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Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

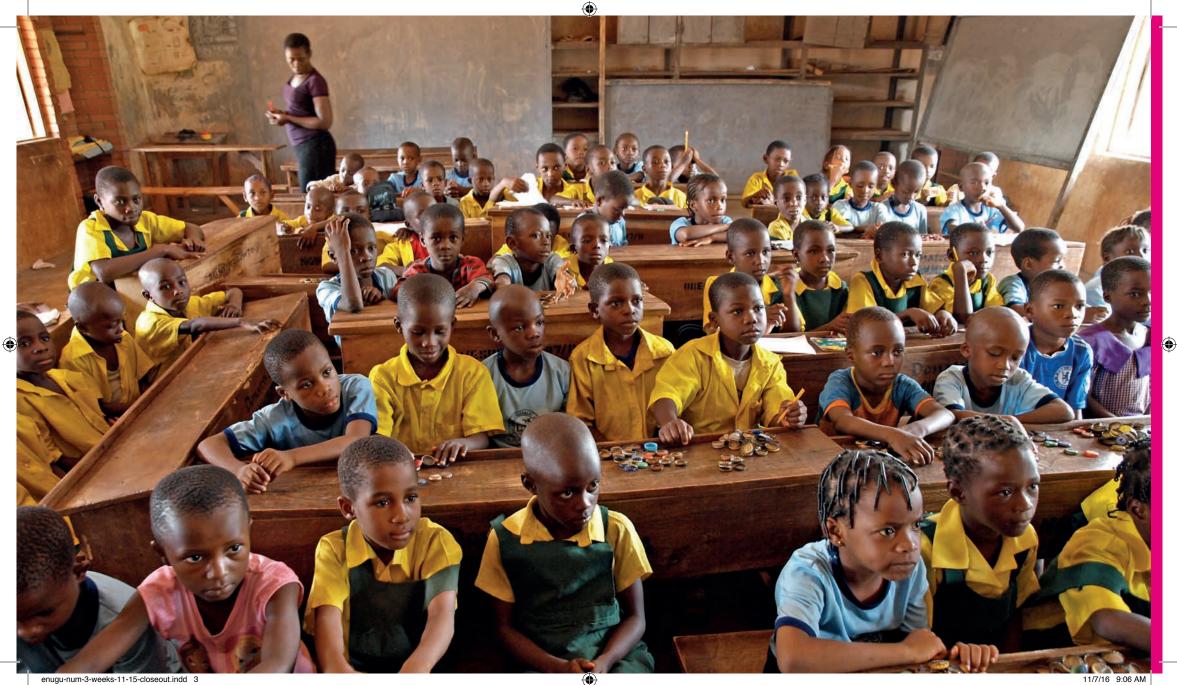
**Weeks** 11—15

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

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



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## Foreword

Quality education comes about as a mix of factors. The teacher is the most important element in ensuring that a child acquires the right kind of education to meet acceptable learning outcome benchmarks. It takes a lot to bring a teacher to exhibit the right mix of attitudes, aptitudes and skills, which is why the state has partnered with ESSPIN to develop literacy and numeracy lesson plans.

I hope the lesson plans will empower our teachers to equip our children with the literacy and numeracy skills they need to succeed in both school and society.

Finally, I commend all who have worked hard to develop and produce the lesson plans, especially the Enugu State Universal Basic Education Board, the UK Department for International Development (DFID) and the DFID-funded Education Sector Support Programme in Nigeria (ESSPIN).

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**Professor Chris Uchechukwu Okoro** Honourable Commissioner for Education Enugu State

## Introduction

The literacy and numeracy lesson plans arising from the School Improvement Programme (SIP) are part of efforts to improve teaching and learning in response to the baseline surveys and classroom observations in 2010. These indicated that teachers had challenges with lesson delivery, which in turn negatively affected children's learning.

The state plans to make the lesson plans available to teachers in all 1,223 public primary schools at the beginning of the 2014/15 school year.

I hereby call on all stakeholders to ensure the lesson plans are put to effective use to improve teaching and learning in our schools.

**Nneka Onuora** Executive Chairman Enugu State Universal Basic Education Board

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Term 2 Involving pupils in their learning

# Introduction Involving pupils in their learning

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Weeks 11—15

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# 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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Term 2 Involving pupils in their learning

# Introduction Essential low-cost or free teaching aids

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Weeks 11—15

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| Counters   | Number cards   | Metre sticks  |   | Measuring correctly  |
|--|--|---|---|--|
| Ask the pupils to help you<br>collect together as many<br>bottle tops, small sticks and<br>small stones as they can.<br>Put them into jars to keep<br>in the classroom and use to<br>help with counting. | Make sets of cards<br>numbered from 1—200.<br>Cut up cardboard cartons<br>into squares and write<br>numbers on them. Make<br>as many sets as you can<br>so the pupils can use them<br>to play games. | Cut strips of card to the<br>same size as a metre stick<br>and carefully mark the<br>centimetres (cms) on the<br>card in the correct place.<br>These can then be used for<br>measuring.<br>Cut lengths of string to the<br>same size as a metre stick,<br>to be used for measuring. | <ul> <li>Ask a local carpenter if they have any long ends of wood that can be turned into a metre length.</li> <li>Ask the carpenter to make marks for centimetres, with longer marks for 10, 20, 30, etc, then write the numbers next to them.</li> <li>If you write the numbers from 1—100 on the other side, these can also be used as longer-lasting 1—100 number lines.</li> </ul> | Show pupils how to measure<br>the length in metres using<br>their stick or rope.<br>Put one end of the rope/<br>stick right up against the<br>end of the length and stretch<br>it out until it reaches the<br>metre mark.<br>Ask a pupil to put their finger<br>on the floor at the metre<br>mark, then lift up the rope/<br>stick and put the end right<br>up against their finger to<br>measure the next metre<br>(there should be no space<br>between the pupil's finger<br>and the measuring tool).<br>Repeat the process<br>until they have finished<br>measuring the length. |

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Term 2 Involving pupils in their learning

# Introduction Essential low-cost or free teaching aids

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Weeks 11—15

#### **Place value cards**

#### Clocks

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 are no longer working for the cardboard. pupils to use. Hang a working clock in vour 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.

| Hundred<br>1 set 100 |   |   | Ten card<br>1 set 10- |   | Unit caro<br>1 set 0— |  |
|----------------------|---|---|-----------------------|---|-----------------------|--|
| 3                    | 0 | 0 | 4                     | 0 | 5                     |  |

Make clocks out of

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.

## Week 11 Subtracting three-digit numbers

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Words/phrases

Assessment

## clock half past time hour half hour minutes subtract take away How many less than? How many more than? What's the difference between?

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. ( )

Term 2 Involving pupils in their learning

Week 11 Subtracting three-digit numbers Day 1

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## Subtracting three-digit numbers

Lesson title ۲

| Learning outcomes   | Daily practice  |  |
|---|---|--|
| By the end of the lesson, most pupils will be able to:                            | Whole class teaching  |  |
| Explain how to tell the time on the hour and half hour.                           | Show the pupils a clock and<br>ask them to tell you anything they<br>can about clocks and how to tell |  |
| Subtract three-digit numbers.   | the time.<br>Write their ideas on the chalkboard  |  |
| 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  |  |
| Have ready a large clock with moveable hands.                                     | past times on the clock and ask<br>individual pupils to tell you the time                             |  |
| Look at the weekly words,<br>particularly the different terms<br>for subtraction. | they make.  |  |

| 10<br>minutes  | 25<br>minutes   |                                      | 10<br>minutes<br>Plenary  |  |
|--|---|--------------------------------------|---|--|
| Introduction   | Main activity   |                                      |   |  |
| Whole class teaching   | Whole class teaching  | Pair task                            | Whole class teaching  |  |
| Ask the pupils to list some<br>of the terms used for<br>subtraction, eg: How many    | Write the following<br>sum on the chalkboard,<br>245 – 123 =  | sums one at a time to what they have | Ask four pupils to share<br>what they have learned with<br>the rest of the class. |  |
| more than?, take away,<br>What's the difference?                                     | Ask them what you do first<br>(draw a number line, writing<br>the biggest number on the<br>right hand end). |                                      |   |  |
| Explain that you are going to<br>remind them how to subtract<br>three-digit numbers. |   |                                      |   |  |
|  | Ask them the next step<br>(expand the smallest<br>number) 123 = 100 + 20 + 3.                               |                                      |   |  |
|  | Ask them what they do next.<br>(use the number line to do<br>the sum):                                      |                                      |   |  |
|  | 3 20 100<br>122 125 145 245   |                                      |   |  |

Term 2 Involving pupils in their learning

Week 11 Subtracting three-digit numbers Day 2

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## Subtracting three-digit numbers

Lesson title

| Learning outcomes   | Daily practice  |
|---|---|
| By the end of the lesson, most<br>pupils will be able to:<br>Use a clock to tell the time on the<br>hour and half hour.<br>Use a number line to subtract three-<br>digit numbers. | Whole class teaching<br>Show the pupils a dummy clock.<br>Make different times involving<br>o'clock and half past on the clock<br>and ask the pupils to write each<br>time down in their exercise books.<br>After each question, tell them the<br>answer and ask them to check if |
| <b>Before the lesson:</b><br>Find or make a dummy clock, with<br>moveable hands to show the hours<br>and minutes.   | they are correct.   |

| 15 | minutes

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

| 10<br>minutes  | 25 Macmillan<br>minutes New Primary<br>Mathematics 3  | 10<br>minutes  |
|--|---|--|
| Introduction   | Main activity   | Plenary  |
| Whole class teaching   | Pair task   | Pair task  |
| Write the following sum<br>on the chalkboard and<br>ask the pupils to remind<br>you how to complete it:<br>642 - 521 = | Ask pupils to complete<br>Macmillan New Primary<br>Mathematics 3, page 42,<br>questions 1—3, using<br>number lines. | Give the pupils the following<br>sums to answer orally,<br>without using pencil<br>and paper:<br>5 + 5 |
|  | Ask two or three pupils to<br>explain how they did this to<br>the rest of the class.                                | - 6 + 4<br>3 + 7<br>8 + 2<br>1 + 9<br>2 + 8  |

Term 2 Involving pupils in their learning

Week 11 Subtracting three-digit numbers Day 3

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## Subtracting three-digit numbers

Lesson title ۲

| Learning outcomes                 | Daily practice                       |
|-----------------------------------|--------------------------------------|
| By the end of the lesson, most    | Pair task                            |
| pupils will be able to:           | Hand out the clocks with moveable    |
| Tell the time on the hour and the | hands to each pair.                  |
| half hour.                        | Ask all pairs to make the different  |
| Use a number line to answer the   | o'clock and half past times that you |
| question 'How many less than?'    | tell them and hold up their clocks   |
| Teaching aids                     | for everyone to see.                 |
| Before the lesson:                |                                      |

| 15

| 10<br>minutes   | 25<br>minutes  |  | 10<br>minutes   |
|---|--|--|---|
| Introduction  | Main activity  |  | Plenary   |
| Group task  | Whole class teaching   |  | Pair task   |
| Ask each group to make<br>as many sums as they<br>can that make the number<br>50 in 5 minutes.<br>Time them carefully, telling<br>them to stop as soon as the<br>5 minutes is finished. | Remind the pupils how<br>to answer the question,<br>'How many less than?'<br>Ask them,<br>'How many less than 445<br>is 200?'<br>Ask them if they can<br>remember how to do it.<br>200 45<br>400 445<br>200 400 445<br>200 400 445 | <ul> <li>Give them a question to try in pairs, eg:</li> <li>'How many less than 658 is 543?'</li> <li>Come together and ask pupils how they answered it.</li> <li>Give pupils some more questions, one at a time to answer in pairs and discuss after each one has been completed:</li> <li>'How many less than 563 is 232?'</li> <li>'How many less than 777 is 444?'</li> <li>'How many less than</li> </ul> | Give pairs the following<br>sums to answer without<br>pencil and paper:<br>60 + 40<br>30 + 70<br>50 + 50<br>20 + 80<br>80 + 20<br>40 + 60<br>90 + 10<br>10 + 90 |

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#### Lesson title

Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

Week 11 Subtracting three-digit numbers Day 4

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## Subtracting two-digit numbers, crossing the Ten

| Learning outcomes   | Daily practice  |
|---|---|
| By the end of the lesson, most<br>pupils will be able to:<br>Tell the time in 5-minute intervals.<br>Use a number line to subtract<br>two-digit numbers.      | Whole class teachingAsk the pupils if they can remembehow many minutes there are inan hour.Explain that there are 60 minutesin an hour and that to tell thetime people often talk in setsof 5 minutes; eg: 5 minutes past,10 minutes past, etc. |
| Before the lesson:  | Count in fives up to 60.  |
| Find a clock with moveable hands to use to make different times.  | Repeat, this time moving the hands around the clock as you do so.   |
| Make sure that you can easily<br>explain the method below to<br>subtract two-digit numbers when<br>the Unit in the second number is<br>larger than the first. |   |

15 minutes

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10 25 10 minutes minutes minutes Introduction **Main activity** Plenary Whole class teaching Pair task Pair task Remind the pupils how to To make the next jump Ask them to try the following Ask each pupil to say one easier, make a jump of do the following sum, by in pairs, using the same thing they have learned from expanding the smallest 6 to 20. method: the lesson. number and using the 45 – 28 6 number line to work out the 67 – 59 83 - 46 answer: 20 26 56 - 37 =34 - 2737 = 30 + 757 – 19 Ask them. 'How many more do you Ask each pair to find another Explain that you can break this down into steps further need to take away so pair and compare answers. to make it easier. that you have taken 7 altogether?' Firstly, 7 - 1 = 656 - 30 = 2630 19 20 26 56

Complete the sum, 56 - 37 = 19

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#### Lesson title

Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

Week 11 Subtracting three-digit numbers Day 5

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## Subtracting two-digit numbers

| Learning outcomes  | Daily practice   |
|--|--|
| By the end of the lesson, most pupils will be able to:       | Whole class teaching<br>Give out dummy clocks to each pair                                     |
| Use the clock to tell the time in 5-minute intervals.        | Read out times in jumps of<br>5 minutes in order, and ask pupils                               |
| Subtract two-digit numbers that cross the Ten.               | to make those times on their<br>clocks using the minute hand<br>(the long hand), eg: 5 minutes |
| Teaching aids  | past, 10 minutes past, 15 minutes<br>past, etc.  |
| Before the lesson:   |  |
| Have ready 0—9 number cards for each pair.                   |  |
| Find enough clocks with moveable hands for each pair to use. |  |
| Make cure that you can explain                               |  |

15 minutes

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.

| 10<br>minutes   | 25<br>minutes  | 10<br>minutes  |
|---|--|--|
| Introduction  | Main activity  | Plenary  |
| Whole class teaching  | Pair task  | Pair task  |
| Ask the pupils to remind<br>you how to subtract the<br>following:<br>54 - 35 =<br>36 - 18 = | <ul> <li>Give each pair a set of number cards from 0—9.</li> <li>Ask them to choose four cards and make two, two-digit numbers using those cards.</li> <li>Tell them to take the smallest number away from the largest number, drawing a number line to help them.</li> <li>Tell them to repeat the task until they have completed about 10 sums.</li> <li>Ask one or two pupils to show the rest of the class the sums they have made.</li> </ul> | <ul> <li>Stand the pupils in a circle.</li> <li>Throw a ball to a pupil and ask them a simple addition or subtraction sum which they can do without pencil and paper.</li> <li>Ask that pupil to throw the ball to someone else and say another sum.</li> <li>Continue until about six or seven pupils have had a turn.</li> </ul> |

## Week 12 Subtracting three-digit numbers

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## Words/phrases

#### Assessment

subtraction take away minus What's the difference? How many less than? quarter to quarter past 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. ( )

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Term 2 Involving pupils in their learning

Week 12 Subtracting three-digit numbers Day 1

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## Subtracting two- and three-digit numbers

Lesson title

|  | minutes   |  |
|--|---|--|
| Learning outcomes  | Daily practice  |  |
| By the end of the lesson, most   | Whole class teaching  |  |
| pupils will be able to:  | Ask the pupils to help you draw a clock on the chalkboard, including the numbers.       |  |
| State how many minutes there are in a quarter hour and a half hour.              |   |  |
| Use a number line to subtract<br>two-digit numbers from three-<br>digit numbers. | Ask them to help you divide the clock in half by drawing a line from the 12 to the six. |  |
| Teaching aids  | Label the right half 'past' and the left half 'to'.                                     |  |
| Before the lesson:   | Ask the pupils to explain why you have done this.                                       |  |
| Find or make dummy clocks, with moveable hands to show hours and                 | Ask them where the lines would be to divide the clock into quarters.                    |  |
| minutes, for each pair.  | Ask them,   |  |
| Make sure you can explain the method to subtract three-digit                     | 'How many minutes in one half?'<br>'How many minutes in one quarter?'                   |  |
| numbers as shown on the next page.   | Leave the clock on the chalkboard for the rest of the week.                             |  |

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| 10<br>minutes  | 25<br>minutes  |  | 10<br>minutes  |
|--|--|--|--|
| Introduction   | Main activity  |  | Plenary  |
| Whole class teaching   | Whole class teaching   | Pair task  | Whole class teaching   |
| Write the following sum on<br>the chalkboard and ask the<br>pupils to remind you how<br>to answer it:<br>75 – 69 = | Tell the pupils that you are<br>going show them how to<br>subtract two-digit numbers<br>from three-digit numbers.<br>Write the following sum on<br>the chalkboard:<br>245 - 27 =<br>27 = 20 + 7<br>7 20<br>218 225 245 | Give pupils the following<br>sums to complete in pairs,<br>using the same method:<br>476 - 85 =<br>563 - 72 =<br>485 - 94 =<br>Ask if anyone found a<br>quicker method to complete<br>the sum. | Ask the pupils to put their<br>hands up when they have<br>worked out the answers<br>to the following questions:<br>50 + 60 =<br>70 - 30 =<br>120 - 40 =<br>130 + 50 =<br>Ask them to tell you<br>how they worked out the<br>answers. |

Term 2 Involving pupils in their learning

Week 12 Subtracting three-digit numbers Day 2

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# Subtracting two-digit numbers

Lesson

title

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| Learning outcomes  | Daily practice   |  |
|--|--|--|
| By the end of the lesson, most pupils will be able to:   | Whole class teaching<br>Review yesterday's work, by  |  |
| Tell the time using quarter past and quarter to.   | looking at the clock and asking the pupils to tell you what the time   |  |
| Subtract two-digit numbers using a number line.  | is when the long hand is on the six (half past) and the 12 (o'clock).  |  |
| Teaching aids  | Explain that when the long hand<br>is on the three it is 'quarter past'<br>and when it is on the nine it is<br>'quarter to'. |  |
| Before the lesson:   | Read Macmillan New Primary   |  |
| Find or make dummy clocks, with<br>moveable hands to show hours and<br>minutes, for each pair. | Mathematics 3, page 132, Exercise<br>1 with the pupils and ask them to<br>tell you the answers.                              |  |
| Read Macmillan New Primary<br>Mathematics 3, page 132.   |  |  |
| Read Macmillan New Primary<br>Mathematics 3, page 44.  |  |  |

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| 10<br>minutes   | 25 Macmillan<br>minutes New Primary<br>Mathematics 3  | 10<br>minutes  |
|---|---|--|
| Introduction  | Main activity   | Plenary  |
| Whole class teaching  | Pair task   | Whole class teaching   |
| Recap yesterday's work<br>by asking the pupils to do<br>the following sum in their<br>exercise books using a<br>number line to help them:<br>564 – 72 = | Ask pupils to complete<br>Macmillan New Primary<br>Mathematics 3, page 44,<br>questions 4, 5 and 7,<br>using the method they<br>practised on Day 1. | Ask some pupils to share<br>their answers with the rest of<br>the class. |
| Ask the pupils to look<br>at each other's work and<br>discuss how they found  | _   |  |

their answer.

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Term 2 Involving pupils in their learning Lesson

**Making 100** 

title

Week 12 Subtracting three-digit numbers Day 3

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#### 15 minutes **Daily practice** Learning outcomes By the end of the lesson, most Whole class teaching pupils will be able to: Use a clock to make different times Recognise guarter to and guarter using guarter to and guarter past. past on the clock. Ask pupils to tell the class what Make up their own subtraction times you have made. sums. Give each pair a clock with Identify number facts about the moveable hands. number 100. Tell them to make the following times: **Teaching aids** quarter past 6 quarter to 5 quarter to 7 Before the lesson: quarter past 4 Find or make dummy clocks, with moveable hands to show hours and minutes, for each pair.

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

Term 2 Involving pupils in their learning

Week 12 Subtracting three-digit numbers Day 4

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#### Lesson title

## Subtracting three-digit numbers

### **Daily practice** Learning outcomes By the end of the lesson, most Pair task pupils will be able to: Explain that some people also use Draw guarter to and guarter past on the word 'after' instead of 'past', so quarter past 3 can also be quarter a clock. after 3. Subtract three-digit numbers. Ask pupils to complete Macmillan New Primary Mathematics 3, page **Teaching aids** 133, Exercise 3, using the clocks with moveable hands to help them and drawing clocks in their exercise Before the lesson: books to record the answers. 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.

15

minutes

Macmillan

New Primary Mathematics 3

| 10<br>minutes  | 25<br>minutes  | Macmillan<br>New Primary<br>Mathematics 3  | 10<br>minutes   |
|--|--|--|---|
| Introduction   | Main activity  |  | Plenary   |
| Whole class teaching   | Whole class teaching   | Pair task  | Whole class teaching                                  |
| Write the following numbers<br>on the chalkboard:<br>145<br>232<br>787<br>985<br>436<br>563<br>Ask the pupils to explain | Explain how to subtract two,<br>three-digit numbers using<br>the following example:<br>675 - 248 =<br>248 = 200 + 40 + 8<br>8  40  200<br>427  435  475  675 | Ask the pupils to complete<br>Macmillan New Primary<br>Mathematics 3, page 46,<br>Exercise 1, questions 1—5<br>in pairs. | Ask pupils to explain how<br>they completed the sums. |
| Ask the pupils to explain how to expand them.  | Complete the sum,<br>675 – 248 = 427   |  |   |

Term 2 Involving pupils in their learning

Week 12 Subtracting three-digit numbers Day 5

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#### Lesson title

# What's the difference?

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| Learning outcomes  | Daily practice   |  |
|--|--|--|
| By the end of the lesson, most pupils will be able to:   | Whole class teaching<br>Ask pupils to move the long hand   |  |
| Write the time in two different ways.<br>Answer the question 'What's the                       |  |  |
| difference?'   |  |  |
| Teaching aids<br>Before the lesson:  | Ask the pupils if they can tell you<br>how many minutes there are in<br>quarter of an hour.                            |  |
| Find or make dummy clocks, with<br>moveable hands to show hours and<br>minutes, for each pair. | Explain that quarter past can also<br>be expressed as <mark>15 minutes past</mark> .<br>Ask them to make the following |  |
|  | times on their clocks:<br>15 minutes past 1<br>15 minutes past 2<br>15 minutes past 3<br>15 minutes past 4, etc        |  |
|  | Repeat these times, saying them in<br>a random order, to check the pupils<br>understand.                               |  |

15 minutes

| 10<br>minutes  | 25<br>minutes   |  | 10<br>minutes   |
|--|---|--|---|
| Introduction   | Main activity   |  | Plenary   |
| Whole class teaching   | Individual task   | Pair task  | Whole class teaching  |
| Ask the pupils to answer the<br>following questions without<br>using pencil and paper:<br>25 - 3<br>32 - 7<br>45 + 8<br>57 - 6<br>23 + 16<br>16 + 17<br>65 - 34<br>43 - 27 | Remind the pupils how<br>to answer the question,<br>'What's the difference<br>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<br>largest number, ie:<br>5 10 2<br>35 40 50 52 | Ask pupils to answer the<br>following questions, using<br>the above method. What's<br>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<br>something they have learned<br>during the past week about<br>time or subtraction. |

Add up the number of jumps.

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

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Week 13 Metres and centimetres

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Words/phrases

#### Assessment

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

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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. ۲

Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

Week 13 Metres and centimetres Day 1

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# Estimating length and width

| Learning outcomes  | Daily practice   |
|--|--|
| By the end of the lesson, most<br>pupils will be able to:<br>Add three-digit numbers.<br>Use the vocabulary 'width' and<br>'length' to estimate and measure. | 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 |
| Before the lesson:<br>Have ready a metre ruler for<br>each pair.<br>Draw the following table on  | -  |

15 minutes

the chalkboard.

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

| 10<br>minutes  |  | 25<br>minutes  |   | 10<br>minutes  |
|--|--|--|---|--|
| Introduction   |  | Main activity  |   | Plenary  |
| Whole class teaching   |  | Pair task  |   | Whole class teaching   |
| Write the words 'width' and<br>'length' on the chalkboard.   | Read through the table<br>with the pupils and ask,<br>'How many metres long do | Show the pupils a metre<br>ruler and ask them if they<br>know what it is used for. | Ask the pupils to use the<br>metre ruler to measure the<br>objects in the table and | Ask pupils to use the tips<br>of their fingers to measure<br>the length and width of |
| Ask the pupils to look at<br>their bench and tell you<br>which part is the width and               | you think the length of the chalkboard is?'                                    | Show them how to measure accurately with the ruler.                                | record the answer in the second column.   | their table.   |
| which is the length.<br>When measuring, the width  | Write their guess/estimate in the first column.                                | Put the end of the metre stick at the end of the object                            | Ask them to look at their guess/estimate and see if                                 |  |
| is always the short side,<br>and the <mark>length is always</mark><br>the long side <mark>.</mark> | Repeat the question for each object in the list.                               | they want to measure and<br>make a small mark at the<br>other end of the ruler.    | they were correct.  |  |
| Show the pupils a metre<br>stick and explain that the<br>measurement is a metre and                |  | Move the metre stick so that<br>the 0 is against the mark<br>and repeat as above.  |   |  |
| they are going to estimate,<br>or guess the length and<br>width of classroom objects               |  | Count how many metre<br>lengths the space that you<br>are measuring is.            |   |  |
| in metres.   |  | Provide each pair with a metre ruler.  |   |  |

Term 2 Involving pupils in their learning

Week 13 Metres and centimetres Day 2

# Measuring in centimetres

Lesson title

| Learning outcomes  | Daily practice   |
|--|--|
| By the end of the lesson, most<br>pupils will be able to:<br>Subtract three-digit numbers. | Pair taskGive each pair of pupils a set<br>of number cards from 0—9.                                       |
| Explain why we need centimetres to measure objects.  | Ask them to each choose<br>three numbers.  |
| Teaching aids  | Tell one pupil to make the largest<br>number they can with their cards<br>Tell the other pupil to make the |
| Before the lesson:   | smallest number they can with their numbers.   |
| Have ready a metre ruler, with the centimetres clearly marked, for each pair.              | Tell the pairs to add their<br>two numbers together using<br>a number line.                                |
| Have ready a set of number cards from 0—9, enough for each pair.                           | Ask them to repeat this process four or five times.  |

15 minutes

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| 10<br>minutes  | 25<br>minutes   |  |   |                             | 10<br>minutes                                     |  |
|--|---|--|---|-----------------------------|---|--|
| Introduction   | Main activity   |  |   |                             | Plenary   |  |
| Whole class teaching   | Pair task   |  |   |                             | Whole class teaching                              |  |
| Ask the pupils to remind you how to use a metre stick  | Give each pair a metre stick<br>and ask,  | Ask them to point to each<br>Ten and count as they do,                                     | Record their ans chalkboard, eg:  |                             | Ask pupils to share<br>their tables with the rest |  |
| to measure the length and width of objects.  | 'How many centimetres are<br>there in one metre?'   | 10, 20, 30, 40, etc.<br>Tell each pair to measure  | Explain that cms<br>used instead of   |                             | of the class.                                     |  |
| Ask,<br>'How many metres long is<br>the classroom?'  | <ul> <li>When they have told you the answer ask,</li> <li>Did anyone find an easier way of counting such a large number?'</li> <li>on the table an of the pencil rist the 0.</li> <li>Ask them to log place where the pencil finishese</li> </ul> | Tell them to put the ruler flat<br>on the table and put the end                            | the whole word.<br>Ask them to use their metre<br>rulers to measure the   |                             | _   |  |
| Make sure they measure correctly according to the  |   | ie of the pencil right up against following objects in cm<br>the 0. and record their answe |   | s in cms,<br>answers in     |   |  |
| instructions from Day 1.<br>Ask them what they do if the<br>metre stick is too long for<br>the last measurement. |   | way of counting such a large plac<br>number?' pen<br>Explain that the centimetres num      | a such a large Ask them to look at the<br>place where the tip of the<br>pencil finishes and count the<br>number of centimetres to | a table like the one below. |   |  |
| Explain that on the<br>stick there are smaller<br>measurements called  |   | that point.  |   |                             |   |  |
| <mark>centimetres</mark> and these<br>can be used to measure   |   |  | Object  | Number of cms               |   |  |
| smaller lengths.   |   |  | Length of book  |                             | -   |  |
|  |   |  | Width of book   |                             |   |  |
|  |   |  | Length of left hand   |                             |   |  |
|  |   |  | Length of right foot  |                             |   |  |

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Term 2 Involving pupils in their learning

Week 13 Metres and centimetres Day 3

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# Metres and centimetres

Lesson title  $( \bullet )$ 

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

15 minutes

| 10<br>minutes<br>Introduction  |   | 25<br>minutes Macmillan<br>New Primary<br>Mathematics 3<br>Main activity | 10<br>minutes<br>Plenary  |  |
|--|---|--|---|--|
| Whole class teaching   |   | Pair task  | Pair task   |  |
| Ask the pupils,<br>'What is the smaller<br>measurement than metres<br>that we learned yesterday?'  | Vhat is the smallerthe centimetres on bothneasurement than metresand check that the   |  | Ask the pupils to find<br>another pair and see if their<br>results are the same.<br>Tell them to check that |  |
| Ask them to explain how<br>to measure their finger using<br>a metre ruler.same size.Ask:<br>How many cms on the  |   | Ask them to record their<br>answers in the table below.                  | cms is written after each measurement.  |  |
| Explain that when you are<br>measuring small things it is<br>easier to use a smaller ruler.<br>Give each pair a centimetre<br>ruler and a metre ruler. | <ul> <li>smaller ruler?'</li> <li>'How many small rulers are<br/>the same as one metre<br/>ruler?'</li> <li>'How many cms is the same<br/>as one metre?'</li> </ul> | Make sure that they<br>write cms after each<br>measurement recorded.     |   |  |

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

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Term 2 Involving pupils in their learning

Week 13 Metres and centimetres Day 4

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# Metres and centimetres

Lesson title  $( \bullet )$ 

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| Learning outcomes                          | Daily practice  |  |
|--|---|--|
| By the end of the lesson, most             | Whole class teaching  |  |
| pupils will be able to:                    | Write the following sums one                                  |  |
| Add three-digit numbers.                   | at a time on the chalkboard and                               |  |
| Measure in centimetres and metres.         | ask the pupils to answer them                                 |  |
|  | without using pencil or paper:<br>100 + 145                   |  |
| Teaching aids                              | 200 + 145   |  |
|  | 300 + 145   |  |
|  | 400 + 145   |  |
| Before the lesson:                         | 500 + 145   |  |
| Have ready a metre ruler, with the         | - 600 + 145<br>700 + 145                                      |  |
| centimetres clearly marked, for each pair. | 800 + 145   |  |
| Have ready a small centimetre ruler        | Write down the answers as the                                 |  |
| for each pair.                             | pupils say them and ask if anyone can notice a pattern.       |  |
|  | Ask if anyone can tell you why the answers have that pattern. |  |

15 minutes

| 10<br>minutes<br>Introduction  |  |                      |  | 25<br>minutes<br>Main   | Macmillan<br>New Primary<br>Mathematics 3<br><b>activity</b>   | 10<br>minutes<br>Plenary   |
|--|--|----------------------|--|---|--|--|
| Whole class teaching<br>Remind the class that<br>estimate means to guess<br>and the reason why we<br>estimate is to help us if<br>numbers are too big to<br>count or if we don't have<br>anything to measure with.<br>Practise using the word<br>estimate so they understand<br>its meaning. | Ask:<br>'Can you estimate the<br>number of pupils in the of<br>today?'<br>'Can you estimate the<br>number of chairs/benche<br>the room?'<br>'Can you estimate the hel<br>of the door in metres?'<br>'Can you estimate the wid<br>of the door in centimetre | es in<br>ight<br>dth | Record their answers on<br>the chalkboard in a table<br>like the one below.<br>Ask a pupil to count the<br>number of pupils and<br>the number of chairs and<br>record their answers on<br>the table on the chalkboard. | compl<br>the top<br>Primar<br>page 4<br>ruler to<br>Explain<br>to estin<br>in cent<br>measu<br>Remin<br>should<br>estimo<br>chang<br>are no | upils to copy and<br>ete the table at<br>o of Macmillan New<br>by Mathematics 3,<br>11 using a centimetre<br>o measure the lines.<br>In that first they have<br>mate the length<br>timetres and then | 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. |
|  | Object Est   | imate                | Actual measurement/number  |   |  |  |

Number of pupils

Height of door Width of door

Number of chairs/benches

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Term 2 Involving pupils in their learning

**Week 13 Metres and** centimetres Day 5

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# **Metres and** centimetres

Lesson

title

# By the end of the lesson, most pupils will be able to: Add three-digit numbers. Measure in metres and centimetres a number line. 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.

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Learning outcomes

## **Daily practice**

15

minutes

## Whole class teaching

Macmillan

New Primary Mathematics 3

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

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

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# Week 14 Working with metres and centimetres

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### Words/phrases

#### Assessment

metre centimetre tallest shortest widest thinnest longest

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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. ۲

Term 2 Involving pupils in their learning

Week 14 Working with metres and centimetres Day 1

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# Measuring in metres and centimetres

Lesson title ۲

|   | 15<br>minutes  |
|---|--|
| Learning outcomes   | Daily practice   |
| By the end of the lesson, most                            | Whole class teaching   |
| pupils will be able to:                                   | Give the pupils the following sums                                 |
| Subtract three-digit numbers.                             | to answer using a number line:                                     |
| Measure in centimetres.                                   | - 162 - 140 =<br>471 - 236 =<br>489 - 143 =                        |
| Teaching aids   | 237 - 186 =<br>818 - 191 =   |
| Before the lesson:  | Walk around the room and help pupils who are finding it difficult. |
| Have ready a centimetre and a metre ruler for each group. |  |
| Have ready a large sheet of blank paper for each group.   |  |

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| 10<br>minutes   | 25<br>minutes  |  | 10<br>minutes  |
|---|--|--|--|
| Introduction  | Main activity  |  | Plenary  |
| Whole class teaching  | Group task   |  | Whole class teaching   |
| Ask,<br>'Show me the length, width<br>and height of your table.'<br>Ask the pupils to tell you<br>something they learned<br>about measurement the<br>previous week. | Give each group a metre<br>ruler and a small centimetre<br>ruler. Ask them to tell you<br>how many centimetres<br>there are in a metre (100).Ask them to measure the<br>length of the classroom in<br>centimetres (using the metre<br>ruler, not the small ruler).Remind them that the<br>easiest way is to count<br>a Hundred for each metre<br>they measure. | Ask them to record<br>their measurement in<br>centimetres, eg: 750cms.<br>Ask them to measure the<br>following in centimetres<br>and record their answers<br>in a table:<br>Width of the classroom<br>Height of the window<br>Width of the door<br>Height of the teacher's table | Ask groups to report their<br>measurements back to the<br>rest of the class. |

Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

Week 14 Working with metres and centimetres Day 2

# Measuring in metres and centimetres

| By the end of the lesson, most                                  | Whole class teaching   |  |
|---|--|--|
| pupils will be able to:   | Give each pair of pupils a set of                                    |  |
| Subtract three-digit numbers.                                   | number cards from 0—9.   |  |
| Measure in metres and centimetres and record those measurements | Ask them to each choose three numbers.                               |  |
| in a table.   | Tell one member of each pair to make the largest number they car     |  |
| Teaching aids   | with their numbers.  |  |
|   | Tell the other member of each pai                                    |  |
| Before the lesson:  | to make the smallest number they can with their numbers.             |  |
| Have ready metre rulers and centimetre rulers for each group.   | Tell pupils to subtract the smallest number from the largest number. |  |
| Have ready a large sheet of blank paper for each group.         | Ask them to repeat this process four or five times.                  |  |
| Have ready a set of 0—9 number cards for each pair.             |  |  |

15 minutes

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| 10<br>minutes   |  | 25<br>minutes  |   | 10<br>minutes   |
|---|--|--|---|---|
| Introduction  |  | Main activity  |   | Plenary   |
| Whole class teaching  |  | Group task   |   | Whole class teaching  |
| Ask,<br>How did you measure in<br>centimetres yesterday?'<br>Remind them that instead of<br>counting all the centimetres<br>separately they counted<br>each metre length as 100<br>because they know that<br>one metre is the same as<br>100cms.<br>Ask them to find the<br>tables recording their<br>measurements from<br>yesterday. | Ask them to repeat the<br>measurements.<br>Explain that this time<br>they are going to measure<br>in metres and centimetres<br>and record it on the table.<br>Ask them to make an extra<br>column in their table headed<br>'metres and centimetres',<br>so their table should look<br>like the one below, with<br>the 'centimetres' column<br>already completed. | Tell the groups to measure<br>in metres, using their metre<br>ruler and write down the<br>number of full metres.<br>If the final measurement is<br>not a full metre they should<br>measure it in centimetres.<br>This means they will have a<br>measurement that is written<br>in metres and centimetres,<br>eg: 7 metres 50 centimetres<br>or 7m 50cms. | Ask them to record this<br>in the correct place on<br>their table as shown in the<br>example below. | Tell pupils to compare<br>the two columns where<br>they have recorded<br>the measurements in<br>centimetres and then in<br>metres and centimetres.Ask if there is any<br>connection between the<br>numbers. |

|                               | 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 |             |                        |

Term 2 Involving pupils in their learning

Week 14 Working with metres and centimetres Day 3

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# Recording measurements

Lesson title

| Learning outcomes                  | Daily practice  |
|------------------------------------|---|
| By the end of the lesson, most     | Whole class teaching                                    |
| pupils will be able to:            | Give the pupils the following sums                      |
| Subtract three-digit numbers.      | to do, in any way they can:                             |
| Measure in metres and centimetres. | 521 – 294 =<br>232 – 118 =                              |
| Record measurements in a table.    | 362 - 171 =<br>481 - 300 =                              |
| Teaching aids                      | Ask some pupils to tell you how they answered the sums. |

15 minutes

### **Before the lesson:**

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Have ready metre rulers and centimetre rulers for each pair.

| 10<br>minutes  | 25<br>minutes   | 10<br>minutes   |
|--|---|---|
| Introduction   | Main activity   | Plenary   |
| Whole class teaching   | Pair task   | Whole class teaching  |
| Ask the pupils if they can<br>remember what they learned<br>on Day 2 about metres and<br>centimetres.<br>Explain that sometimes<br>it is easier to write a<br>measurement in centimetres<br>and sometimes it is easier<br>to write a measurement in<br>metres and centimetres. | Tell the pairs to measure the<br>following:<br>Length of their arm<br>Width of their foot<br>Height to the top of the<br>window in the classroom<br>Length of two desks/tables<br>joined together<br>Length of the school<br>building they are in | Ask if anyone found an easy<br>way of converting/changing<br>centimetres to metres and<br>centimetres.<br>Explain that if they look at<br>the digit in the Hundreds<br>column when they have<br>measured in centimetres,<br>that will tell them how many<br>metres there are in the<br>measurement. |
|  | Ask them to record their<br>measurements on a table in<br>centimetres, and in metres<br>and centimetres.  | The digits in the Tens and<br>Units columns will tell them<br>how many centimetres, eg:<br>HTU<br>234cms can be written as<br>2m 34cms.   |

Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

Week 14 Working with metres and centimetres Day 4

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# **Converting centimetres into metres**

|  | 15<br>minutes   |
|--|---|
| Learning outcomes                                      | Daily practice  |
| By the end of the lesson, most pupils will be able to: | Whole class teaching<br>Write the following sums one at a                                     |
| Subtract Hundreds from a three-<br>digit number.       | time on the chalkboard and ask the<br>pupils to answer them without using<br>pencil or paper: |
| Convert centimetres into metres and centimetres.       | 973 – 100<br>973 – 200<br>973 – 300   |
| Teaching aids  | 973 – 400<br>973 – 500<br>973 – 600   |
| Before the lesson:                                     | 973 – 700<br>973 – 800  |
| Read Macmillan New Primary                             |   |
| Mathematics 3, page 39,<br>Exercise 3, questions 1—6.  | Write down the answers as pupils<br>say them and ask if anyone can<br>notice a pattern.       |

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

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| 10 Macmillan<br>minutes New Primary<br>Mathematics 3   | 25MacmillanminutesNew PrimaryMathematics 3                                       | 10<br>minutes   |
|--|--|---|
| Introduction   | Main activity  | Plenary   |
| Whole class teaching   | Pair task  | Whole class teaching  |
| Remind the pupils that<br>1 metre = 100 centimetres.   | Ask the pupils to complete<br>Macmillan New Primary                              | Ask the pupils to share<br>their work and see who has<br>understood it. |
| Ask them if they can<br>remember what they learned<br>on Day 3 about converting<br>centimetres into metres and<br>centimetres. | Mathematics 3, page 39,<br>Exercise 3, questions 1—6<br>in their exercise books. |   |
| Remind them that if they<br>look at the centimetres the<br>number of Hundreds will tell<br>them how many metres.               |  |   |
| Ask,<br>'Can you tell me why?'<br>(There are 100 centimetres<br>in a metre)  |  |   |
| Go through the examples<br>in the box in Macmillan<br>New Primary Mathematics<br>3, page 39 with the class.                    |  |   |

Numeracy lesson plans **Primary 3** 

Term 2 Involving pupils in their learning

**Week 14** Working with metres and centimetres Day 5

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# **Converting metres** into centimetres

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# **Daily practice** Learning outcomes By the end of the lesson, most Whole class teaching pupils will be able to: Ask pupils to complete Macmillan Add and subtract three-digit New Primary Mathematics 3, numbers. writing them in numerals first. Convert metres and centimetres into centimetres. the answers. **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.

minutes New Primary Mathematics 3

Macmillan

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page 29, (E2) and page 43 (B2),

Ask pupils to explain how they got

| 10<br>minutes  | 25<br>minutes   | Macmillan<br>New Primary<br>Mathematics 3  | 10<br>minutes  |
|--|---|--|--|
| Introduction   | Main activity   |  | Plenary  |
| Pair task  | Individual task   | Pair task  | Whole class teaching   |
| Give each pair a centimetre<br>ruler and a metre ruler.<br>Ask them to write down the<br>number of centimetres there<br>are in the following:<br>1 metre = (100cms)<br>2 metres = (200cms)<br>3 metres<br>4 metres<br>5 metres<br>5 metres<br>6 metres<br>7 metres<br>8 metres<br>9 metres<br>10 metres<br>Share their answers and<br>check that they are correct. | Explain that they can<br>change metres and<br>centimetres back to<br>centimetres by using their<br>knowledge of metres and<br>centimetres and Hundreds,<br>Tens and Units, eg:<br>'How many centimetres are<br>there in 2m 40cms?'<br>Explain that to get that<br>answer you need to expand<br>the metres and then put<br>the number together, eg:<br>2m 40cms = 200 + 40<br>= 240cms<br>Ask the class,<br>'How many centimetres<br>are there in:<br>3m 20cms<br>2m 50cms<br>5m 43cms?' | Ask pupils to complete<br>Macmillan New Primary<br>Mathematics 3, page 39,<br>Exercise 4, questions 1—4.<br>Go through the answers<br>with them and check they<br>are correct. | Ask each pupil to tell you<br>one thing they have learned<br>about measuring during the<br>past two weeks. |

# Week 15 Multiplying two-digit numbers by single digit numbers

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Words/phrases

multiply

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#### Assessment

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 \_? 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. Term 2 Involving pupils in their learning

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

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# Revisiting multiplication of single digit numbers

Lesson title ۲

| By the end of the lesson, most pupils will be able to:              | Whole class teaching   |  |
|---|--|--|
| Know different terms for  | Show the pupils the flash cards<br>and read them out, putting numbers  |  |
| multiplication.   | in the spaces, eg:<br>(Multiply 2 and 3)   |  |
| Multiply single digit numbers using repeated addition.              | <ul> <li>'Multiply 2 and 3',</li> <li>'What is the product of 4 and 2?'</li> <li>'What is 5 times 3?'</li> </ul> |  |
| Teaching aids   | 'What is two groups of 2?'<br>'What is three lots of 1?'   |  |
|   | Put the number cards 1—5 on  |  |
| Before the lesson:  | the table and ask a pupil to come<br>out and pick two.   |  |
| Have ready a set of large flash cards with the following questions: | Tell them to hold up the numbers,  |  |
| Multiply and  | while another pupil reads the<br>question flash card, inserting those  |  |
| What is the product of?   | numbers in the correct places.   |  |
| What is times?  | Ask pupils to show you the answer  |  |
| What is groups of?  | to each question by holding up their   |  |
| What is _ lots of _?  | number cards.  |  |

15 minutes

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| 10<br>minutes   | 25<br>minutes  |  |  | 10<br>minutes  |
|---|--|--|--|--|
| Introduction  | Main activity  |  |  | Plenary  |
| Whole class teaching  | Whole class teaching   |  | Pair task  | Whole class teaching   |
| Ask the pupils to remind you<br>how to do the following sum<br>using a number line, | Explain that they are going<br>to learn another way of<br>doing multiplication whichAsk them,<br>'How many rows?' (3)<br>'How many columns?' (2) |  | and repeat what you have what they have learne just done on the chalkboard, and demonstrate to the | Ask some pupils to share<br>what they have learned<br>and demonstrate to the |
| 6 x 7 =<br>As they explain, work it   | will be easier when the sums<br>they are doing get more<br>difficult.  | Tell them that this can be<br>written as 3 x 2 = 6   | • •  | rest of the class how they got their answers.                                |
| through on the chalkboard with them.  | Draw the table below on<br>the chalkboard and ask the<br>pupils to count the number<br>of squares.   | Explain that they can<br>multiply the rows by the<br>columns and they will<br>get the same answer as |  |  |
|   | Explain that a table is easier<br>to understand if you break it<br>up into rows and columns.   | counting the squares.<br>Repeat this for the table<br>below.   | Explain that they should<br>draw the squares in their<br>exercise books to help them.              |  |
|   | The rows go across and the columns go down.  |  | Tell them to check that the<br>answer to their sums and<br>the number of squares are<br>the same.  |  |
|   | row →  |  |  |  |

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Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

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

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# Multiplying single digit numbers

| Learning outcomes  | Daily practice   |  |
|--|--|--|
| By the end of the lesson, most pupils will be able to:   | <b>Group task</b><br>Give each group a number from                           |  |
| Multiply single digit numbers from memory.   | 1—5 and ask them to multiply<br>that number by all numbers from<br>1—10, eg: |  |
| Teaching aids  | 2 x 1 =<br>2 x 2 =<br>2 x 3 =  |  |
| Before the lesson:   | 2 x 4 =  |  |
| Read through the instructions<br>carefully and practise using this<br>method of multiplication so that<br>you understand it. | <ul> <li>Ask them to write each sum in their exercise books.</li> </ul>      |  |

15 minutes

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| 10<br>minutes   | 25<br>minutes   |  |   | 10<br>minutes  |
|---|---|--|---|--|
| Introduction  | Main activity   |  |   | Plenary  |
| Whole class teaching  | Whole class teaching  |  | Pair task   | Whole class teaching   |
| Draw a table on the<br>chalkboard as you did<br>yesterday.  | Explain that you are going to<br>show them how to multiply a<br>two-digit number by a single  | Tell them that it can get<br>confusing so to help them<br>they should draw brackets                            | Leave the sum on the chalkboard and ask pupils to follow the steps to | Ask five pupils to share with<br>the rest of the class what<br>they have learned and how |
| Ask the pupils to show you the columns and the rows.  | - digit number.<br>Write the following  | around each sum as follows:<br>$(10 \times 2) = 20$  | 14 x 2  | they did their sums using the chalkboard.  |
| Ask them:<br>'How many columns?'  | sum on the chalkboard,<br>11 x 2 =  | $(1 \times 2) = 2$<br>Explain that they still haven't finished the sum as they                                 | 15 x 3<br>12 x 5<br>16 x 4  |  |
| 'How many rows?'<br>Ask pupils to tell you<br>how to do the following<br>sum by drawing a table,<br>5 x 3 = | Explain that they could<br>draw a table or a number<br>line to help them do the<br>multiplication, but when the<br>sum gets more difficult it will<br>take too long to use those<br>methods so you are going to | need to add the answers<br>together,<br>20 + 2 = 22<br>and write the completed<br>sum,<br>$11 \times 2 = 22$   | 14 x 5<br>16 x 2  |  |
|   | show them another way.<br>First of all they should<br>expand the number 11,   | Repeat for the following<br>sum:<br>12 x 3 = 10 + 2 x 3  |   |  |
|   | 11 = 10 + 1<br>Explain that they then need<br>to multiply both numbers<br>by 2.   | Which should be written as:<br>$(10 \times 3) = 30$<br>$(2 \times 3) = 6$<br>30 + 6 = 36<br>$12 \times 3 = 36$ |   |  |

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Numeracy lesson plans Primary 3

Term 2 Involving pupils in their learning

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

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# Multiplying two-digit numbers by single digit numbers

| Learning outcomes  | Daily practice  |  |
|--|---|--|
| <b>By the end of the lesson, most</b><br><b>pupils will be able to:</b><br>Multiply single digit numbers<br>from memory.           | Group task<br>Give each group a set of cards<br>between 1 and 100, eg:<br>Group 1 (3 to 28)<br>Group 2 (20 to 40) etc   |  |
| Multiply two-digit numbers by<br>a single digit number.<br><b>Teaching aids</b>  | Group 2 (29 to 40), etc.<br>Call out a number between one and<br>five and ask each group to place<br>their lowest number card on the<br>table.  |  |
| Before the lesson:<br>Have ready a set of number cards<br>from 1—100.<br>Read Macmillan New Primary<br>Mathematics 3, pages 70—71. | Ask them to add on the number you<br>have just given them until they have<br>finished all their numbers, eg:<br>If you call out the number five,<br>group 2 would lay these cards on<br>the table, 29, 34, 39.<br>Repeat, calling out different<br>numbers each time. |  |

15 minutes

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| 10<br>minutes  | 25MacmillanminutesNew PrimaryMathematics 3   | 10<br>minutes   |
|--|--|---|
| Introduction   | Main activity  | Plenary   |
| Whole class teaching   | Individual task  | Whole class teaching  |
| Write the following sums<br>on the chalkboard and ask<br>the pupils to complete them<br>in the way that they learned | Ask pupils to complete<br>Macmillan New Primary<br>Mathematics 3, page 71,<br>exercise A, questions 1—6. | Ask the pupils to share<br>their answers with the rest<br>of the class. |
| on Day 2:<br>13 x 5 =<br>11 x 6 =<br>14 x 5 =  | Sit with any pupils who<br>are struggling to understand<br>how to do the sum and<br>help them.           |   |
| When they have completed<br>the sums, ask the class<br>to tell you their answers.                                    | Go through each sum step by step with them.  |   |
|  | Once a pupil has<br>understood the method<br>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

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# Multiplying two-digit numbers by single digit numbers

| Learning outcomes   | Daily practice                               |
|---|--|
| By the end of the lesson, most<br>pupils will be able to: | Pair task<br>Repeat the activity from Day 3, |
| Multiply single digit numbers from memory.                | giving number cards to pairs.                |
| Multiply two-digit numbers by single digit numbers.       |  |
| Teaching aids   |  |
| Before the lesson:  |  |
| Have ready two sets of number                             |  |
| cards from 1—100.   |  |

15 minutes

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| 10<br>minutes  | 25 Macmillan<br>minutes New Primary<br>Mathematics 3   | 10<br>minutes   |
|--|--|---|
| Introduction   | Main activity  | Plenary   |
| Pair task  | Pair task  | Whole class teaching  |
| Pair the pupils who are<br>struggling to multiply single<br>digit and two-digit numbers<br>with those who understand<br>it well.<br>Write the following sums<br>on the chalkboard and ask<br>the pairs to work out the<br>answers together:<br>$12 \times 2 =$<br>$14 \times 3 =$<br>$22 \times 4 =$ | In the same pairs, ask<br>the pupils to complete<br>Macmillan New Primary<br>Mathematics 3, page 72,<br>Exercise B, questions 1—6. | Read out the following<br>sums one at a time and ask<br>pupils to quickly tell you<br>the answers, without using<br>pencil and paper to work<br>them out:<br>4 x 5<br>2 x 3<br>5 x 5<br>3 x 3<br>2 x 2<br>4 x 4<br>2 x 10<br>4 x 10 |

Term 2 Involving pupils in their learning

Lesson

title

**Week 15** Multiplying two-digit numbers by single digit numbers Day 5

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## 15 minutes **Daily practice Word problems** Learning outcomes Whole class teaching By the end of the lesson, most pupils will be able to: Read out the first number sequence Multiply single digit numbers from on the chalkboard and ask pupils to help you find the missing number. memory. Multiply two-digit numbers by a Ask them to work out the missing single digit number. 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 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.

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| 10<br>minutes  | 25<br>minutes  | 10<br>minutes  |
|--|--|--|
| Introduction   | Main activity  | Plenary  |
| Whole class teaching   | Group task   | Whole class teaching   |
| Flash the cards with<br>different word questions<br>for multiplication and ask<br>the pupils to read them. | Give each group a flash<br>card and ask them to make<br>up three sums using the<br>multiplication term on that | Ask the pupils to tell you<br>everything they have learned<br>about multiplication this<br>week. |
| Put the cards face down on the floor and ask one pupil   | card and write their sums on the back of the card.   |  |
| to come out, choose a card,<br>and read it out to the class.   | Ask them to pass the card<br>on to the next group who  |  |
| Ask individual pupils to<br>make up a sum using that<br>word for the rest of the class                     | should also write three sums<br>(not the answers) on the<br>back.  |  |
| to answer.   | Continue until each group has had each card.   |  |
|  | The cards should now be back with the first group.   |  |
|  | Ask them to work together<br>to answer all the sums<br>on the card and write the<br>answers on the back.       |  |

### Credits

### Special thanks go to:

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.

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