with a semi-transparent white box containing the text.

Week
15
Multiplying two-digit
numbers by single
digit numbers

Words/phrases

multiply
times
groups of
lots of
product
number
brackets
columns
rows
multiply $_$ and $_$

What is the product
of $_$?

How many times $_$
is $_$?

What is $_$ groups of $_$?

What is $_$ lots of $_$?

Assessment

During the lesson, walk
round the classroom
and ask questions to
see if the pupils clearly
understand what you
have taught them. If not,
help them to understand
by explaining the idea
to them again, or asking
other pupils to help them.
You may need to use
some different examples
of the idea.

Revisiting multiplication of single digit numbers

Learning outcomes

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

Know different terms for multiplication.

Multiply single digit numbers using repeated addition.

Teaching aids

Before the lesson:

Have ready a set of large flash cards with the following questions:

Multiply ___ and ___

What is the product of ___?

What is ___ times ___?

What is ___ groups of ___?

What is ___ lots of ___?

Have ready a set of number cards from 1—25 for each pupil.

Daily practice

Whole class teaching

Show the pupils the flash cards and read them out, putting numbers in the spaces, eg:

‘Multiply 2 and 3’,

‘What is the product of 4 and 2?’

‘What is 5 times 3?’

‘What is two groups of 2?’

‘What is three lots of 1?’

Put the number cards 1—5 on the table and ask a pupil to come out and pick two.

Tell them to hold up the numbers, while another pupil reads the question flash card, inserting those numbers in the correct places.

Ask pupils to show you the answer to each question by holding up their number cards.

Repeat with different numbers.

10
minutes

Introduction

Whole class teaching

Ask the pupils to remind you how to do the following sum using a number line, $6 \times 7 =$

As they explain, work it through on the chalkboard with them.

25
minutes

Main activity

Whole class teaching

Explain that they are going to learn another way of doing multiplication which will be easier when the sums they are doing get more difficult.

Draw the table below on the chalkboard and ask the pupils to count the number of squares.

Explain that a table is easier to understand if you break it up into rows and columns. The rows go across and the columns go down.

	column
row	

Ask them,
'How many rows?' (3)
'How many columns?' (2)

Tell them that this can be written as $3 \times 2 = 6$

Explain that they can multiply the rows by the columns and they will get the same answer as counting the squares.

Repeat this for the table below.

10
minutes

Plenary

Whole class teaching

Ask some pupils to share what they have learned and demonstrate to the rest of the class how they got their answers.

Pair task

Tell pupils to work in pairs and repeat what you have just done on the chalkboard, with the following pairs of numbers:

4 columns 2 rows
3 columns 3 rows
2 columns 3 rows
5 columns 2 rows
3 columns 5 rows

Explain that they should draw the squares in their exercise books to help them.

Tell them to check that the answer to their sums and the number of squares are the same.

Lesson
title

Multiplying single digit numbers

15
minutes

Learning outcomes

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

Multiply single digit numbers
from memory.

Teaching aids

Before the lesson:

Read through the instructions
carefully and practise using this
method of multiplication so that
you understand it.

Daily practice

Group task

Give each group a number from
1—5 and ask them to multiply
that number by all numbers from
1—10, eg:

$$2 \times 1 =$$

$$2 \times 2 =$$

$$2 \times 3 =$$

$$2 \times 4 =$$

Ask them to write each sum in their
exercise books.

10
minutes

Introduction

Whole class teaching

Draw a table on the chalkboard as you did yesterday.

Ask the pupils to show you the columns and the rows.

Ask them:

'How many columns?'

'How many rows?'

Ask pupils to tell you how to do the following sum by drawing a table,
 $5 \times 3 =$

25
minutes

Main activity

Whole class teaching

Explain that you are going to show them how to multiply a two-digit number by a single digit number.

Write the following sum on the chalkboard,
 $11 \times 2 =$

Explain that they could draw a table or a number line to help them do the multiplication, but when the sum gets more difficult it will take too long to use those methods so you are going to show them another way.

First of all they should expand the number 11,
 $11 = 10 + 1$

Explain that they then need to multiply both numbers by 2.

Tell them that it can get confusing so to help them they should draw brackets around each sum as follows:

$$(10 \times 2) = 20$$

$$(1 \times 2) = 2$$

Explain that they still haven't finished the sum as they need to add the answers together,

$$20 + 2 = 22$$

and write the completed sum,

$$11 \times 2 = 22$$

Repeat for the following sum:

$$12 \times 3 = 10 + 2 \times 3$$

Which should be written as:

$$(10 \times 3) = 30$$

$$(2 \times 3) = 6$$

$$30 + 6 = 36$$

$$12 \times 3 = 36$$

Pair task

Leave the sum on the chalkboard and ask pupils to follow the steps to complete these sums:

$$14 \times 2$$

$$15 \times 3$$

$$12 \times 5$$

$$16 \times 4$$

$$14 \times 5$$

$$16 \times 2$$

10
minutes

Plenary

Whole class teaching

Ask five pupils to share with the rest of the class what they have learned and how they did their sums using the chalkboard.

Lesson
title

Multiplying two-digit numbers by single digit numbers

15
minutes

Learning outcomes

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

Multiply single digit numbers from memory.

Multiply two-digit numbers by a single digit number.

Teaching aids

Before the lesson:

Have ready a set of number cards from 1—100.

Read Macmillan New Primary Mathematics 3, pages 70—71.

Daily practice

Group task

Give each group a set of cards between 1 and 100, eg:
Group 1 (3 to 28)
Group 2 (29 to 40), etc.

Call out a number between one and five and ask each group to place their lowest number card on the table.

Ask them to add on the number you have just given them until they have finished all their numbers, eg:
If you call out the number five, group 2 would lay these cards on the table, 29, 34, 39.

Repeat, calling out different numbers each time.

10
minutes

Introduction

Whole class teaching

Write the following sums on the chalkboard and ask the pupils to complete them in the way that they learned on Day 2:

$$13 \times 5 =$$

$$11 \times 6 =$$

$$14 \times 5 =$$

When they have completed the sums, ask the class to tell you their answers.

25
minutes

Macmillan
New Primary
Mathematics 3

Main activity

Individual task

Ask pupils to complete Macmillan New Primary Mathematics 3, page 71, exercise A, questions 1—6.

Sit with any pupils who are struggling to understand how to do the sum and help them.

Go through each sum step by step with them.

Once a pupil has understood the method they can carry on alone.

10
minutes

Plenary

Whole class teaching

Ask the pupils to share their answers with the rest of the class.

**Numeracy
lesson plans**
Primary 3

Term 2
Involving pupils in
their learning

Week 15
**Multiplying
two-digit numbers
by single digit
numbers**
Day 4

Lesson
title

Multiplying two-digit numbers by single digit numbers

15
minutes

Learning outcomes

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

Multiply single digit numbers from
memory.

Multiply two-digit numbers by single
digit numbers.

Teaching aids

Before the lesson:

Have ready two sets of number
cards from 1—100.

Read Macmillan New Primary
Mathematics 3, page 72, exercise B,
questions 1—6.

Daily practice

Pair task

Repeat the activity from Day 3,
giving number cards to pairs.

10
minutes

Introduction

Pair task

Pair the pupils who are struggling to multiply single digit and two-digit numbers with those who understand it well.

Write the following sums on the chalkboard and ask the pairs to work out the answers together:

$$12 \times 2 =$$
$$14 \times 3 =$$
$$22 \times 4 =$$

25
minutes

Macmillan
New Primary
Mathematics 3

Main activity

Pair task

In the same pairs, ask the pupils to complete Macmillan New Primary Mathematics 3, page 72, Exercise B, questions 1—6.

10
minutes

Plenary

Whole class teaching

Read out the following sums one at a time and ask pupils to quickly tell you the answers, without using pencil and paper to work them out:

$$4 \times 5$$
$$2 \times 3$$
$$5 \times 5$$
$$3 \times 3$$
$$2 \times 2$$
$$4 \times 4$$
$$2 \times 10$$
$$4 \times 10$$

Word problems

Learning outcomes

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

Multiply single digit numbers from memory.

Multiply two-digit numbers by a single digit number.

Teaching aids

Before the lesson:

Write the following sequences of numbers on the chalkboard:

2 4 8 10

3 6 9 12 18 21

8 12 16 24

12 16 18

7 10 16

Have ready the flash cards from Day 1.

Daily practice

Whole class teaching

Read out the first number sequence on the chalkboard and ask pupils to help you find the missing number.

Ask them to work out the missing numbers for each sequence of numbers on the chalkboard.

10
minutes

Introduction

Whole class teaching

Flash the cards with different word questions for multiplication and ask the pupils to read them.

Put the cards face down on the floor and ask one pupil to come out, choose a card, and read it out to the class.

Ask individual pupils to make up a sum using that word for the rest of the class to answer.

25
minutes

Main activity

Group task

Give each group a flash card and ask them to make up three sums using the multiplication term on that card and write their sums on the back of the card.

Ask them to pass the card on to the next group who should also write three sums (not the answers) on the back.

Continue until each group has had each card.

The cards should now be back with the first group.

Ask them to work together to answer all the sums on the card and write the answers on the back.

10
minutes

Plenary

Whole class teaching

Ask the pupils to tell you everything they have learned about multiplication this week.

Credits

In 2008, Kwara State carried out a Teachers' Development Needs Assessment for all primary school teachers. This showed that most teachers in Kwara State did not have strong literacy and numeracy skills. The Kwara State Government responded by developing a strategy to support existing teachers and improve new teachers' pre-service training.

These literacy and numeracy lesson plans, developed by the Kwara State School Improvement Team, were part of that strategy. Two years after introducing these plans alongside the training and support programme, Kwara State began to see strong improvements in teachers' teaching skills and pupils' learning outcomes.

Special thanks go to:

The Honourable Commissioner and staff of the Kwara State Ministry of Education and Human Capital Development, as well as the Kwara State Universal Basic Education Board for their support and valuable input and for agreeing to share these plans with other states.

The UK's Department for International Development (DFID) and the DFID-funded ESSPIN programme for their input, focus, guidance and constructive criticism throughout the development of the plans.

Thanks also go to the teachers of Kwara State who have used these plans to bring about change in their classrooms.

