Produced with the
esspin ukaid
Education Sector
Support Programme
Support Pros
in Nigeria
from the Department for
International Development

Numeracy
lesson plans Primary 3

Term 2
Involving pupils in
their learning

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



The quality of education is a key element to socioeconomic development in any society. Perhaps the most critical element in ensuring quality of education is the teacher. Good teaching methodology, with the right textbooks, will quickly provide a good platform for a quality education system in Kano State.

The challenges are sometimes overwhelming when you have 5,335 schools with over 2.3 million children and 46,643 teachers. The Kano State Ministry of Education carried out a series of baseline surveys to assess classroom teachers, the role of the head teacher and the level of pupil learning outcomes.

The findings in most cases were alarmingly poor, with not much difference between qualified and unqualified teachers with respect to output. The majority of teachers were themselves victims of an education system that was in a serious downward slope.

Following this, the Kano State Ministry of Education, the State Universal Basic Education Board (SUBEB) and local government education authorities (LGEAs), supported by the Education Sector Support Programme in Nigeria (ESSPIN), embarked on a series of reforms that will help strengthen schools.

This work has focused on The lesson plans, however, classroom teaching skills in particular how to make teaching child-centred and the organisational structures needed for SUBEB and LGEA staff to provide effective support and advice to primary schools.
With many school leavers unable to read or write, a specific focus has been on improving the teaching of basic literacy and numeracy. To support this, Kano State has developed a benchmark for assessment and carefully designed literacy and numeracy lesson plans for Primary $1-3$ teachers. These plans provide a step-by-step guide to teachers, while ensuring children become active learners.
are not sufficient. Structures and processes have also been put in place so that teachers are continuously supported by both the State School Improvement Team and the LGEA-based school support officers.
We are sure that within a short time of these lesson plans being introduced, children's learning abilities will improve considerably. The materials will also enable teaching and learning to be more exciting - an important element in all classes, but in particular at the primary level. We are confident that these lesson plans will raise standards and improve the quality of children proceeding to higher levels of education.

We commend all those who have produced these lesson plans and trained our teachers to use them. We offer thanks to the UK Department for International Development (DFID) for its ongoing support to education reform in Kano State through its ESSPIN programme. Let's make every Kano school an improving school. Ifrur
Barister Farouq Iya Sambo Honourable Commissioner of Education Kano State

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## Wada Zakari

Executive Chairman
SUBEB
Kano 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.

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Introduction
Essential low-cost or free teaching aids

Weeks
11-15

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.

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.

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 , and so on, 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.

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.

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Introduction
Essential low-cost or free teaching aids

Weeks
11-15

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.

Collect old wall clocks that Make clocks out of are no longer working for the cardboard. 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.

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

Hundred card
1 set 100-900

Ten card
1 set 10-90

Unit card 1 set 0-9

| 3 | 0 | 0 | $>4$ | 0 | 7 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 5 |  |  |  |  |  |

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.

Subtracting three-digit numbers


## Term 2

Involving pupils in
their learning

Week 11
Subtracting
three-digit
numbers
Day 1

15
minutes

| Learning outcomes | Daily practice |
| :---: | :---: |
| By the end of the lesson, most | Whole class teaching |
| Explain how to tell the time on the hour and half hour. | Show the pupils a clock and ask them to tell you anything they can about clocks and how to tell the time. |
| Subtract three-digit numbers. |  |
| Teaching aids | Remind them that the long hand tells the hour and the short hand shows the minutes. |
| Before the lesson: | Make some o'clock and half past times on the clock and ask individual pupils to tell you the time they make. |
| Have ready a large clock with moveable hands. |  |
| Look at the weekly words, particularly the different terms for subtraction. |  |


| 10 minutes | 25 minutes |  | 10 minutes |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Whole class teaching | Whole class teaching | Pair task | 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? | Write the following sum on the chalkboard, $245-123=$ | Give pupils the following sums one at a time to complete in pairs:$\begin{aligned} & 756-222= \\ & 874-343= \\ & 654-531= \end{aligned}$ | Ask four pupils to share what they have learned with the rest of the class. |
| Explain that you are going to remind them how to subtract three-digit numbers. | Ask them what you do first (draw a number line, writing the biggest number on the right-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): |  |  |
|  |  |  |  |

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Week 11
Subtracting
three-digit
numbers
Day 2

15
minutes

Daily practice

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 threedigit numbers.

## Teaching aids

## Before the lesson:

Find or make a dummy clock, with moveable hands to show the hours and minutes.
Write the calculations shown
in the main activity on the chalkboard.

## 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 | $\left\lvert\, \begin{aligned} & 25 \\ & \text { minutes } \end{aligned}\right.$ | 10 minutes |
| :---: | :---: | :---: |
| Introduction | Main activity | Plenary |
| Whole class teaching | Pair task | Pair task |
| Write the following sum on the chalkboard and ask the pupils to remind you how to complete it using a number line: $642-521=$ | Ask pupils to complete the following calculations: $\begin{aligned} & 356-132= \\ & 476-254= \\ & 538-316= \end{aligned}$ <br> Ask two or three pupils to explain how they did this to the rest of the class. | Give the pupils the following sums to answer orally, without using pencil and paper: $\begin{aligned} & 5+5 \\ & 6+4 \\ & 3+7 \\ & 8+2 \\ & 1+9 \\ & 2+8 \end{aligned}$ |

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their learning

Week 11
Subtracting
three-digit
numbers
Day 3

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 <br> with moveable hands for each pair. |


| 10 minutes | 25 minutes |  | 10 minutes |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Group task | Whole class teaching |  | Pair task |
| Ask each group to make as many sums as they can that make the number 50 in 5 minutes. | Remind the pupils how to answer the question, 'How many less than?' | Give them a question to try in pairs, eg: <br> 'How many less than 658 is 543?' | Give the pairs the following sums to answer without pencil and paper: $60+40$ |
| Time them carefully, telling them to stop as soon as the 5 minutes is finished. | Ask them, 'How many less than 445 is 200?' | is 543? <br> Come together and ask pupils how they answered it | $\begin{aligned} & 30+70 \\ & 50+50 \\ & 20+80 \end{aligned}$ |
|  | Ask them if they can remember how to do it. | Give the pupils some more questions, one at | $\begin{aligned} & 80+20 \\ & 40+60 \end{aligned}$ |
|  |  | and discuss after each one has been completed: |  |
|  | 200 is 245 less than 445 | 'How many less than 563 is 232?' |  |
|  |  | 'How many less than 777 is 444?' |  |
|  |  | 'How many less than 569 is 343?' |  |

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their learning

Week 11
Subtracting
three-digit
numbers
Day 4

## Subtracting two-digit numbers, crossing the Ten

15 minutes


Before the lesson:
Find a clock with moveable hands to use to make different times.

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

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.

Count in fives up to 60.
Repeat, this time moving the hands around the clock as you do so.

| 10 minutes |  | 25 minutes | $\left\lvert\, \begin{aligned} & 10 \\ & \text { minutes } \end{aligned}\right.$ |
| :---: | :---: | :---: | :---: |
| Introduction |  | Main activity | Plenary |
| Whole class teaching |  | Pair task | Whole class teaching |
| Remind the pupils how to do the following sum, by expanding the smallest number and using a number line to work out the answer: $\begin{aligned} & 56-37= \\ & 37=30+7 \end{aligned}$ | To make the next jump easier, make a jump of 6 to 20. <br> Ask them, | Ask the pupils to try the following in pairs, using the same method: $\begin{aligned} & 45-28= \\ & 67-59= \\ & 83-46= \\ & 34-27= \\ & 57-19= \end{aligned}$ | Ask each pupil to say one thing they have learned from the lesson. |
| Explain that you can break this down into steps further to make it easier. | 'How many more do you need to take away so that you have taken 7 | Ask each pair to find another pair and compare answers. |  |
| Firstly, $56-30=26$ | altogether?' $7-1=6$ |  |  |
|  |  |  |  |

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Involving pupils in
their learning

Week 11
Subtracting
three-digit
numbers
Day 5

## Subtracting two-digit numbers

## 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.
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

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

5-minute intervals.
Subtract two-digit numbers that cross the Ten. 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.




## Numeracy

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their learning

## Week 12

Subtracting
three-digit
numbers
Day 1

Lesson
title

## Subtracting two- and three-digit <br> numbers

15
minutes


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 threedigit 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.


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## Term 2

Involving pupils in
their learning

Week 12
Subtracting
three-digit
numbers
Day 2

## Daily practice

## 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 New Method Mathematics 3, page 109, questions 1—6.
Read New Method Mathematics
3 , page 41, questions $3-5$.

## 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'.
Explain that putting ' $\cdot 15^{\prime}$ after an hour is another way of writing quarter past, and '.45' after an hour is another way of writing quarter to. So 4.15 is the same as quarter past 4.

Read New Method Mathematics
3 , page 109, questions 1-6 with the pupils and ask them to tell you the answers.


## 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.

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Week 12
Subtracting
three-digit
numbers
Day 3

Lesson
title

## Making 100

|  | 15 <br> minutes |
| :--- | :--- | :--- |
| Learning outcomes | Daily practice |
| By the end of the lesson, most <br> pupils will be able to: | Whole class teaching |
| Recognise quarter to and quarter <br> past on the clock. | Use a clock to make different times quarter to and quarter past. <br> using |
| Make up their own subtraction <br> sums. | Ask pupils to tell the class what <br> times you have made. |
| Identify number facts about the <br> number 100. | Tell them to make the following <br> moveable hands. |
| Teaching aids | times: <br> quarter past 6 <br> quarter to 5 |
| quarter to 7 |  |
| quarter past 4 |  |


| 10 minutes | 25 minutes |  | 10 minutes |  |
| :---: | :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |  |
| Whole class teaching | Group task | Whole class teaching | Who | class teaching |
| Write the number 100 on the chalkboard. | Ask the pupils to work in groups to see how many | Ask the pupils to tell you how many sums they have. | Sing <br> the pup | 00 green bottles' with ils, stopping when |
| Ask the pupils to tell you anything they know about the number 100 and record their ideas around the number, eg: | subtraction sums they can write whose answer equals 100, eg: $101-1=100$ $137-37=100$ | Tell the group with the most sums to read out their sums to the rest of the class. <br> Ask other groups to |  | 90 |
| 100 is the same as 10 times 10. | Tell the pupils they have 20 minutes to finish the task. | mark any of their sums that match. |  |  |
| 100 is a very large number. I can jump 100 times in 1 minute. |  | Tell other groups to read out any that they have not marked which are different from the other groups' sums. |  |  |

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Week 12
Subtracting
three-digit
numbers
Day 4

15
15
minutes
New Method Mathematics 3


Find or make dummy clocks, with moveable hands to show hours and minutes, for each pair.
Read New Method Mathematics 3, page 109, qusetions 7-10.
Read New Method Mathematics 3, page 41, questions 6-9.

| $\left\lvert\, \begin{aligned} & 10 \\ & \text { minutes } \end{aligned}\right.$ | 25 <br> minutes | New Method Mathematics 3 | 10 minutes |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Whole class teaching | Whole class teaching | Pair task | Whole class teaching |
| Write the following numbers on the chalkboard: | Explain how to subtract two, three-digit numbers using | Ask the pupils to complete New Method Mathematics | Ask pupils to explain how they completed the sums. |
| 145 | the following example: | 3, page 41, questions 6-9 |  |
| 232 | $675-248=$ | in pairs. |  |
| 787 | $248=200+40+8$ |  |  |
| 985 | $8 \quad 40200$ |  |  |
| 436 |  |  |  |
| 563 | $427435 \quad 475 \quad 675$ |  |  |
| Ask the pupils to explain |  |  |  |
| how to expand them. | Complete the sum, $675-248=427$. |  |  |

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Week 12
Subtracting
three-digit
numbers
Day 5

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

| 10 minutes | 25 minutes |  | 10 minutes |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Whole class teaching | Whole class teaching | Pair task | Whole class teaching |
| Ask the pupils to answer the following questions without using pencil and paper: $\begin{aligned} & 25-3 \\ & 32-7 \\ & 45+8 \\ & 57-6 \\ & 23+16 \\ & 16+17 \\ & 65-34 \\ & 43-27 \end{aligned}$ | Remind the pupils how to answer the question, 'What's the difference between 35 and 52?' <br> Start at the lowest number. <br> Jump to the nearest Ten. <br> Jump up in Tens. <br> Count on until you reach the largest number, ie: <br> Add up the number of jumps. <br> Remind them to answer the question, 'The difference between 35 and 52 is 17. ' | Ask pupils to answer the following questions, using the method practiced. What's the difference between: <br> 67 and 45 <br> 82 and 94 <br> 96 and 43 <br> 120 and 102 <br> 103 and $85 ?$ | Ask the pupils to tell you something they have learned during the past week about time or subtraction. |

Week
13
Metres and
centimetres


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Week 13
Metres and
centimetres
Day 1

15
minutes

## Estimating length and width



Before the lesson:
Have ready a metre ruler for each pair.

Draw the table below on the chalkboard.

|  | Guess/estimate | Actual measurement |
| :--- | :--- | :--- |
| Length of the chalkboard |  |  |
| Length of the desk |  |  |
| Width of the chalkboard |  |  |
| Width of the desk |  |  |

## 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.

## Whole class teaching

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

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their learning

Week 13
Metres and
centimetres
Day 2

Lesson
title
(©)

## Measuring in

 centimetres

## 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.

15
minutes

## 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.

## Introduction

## Main activity

Whole class teaching
$\overline{\text { Ask the pupils to remind you }}$
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.
## 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, ie: 10, 20, 30, 40.

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.

## Plenary

## Whole class teaching

Record their answer on the chalkboard, eg: 15 cms .
Explain that cms can be used instead of writing out the whole word.

Ask them to copy the table below and use their metre rulers to measure the objects and record their answers.

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

Choose pupils to explain how easy or difficult it was to measure with a metre ruler.

| Object | Number of cms |
| :--- | :--- |
| Length of book |  |
| Width of book |  |
| Length of left hand |  |
| Length of right foot |  |

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Week 13
Metres and
centimetres
Day 3

Lesson
title

## Metres and

 centimetres|  | 15 <br> minutes |
| :--- | :--- |
| Learning outcomes | Daily practice |
|  |  |
| By the end of the lesson, most  <br> pupils will be able to: Individual task |  |
| Add three-digit numbers. | Give the pupils the following sums <br> to do, in any way they can: <br> $521+294=$ <br> $232+118=$ <br> $362+151=$ |
| Measure in centimetres. | $481+309=$ |
| Teaching aids | Ask some pupils to tell you how they <br> answered the sums. |
| Before the lesson: |  |

Read New Method Mathematics 3, page 90.
Have ready a metre ruler, with the centimetres clearly marked, for each pair.
Have ready a small centimetre ruler for each pair.

Give the pupils the following sums
any way they can:
$521+294=$
$362+151=$
$481+309=$
Ask some pupils to tell you how they answered the sums.


## Numeracy

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## Term 2

Involving pupils in
their learning

Week 13
Metres and
centimetres
Day 4

Lesson
title

15
minutes

Metres and centimetres

| Learning outcomes | Daily practice |
| :--- | :--- | :--- |
|  |  |


| 10 minutes |  |  |  | $\begin{array}{\|l\|l} 25 \\ \text { minutes } \end{array}$ | New Method Mathematics 3 | 10 minutes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Introduction |  |  |  | Main activity |  | Plenary |
| Whole class teaching |  |  |  | Pair task |  | 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. | Ask: <br> 'Can you estimate the number of pupils in the class today?' <br> 'Can you estimate the number of chairs/be in the room?' | ches | Ask a pupil to count the number of pupils and the number of chairs and record their answers on the table on the chalkboard. | Ask pupils to copy and complete the table in New Method Mathematics 3 , page 89 , using a ruler to draw the table. |  | Ask the pupils to say how close to the correct measurement their estimate was. <br> Ask them to compare answers to check they are correct. |
| Practise using the word estimate so they understand its meaning. | 'Can you estimate the height of the teacher's table in metres?' <br> 'Can you estimate the width of the door in centimetres?' |  |  | in cent <br> measu <br> 'breadth' <br> for wid <br> Remin <br> should <br> estima <br> chang <br> are no <br> measu | imetres and then re it. Explain that ' is another word th. <br> d them that they make their best te but shouldn't it if they find they correct when they re the lines. |  |
|  | Object | Estimate | Actual measurement/number |  |  |  |
|  | Number of pupils |  |  |  |  |  |
|  | Number of chairs/benches |  |  |  |  |  |
|  | Height of teacher's table |  |  |  |  |  |
|  | Width of door |  |  |  |  |  |

## Numeracy

 lesson plansPrimary 3

## Term 2

Involving pupils in
their learning

## Week 13

Metres and
centimetres
Day 5

## Metres and centimetres

15
15
minutes
New Method Mathematics 3


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 the pupils to complete New Method Mathematics 3, page 29, questions 16-20 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: $552+346=$

| 10 minutes | $\begin{array}{\|l\|l} 25 \\ \text { minutes } \end{array}$ |  | $\left\lvert\, \begin{aligned} & 10 \\ & \text { minutes } \end{aligned}\right.$ |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Whole class teaching | Group task |  | Whole class teaching |
| Ask, 'Can someone tell me what we do when we estimate a length?' | Give each group a large sheet of paper, and tell them they will need both their metre rulers and | Remind them to think carefully which objects they will measure in metres and which they will measure in | Ask each group to show the rest of their class their tables and then display them in the classroom. |
| Ask: | centimetre rulers. | centimetres. |  |
| 'Which two units of measurement have we been using this week?' (Metres and centimetres) | Explain that they are going to measure some objects and draw a table to record their measurements. | Ask them to complete their table together. |  |
| 'Which is the largest unit of measurement?' | Write the following list on the chalkboard: |  |  |
| 'Which would we use to measure the length of the classroom?' | Length of the book Width of the classroom Width of your chair seat |  |  |
| 'Which would we use to measure the width of a book? | Length of your table <br> Tell the groups to draw a table on the back of their paper like the ones they have been completing all week. |  |  |

Week
14
Working with metres and centimetres


Numeracy
lesson plans
Primary 3

## Term 2

Involving pupils in
their learning

Week 14
Working with
metres and
centimetres
Day 1

## Measuring in metres and centimetres



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 | 25 minutes |  | 10 minutes |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Whole class teaching | Group task |  | Whole class teaching |
| Ask, 'Show me the length, width and height of your table.' | 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 record their measurement in centimetres, eg: 750 cms . | Ask groups to report their measurements back to the rest of the class. |
| Ask the pupils to tell you something they learned about measurement the previous week. |  | Ask them to measure the following in centimetres |  |
|  | Ask them to measure the length of the classroom in centimetres (using the metre ruler, not the small ruler). | and record their answers in a table: |  |
|  |  | Width of the classroom |  |
|  |  | Height of the window |  |
|  | Remind them that the easiest way is to count a Hundred for each metre they measure. | Width of the door |  |
|  |  | Height of the teacher's table |  |

## Numeracy

lesson plans
Primary 3

## Term 2

Involving pupils in
their learning

Week 14
Working with
metres and
centimetres
Day 2

Lesson
title
Measuring in metres and centimetres

|  | 15 <br> minutes |
| :--- | :--- | :--- |
| Learning outcomes | Daily practice |
| By the end of the lesson, most <br> pupils will be able to: | Pair task |
| Subtract three-digit numbers. <br> Give each pair of pupils a set <br> of number cards from 0-9. |  |
| Measure in metres and centimetres <br> in a table. | Ask them to each choose three <br> numbers. |
| Teaching aids | Tell one member of each pair to <br> make the largest number they can <br> with their numbers. |
| Before the lesson: | Tell the other member of each pair <br> to make the smallest number they <br> can with their numbers. |
| Have ready metre rulers and <br> centimetre rulers for each group. | Tell pupils to subtract the smallest <br> number from the largest number. |
| Have ready a large sheet of blank <br> paper for each group. | Ask them to repeat this process <br> four or five times. |
| Have ready a set of $0-9$ number <br> cards for each pair. |  |

Introduction

## 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 7 m 50 cms .

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

Numeracy
lesson plans
Primary 3

## Term 2

Involving pupils in
their learning

Week 14
Working with
metres and
centimetres
Day 3

Lesson
title
(©)

| 10 minutes | 25 <br> minutes | $\left\lvert\, \begin{aligned} & 10 \\ & \text { minutes } \end{aligned}\right.$ |
| :---: | :---: | :---: |
| Introduction | Main activity | Plenary |
| Whole class teaching | Pair task | Whole class teaching |
| Ask the pupils if they can remember what they learned on Day 2 about metres and centimetres. | Tell the pairs to measure the following: <br> Length of their arm <br> Width of their foot | Ask if anyone found an easy way of converting/changing centimetres to 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. | Height to the top of the window in the classroom <br> Length of two desks/tables joined together <br> Length of the school building they are in | 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. |
|  | Ask them to record their measurements on a table in centimetres, and in metres and centimetres. | The digits in the Tens and Units columns will tell them how many centimetres, eg: HTU <br> 234 cms can be written as 2 m 34 cms . |

## Numeracy

lesson plans
Primary 3
Term 2
Involving pupils in
their learning

Week 14
Working with
metres and
centimetres
Day 4

## Converting centimetres into metres

15
minutes

Daily practice

By the end of the lesson, most pupils will be able to:
Subtract Hundreds from a threedigit number.

Convert centimetres into metres and centimetres.

Teaching aids

Before the lesson:
Read New Method Mathematics
3, page 89, questions 7-11.

| Learning outcomes | Daily practice |
| :---: | :---: |
| By the end of the lesson, most pupils will be able to: | 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: |
| Subtract Hundreds from a threedigit number. |  |
| Convert centimetres into metres and centimetres. |  |
|  | 973-200 = |
|  | $973-300=$ |
| Teaching aids | $973-400=$ |
|  | $973-500=$ |
|  | 973-600 = |
| Before the lesson: | 973-700 = |
| Read New Method Mathematics | 973-800= |
| 3 , page 89, questions 7-11. | 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 New Method <br> minutes Mathematics 3 | 25 minutes | New Method Mathematics 3 | $\left\lvert\, \begin{aligned} & 10 \\ & \text { minutes } \end{aligned}\right.$ |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Whole class teaching | Pair task |  | Whole class teaching |
| Remind the pupils that 1 metre $=100$ centimetres. | Ask the pupils to complete New Method Mathematics 3, page 89, questions 7 - 11 in their exercise books. |  | Ask the pupils to share their work and see who has understood it. |
| 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 at the top of New Method Mathematics 3, page 89 with the class. |  |  |  |

Numeracy
lesson plans
Primary 3

## Term 2

Involving pupils in
their learning

Week 14
Working with
metres and centimetres
Day 5

## Converting metres

 into centimetres| Learning outcomes | Daily practice |
| :---: | :---: |
| By the end of the lesson, most | Whole class teaching |
| pupils will be able to: | Ask pupils to complete the |
| Add and subtract three-digit numbers. | following calculations: $145+253=$ |
| Convert metres and centimetres into | 674-431 = |
| centimetres. | Ask pupils to explain how they got the answers. |
| Teaching aids |  |
| Before the lesson: |  |
| Write the daily practice calculations on the chalkboard. |  |
| Have ready a metre ruler and a centimetre ruler for each pair. |  |



Week
15
Multiplying two-digit numbers by single
digit numbers


## Numeracy

lesson plans
Primary 3

## Term 2

Involving pupils in
their learning

Week 15
Multiplying
two-digit numbers
by single digit
numbers
Day 1

Lesson

Revisiting multiplication of single digit numbers


By the end of the lesson, most pupils will be able to:
Know different terms for multiplication.

Multiply single digit numbers using repeated addition.


## 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.


## 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.

Numeracy
lesson plans
Primary 3

## Term 2

Involving pupils in
their learning

Week 15
Multiplying
two-digit numbers
by single digit
numbers
Day 2

Lesson
title

## Multiplying single digit numbers

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

15
minutes

|  | $\left\lvert\, \begin{aligned} & 15 \\ & \text { minutes } \end{aligned}\right.$ |
| :---: | :---: |
| Learning outcomes | Daily practice |
| By the end of the lesson, most pupils will be able to: | Group task |
|  | Give each group a number from $1-5$ and ask them to multiply that number by all numbers from$\begin{aligned} & 1-10, \text { eg: } \\ & 2 \times 1= \\ & 2 \times 2= \\ & 2 \times 3= \\ & 2 \times 4= \end{aligned}$ |
| Multiply single digit numbers from memory. |  |
| Multiply two-digit numbers by |  |
| a single digit number. |  |
| Teaching aids |  |
| Befor | Ask them to write each sum in their exercise books. | exercise books.


| $\left\lvert\, \begin{aligned} & 10 \\ & \text { minutes } \end{aligned}\right.$ | 25 minutes |  |  |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  |  |
| Whole class teaching | Whole class teaching |  | Pair task |
| Draw a table on the chalkboard as you did yesterday. | Explain that you are going to show them how to multiply a two-digit number by a single digit number. | Tell them that it can get confusing so to help them they should draw brackets around each sum as follows:$\begin{aligned} & (10 \times 2)=20 \\ & (1 \times 2)=2 \end{aligned}$ | Leave the sum on the chalkboard and ask pupils to follow the steps to complete these sums:$14 \times 2=$ |
| Ask the pupils to show you the columns and the rows. |  |  |  |
| Ask them: 'How many columns?' | Write the following sum on the chalkboard, $11 \times 2=$ | Explain that they still haven't finished the sum as they | $12 \times 5=$ $16 \times 4=$ |
| 'How many rows?' | 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. |  | $14 \times 5=$ |
| Ask pupils to tell you how to do the following sum by drawing a table, $5 \times 3=$ |  | together, $20+2=22$ <br> and write the completed sum, $11 \times 2=22$ <br> Repeat for the following | $16 \times 2=$ |
|  | First of all they should expand the number 11 , $11=10+1$ | Repeat for the following sum: $12 \times 3=10+2 \times 3$ |  |
|  | Explain that they then need to multiply both numbers by 2 . | $\begin{aligned} & (10 \times 3)=30 \\ & (2 \times 3)=6 \\ & 30+6=36 \\ & 12 \times 3=36 \end{aligned}$ |  |

## 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.

## Term 2

Involving pupils in
their learning

Week 15
Multiplying
two-digit numbers
by single digit
numbers
Day 3

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.

## 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) Group 3 (41 to 61)

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 | 25 minutes | 10 minutes |
| :---: | :---: | :---: |
| Introduction | Main activity | Plenary |
| Whole class teaching | Individual task | 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: $\begin{aligned} & 13 \times 5= \\ & 11 \times 6= \\ & 14 \times 5= \end{aligned}$ | Ask the pupils to complete the following calculations: $\begin{aligned} & 12 \times 6= \\ & 14 \times 4= \\ & 17 \times 3= \\ & 24 \times 2= \end{aligned}$ <br> Sit with any pupils who are struggling to understand | Ask the pupils to share their answers with the rest of the class. |
| When they have completed the sums, ask the class to tell you their answers. | how to do the sums and help them. |  |
|  | Go through each sum step by step with them. |  |
|  | Once a pupil has understood the method they can carry on alone. |  |

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

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


Daily practice

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 New Method Mathematics
3 , page 64, questions $34-40$.

## Pair task

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

| $\left\lvert\, \begin{aligned} & 10 \\ & \text { minutes } \end{aligned}\right.$ | 25 <br> minutes | New Method Mathematics 3 | 10 minutes |
| :---: | :---: | :---: | :---: |
| Introduction | Main activity |  | Plenary |
| Pair task | Pair task |  | Whole class teaching |
| Pair the pupils who are struggling to multiply single digit and two-digit numbers with those who understand it well. | In the same pairs, ask the pupils to complete New Method Mathematics 3, page 64, questions 34-40. |  | 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:$\begin{aligned} & 4 \times 5= \\ & 2 \times 3= \\ & 5 \times 5= \\ & 3 \times 3= \\ & 2 \times 2= \\ & 4 \times 4= \\ & 2 \times 10= \\ & 4 \times 10= \end{aligned}$ |
| Write the following sums on the chalkboard and ask the pairs to work out the answers together: $\begin{aligned} & 12 \times 2= \\ & 14 \times 3= \\ & 22 \times 4= \end{aligned}$ |  |  |  |

Numeracy
lesson plans
Primary 3

## Term 2

Involving pupils in
their learning

Week 15
Multiplying
two-digit numbers
by single digit
numbers
Day 5
elr learmig

Lesson
title

Word problems

|  | 15 minutes |
| :---: | :---: |
| Learning outcomes | Daily practice |
| By the end of the lesson, most pupils will be able to: | Whole class teaching |
| Multiply single digit numbers from memory. | Read out the first number sequence on the chalkboard and ask pupils to help you find the missing number. |
| Multiply two-digit numbers by a single digit number. | Ask them to work out the missing numbers for each sequence of numbers on the chalkboard. |
| Teaching aids |  |
| Before the lesson: |  |
| Write the following sequences of numbers on the chalkboard: |  |
| $2,4, \square, 8,10$ |  |
| 3, 6, 9, 12, $\square, 18,21$ |  |
| $8,12,16, \square, 24$ |  |
| $12,$$\square$ 16, 18, $\square$ |  |
| 7, 10, $\square, 16$ |  |
| Have ready the flash cards from |  |
| Day 1. |  |


| 10 minutes | 25 minutes | 10 minutes |
| :---: | :---: | :---: |
| Introduction | Main activity | Plenary |
| Whole class teaching | Group task | Whole class teaching |
| Flash the cards with different word questions for multiplication and ask the pupils to read them. | Give each group a flash card and ask them to make up three sums using the multiplication term on that | Ask the pupils to tell you everything they have learned about multiplication this week. |
| 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. | card and write their sums on the back of the card. |  |
|  | Ask them to pass the card on to the next group who |  |
| Ask individual pupils to make up a sum using that phrase for the rest of the class to answer. | 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. |  |

## 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.


