

New Syllabus

Primary Mathematics

TEACHING GUIDE



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Preface

The New Syllabus Primary Mathematics (NSPM) series is designed and written, based on the latest primary mathematics syllabus. In this series, the concrete to abstract approach has been used to introduce new concepts. The knowledge base is built incrementally as the pupils progress up the levels so as to consolidate the linkages between mathematical concepts.

The Teaching Guides have been developed effectively to provide valuable support to the teachers throughout the series. The key features of the Teaching Guides are mentioned below.

1. Learning Outcomes

A set of learning outcomes is listed at the beginning of each topic for all the chapters. At the end of a particular topic, the teacher should be able to evaluate whether or not the objectives have been communicated to the students in an effective manner. The revision sections present in the workbooks will prove very helpful in assessing students' understanding of key concepts.

2. Instructions

Mathematics is usually associated with difficulty and challenge, mainly as a result of the teaching approach used in the class. Teachers should make sure that they are dynamic in their approach to teaching mathematics. Only if the teachers are enthusiastic and dynamic will they be able to inspire the pupils to put in their best efforts, work hard, and learn something.

Keeping these aspects in mind, step-by-step guidance is provided to the teachers to deliver mathematical concepts in a student-friendly manner. Varied activities have been included in the guides to help generate enthusiasm and enjoyment in the classroom, thereby making mathematics interesting. Where necessary, group work or pair work has been encouraged to enhance learning and understanding of concepts.

An average teaching duration has been suggested to cover each topic in the class, thereby helping the teachers to plan and vary their lessons accordingly. The teachers can adjust this duration as per their requirements. With careful planning, sufficient time can be allocated to the more important concepts of mathematics, while introducing new and interesting ideas will make the class more lively.

Teachers should try to create an atmosphere in the class that is conducive to learning. This can be achieved physically by ensuring that the classroom is colourful, exciting, attractive, and full of interesting things that help pupils to link mathematics with daily life. For example, a display table should be set up in the classroom consisting of different items such as shapes, number cards, 3-D figures, etc. that aid teaching. Similarly, on a psychological level, teachers should ensure that the pupils do not feel fearful or intimidated in class. The atmosphere should be peaceful and relaxed to accomplish effective learning.

3. Answers

The guides contain answers to all the questions and activities in the textbook and workbooks.

4. Additional activities

Extra activities have been included in the guides to reinforce and assess the children's understanding of the concepts learnt. These can be done individually or in groups, depending upon the strength of the class and the resources available.

Unit 1: Numbers to 1000

COUNTING BEYOND 100

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- understand the meaning of ones, tens, and hundreds
- count in ones, tens, and hundreds up to 1000
- count on and back using ones, tens, and hundreds
- write number patterns using ones, tens, and hundreds

Instructions

Let's Learn...

Activity 1 (20 min): Understand the meaning of ones, tens, and hundreds

Things you need: 100 cubes, 10 base ten blocks, 1 base hundred block

1. Scatter 15 cubes on the table. Explain to the pupils that each cube represents one 'one'. Ask the class to count together with you. When you have reached 10 cubes or 10 ones, arrange them into one long train. Explain that these 10 ones make one ten. Write $10 \text{ ones} = 1 \text{ ten}$ or 10 on the board. Replace the 10 cubes with a base ten block.
2. Add more cubes on the table and continue to count together with the class until you reach another 10 cubes. Arrange them in a long train and that this is the second 'ten'. Replace it with a second base ten block and place it side by side with the first base ten block and ask the class 'How many tens do we have now?' Lead the class to see that 2 tens are made up of 20 cubes i.e. $10 + 10 = 20$.
3. Add more cubes and continue counting until you reach 10 tens. Explain to the class that 10 tens make one hundred. Write '10 tens = 1 hundred or 100' on the board. Replace the 10 base ten blocks with a base hundred block. Lead the class to see that 10 tens are made up of 100 cubes i.e. $10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 + 10 = 100$.

Activity 2 (20 min): Count in ones, tens, and hundreds up to 1000

Things you need: Transparent container, 400 cubes, 10 base ten blocks, and 10 base hundred blocks

1. Put 287 cubes into the transparent container without telling the pupils. Ask the pupils to guess the number of cubes.
2. Ask 5 pupils to come forward to count the number of cubes. Advise them to group them in tens and hundreds. For every 10 cubes counted, they can exchange them with one base ten block. For every 10 base ten blocks, they can exchange them with one base

hundred block. Once they have finished, arrange all blocks and cubes neatly in ones, tens, and hundreds on the table for all to see.

3. Count the blocks and cubes together with the class as follows:
 - $100 \rightarrow 200$ (write 200, two hundred)
 - $10 \rightarrow 20 \rightarrow 30 \rightarrow 40 \rightarrow 50 \rightarrow 60 \rightarrow 70 \rightarrow 80$ (write 80, eighty)
 - $1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5 \rightarrow 6 \rightarrow 7$ (write 7, seven)

Then write the number 287, two hundred and eighty seven on the board.

4. Repeat steps 1 to 3 for different numbers with different pupils.

Activity 3 (20 min): Count on and back using ones, tens, and hundreds.

1. Write the number '257' on the board and then write 'one more than' in front of 257. Explain to the class that 'one more than 257' is the next number '258' and emphasize the change of number from 7 to 8.
2. Next, write '10 more than 257'. Explain that '10 more than 257' is 267 and emphasize the change of number from 5 to 6.
3. Next, write '100 more than 257'. Explain that '100 more than 257' is 357 and emphasize the change in number from 2 to 3.
4. Repeat steps 1 to 3 for 'less than'
5. Explain that 'more than' is to count on while 'less than' is to count back.

Activity 4 (20 min): Write number patterns using count on and count back

1. Explain to the class that a number pattern is a set of numbers that follows a certain pattern. The number may get bigger or smaller as it goes. Examples are:
 - 3, 4, 5, 6, 7 is a number pattern whose numbers get bigger by 1 each time
 - 20, 30, 40, 50 is a number pattern whose numbers get bigger by 10 each time
 - 100, 200, 300, 400 is a number pattern whose numbers get bigger by 100 each time
 - 9, 8, 7, 6, 5 is a number pattern whose numbers get smaller by 1 each time
 - 90, 80, 70, 60, 50 is a number pattern whose numbers get smaller by 10 each time
 - 800, 700, 600, 500, 400 is a number pattern whose numbers get smaller by 100 each time
 - 50, 80, 40, 10, 90 is not a number pattern
 - 300, 600, 20, 80, 7 is not a pattern
2. Write on the board the following sets of number patterns:
 - 320, 321, 322, _____, _____
 - 729, 739, 749, _____, _____
 - 256, 356, 456, _____, _____
3. Ask the class which digit in each of the number patterns changes and what is the pattern of change (whether is it more or less by 1, 10, or 100). Lead the class to see that to obtain the next number in the number pattern, you have to either add or subtract 1 or 10 or 100 to the previous number.

Activity 5 (20 min): Class practice

1. Go through the examples on pages 2–8 of the Student's Book.

Let's Try...

Activity 6 (20 min): Individual practice

1. Ask pupils to do the exercises on page 9 of the Student's Book.

Homework

Ask pupils to do Workbook 2A—Worksheet 1.

Answers



page 9

- (a) three hundred and forty-five
(b) (i) 346 (ii) 355 (iii) 445
(c) (i) 344 (ii) 335 (iii) 245
- (a) 262, 263 (b) 840, 850 (c) 625, 325

WORK **S**heet 1

- (a) 123 one hundred and twenty-three
(b) 226 two hundred and twenty-six
(c) 367 three hundred and sixty-seven
- (a) 189 (b) 265 (c) 607 (d) 811
- (a) three hundred and twenty-eight (b) four hundred and six
(c) nine hundred and fifteen (d) seven hundred and forty
- (a) 327, 325, 622, 620 (b) 410, 390, 485, 465 (c) 900, 700, 991, 791
- (a) 315, 316 (b) 650, 660 (c) 700, 900 (d) 360, 370, 380 (e) 722, 723

HUNDREDS, TENS, AND ONES

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- recognize the place values of ones, tens, and hundreds
- write numbers up to 1000
- read and write numbers up to 1000 in numerals and in words
- know how 1000 is obtained

Instructions

Let's Learn...

Activity 1 (20 min): Recognize the place values of ones, tens, and hundreds

Things you need: 100 cubes, 9 base ten blocks and 9 base hundred blocks

1. Draw a place value chart on the board. Scatter some cubes, base ten blocks, and base hundred blocks on a desk and ask three pupils to count the number of ones, tens, and hundreds and guide them to fill up the chart. Do this for three different numbers of cubes and blocks with different pupils.
2. Explain to the class that given any 3-digit number, the first digit on the extreme right is in the ones place, followed by tens place, and hundreds place in the extreme left.

Activity 2 (20 min): Recognize numbers up to 1000

Things you need: 3 sets of number cards 0 to 9

1. Select 3 pupils to stand in a straight line facing the class. From the pupils' view, assign the first pupil on the extreme left the hundreds place, the second pupil the tens place and the third pupil the ones place. Give each of them a set of number cards from 0 to 9. When you call out a 3-digit number, they are to lift up the correct number card and the rest of the class is to say if it is correct or wrong. Do this for 3 other numbers with the same 3 pupils. Repeat the entire activity twice with different pupils.
2. Select another 3 pupils to stand in a straight line facing the class. This time, they are to randomly hold up any number card and the class is to read out loud the number. Do this for 3 other numbers but instead of the whole class reading out the number, you may randomly pick a pupil to do that.

Activity 3 (20 min): Read and write numbers in words up to 1000

1. Write the words twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety on the board and read them aloud together with the class. Cover up the words and get the pupils to write the words on a piece of paper. Reveal the words and check that the pupils spelt them correctly.
2. Write 'two hundred and forty-five' on the board and ask the pupils to read it together. Do this for 5 other numbers.
3. Write 872 on the board and ask one pupil to write the number in words on the board. Do this for 5 other numbers.
4. Explain that in writing numbers in words, there is no need to add 's' to the 'hundred'. The letter 's' is used only when the value of the digit is to be reflected e.g. 'The digit 8 in 872 stands for 800 or 8 hundreds.' Another occasion when the letter 's' is used is when describing the place value of a digit, e.g. 'The digit 6 in 645 is in the hundreds place.'

Activity 4 (5 min): Know how 1000 is obtained

1. Ask the class what comes after 999. Introduce the number 1000 and the word 'one thousand'.
2. Briefly explain that the number 1 is now in the thousands place but tell them that thousands will be covered in Class 3.

Activity 5 (15 min): Class practice

1. Go through with the pupils the examples on pages 10–12 of the Student's Book.

Let's Explore...

Activity 6 (20 min): Interesting exercise to enhance learning

1. Ask pupils to try the exercise on page 12 of the Student's Book.

Let's Try...

Activity 7 (20 min): Individual practice

1. Ask pupils to do the exercises on page 13 of the Student's Book.

Homework

Ask pupils to do Workbook 2A—Worksheet 2.

Answers



page 13

- (a) 125 (b) one hundred and twenty-five
- (a) 500 (b) 70 (c) 8
- 5, 30, 600

WORK **Sheet** 2

- (a) 3, 10, 9 (b) 5, 2, 7
3, 10, 9, 409 5, 2, 7, 527
 $300 + 100 + 9 = 409$ $500 + 20 + 7 = 527$
- (ii) (a) 7, 3, 8 (b) 738 (c) seven hundred and thirty-eight
(iii) (a) 9, 1, 5 (b) 915 (c) nine hundred and fifteen
(iv) (a) 6, 0, 4 (b) 604 (c) six hundred and four
- (a) 800 (b) 90 (c) 0 (d) 6
(e) 780 (f) 539 (g) 605 (h) 357
- (a) 3, 50, 700 (b) 0, 50, 300 (c) 4, 0, 500

COMPARING AND ORDERING NUMBERS

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- compare numbers up to 1000 using 'greater than', 'smaller than', 'fewer than', 'bigger than', 'less than', and 'as many as'

- calculate '1 more than', '10 more than', '100 more than', '1 less than', '10 less than', and '100 less than'
- arrange numbers in ascending order and descending order

Instructions

Let's Learn...

Activity 1 (20 min): Revise the comparison phrases

1. Write on the board all the comparison phrases: more than, less than, greater than, smaller than, bigger than, fewer than, and as many as. Revise with the pupils by asking them to give an example for each of the phrases.
2. Play a simple game of guessing the number using the phrases as clues as follows:
 - Think of a 3-digit number
 - Ask the class to guess the number
 - Give clues such as 'It is less than that' or 'it is more than that'
 - Continue with guesses and clues until someone gives the right answer.

Activity 2 (20 min): Compare numbers up to 1000

1. Explain to the class the following 3 simple steps to identify which number is greater or smaller given two 3-digit numbers:

Step 1: Compare the digits in the hundreds place

- Move to Step 2 if the digits are the same
- If not, the number with the bigger digit is the greater number

Step 2: Compare the digits in the tens place

- Move to Step 3 if the digits are the same
- If not, the number with the bigger digit is the greater number

Step 3: Compare the digits in the ones place

- If the digits are the same, both numbers are identical
- If not, the number with the bigger digit is the greater number

2. Go through with the pupils the examples on pages 14–18 of the Student's Book. Provide more examples of comparing numbers for the class to practise.

Activity 3 (15 min): Calculate '1 more than', '10 more than', '100 more than', '1 less than', '10 less than', and '100 less than'

1. Write the following questions on the board:
 - What number is 1 more than 356?
 - What number is 10 more than 673?
 - What number is 100 more than 217?
2. Give the answers to the above questions and ask the pupils if they notice anything common about the way the 3 answers were obtained? Lead them to see that all 3 questions

require adding the two numbers. Hence, emphasize that when the phrase ‘more than’ is used, an addition is required.

- Repeat steps 1 and 2 for ‘less than’ and lead the pupils to see that when the phrase ‘less than’ is used, they need to do subtraction.

Activity 4 (10 min): Understand the meaning of ascending and descending

- Draw a flight of stairs to explain the concept of ascending and descending. Explain that going up from level 1 to 10, is called ascending and going down from level 10 to 1, is called descending.

Ascending order—smallest number to biggest number

Descending order—biggest number to smallest number

Activity 5 (15 min): Arrange numbers in ascending and descending order

- Play a game as follows:
 - Divide the class into 4 groups.
 - Give each pupil a slip of paper with a 3-digit number written on it.
 - At the start signal, pupils in each group are to arrange themselves in a straight line according to the ascending order of their number.
 - The team that correctly completes the arrangement first wins.

Let’s Explore

Activity 6 (20 min): Class practice

- Ask the pupils to do the exercise on page 19 of the Student’s Book.

Let’s Try...

Activity 7 (20 min): Individual practice

- Ask pupils to do the exercises on page 20 of the Student’s Book.

Homework

Ask pupils to do Workbook 2A—Worksheet 3.

Answers



page 20

- (a) 270 (b) 457 (c) 311 (d) 574
- (a) smaller (b) greater (c) greater
- 231, 509, 666, 678
- 985, 976, 859, 679

WORK *Sheet* 3

- (a) more (b) less (c) less
- (a) 196, 332, 808 (b) 111, 134, 167 (c) 263, 315, 351, 901

ODD AND EVEN NUMBERS

Suggested Duration

1 period (40 min)

Learning Outcomes

Pupils should be able to:

- Identify odd and even numbers

Instructions

Let's Learn . . .

Activity 1 (20 min) : Identify odd and even numbers

1. Refer to page 21 of the Student's Book and go through the odd and even numbers from 0 to 20. Emphasize that all numbers ending with 0, 2, 4, 6 or 8 are even numbers and all numbers ending with 1, 3, 5, 7 or 9 are odd numbers. Also emphasize that even numbers always pair up, where as odd numbers always have an incomplete pair.
2. Ask pupils to write on the board examples of even and odd numbers for 2-digit and 3-digit numbers.

Let's Try . . .

Activity 2 (10 min) : Individual practice

1. Ask the pupils to try the exercises on page 22 of the Student's Book.

Homework

Ask pupils to do Workbook 2A—Worksheet 4 and Practice 1.

Answers



page 22

1. 9, 113, 41, 7 2. (a) 78 (b) 18 (c) 134

WORK 4

Odd numbers: 33, 21, 19, 25, 27, 63

Even Numbers: 42, 88, 74, 36, 50, 92

Practice 1

2. (a) 10 (b) 100 (c) 1000
3. (a) Sarah (b) Ellen
4. Felix
5. (a) 69, 71 (b) 330, 350, 370 (c) 551, 851
6. (a) 503, 501 (b) 190, 170 (c) 500, 300
- 7.

	H	T	O
(a)	1	2	3
(b)	2	0	4

8. (a)

H	T	O
3	3	0

three hundred and thirty




(b)

H	T	O
4	0	9



four hundred and nine

9.



(a)

H	T	O
		

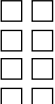
(c)

H	T	O
		

(b)

H	T	O
		

(d)

H	T	O
		

Revision (30 min)

Revise and go through pupils' homework.

Fun with Maths

Encourage the pupils to the exercise on page 23 of the Student's Book.

Unit 2: Addition and Subtraction within 1000

ADDITION WITHIN 1000

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- add numbers up to 1000 without renaming
- add numbers up to 1000 with renaming

Instructions

Let's Learn...

Activity 1 (20 min): Revise on hundreds, tens, and ones.

Things you need: 10 cubes, 10 base ten blocks, and 10 base hundred blocks

1. Display 10 cubes on the table and ask the class to count aloud. Remind the class that 10 ones make 1 ten and replace the 10 cubes with 1 base ten block. Write on the board: 10 ones = 1 ten or 10
2. Add 1 more base ten block and point out to the class that there are now 2 base ten blocks or 2 tens or 20. Add more base ten blocks until you have 10 base ten blocks. Point out to the class that there are now 10 tens which make 1 hundred. Replace the 10 base ten blocks with 1 base hundred block. Write on the board: 10 tens = 1 hundred or 100
3. Add 1 more base hundred block and explain that there are now 2 base hundred blocks or 2 hundreds or 200. Add more base hundred blocks until you have 10 base hundred blocks. Explain to the class that there are now 10 hundreds which make 1 thousand. Write on the board: 10 hundreds = 1 thousand or 1000.

Activity 2 (20 min): Revise the place value of hundreds, tens, and ones

Things you need: 10 cubes, 10 base ten blocks, and 10 base hundred blocks

1. Draw a place value chart on the board. Scatter 4 base hundred blocks, 2 base ten blocks, and 5 cubes to form the number 425. Write the digits 4, 2 and 5 in the chart according to their place values.
2. Explain to the pupils that for any 3-digit number, the first digit on the extreme left is the hundreds place followed by the tens place and ones place in the extreme right.
3. Write several 3-digit numbers and let the pupils practise writing the digits of the number in the place value chart.

Activity 3 (20 min): Add numbers within 1000

1. Ask the pupils to remember the following 3 simple steps in adding numbers within 1000:

Step 1: Add the ones

Step 2: Add the tens

Step 3: Add the hundreds

2. Emphasize that the steps must be in the order from ones to tens and to hundreds.
3. Write on the board the addition sentence $234 + 41 = \underline{\quad}$. Explain that the addition sentence can also be written vertically as follows:

$$\begin{array}{r} 234 \\ + 41 \\ \hline \end{array}$$

4. Indicate the hundreds, tens, and ones places using the letters H, T, and O as follows:

$$\begin{array}{r} \text{H T O} \\ 234 \\ + 41 \\ \hline \end{array}$$

5. Emphasize that the digits must be written neatly such that the digits are at the right place value. Show on the board that the following are incorrect ways of writing $234 + 41$ and explain the reasons:

$$\begin{array}{r} \text{H T O} \\ 234 \\ + 41 \\ \hline \end{array} \quad \left. \begin{array}{l} \text{Incorrect because 1 should be in the ones} \\ \text{place and not in the tens place.} \end{array} \right\}$$

$$\begin{array}{r} \text{H T O} \\ 234 \\ + 41 \\ \hline \end{array} \quad \left. \begin{array}{l} \text{Incorrect because 1 and 4 are not in line} \\ \text{with the top numbers and this may lead to adding} \\ \text{the wrong numbers.} \end{array} \right\}$$

6. Ask the pupils to turn to page 25 of the Student's Book. Go through with the pupils, example 1 and explain the three steps slowly as you work through them on the board. Note that this example is the simplest as there is no need to do any **carry over**. Let the pupils try example 2 on page 26. Provide a few more similar examples (no carry over is needed) for pupils to practise.

Activity 4 (20 min): Add numbers with 1000 with carry over of 1 ten

1. Ask the pupils to turn to page 27 of the Student's Book. Go through with the pupils example 3 and explain the 3 steps slowly. Note that for this example, Step 1 requires a

carry over of 1 ten from the ones place to the tens place. Explain to the pupils the 3 steps giving extra attention to the carry over of 1 ten in Step 1 as follows.

Step 1: Add the ones with carry over of 1 ten

- $5 \text{ ones} + 7 \text{ ones} = 12 \text{ ones}$
- Since 12 ones is more than 10 ones, split the 12 ones into 1 ten and 2 ones.
- Carry over the 1 ten from the ones place to the tens place.
- Write a small 1 on the left corner of the number 4 to denote the carry over of 1 ten.

Step 2: Add the tens with no carry over

- $1 \text{ ten (carry over)} + 4 \text{ tens} + 2 \text{ tens} = 7 \text{ tens}$
- Since 7 tens is less than 10 tens, there is no need for a carry over to the hundreds place.

Step 3: Add the hundreds with no carry over

- $2 \text{ hundreds} + 3 \text{ hundreds} = 5 \text{ hundreds}$

Answer: 572

Activity 5 (20 min): Add numbers within 1000 with carry over of 1 ten and 1 hundred

1. Let the pupils try out example 4 on page 28 of the Student's Book. Provide a few more similar examples (with carrying over of 1 tens to the tens place) for pupils to practise.
2. Ask the pupils to turn to page 29 of the Student's Book. Go through with the pupils example 5 and explain the 3 steps slowly as you work through on the board. Note that for this example, Step 1 requires a carry over of 1 ten from the ones place to the tens place and Step 2 requires a carry over of 1 hundred from the tens place to the hundreds place. Explain the 3 steps giving extra attention to the carry over of 1 ten in Step 1 and carry over of 1 hundred in Step 2.
3. Let the pupils try examples 6 and 7 on pages 30 and 31 of the Student's Book. Provide a few more similar examples (with carry over to both the tens and hundreds place) for pupils to practise.

Let's try

Activity 6 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 32 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheets 5 and 6.

Answers



page 32

1. (a) 178 (b) 389 (c) 672 (d) 586

(e) 921 (f) 922 (g) 675 (h) 530

WORK *Sheet* 5

- (a) 489 (b) 195 (c) 259
- (a) 345 (b) 377
- (a) 520 (b) 741 (c) 278 (d) 895 (e) 967
(f) 988 (g) 688 (h) 999 (i) 828

WORK *Sheet* 6

- (a) 590 (b) 460
- (a) 619 (b) 936
- (a) 410 (b) 510
- (A) 310 (T) 381 (L) 643 (S) 515 (G) 610
(U) 921 (D) 810 (R) 210 (O) 821
- (a) 977 (b) 493 (c) 858 (d) 564 (e) 641 (f) 445
- (a) 281 (b) 406

SUBTRACTION WITHIN 1000

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- subtract numbers up to 1000 without renaming
- subtract numbers up to 1000 with renaming

Instructions

Let's Learn...

Activity 1 (40 min): Subtract numbers within 1000

- Explain to the pupils the following 3 simple steps in subtracting numbers within 1000:
Step 1: Subtract the ones
Step 2: Subtract the tens
Step 3: Subtract the hundreds
- Emphasize that the steps must be in the order from ones to tens and to hundreds.
- Write on the board the subtraction sentence $264 - 52 = \underline{\quad}$. Explain to the pupils that just like addition sentence, subtraction sentence can also be written vertically as follows:

$$\begin{array}{r} 264 \\ - 52 \\ \hline \hline \end{array}$$

4. Indicate the hundreds, tens, and ones places using the letters H, T, and O as follows:

$$\begin{array}{r} \text{H T O} \\ 264 \\ + 52 \\ \hline \hline \end{array}$$

5. Emphasize again to the pupils that the digits must be written neatly such that the digits are at the right place value. Show on the board that the following are incorrect ways of writing $264 - 52$ and explain the reasons:

$$\begin{array}{r} \text{H T O} \\ 264 \\ - 52 \\ \hline \hline \end{array} \quad \left. \vphantom{\begin{array}{r} \text{H T O} \\ 264 \\ - 52 \\ \hline \hline \end{array}} \right\} \begin{array}{l} \text{Incorrect because 2 should be in the ones} \\ \text{place and not in the tens place.} \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 264 \\ - 52 \\ \hline \hline \end{array} \quad \left. \vphantom{\begin{array}{r} \text{H T O} \\ 264 \\ - 52 \\ \hline \hline \end{array}} \right\} \begin{array}{l} \text{Incorrect because 2 and 5 are not in line} \\ \text{with the top numbers and this may lead to adding} \\ \text{the wrong numbers.} \end{array}$$

$$\begin{array}{r} \text{H T O} \\ 52 \\ - 264 \\ \hline \hline \end{array} \quad \left. \vphantom{\begin{array}{r} \text{H T O} \\ 52 \\ - 264 \\ \hline \hline \end{array}} \right\} \begin{array}{l} \text{Incorrect because for subtraction, the order in} \\ \text{which the numbers are written is important.} \\ \text{Explain to the pupils to always write the bigger number} \\ \text{above the smaller number.} \end{array}$$

6. Ask the pupils to turn to page 33 of the Student's Book. Go through with the pupils example 1 and explain the 3 steps slowly as you work through them on the board. Note that this example is the simplest as there is no need to do any **borrow and regroup**. Let the pupils try example 2 on page 34 of the Student's Book. Provide a few more similar examples (no borrow and regroup is needed) for pupils to practise.

Activity 2 (20 min): Subtract numbers within 1000 with borrow and regroup in ones

1. Ask the pupils to turn to page 35 of the Student's Book. Go through with the pupils example 3 and explain the 3 steps slowly. Note that for this example, Step 1 involves a **borrow and regroup** in ones. Explain to the pupils the 3 steps giving extra attention to the borrow and regroup in ones in Step 1 as follows:

Step 1: Subtract the ones with borrow and regroup in ones

- Since it is not possible to do a 1 one – 4 ones, 1 ten needs to be borrowed from the 7 tens. Show this by striking the 7 tens and replacing it with 6.

- Regroup the 1 ten into 10 ones and add them to the 1 one: $10 \text{ ones} + 1 \text{ one} = 11 \text{ ones}$. Show this by replacing the 1 one with 11 ones.
- Since 11 ones is more than 4 ones, a subtraction can now take place: $11 \text{ ones} - 4 \text{ ones} = \underline{7 \text{ ones}}$.
- Emphasize to the class that when a smaller digit is to be subtracted from a bigger digit, a borrow is needed from the next higher digit.

Step 2: Subtract the tens

- 6 tens (after the borrow) – 5 tens = 1 ten

Step 3: Subtract the hundreds

- 3 hundreds – 2 hundreds = 1 hundred

Answer: 117

2. Let the pupils try example 4 on page 36 of the Student’s Book. Provide a few more similar examples involving borrow and regroup for pupils to practise.

Activity 3 (20 min): Subtract numbers within 1000 with borrow and regroup in ones and in tens

1. Ask the pupils to turn to page 37 of the Student’s Book. Go through with the pupils example 5. Note that for this example, Step 1 involves a borrow and regroup in ones and Step 2 involves a borrow and regroup in tens. Explain the 3 steps giving extra attention to the borrow and regroup in Step 1 and Step 2 as follows:

Step 1: Subtract the ones with borrow and regroup in ones

- Since it is not possible to do a 1 one – 5 ones, 1 ten needs to be borrowed from the 3 tens. Show this by striking the 3 tens and replacing it with 2 tens.
- Regroup the 1 ten into 10 ones and add them to the 1 one: $10 \text{ ones} + 1 \text{ one} = 11 \text{ ones}$. Show this by replacing the 1 one with 11 ones.
- Since 11 ones is more than 5 ones, a subtraction can now take place: $11 \text{ ones} - 5 \text{ ones} = \underline{6 \text{ ones}}$

Step 2: Subtract the tens with borrow and regroup in tens

- Since it is not possible to do a 2 tens – 9 tens, 1 hundred needs to be borrowed from the 3 hundreds. Show this by striking the 3 hundreds and replacing it with 2 hundreds.
- Regroup the 1 hundred into 10 tens and add them to the 2 tens: $10 \text{ tens} + 2 \text{ tens} = 12 \text{ tens}$. Show this by replacing the 2 tens with 12 tens.
- Since 12 tens is more than 9 tens, a subtraction can now take place: $12 \text{ tens} - 9 \text{ tens} = \underline{3 \text{ tens}}$

Step 3: Subtract the hundreds

- 2 hundreds (after the borrow) – 1 hundred = 1 hundred

Answer: 136

- Go through with the pupils example 6 on page 39 of the Student's Book and explain the 3 steps slowly as you work through them. Note that this example also involves borrow and regroup in ones and tens but in a slightly different manner.
- Let the pupils try example 7 on page 40 of the Student's Book.

Let's Explore

Activity 4 (20 min): Subtraction on a Place Value Chart

Things you need: place value chart, dice, pins, and number discs for 1, 10, and 100

- Ask the class to turn to the challenging activity on page 41 of the Student's Book. Ask two pupils to come forward to perform subtraction on the place value chart using the number discs. One pupil will roll the dice to obtain two 3-digit numbers. The other pupil will show the subtraction on the place value chart. Practise with 3 other pairs of pupils.

Let's Try...

Activity 5 (20 min): Individual practice

- Ask the pupils to try the exercises on page 42 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheets 7 and 8.

Answers



page 42

- (a) 741 (b) 430 (c) 308 (d) 251
(e) 369 (f) 328 (g) 357 (h) 467

WORK **Sheet** 7

- (a) 132 (b) 132
- (A) 334 (T) 278 (P) 555 (S) 621 (E) 112
(L) 410 (O) 102 (R) 160 (M) 100 (D) 203

The animal is a leopard.

- (a) 122 (b) 110

WORK **Sheet** 8

- (a) 126 (b) 239
- (a) 285 (b) 142
- (c) 278 (b) 88
- (a) 589 (b) 179 (c) 28 (d) 79
(e) 189 (f) 178 (g) 324 (h) 106

WORD PROBLEMS

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- solve up to 2-step word problems involving addition and subtraction

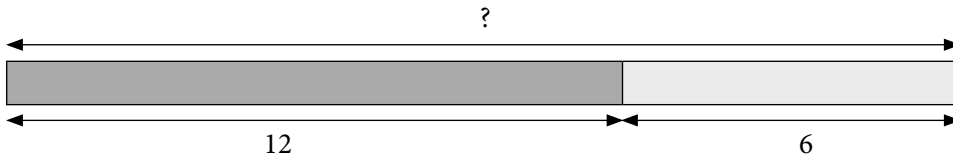
Instructions

Let's Learn...

Activity 1 (20 min): Represent addition word problems using models

Things you need: blue cubes and red cubes

1. Scatter 12 red cubes on the table. Ask a pupil to count them. Next, scatter another 6 blue cubes and ask another pupil to count them. Ask the class 'How many cubes are there altogether?' Lead the class to see that an addition is required.
2. Ask the class to think of a picture to represent the blue cubes, red cubes, and all the cubes. Introduce the concept of model by drawing 2 bars of different lengths and joining them together to form one long bar. The longer bar represents the 12 red cubes while the shorter bar represents the 6 blue cubes. Show the numbers 12 and 6 on each of the bars by drawing double arrows along the length of each bar. Next, draw a long double arrow stretching from one end to the other and label it with a '?' which is to represent the total number of cubes.



$$12 + 6 = 18$$

There are 18 cubes altogether.

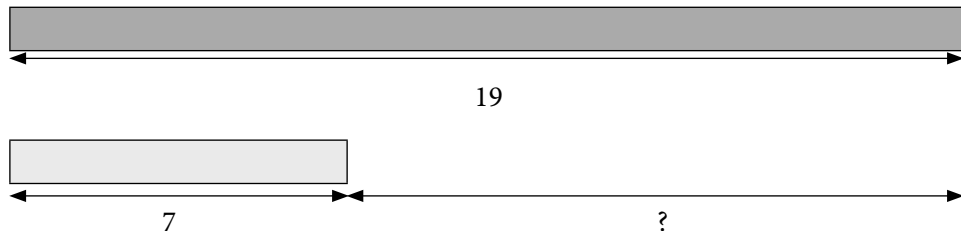
3. Point out to the pupils that the picture of the bars you have just drawn is an addition model.

Activity 2 (20 min): Represent subtraction word problems using models

Things you need: red cubes and blue cubes

1. Give Pupil A 19 red cubes and ask him to count them. Give Pupil B 7 blue cubes and ask him to count them. Do not mix the red and blue cubes. Ask the class 'How many more cubes does Pupil A have than Pupil B?' Lead the class to see that a subtraction is required.
2. Ask the class to think of a picture to represent Pupil A's cubes, Pupil B's cubes, and the number of cubes Pupil A has more than Pupil B. Explain that you are going to draw a subtraction model. Draw 2 bars of different lengths and place them separately but in line.

The longer bar represents Pupil A's cubes while the shorter bar represents Pupil B's cubes. Show the numbers 19 and 7 on each of the bars by drawing double arrows along the length of the bars. Next, draw a third double arrow from the end of the shorter bar stretching to the end of the longer bar and label it with a '?' which is to represent the number of cubes Pupil A has more than Pupil B.



$$19 - 7 = 12$$

Pupil A has 12 cubes more than Pupil B.

3. Emphasize that the picture of the bars you have just drawn is subtraction model.

Activity 3 (15 min): Solve addition word problem using models

Things you need: strips of coloured paper

1. Give each pupil 2 strips of different coloured papers. Ask the class to read aloud together the first addition word problem on page 43 of the Student's Book. Lead the class to analyse the word problem by asking the following questions:
How many red balls does John have?
How many blue balls does John have?
How many balls does John have altogether?
2. Remind the pupils of the clue word 'altogether' which indicates the need to do an addition.
3. Ask the pupils to construct a model by pasting the colour strips on a paper as bars. Remind the pupils to draw the double arrows and write the numbers and the '?'.
4. Go around to check the pupils' work. Ensure that pupils use the longer strip for the bigger number and the shorter strip for the smaller number. Also ensure that the double arrows, numbers 14 and 8 and the '?' are at the right place.

Activity 4 (20 min): Solve subtraction word problem using models

Things you need: strips of coloured paper

1. Give each pupil 2 strips of different coloured papers. Ask the class to read aloud together the subtraction word problem 2 on page 43 of the Student's Book. Lead the class to analyse the word problem by asking the following questions:
How many books does Mary have?
How many books does Peter have?
How many more books does Mary have than Peter?
2. Remind the pupils of the clue word 'more than' which indicates the need to do a subtraction.

3. Ask the pupils to construct a model by pasting colour strips on a paper as bars. Remind the pupils to draw the double arrows and write the numbers, 18 and 12 and the ‘?’.
4. Go around to check the pupils’ work. Ensure that pupils use the longer strip for the bigger number and the shorter strip for the smaller number. Also ensure that the double arrows, numbers 18 and 7 and the ‘?’ are at the right place.

Activity 5 (20 min): Class practice

1. Go through with the class the examples on pages 44–46 of the Student’s Book (questions 3, 4, and 5). Ask the pupils to do them on the board. Provide more word problems for the pupils to practise.
2. For every example, revise and work through with the pupils the addition and subtraction calculations using the carrying over method for addition and the borrow and regroup method for subtraction.

Activity 6 (20 min): Solve word problems involving 2 steps (addition followed by subtraction)

1. Ask the class to read aloud together the word problem no. 6 on page 47 of the Student’s Book. Explain that this word problem involves 2 steps. Step 1 involves an addition while Step 2 involves a subtraction. Each step requires the use of a model. Point out to them that they need to use the answer obtained from Step 1 to find the final answer in Step 2. Explain as follows:

Analyse the word problem

Lead the class to analyse the word problem by asking the following questions:

- | | | |
|---|---|---------------------------|
| How many cream puffs did the principal order? | } | Given in the word problem |
| How many cream puffs did the teacher order? | | |
| How many cream puffs did they order altogether? | } | To be calculated |
| How many cream puffs did the children eat? | | |
| How many cream puffs were left? | } | To be calculated |
| | | |

Step 1 (Addition): Find the number of cream puffs ordered altogether

- Draw an addition model on the board
- Calculate: $525 + 175 = 700$ and show the addition calculations
- Write: 700 cream puffs were ordered altogether

Step 2 (Subtraction): Find the number of cream puffs left

- Using the answer found from Step 1, draw a subtraction model
- Calculate: $700 - 254 = 446$ and show the subtraction calculations
- Write: 446 cream puffs were left

2. Provide 4 similar examples for pupils to practise. Ask 2 pupils to work on each example on the board. One pupil takes charge of drawing the model while the other does the calculations.

Activity 7 (20 min): Solve word problems involving 2 steps (subtraction followed by addition)

1. Ask the class to read aloud the word problem no. 7 on page 45 of the Student's Book. Explain that this word problem involves 2 steps. Step 1 involves a subtraction while Step 2 involves an addition. Each step requires the use of a model. Point out to them that they need to use the answer obtained from Step 1 to find the final answer in Step 2. Explain as follows:

Analyse the word problem

Lead the class to analyse and understand the word problem by asking the following questions:

- | | | |
|---|---|---------------------------|
| How many beads did Rida have? | } | Given in the word problem |
| How many blue beads did Rida have? | | |
| How many yellow beads did Rida have? | } | To be calculated |
| How many more yellow beads did Rida buy? | | |
| How many yellow beads did Rida have in the end? | } | To be calculated |

Step 1 (Subtraction): Find the number of yellow beads Rida had at first

- Draw a subtraction model on the board
- Calculate: $458 - 112 = 346$ and show the subtraction calculations
- Write: She had 346 yellow beads

Step 2 (Addition): Find the number of beads Rida had in the end

- Using the answer (346 yellow beads) found from Step 1, draw a subtraction model.
- Calculate: $346 + 24 = 570$ and show the addition calculations
- Write: She had 346 yellow beads in the end.

2. Provide 4 similar examples for the pupils to practise. Ask two pupils to work on each example on the board. One pupil takes charge of drawing the model while the other does the calculations.

Let's Try...

Activity 8 (20 min): Individual practice

1. Ask the pupils to work out the word problems on page 49 of the Student's Book. Ask some pupils to show their workings on the board.

Homework

Ask the pupils to do Workbook 2A—Worksheet 9.

Answers



page 49

1. (a) 141 (b) 159
2. 541
3. 152
4. 118

WORK *Sheet* 9

1. $85 + 33 = 118, 118$
2. $85 - 19 = 66, 66$
3. (a) $47 + 45 = 92, 92$ (b) $92, 92 - 64 = 28, 28$
4. (a) $90 - 12 = 78, 78$ (b) $78, 78 + 57 = 135, 135$
5. (a) 74 (b) 341
6. 385, 165
7. 21

ADDING AND SUBTRACTING MENTALLY

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- use mental calculation strategy to add and subtract two numbers

Instructions

Let's Learn...

Activity 1 (10 min): Mentally add ones to a 2-digit or 3-digit number

1. Refer the class to page 50 of the Student's Book. Ask the class if anyone can add the number $369 + 8$ mentally without drawing a model and without doing the addition calculations. Write $369 + 8$ on the board.
2. Explain that they can form mental pictures of the calculations using 3 different methods as follows:

Method 1

- Think of the number 369 and ask yourself, 'What number added to 369 will make 370?' (It should be 369 and 1 make 370.)

- Split the smaller number 8 into 1 and 7 and form the mental picture as follows:

$$\begin{array}{c}
 369 + 8 \\
 \swarrow \quad \searrow \\
 1 \quad 7
 \end{array}$$

- Add 369 and 1 to give 370
- Next, add 370 and 7 to give 377
- So, $369 + 8 = 377$

Method 2

- Think of the number 8 and ask yourself, 'What number added to 8 will make 10?' (It should be 8 and 2 make 10.)
- Split the bigger number 369 into 367 and 2 and form a mental picture as follows:

$$\begin{array}{c}
 369 + 8 \\
 \swarrow \quad \searrow \\
 367 \quad 2
 \end{array}$$

- Add 8 and 2 to give 10
- Next, add 367 and 10 to give 377
- So, $369 + 8 = 377$

Method 3

- Think of the number 369 and count forward mentally 8 times like this:

$$\begin{array}{ccccccccccc}
 369 & 370 & 371 & 372 & 373 & 374 & 375 & 376 & 377 \\
 \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\
 +1 & +1 & +1 & +1 & +1 & +1 & +1 & +1 & +1
 \end{array}$$

- Go through with the pupils the example 1(a), 1(b), and 1(c) on page 51 of the Student's Book. Provide more examples for the pupils to try using all 3 methods.
- Ask the pupils which method they prefer. Explain to the class that methods 1 and 2 are known as 'make ten' methods and is suitable for all numbers, whereas method 3 is only suitable if one of the numbers is less than 10. Advise the pupils to adopt the 'make ten' method.

Activity 2 (15 min): Mentally add tens to a 2-digit or 3-digit number

- Write $648 + 30$ on the board. Ask the pupils to form mental pictures as follows:

$$\begin{array}{r}
 648 \quad + \quad 30 \quad = \quad 678 \\
 \downarrow \qquad \qquad \qquad \downarrow \\
 600 \qquad \qquad \qquad 600 \\
 40 \quad \xrightarrow{+ 3 \text{ tens}} \quad 70 \\
 8 \qquad \qquad \qquad 8
 \end{array}$$

- Go through with the pupils example 1(d) on page 51 of the Student's Book. Provide more examples for the pupils to practise.
- Emphasize to the pupils that in adding tens, only the digit in the tens place changes.

Activity 3 (15 min): Mentally add hundreds to a 2-digit or 3 digit number

1. Write $326 + 400 = 726$ on the board. Ask the pupils to form mental pictures as follows:

$$\begin{array}{r} 326 + 400 = 726 \\ \downarrow \qquad \qquad \downarrow \\ 300 \xrightarrow{+ 4 \text{ hundreds}} 700 \\ 20 \qquad \qquad 20 \\ 6 \qquad \qquad 6 \end{array}$$

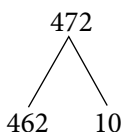
2. Go through with the pupils example 1(e) on page 51 of the Student's Book. Provide more examples for the pupils to practise.
3. Emphasize that in adding hundreds, only the digit in the hundreds place changes.

Activity 4 (10 min): Mentally subtract ones from a 2-digit or 3-digit number

1. Refer the pupils to page 52 of the Student's Book. Go through with the pupils the following 2 methods used to do mental subtraction: $472 - 6$.

Method 1

- Since 2 is not enough to subtract 6, have need to borrow a ten from the 7 tens. Split the number 472 into 462 and 10 and form a mental picture as follows:



- Subtract 6 from 10: $10 - 6 = 4$.
- Add 462 and 4: $462 + 4 = 466$
- So, $472 - 6 = 466$

Method 2

- Think of the number 472 and count backwards mentally 6 times like this:

$$\begin{array}{cccccccc} 466 & 467 & 468 & 469 & 470 & 471 & 472 \\ \curvearrowleft & \curvearrowleft & \curvearrowleft & \curvearrowleft & \curvearrowleft & \curvearrowleft & \\ -1 & -1 & -1 & -1 & -1 & -1 & \end{array}$$

2. Go through with the pupils example 1(a), 1(b), and 1(c) on pages 52 and 53 of the Student's Book. Give some more examples for the pupils to try using both methods.
3. Ask the pupils which method they prefer. Explain to the class that method 1 is suitable for all numbers whereas method 2 is only suitable if one of the numbers is less than 10. Advise the pupils to adopt method 1.

Activity 5 (15 min): Mentally tens subtract from a 2-digit or 3-digit number

1. Write $815 - 30$ on the board. Ask the pupils to form mental pictures as follows:

$$\begin{array}{r}
 845 \quad - \quad 30 \quad = \quad 815 \\
 \downarrow \qquad \qquad \qquad \downarrow \\
 800 \qquad \qquad \qquad 800 \\
 40 \xrightarrow{- 3 \text{ tens}} 10 \\
 5 \qquad \qquad \qquad 5
 \end{array}$$

- Go through with the pupils example 1(d) on page 53 of the Student's Book. Provide additional examples for pupils to practise.
- Emphasize that in subtracting tens, only the digit in the tens place changes.

Activity 6 (15 min): Mentally subtract hundreds from a 2-digit or 3-digit number

- Write $728 - 400$ on the board. Ask the pupils to form mental pictures as follows:

$$\begin{array}{r}
 728 \quad - \quad 400 \quad = \quad 328 \\
 \downarrow \qquad \qquad \qquad \downarrow \\
 700 \xrightarrow{- 4 \text{ hundreds}} 300 \\
 20 \qquad \qquad \qquad 20 \\
 8 \qquad \qquad \qquad 8
 \end{array}$$

- Go through with the pupils example 1(e) on page 53 of the Student's Book. Provide additional examples for pupils to practise.
- Emphasize that in subtracting hundreds, only the digit in the hundreds place changes.

Let's Try...

Activity 7 (10 min): Individual practice

- Ask the pupils to try the exercises on page 53 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheet 10 and Practice 2.

Answers



page 53

- (a) 249, 303, 843 (b) 642, 615, 345 (c) 132, 177, 627 (d) 987, 924, 294

WORK *Sheet* 10

- (a) 979 (b) 308 (c) 862 (d) 226 (e) 385 (f) 571 (g) 661 (h) 199
 (i) 730 (j) 230 (k) 432 (l) 613 (m) 850 (n) 817 (o) 825 (p) 655
- (a) 521 (b) 231 (c) 318 (d) 597 (e) 759 (f) 386 (g) 832 (h) 329
 (i) 240 (j) 780 (k) 575 (l) 637 (m) 481 (n) 303 (o) 265 (p) 405

3. 634 531
115 115
634 634
425 425
531 115

Practice 2

1. 198 100
741 767
777 977
2. 453 874 549
227 227 277
28 227 100
417 227 454

The hidden letter is T.

3. (a) 760 (b) 434 (c) 761 (d) 234 (e) 360 (f) 243
4. 195, 219, 190, 416, 306, 165
5. (a) 420 (b) 704 (c) 502
6. (a) $342 + 157 = 499$ (b) $648 - 238 = 410$
7. 747
8. 903
9. 610

Fun With Maths

Activity 8 (10 min): Challenging activity

1. Group the class into 2–3 pupils per group. Play the game on page 54 of the Student's Book.

Revision (20 min)

Revise and go through pupils' homework.

Unit 3: Multiplying by 2 and 3

MULTIPLYING BY 2

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- build up the multiplication table of 2 and commit to memory

Instructions

Let's Learn...

Activity 1 (20 min): Grasp the concept of multiplication as repeated addition

Things you need: 6 clear containers and 12 ping pong balls

1. Put 3 clear containers on the table and ask a pupil to throw 2 ping pong balls into each container. Ask the class 'How many ping pong balls are there altogether?' Explain the concept of multiplication as repeated addition as follows:
 - Write on the board: $2 + 2 + 2 = 6$
 - Explain to the class: 'There are 6 ping pong balls altogether.'
 - Lead the class to see that the number 2 is added 3 times to arrive at 6.
 - Write on the board the multiplication sentence: $3 \times 2 = 6$
 - Read the multiplication sentence as '3 multiplied by 2 equals 6' or '3 groups of 2 is 6' and encourage the class to repeat both multiplication statements.
 - Point out to the pupils that multiplying a number is known as multiplication.
2. Repeat the above using different number of clear containers and ping pong balls to show the following:

$$2 + 2 + 2 + 2 + 2 = 8 \quad \rightarrow \quad 4 \times 2 = 8 \quad (4 \text{ groups of } 2)$$

$$2 + 2 + 2 + 2 + 2 + 2 = 10 \quad \rightarrow \quad 5 \times 2 = 10 \quad (5 \text{ groups of } 2)$$

$$2 + 2 + 2 + 2 + 2 + 2 + 2 = 12 \quad \rightarrow \quad 6 \times 2 = 12 \quad (6 \text{ groups of } 2)$$

Activity 2 (20 min): Grasp the concept of multiplication as grouping of items

Things you need: picture of ostriches on page 55 of the Student's Book and more pictures of animals or items in groups

1. Refer to the picture of the ostriches on page 55 of the Student's Book. Explain the concept of multiplication as grouping of items as follows:
 - Ask the class: 'How many ostriches can you see in the picture?'
 - Lead the class to see that there are 2 groups of ostriches with 3 ostriches in each group.

- Write on the board the multiplication sentence $2 \times 3 = 6$
 - Read the multiplication sentence as '2 multiplied by 3 equals 6' or '2 groups of 3 is 6' and ask the class to repeat both multiplication statements.
 - Explain to the class that the number 2 refers to the number of groups and the number 3 refers to the number of ostriches in each group.
- Using the same picture of the ostriches, lead the class to find the total number of legs the ostriches have altogether as follows:
 - Ask the class: 'How many legs do the ostriches have altogether?'
 - Lead the class to see that there are 6 ostriches with 2 legs each.
 - Write on the board the multiplication sentence: $6 \times 2 = 12$
 - Read the multiplication sentence as '6 multiplied by 2 equals 12' and ask the class to repeat the multiplication statement.
 - Explain to the class that the number 6 refers to the number of groups of legs and the number 2 refers to the number of legs in each group. Read it as '6 groups of 2'.
 - Explain that the multiplication sentence is to be interpreted as follows:
 - The first number refers to the number of groups
 - The second number refers to the number of items in each group.
 - Provide picture examples for pupils to practise writing multiplication sentences involving the number 2.
 - Point out to the pupils that in multiplication, if the order of the numbers is reversed, the answer is still the same. For example:

5 groups of 2 will give the same answer as 2 groups of 5

Or

5×2 will give the same answer as 2×5

However, point out to the pupils that it is important to always put the number of groups as the first number and the number of items in each group as the second number. Even though '5 groups of 2' will give the same answer as '2 groups of 5', their meanings may be different when used in word problems.

Activity 3 (30 min): Multiply by 2

Things you need: picture of 20 monkeys on pages 56–57 of the Student's Book and a chart of multiplication table of 2

- Refer to the picture of the monkeys on pages 56–57 of the Student's Book. Circle each pair of monkeys and lead the class to count the monkeys in twos: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.
- Show the class the concept of multiplication as repeated addition of twos as follows:

$$\begin{array}{cccccccccccc}
 2 & 4 & 6 & 8 & 10 & 12 & 14 & 16 & 18 & 20 \\
 \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\
 +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2 & +2
 \end{array}$$

3. With the picture of the 20 monkeys grouped in pairs still displayed, show the class the concept of multiplication as grouping of items as follows:
 - Circle 1 pair of monkeys, say '1 group of 2' and write: $1 \times 2 = 2$
 - Circle 2 pairs of monkeys, say '2 groups of 2' and write: $2 \times 2 = 4$
 - Circle 3 pairs of monkeys, say '3 groups of 2' and write: $3 \times 2 = 6$
 - Circle 4 pairs of monkeys, say '4 groups of 2' and write: $4 \times 2 = 8$
 - Circle 5 pairs of monkeys, say '5 groups of 2' and write: $5 \times 2 = 10$
 - Circle 6 pairs of monkeys, say '6 groups of 2' and write: $6 \times 2 = 12$
 - Circle 7 pairs of monkeys, say '7 groups of 2' and write: $7 \times 2 = 14$
 - Circle 8 pairs of monkeys, say '8 groups of 2' and write: $8 \times 2 = 16$
 - Circle 9 pairs of monkeys, say '9 groups of 2' and write: $9 \times 2 = 18$
 - Circle 10 pairs of monkeys, say '10 groups of 2' and write: $10 \times 2 = 20$
4. Introduce to the class, the multiplication table of 2. Pin up the multiplication table of 2 chart.

Activity 4 (10 min): Class practice

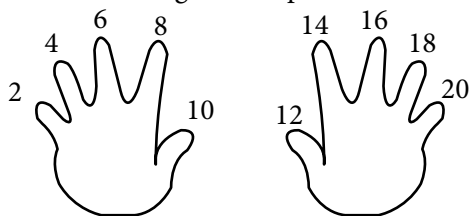
1. Go through with the pupils the examples on pages 58–60 of the Student's Book. Encourage a few pupils to share their answers with the class.

Activity 5 (20 min): Know by heart the Multiplication Table of 2

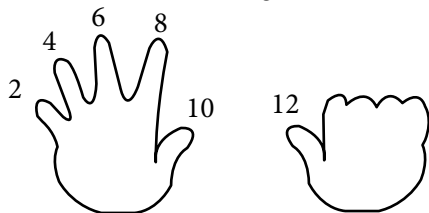
1. Ask the pupils to work in pairs to write down the multiplication table of 2 from $1 \times 2 = 2$ to $10 \times 2 = 20$ and then backwards from $10 \times 2 = 20$ to $1 \times 2 = 2$.
2. Encourage the pupils to memorize the multiplication table of 2. To help pupils recall the multiplication table, the following methods can be used:

Count with fingers

- Ask the pupils to recite and memorize the sequence: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
- Use the 10 fingers to represent each of the 10 numbers



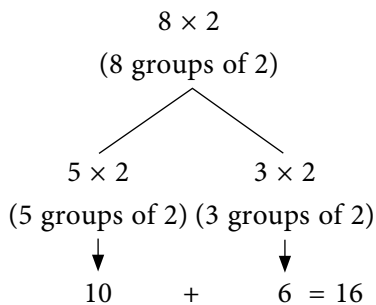
- To find 6×2 , ask the pupils to raise 6 fingers and then recite the sequence starting from 2 at the first finger and ending with 12 at the 6th finger.



- Ask the pupils to practise with their partners, each taking turns to call out a multiplication fact and using their fingers to find the answer.
3. Write some multiplication questions involving the multiplication of 2 on the board and ask pupils to write the answers. Meanwhile the rest of the class should check if the answers are correct.

Break into 2 steps

- To find 8×2 , first break the 8 groups into 5 and 3. Next, find 5×2 and 3×2 and then add them as follows:



Let's Try...

Activity 6 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 61 of the Student's Book.

Homework

1. Ask the pupils to do Workbook 2A—Worksheet 11.
 2. Ask the pupils to memorize the multiplication table of 2.

Answers










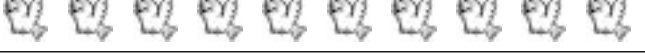


page 61

1. $6 \times 2 = 12$
 2. $7 \times 2 = 14$
 3. (a) 20, 20 (b) 8, 8

WORK **Sheet** 11

1. (a) 4 twos = 4×2 (b) 6 twos = 6×2
 = 8 = 12
2. (a) 14, 14 (b) 10, 10 (c) 8, 8
3. (a) $2 \times 2 = 4$ (b) $10 \times 2 = 20$ (c) $5 \times 2 = 10$ (d) $6 \times 2 = 12$

Numbers of Birds	Number of Wings	Multiplication table of 2
	2	$1 \times 2 = 2$
	4	$2 \times 2 = 4$
	6	$3 \times 2 = 6$
	8	$4 \times 2 = 8$
	10	$5 \times 2 = 10$
	12	$6 \times 2 = 12$
	14	$7 \times 2 = 14$
	16	$8 \times 2 = 16$
	18	$9 \times 2 = 18$
	20	$10 \times 2 = 20$

MULTIPLYING BY 3

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- build up the multiplication table of 3 and commit to memory.

Instructions

Let's Learn...

Activity 1 (15 min): Recall the Multiplication Table of 2

Things you need: multiplication table of 2 chart and 20 sets of cards numbered 1 to 10

1. Pin up the multiplication table of 2 chart and revise with the class.
2. Cover up the chart and play a game to test the pupils' ability to recall the multiplication table of 2 as follows:
 - Pair up the pupils. Give each pair a deck of cards numbered 1 to 10. Shuffle the cards.

- One pupil will draw a card to show a number and the other pupil will have to multiply the number by 2. Every correct answer will be awarded 2 points.
 - The pupils take turns to draw the cards and to multiply the number by 2.
 - Play 10 rounds of the game and acknowledge the pupil with the highest score.
3. Write on the board the following multiplication sums and ask individual pupil to fill in the blanks:
- $2 \times \underline{\quad} = 6$ • $2 \times \underline{\quad} = 10$ • $\underline{\quad} \times 2 = 8$ • $\underline{\quad} \times 2 = 18$
 - $2 \times \underline{\quad} = 14$ • $2 \times \underline{\quad} = 4$ • $\underline{\quad} \times 2 = 12$ • $\underline{\quad} \times 2 = 20$
 - $2 \times \underline{\quad} = 2$ • $2 \times \underline{\quad} = 16$

Activity 2 (25 min): Multiply by 3

Things you need: picture of 30 monkeys as shown on pages 62–63 of the Student's Book and a chart of the multiplication table of 3

1. Refer to the picture of the monkeys on pages 62–63 of the Student's Book. Circle every 3 monkeys and lead the class to count the monkeys in threes: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
2. Show the class the concept of multiplication as repeated addition of threes as follows:

$$\begin{array}{cccccccccccc}
 3 & 6 & 9 & 12 & 15 & 18 & 21 & 24 & 27 & 30 \\
 \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\
 +3 & +3 & +3 & +3 & +3 & +3 & +3 & +3 & +3 & +3
 \end{array}$$

3. With the picture of the 30 monkeys grouped into threes still displayed, show the class the concept of multiplication as grouping of items as follows:
 - Circle 1 group of monkeys, say '1 group of 3' and write: $1 \times 3 = 3$
 - Circle 2 groups of monkeys, say '2 groups of 3' and write: $2 \times 3 = 6$
 - Circle 3 groups of monkeys, say '3 groups of 3' and write: $3 \times 3 = 9$
 - Circle 4 groups of monkeys, say '4 groups of 3' and write: $4 \times 3 = 12$
 - Circle 5 groups of monkeys, say '5 groups of 3' and write: $5 \times 3 = 15$
 - Circle 6 groups of monkeys, say '6 groups of 3' and write: $6 \times 3 = 18$
 - Circle 7 groups of monkeys, say '7 groups of 3' and write: $7 \times 3 = 21$
 - Circle 8 groups of monkeys, say '8 groups of 3' and write: $8 \times 3 = 24$
 - Circle 9 groups of monkeys, say '9 groups of 3' and write: $9 \times 3 = 27$
 - Circle 10 groups of monkeys, say '10 groups of 3' and write: $10 \times 3 = 30$
4. Introduce to the class the multiplication table of 3. Pin up the multiplication table of 3 chart.

Activity 3 (15 min): Class practice

1. Go through with the pupils the examples on pages 64–65 of the Student's Book. Ask a few pupils to share their answers with the class.

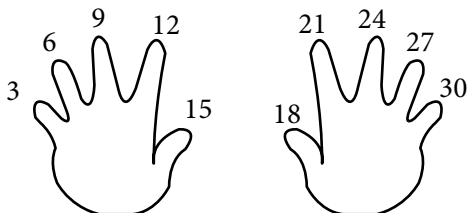
Activity 4 (25 min): Know by heart the Multiplication Table of 3

1. Ask the pupils to work in pairs to write down the multiplication table of 3 from $1 \times 3 = 3$ to $10 \times 3 = 30$ and then backwards from $10 \times 3 = 30$ to $1 \times 3 = 3$.

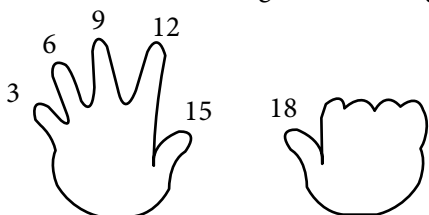
2. Encourage the pupils to memorize the multiplication table of 3. To help pupils recall the multiplication table, the following methods can be used:

Count with Fingers

- Ask the pupils to recite and memorize the sequence: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
- Use the 10 fingers to represent each of the 10 numbers



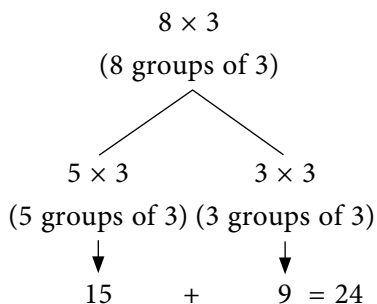
- To find 6×3 , ask the pupils to raise 6 fingers and then recite the sequence starting from 3 at the first finger and ending with 18 at the 6th finger.



- Ask the pupils to practise with their partners, each taking turns to call out a multiplication sum and using their fingers to find the answer.

Break into 2 steps

- To find 8×3 , first break the 8 groups into 5 and 3. Next, find 5×3 and 3×3 and then add them as follows:



3. Write some multiplication sums involving the multiplication of 3 on the board (e.g. $4 \times 3 = \underline{\quad}$) and ask pupils to write the answers. Meanwhile the rest of the class should check if the answers are correct.

Let's Think

Activity 5 (20 min): Interesting activity to enhance learning

1. Let the pupils try the activity on page 66 of the Student's Book. Ask the pupils to share their answers with their partners.

Let's Try...

Activity 6 (20 min): Individual practice

1. Ask the pupils to try out the exercises on page 67 of the Student's Book.

Homework

1. Ask the pupils to do Workbook 2A—Worksheet 12.
2. Ask the pupils to memorize the multiplication table of 3.

Answers

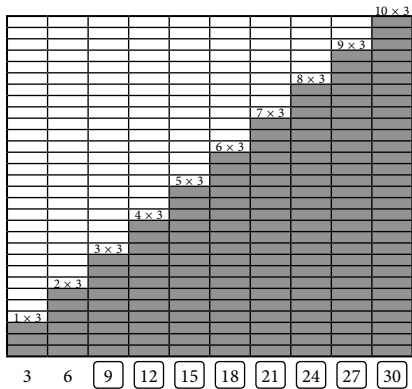


page 67

1. $4 \times 3 = 12$
2. $7 \times 3 = 21$
3. (a) 24, 24 (b) 30, 30 (c) 27, 27

WORK **Sheet** 12

1. (a) 4 threes = 12 (b) 7 threes = 21 (c) 10 threes = 30 (d) 6 threes = 18
 $4 \times 3 = 12$ $7 \times 3 = 21$ $10 \times 3 = 30$ $6 \times 3 = 18$
3. (a) $3 \times 3 = 9$ (b) $6 \times 3 = 18$ (c) $10 \times 3 = 30$ (d) $8 \times 3 = 24$
- 4.



WORD PROBLEMS

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- solve 1-step word problems involving multiplication of 2 and 3

Instructions

Let's Learn...

Activity 1 (40 min): Solve word problems involving multiplying by 2 and 3

1. Revise with the pupils the multiplication tables of 2 and 3. Ask the pupils to work in pairs to test each other.
2. Go through with the pupils the examples on pages 68–69 of the Student's Book. Read together with the class each of the word problems. Explain to the pupils the following steps in solving multiplication word problems:
 - Look for the number of identical groups
 - Look for the number of items in each group
 - Write the multiplication sentence
 - Solve the multiplication by recalling facts from multiplication table, use 'count with fingers' method or 'break into 2 steps' method to help recall the facts.
 - Write the answer statements.
2. Provide more word problems for the pupils to try.

Let's Try...

Activity 2 (20 min): Individual practice

1. Ask the pupils to work out the word problems on page 70 of the Student's Book. Ask some pupils to show their workings on the board.

Homework

Ask the pupils to do Workbook 2A—Worksheet 13 and Practice 3.

Answers



page 70

1. 20 2. 30 3. 16 4. 18

WORK **S**HEET 13

1. 18 2. 15 3. 18 4. 24 5. 12 6. 14

PRACTICE 3

1. (a) 4, 8 (b) 6, 18
2. (a) $7 \times 2 = 14$ (b) $4 \times 3 = 12$
3. (a) 3, 3, 9 (b) 2, 4, 8
4. (a) $2 \times 7 = 14$ (b) $3 \times 3 = 9$ (c) $2 \times 4 = 8$

Fun With Maths

Activity 3 (20 min): Challenging activity to enhance learning

1. Let the pupils try the challenging activity on page 71 of the Student's Book. Ask all the pupils to share what they have obtained and to list down all possible paths. There are altogether 5 possible paths to the gift shop with 18 points:

- Pass 9 bridges: $9 \times 2 = 18$
- Pass 6 mountains: $6 \times 3 = 18$
- Pass 2 mountains and 6 bridges: $(2 \times 3) + (6 \times 2) = 18$
- Pass 4 mountains and 3 bridges: $(4 \times 3) + (3 \times 2) = 18$
- Pass 5 bridges, 2 mountains and another bridge: $(5 \times 2) + (2 \times 3) + (1 \times 2) = 18$

Revision (40 min)

Revise and go through pupils' homework.



Revision 1 (Workbook 2A)

1.

	H	T	O
(a)	0	5	0
(b)	3	0	3
(c)	4	1	1

2. (a) two hundred and twenty-three

(b)

H	T	O
3	0	5

three hundred and five

(c)

H	T	O
1	3	4

one hundred and thirty-four

3. (a) 780, 802, 808, 901, 910

(b) 121, 112, 111, 110, 101

(c) 132, 213, 231, 312, 321

(d) 650, 605, 560, 516, 506

5. (a) 12

(b) 27

(c) 10

12

7. (a) less

(b) more

(c) more

8. (a) 105, 135

(b) 60, 58

(c) 404, 606

(d) 301, 101

(e) 29, 31

9. (a) 447

(b) 200

(c) 1000

(d) 308

(e) 515

(f) 799

10. (b) five hundred and twenty-six, 526

(c) two hundred and forty-three, 243

12. (a) 623

(b) 547

(c) 540

(d) 202

(e) 893

(f) 173

(g) 18

(h) 18

(i) 14

(j) 24

13. (a) 341 (b) 111 (c) 102 (d) 165 (e) 102 (f) 165
14. (a) 963 (b) 621 (c) 779 (d) 525 (e) 764 (f) 749
15. 43, 37, 51, 95, 71, 33, 27, 41, 63, 17
16. Set B



Revision 2 (Workbook 2A)

1. (a) $3 \times 6 = 18$ (b) $3 \times 10 = 30$ (c) $2 \times 4 = 8$
(d) $7 \times 2 = 14$ (e) $4 \times 2 = 8$ (f) $4 \times 3 = 12$
2. (a) 593 (b) 410 (c) 603 (d) 983 (e) 809 (f) 875
(g) 84 (h) 112 (i) 406 (j) 147 (k) 495 (l) 305
3. (a) Laura (b) Mary (c) Laura, Nida, Jane, Mary
4. 959 5. 16 6. 27
7. Timmy, 112 8. 929 9. 20
10. 199 11. 15 12. 911
13. 102 14. 573 15. 740

Unit 4: Dividing by 2 and 3

DIVIDING BY 2

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- use the division symbol to write mathematical statements for given situations
- recognize the relationship between multiplication and division involving 2

Instructions

Let's Learn...

Activity 1 (15 min): Recall the Multiplication Table of 2

1. Pin up the chart of the multiplication table of 2 chart and revise with the class.
2. Cover up the chart and play a game to test the pupils' ability to recall the multiplication table of 2 as stated on page:

Activity 2 (25 min): Grasp the concept of division as in finding the number of items in a group

Things you need: 20 cubes

1. Display 8 cubes on the table. Separate them into 2 equal groups and ask the class 'How many cubes are there in each group?' Explain to the class the concept of division as in finding the number of items in a group as follows:
 - Explain to the class that you have just carried out a division by dividing the 8 cubes into 2 equal groups, resulting in 4 cubes in each group.
 - Explain to the class that to divide means to split into equal parts.
 - Write on the board the division sentence: $8 \div 2 = 4$
 - Read the division sentence as '8 divided by 2 equals 4' and ask the class to repeat the division statement.
 - Point out to the class that dividing a number is known as division.
2. Repeat the above using different number of cubes and dividing them by 2.

Activity 3 (25 min): Grasp the concept of division as in finding the number of equal groups

Things you need: 10 ping-pong balls and 5 clear containers

1. Put 10 ping-pong balls and the 5 clear containers on the table in front of the class. Explain that you want put the 10 ping-pong balls into the containers with each container having 2 ping-pong balls. Ask the class 'How many clear containers do I need?' Explain the concept of division as in finding the number of equal groups as follows:

- Explain to the class that you need to split the 10 ping-pong balls into groups of twos. Proceed to put in the balls and show the class that 5 containers are needed.
 - Explain that you have just done a division by dividing the 10 balls into groups of twos, resulting in 5 equal groups.
 - Lead the class to see that there are 5 groups of 2 ping-pong balls each.
 - Write on the board the division sentence: $10 \div 2 = 5$
 - Read the division sentence as '10 divided by 2 equals 5' and get the class to repeat the division sentence.
2. Repeat the above using different number of ping-pong balls and dividing them into groups of 2.

Activity 4 (15 min): Divide by 2

Things you need: picture of flowers and vases as shown on page 72 of the Student's Book and other pictures showing different number of animals, fruits or, any other item

1. Refer to the picture of flowers and vases on page 72 of the Student's Book. Point to the 6 flowers and ask the pupils 'How many vases does she need if she is to put 2 flowers in each vase?' Lead the class to see that a division is needed to find the answer. Show the division by circling every 2 flowers to form 3 groups. Write on the board the division sentence: $6 \div 2 = 3$. Hence, 3 vases are needed. Explain that to obtain the answer 3, the pupils need to refer to the multiplication fact of $3 \times 2 = 6$ in the multiplication table of 2.
2. Repeat the above using different pictures showing different number of items.

Activity 5 (20 min): Relate multiplication and division

Things you need: a chart of multiplication table of 2

1. Write on the board: $4 \times 2 = 8$. Explain to the pupils that division is the opposite of multiplication. Show the relation as follows:
 $4 \times 2 = 8$ can be written in division sentences as
 $8 \div 2 = 4$ or $8 \div 4 = 2$
2. Refer the pupils to the multiplication table of 2. For each multiplication sentence, ask two pupils one at a time to come forward to write the two corresponding division sentences on the board. For example:
 From $5 \times 2 = 10$, we can derive 2 division sentences: $10 \div 2 = 5$ and $10 \div 5 = 2$

Activity 6 (10 min): Class practice

1. Go through with the pupils the examples on pages 73–75 of the Student's Book.

Let's Try...

Activity 7 (10 min): Individual practice

1. Ask the pupils to try the exercises on page 76 of of the Student's Book. Ask a few pupils to share their answers with the class

Homework

1. Ask the pupils to do Workbook 2A—Worksheet 14.
2. Ask the pupils to review the multiplication tables of 2 and 3.

Answers



page 76

- 7
- 9
- (a) 5, 5 (b) 6, 6 (c) 10, 10

WORK **Sheet** 14

- (a) 4 (b) 6 (c) 10
- (a) 3 (b) 5 (c) 8
- (a) 2, 2 (b) 6, 6 (c) 4, 4 (d) 7, 7 (e) 9, 9 (f) 8, 8

DIVIDING BY 3

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- recognize the relationship between multiplication and division involving 3

Instructions

Let's Learn...

Activity 1 (20 min): Recall the Multiplication Table of 3

Things you need: 20 set of cards numbered 1 to 10

- Pin up the chart of the multiplication table of 3 and revise with the class.
- Cover up the chart and play a game to test the pupils' ability to recall the multiplication table of 3 as follows:
 - Pair up the pupils. Give each pair a deck of cards numbered 1 to 10. Shuffle the cards.
 - One pupil will draw a card to show a number and the other pupil will have to multiply the number by 3. Every correct answer will be awarded 2 points.
 - The pupils take turns to draw the cards and to multiply the number by 3.
 - Play 10 rounds of the game and acknowledge the pupil with the highest score.
- Write on the board the following multiplication sums and ask individual pupils to come forward to fill in the blanks:
 - $3 \times \underline{\quad} = 6$ $3 \times \underline{\quad} = 18$ $\underline{\quad} \times 3 = 12$ $\underline{\quad} \times 3 = 9$
 - $3 \times \underline{\quad} = 27$ $3 \times \underline{\quad} = 21$ $\underline{\quad} \times 3 = 3$
 - $\underline{\quad} \times 3 = 30$ $3 \times \underline{\quad} = 15$ $3 \times \underline{\quad} = 24$

Activity 2 (20 min): Recall the concept of division

1. Recall the concept of division as in finding the number of items in a group as follows:
 - Select 14 pupils to come forward and arrange them into 2 equal groups. Explain that you have just done a division. Ask the pupils ‘How many pupils are there in each group?’ Then, ask a pupil to write the division sentence on the board.
 - Repeat the above 5 more times with different number of pupils to help pupils recall the concept of division as in finding the number of items in a group.
2. Revise the concept of division as in finding the number of equal groups as follows:
 - Explain to the class that you want a total of 16 legs and ask the pupils to come forward one at a time until there are 16 legs represented. Explain that you have just done a division. Ask the pupils ‘How many pupils are needed to form the 16 legs?’ Then ask a pupil to write the division sentence on the board.
 - Repeat the above 5 more times with different number of pupils to help pupils recall the concept of division as in finding the number of equal groups.

Activity 3 (20 min): Divide by 3

Things you need: pictures showing different number of animals, fruits, or any other item

1. Show a picture of 18 apples to the class. Explain that you are going to arrange the apples into 3 equal groups and ask the class ‘What would the number of apples in each group be?’ Lead the class to see that a division is needed to find the answer. Show the division by circling the apples to form 3 groups of 6 apples each. Count the number of apples in each group and write on the board the division sentence: $18 \div 3 = 6$. Explain to the class that to obtain the answer 6, the pupils need to refer to the multiplication fact of $6 \times 3 = 18$ in the multiplication table of 3.
2. Repeat the above using different pictures showing different number of items.

Activity 4 (20 min): Relate multiplication and division

Things you need: a chart of the multiplication table of 3

1. Write on the board: $4 \times 3 = 12$. Remind the pupils that division is the opposite of multiplication. Show the relation as follows:
 $4 \times 3 = 12$ can be written in division sentences as $12 \div 3 = 4$ or $12 \div 4 = 3$
2. Refer the pupils to the multiplication table of 3 chart. For each multiplication sentence, ask two pupils one at a time to come forward to write the two corresponding division sentences on the board. For example:
From $7 \times 3 = 21$, we can derive 2 division sentences: $21 \div 3 = 7$ and $21 \div 7 = 3$.

Activity 5 (20 min): Class practice

1. Go through with the pupils the examples on pages 77–80 of the Student’s Book.

Let’s Try...

Activity 6 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 81 of the Student’s Book. Ask a few pupils to share their answers with the class.

Homework

1. Ask the pupils to do Workbook 2A—Worksheet 15.
2. Ask the pupils to review the multiplication tables of 2 and 3.

Answers



page 81

1. 8
2. 7
3. (a) 6, 6 (b) 9, 9 (c) 10, 10

WORK *Sheet* 15

1. (a) 4, 4 (b) 4, 4 (c) 7, 7 (d) 7, 7
2. (a) 5, 5 (b) 9, 9
3. (a) 2, 2 (b) 6, 6
4. (a) 3, 3 (b) 7, 7 (c) 5, 5 (d) 8, 8 (e) 1, 1

WORD PROBLEMS

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- solve 1-step word problems involving division by 2 and 3

Instructions

Let's Learn...

Activity 1 (30 min): Solve word problems involving dividing by 2 and 3

1. Go through with the pupils the examples on pages 82–83 of the Student's Book. Read together with the class each of the word problems. Explain to the pupils the following steps in solving division word problems:
 - Look for the total number of items given
 - Look for:
 - Number of equal groups to be formed
 - or
 - Number of items to be given to each group

- Write the division sentence
- Solve the division by recalling facts from the multiplication table.
- Write the answer statements.

Let's Try...

Activity 2 (10 min): Individual practice

1. Ask the pupils to work out the word problems on page 84 of the Student's Book. Ask some pupils to show their workings on the board.

Homework

Ask the pupils to do Workbook 2A—Worksheet 16 and Practice 4.

Answers



page 84

1. 9
2. 8
3. 8
4. 10

WORK **Sheet** 16

1. $18 \div 3 = 6, 6$
2. $14 \div 2 = 7, 7$
3. $16 \div 2 = 8, 8$
4. $21 \div 3 = 7, 7$
5. $15 \div 3 = 5, 5$
6. $30 \div 3 = 10, 10$
7. $18 \div 2 = 9, 9$
8. $14 \div 2 = 7, 7$



1. (a) 6 in all four boxes (b) $2 \times 4 = 8, 2, 4$
 (c) $12, 6 \times 2 = 12, 12 \div 6 = 2, 12 \div 2 = 6$
 (d) $24, 8 \times 3 = 24, 24 \div 3 = 8, 24 \div 8 = 3$
3. (a) 3 (b) 9 (c) 8 (d) 7 (e) 5 (f) 3
4. (a) $12 \div 3 = 4, 4$ (b) $8 \div 2 = 4, 4$ (c) $12 \div 2 = 6, 6$ (d) $15 \div 3 = 5, 5$
5. (a) $18 \div 2 = 9, 9$ (b) $18 \div 3 = 6, 6$
6. (a) $15 \div 3 = 5, 5$ (b) $15 \div 5 = 3, 3$

Fun With Maths

Activity 3 (20 min): Interesting game to enhance learning

Things you need: dice and counters

1. Let the pupils play the game in pairs on page 85 of the Student's Book. Pin up the charts of the multiplication tables of 2 and 3 for pupils to refer to.

Revision (20 min)

Revise and go through pupils' homework.

Unit 5: Money

RUPEES AND PAISE

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- count the amount of money in a given set of notes and coins
- read and write money in decimal notation

Instructions

Let's Learn...

Activity 1 (20 min): Recall the different denominations of coins and notes in the Pakistani currency

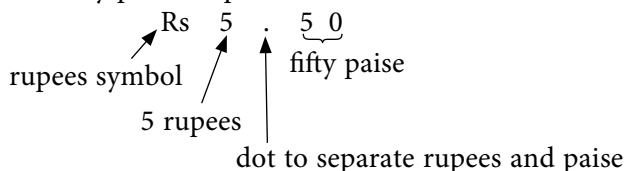
Things you need: real coins and notes

1. Show real coins to the pupils and read out their values one at a time. Ask the pupils to repeat after you. Flip over the coins to show the other side of the coins. For each coin displayed, ask a pupil to write the value of the coin on the board in paise. Inform the pupils that the 5-paise coins and 10-paise coins are produced by the State Bank of Pakistan even today. However, they are not used in the market any more.
2. Show real notes to the pupils and read out their values one at a time. Ask the pupils to repeat after you. Flip over the notes to show the other side of the notes. For each note displayed, ask a pupil to write the value of the note on the board using Rs. Show notes up to Rs 50 denomination.

Activity 2 (20 min): Count in Rupees and Paise and write the amount in decimal notation

Things you need: real notes and coins

1. Show a 5-rupee note and a 50-paise coin to the pupils. Ask the class, 'What is the total amount of money I have?' Write the amount on the board as follows:
5 rupees and 50 paise
2. Introduce the decimal notation by writing Rs. 5.50 on the board and read it as 'two rupees and fifty paise'. Explain the decimal notation as follows:


Rs 5 . 50
rupees symbol 5 rupees dot to separate rupees and paise fifty paise

- Write on the board both the correct and wrong ways of writing the decimal notation and explain as follows:

Correct: Rs 5.50

Wrong: Rs 5.5 (the zero is missing)
 Rs 5.50 paise (the word paise is not necessary)
 Rs 5-50 (the dot is to be written on the line)

- Show more combinations of notes and coins and ask the pupils to write the decimal notation on the board.

Activity 3 (20 min): Count in rupees only and write the amount in decimal notation

Things you need: real notes

- Show a 20-rupee note and a 5-rupee note to the pupils. Ask the class, 'What is the total amount of money I have?' Count the amount by adding the rupees and write the amount on the board as follows:

20 rupees and 5 rupees = 25 rupees

- Write the decimal notation of 25 rupees, Rs 25.00 on the board and explain as follows :

Rs 25.00
 rupees symbol → Rs
 25 rupees → 25
 dot to separate rupees and paise → .
 zero paise → 00

- Write on the board both the correct and wrong ways of writing the decimal notation and explain as follows:

Correct : Rs 25.00 or Rs 25

Wrong : Rs 25.0 (one of the zeros is missing)
 Rs 25.00 paise (the word paise is not necessary)
 Rs 25-00 (the dot is to be written on the line)

- Show more combination of notes only and ask the pupils to write the decimal notation on the board.

Activity 4 (20 min): Count in paise only and write the amount in decimal notation

Things you need: real coins

- Show a 50-paise coin and a 25-paise coin to the pupils. Ask the class, 'What is the total amount of money I have?' Count the amount by adding the paise and write the amount on the board as follows:

50 paise and 25 paise = 75 paise

- Write the decimal notation of 75 paise, Rs 0.75 on the board and explain as follows:

Rs 0.75
 rupees symbol → Rs
 0 rupees → 0
 dot to separate rupees and paise → .
 seventy-five paise → 75

3. Write on the board both the correct and wrong ways of writing the decimal notation and explain as follows:

Correct : Rs 0.75

Wrong : Rs 00.75 (only one zero is needed before the dot)

Rs 0.75 paise (the word paise is not necessary)

Rs 0.75 (the dot is to be written on the line)

4. Show more combinations of paise only and ask the pupils to write their decimal notations on the board.

Activity 5 (20 min): Class practice

1. Go through with the pupils the examples on pages 87–88 of the Student's Book. Ask some pupils to share their answers with the class.

Let's Try...

Activity 6 (30 min): Individual practice

1. Ask pupils to do the exercises on page 89 of the Student's Book.

Homework

Ask pupils to do Workbook 2A—Worksheet 17.

Answers



page 89

1. (a) Rs 8.50 (b) Rs 70.25

2. (a) Rs 9.50 (b) Rs 0.75 or 75 paise (c) Rs 26.00 (d) Rs 50.25

WORK **Sheet** 17

1. (a) Rs 10.25 (b) Rs 15.50 (c) Rs 21.75

3. (a) Rs 8 (b) Rs 12.25 (c) Rs 2.75

4. (a) Rs 3 (b) Rs 10.25 (c) Rs 0.94 (d) Rs 12.20

(e) Rs 50.65 (f) Rs 42.10 (g) Rs 1.99

5. (a) Rs 90.00 (b) Rs 43.95 (c) Rs 165.50

CHANGING RUPEES AND PAISE

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- convert an amount of money in decimal notation to paise only, and vice versa

Instructions

Let's Learn...

Activity 1 (20 min): Convert money in paise to decimal notation

Things you need: four 50-paise coins and four 25-paise coins

1. Explain to the class that 100 paise is equivalent to Re 1. Say 'one hundred paise make one rupee' and write on the board, 100 paise = Re 1.00 or Re 1.

Inform the pupils that the 5-paise coins and 10-paise coins are produced by the State Bank of Pakistan even today. However, they are not used in the market any more.

2. Show four 50 paise coins and two 25 paise coins. Ask the class, 'What is the total amount of money in paise?' Count the money and show that there is a total of 250 paise. Show how to write the 200 paise in decimal notation as follows:

$$\begin{aligned} 250 \text{ paise} &= 200 \text{ paise} + 50 \text{ paise} && \text{(split the paise into hundreds and tens)} \\ &= \text{Rs } 2 + 50 \text{ paise} && \text{(convert the paise in hundreds into rupees)} \\ &= \text{Rs } 2.50 && \text{(combine the rupees and paise using the dot)} \end{aligned}$$

3. Write more examples of money in paise on the board for the pupils to practise converting them into decimal notation. For example:

$$\begin{aligned} 500 \text{ paise} &= \text{Rs } \underline{\quad\quad} \\ 475 \text{ paise} &= \text{Rs } \underline{\quad\quad} \\ 50 \text{ paise} &= \text{Rs } \underline{\quad\quad} \\ 2000 \text{ paise} &= \text{Rs } \underline{\quad\quad} \end{aligned}$$

Activity 2 (20 min): Convert money in decimal notation to paise

Things you need: play notes of different denominations

1. Show one 5-rupee note and three 25-paise coins. Ask the class, 'What is the total amount of money shown?' Count the money and write the amount in decimal notation. Show how to convert the decimal notation into paise as follows:

$$\begin{aligned} \text{Rs } 5.75 &= \text{Rs } 5 + 75 \text{ paise} && \text{(split into rupees and paise)} \\ &= 500 \text{ paise} + 75 \text{ paise} && \text{(convert Rs 5 into 500 paise)} \\ &= 575 \text{ paise} && \text{(add 500 paise and 75 paise to arrive at the answer)} \end{aligned}$$

2. Write more examples of money written in decimal notation on the board for the pupils to practise converting them into paise. For example:

$$\begin{aligned} \text{Rs } 25.30 &= \underline{\quad\quad} \text{ paise} \\ \text{Rs } 80.00 &= \underline{\quad\quad} \text{ paise} \\ \text{Rs } 0.55 &= \underline{\quad\quad} \text{ paise} \\ \text{Rs } 9.65 &= \underline{\quad\quad} \text{ paise} \end{aligned}$$

Activity 3 (20 min): Class exercise

1. Go through the examples on page 90 of the Student's Book.

Activity 4 (20 min): Work in pairs to practise converting paise to rupees and vice versa

1. Ask the pupils to count the pocket money that they get. Ask them to write on a piece of paper the amount of pocket money they have, first in decimal notation and then in paise only. Go around the class to check their answers.

Let's Explore

Activity 5 (20 min): Group activity to enhance learning

1. Divide the class into groups of 4–5 pupils and ask them to work on the activity on page 91 of the Student's Book. Acknowledge the group with the most number of ways to make Rs 11.75.
2. If time permits, repeat the activity for the amount Rs 25.50. The table for recording the results should include columns for Rs 10, Rs 5, and Rs 2.

Let's Try...

Activity 6 (20 min): Individual practice

1. Ask the pupils to do the exercises on page 92 of the Student's Book. Ask some pupils to share their answers with the class.

Homework

Ask pupils to do Workbook 2A—Worksheet 18.

Answers



page 92

1. (a) Rs 2.50 (b) 325 paise (c) Rs 5.50, 550 paise (d) Rs 8.75, 875 paise

WORK **S**heet 18

1. (a) Rs 1. 20 (b) Rs 4.60 (c) Rs 6.35 (d) Rs 7.15
2. (a) 15 paise (b) 1000 paise (c) 335 paise (d) 6400 paise
3. (a) Rs 5.65 (b) Rs 3.80 (c) Rs 7.00 (d) Rs 2.75
(e) Rs 6.50 (f) Rs 5.50 (g) Rs 2.85 (h) Rs 9.99
4. (a) 275 paise (b) 830 paise (c) 630 paise (d) 755 paise
(e) 375 paise (f) 515 paise (g) 720 paise (h) 990 paise

COMPARING MONEY

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- compare two or three amounts of money

Instructions

Let's Learn...

Activity 1 (20 min): Compare two amounts of money in paise only using 'greater than', 'more than', 'smaller than', 'less than', 'more', and 'less'

Things you need: notes and coins

1. Show two sets of coins to the class to show two different amounts of money in paise only, e.g. Set A is 75 paise and Set B is 25 paise. Ask the class, 'Which set has more money?' Teach them how to compare the 2 amounts as follows:

Using 'greater than', 'more than' and 'more'

75 paise is greater than 25 paise or 75 paise is more than 25 paise

Therefore, Set A has more money.

Using 'smaller than', 'less than' and 'less'

25 paise is smaller than 75 paise or 25 paise is less than 75 paise

Therefore, Set B has less money.

2. Repeat the above for different sets of coins to help pupils familiarize with comparing amounts in paise (only).

Activity 2 (20 min): Compare two amounts of money in rupees only using 'greater than', 'more than', 'smaller than', 'less than', 'more', and 'less'

Things you need: notes and coins

1. Show two sets of notes to show two different amounts of money in rupees only, e.g. Set A is Rs 12 and Set B is Rs 34. Ask the class, 'Which set has more money?' Teach them how to compare the 2 amounts as follows:

Using 'greater than', 'more than', and 'more'

Rs 34 is greater than Rs 12 or Rs 34 is more than Rs 12

Therefore, Set B has more money.

Using 'smaller than', 'less than', and 'less'

Rs 12 is smaller than Rs 34 or Rs 12 is less than Rs 34

Therefore, Set A has less money.

2. Repeat the above for different sets of notes to help familiarize pupils with comparing amounts in rupees (only).
3. Put some notes of different denominations in a bag. Ask two pupils to each pick out two notes randomly. Ask each of them to add up the notes and say aloud how much money each has. Next, tell them to compare both the amounts. Guide the one who has more money to say, 'I have more money than (name)' and the one who has less money to say, 'I have less money than (name)'. Repeat this as many times as possible with other pupils.

Activity 3 (20 min): Compare two amounts of money in rupees and paise using 'greater than', 'more than', 'smaller than', 'less than', 'more', and 'less'

1. Use two sets of notes and coins showing two different amounts of money in both rupees and paise, e.g. Set A is Rs 9.75 and Set B is Rs 9.25. Ask the class, 'Which set has more money?' Teach them how to compare the 2 amounts as follows:

Using 'greater than', 'more than', and 'more'

First, compare the rupees → They are the same.

Next, compare the paise → 75 paise is greater than 25 paise or 75 paise is more than 25 paise

So, Rs 9.75 is greater than Rs 9.25 or Rs 9.75 is more than Rs 9.25

Therefore Set A has more money.

Using 'smaller than', 'less than', and 'less'

First, compare the rupees → They are the same.

Next, compare the paise → 25 paise is smaller than 75 paise or 25 paise is less than 75 paise

So, Rs 9.25 is smaller than Rs 9.75 or Rs 9.25 is less than Rs 9.75

Therefore, Set B has less money.

(Explain to the pupils that there is a need to compare the paise in this example because the rupees are the same for both amounts.)

2. Use two sets of notes and coins to show two different amounts of money in both rupees and paise, e.g. Set A is Rs 6.50 and Set B is Rs 9.25. Ask the class, 'Which set has more money?' Teach them how to compare the two amounts as follows:

Using 'greater than', 'more than', and 'more'

First, compare the rupees → Rs 9 is greater than Rs 6 or Rs 9 is more than Rs 6

So, Rs 9.25 is greater than Rs 6.50 or Rs 9.25 is more than Rs 6.50

Therefore Set B has more money.

Using 'smaller than', 'less than', and 'less'

First, compare the rupees → Rs 6 is smaller than Rs 9 or Rs 6 is less than Rs 9

So, Rs 6.50 is smaller than Rs 9.25 or Rs 6.50 is less than Rs 9.25

Therefore, Set A has less money.

(Explain to the pupils that there is no need to compare the paise in this example because comparing the rupees is enough to determine which set has more money.)

3. Put some notes and coins of different denominations in a bag. Ask 2 pupils to each pick out 2 notes and 2 coins randomly. Ask each of them to add up the notes and coins and say aloud how much money each has. Next, ask them to compare the 2 amounts by using the method of comparing first the rupees followed by the paise. Guide the one who has more money to say, 'I have more money than (name)' and the one who has less money to say, 'I have less money than (name)'. Repeat this as many times as possible with other pupils.

Activity 4 (20 min): Compare 3 amounts of money using ‘the largest’ and ‘the smallest’

1. Use 3 sets of notes and coins showing 3 different amounts of money in both rupees and paise, e.g. Set A is Rs 6.50 and Set B is Rs 9.25 and Set C is Rs 9.50. Ask the class, ‘Which set has the largest amount of money?’ and ‘Which set has the smallest amount of money?’ Teach them how to compare the 3 amounts as follows:

To find the set with the largest amount of money

- First, compare the rupees → Rs 9 is greater than Rs 6, so both Rs 9.25 and Rs 9.50 are greater than Rs 6.50.
- Next, compare Rs 9.25 and Rs 9.50. Since both rupees are the same, compare the paise → 50 paise is greater than 25 paise, so Rs 9.50 is greater than Rs 9.25.
- Therefore Rs 9.50 is the greatest → Set C has the greatest amount of money.

To find the set with the smallest amount of money

- First, compare the rupees → Rs 6 is smaller than Rs 9, so Rs 6 is smaller than both Rs 9.25 and Rs 9.50.
- Therefore Rs 6.50 is the smallest → Set A has the smallest amount of money.

Activity 5 (15 min): Class practice

1. Go through the examples on pages 93–97 of the Student’s Book.

Let’s Explore

Activity 6 (10 min): Examine the coins and notes in details

1. Pair up the pupils and ask them to try the activity on page 97 of the Student’s Book.

Let’s Try...

Activity 7 (15 min): Individual practice

1. Ask pupils to do the exercises on page 98 of the Student’s Book.

Homework

Ask pupils to do Workbook 2A—Worksheet 19.

Answers



page 98

- (a) Austin (b) Tina (c) Austin (d) Austin

WORK *Sheet* 19

1. (a) Rs 3.50 (b) Rs 4.05 (c) Rs 0.75 (d) Rs 8.95 (e) Rs 6.25
2. (a) Rs 50 (b) Rs 30.15 (c) Rs 16.75 (d) Rs 30.75 (e) Rs 9.85
3. (a) Rs 3.50, Rs 3.75, B (b) Rs 6.75, Rs 6.50, P
(c) Rs 15.50, Rs 15.75, Y (d) Rs 26.25, Rs 31.50, T

4. (a) Rs 3, Rs 2.25, F (b) Rs 2.50, Rs 6.75, M
 (c) Rs 24.50, Rs 26.75, U (d) Rs 29, Rs 28.50, D
5. (a) Rs 50.00 (b) Rs 19.05 (c) Rs 1.40 (d) Rs 5.35
6. (a) sweets (b) ice cream (c) soft drink, ice cream, sweets

WORD PROBLEMS

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- solve word problems involving money in rupees only (or in paise only)

Instructions

Let's Learn...

Activity 1 (40 min): Solve one-step word problems involving addition, subtraction, multiplication, and division of money in rupees only or in paise only

1. Go through with the pupils examples 1, 2, 3 and 4 on pages 99–100 of the Student's Book. Explain that these are one-step word problems involving simple addition, subtraction, multiplication, and division.
2. Remind the pupils to write 'Rs'. For multiplication and division, explain that both the multiplying and dividing numbers should not be written with 'Rs' for example,
 $\underline{\text{Rs } 5 \times 3}$ should not be written as $\underline{\text{Rs } 5 \times \text{Rs } 3}$
 (3 is the multiplying number and not an amount of money)
 $\underline{\text{Rs } 8 \div 2}$ should not be written as $\underline{\text{Rs } 8 \div \text{Rs } 2}$
 (2 is the dividing number and not an amount of money)
3. Show more examples of one-step word problems on the board and ask pupils to solve them.
4. Ask the pupils to create one-step word problems involving addition, subtraction, multiplication and division of money in rupees only or in paise only. You may ask them to create stories on how they would spend Rs 20 on food during recess. Provide helping sentences as follows:

For addition

During recess, I bought a _____ for _____ and a _____ for _____. How much did I spend altogether?

For subtraction

I gave _____ to the _____ seller to pay for a _____ for _____. How much change did I get back from the seller?

For multiplication

One piece of ____ cost _____. I bought 3 pieces of _____. How much did I spend altogether?

For division

I bought 3 ____ for _____. How much did one ____ cost?

5. Ask some pupils to share their word problems created.
6. Pair up the pupils and ask them to solve each other's word problems created.

Activity 2 (40 min): Solve 2-step word problems involving addition and subtraction of money in rupees only or in paise only

1. Go through with the pupils examples 5 and 6 on page 100 of the Student's Book. Explain that these are 2-step word problems involving simple addition, subtraction, multiplication, and division.
2. Show more examples of 2-step word problems on the board and ask pupils to solve them.
3. Ask the pupils to create 2-step word problems involving addition and subtraction of money in dollars only or in cents only. You may ask them to create stories on how they would spend Rs 50 at a bakery. Provide helping sentences as follows:

Addition followed by subtraction

I bought a _____ for _____ and a _____ for _____. I gave ____ to the bakery owner. How much change did I get back?

Subtraction followed by addition

I had Rs 50. I paid ____ for a sandwich. Later, my mother gave me more _____. How much money did I have after that?

Addition followed by another addition

I bought 3 items from the bakery, a _____ for _____, a _____ for _____ and a _____ for _____. How much did I spend altogether?

Subtraction followed by another subtraction

I brought Rs 50 to the bakery to buy a _____ which cost _____. After that, I went to the coffee shop to buy a _____ which cost _____. How much money had I left after that?

4. Ask some pupils to share their word problems created.
5. Pair up the pupils and ask them to solve each other's word problems created.

Let's Try...

Activity 3 (15 min): Individual practice

1. Ask the pupils to try the exercises on page 111 of the Student's Book. Ask some pupils to work out the steps on the board.

Homework

Ask pupils to do Workbook 2A—Worksheet 20 and Practice 5.

Answers



page 101

1. Rs 50 2. Rs 237 3. Rs 18 4. Rs 8 5. Rs 38 6. Rs 295 7. Rs 89

WORK **Sheet** 20

1. Rs 26 2. 100 paise or Re 1 3. Rs 15 4. Rs 9
5. Rs 85 6. Rs 12 7. Rs 350 8. Rs 2.75

Ppractice 5

1. (a) 650 paise (b) 580 paise (c) Rs 24.75 (d) Rs 13.25
2. (a) Rs 8.05, Christine (b) Rs 10, Rs 6.50, Usman
(c) 625 paise, 805 paise, Jack (d) Rs 8.15, Rs 7.50, John
3. (a) Rs 24.50, Rs 25.05, Rs 25 (b) Rs 3.25, Rs 2.80, Rs 2.65
order: C, B, A order: A, B, C
4. Rs 4.75, chocolate bar

Revision (25 min)

Fun with Maths

Things you need: newspaper cuttings on advertisements of food products in supermarkets

1. Give each pupil a newspaper cutting showing the advertisement of 8–10 items of food products with their prices indicated. Ask the pupils to compare the prices and identify the most expensive and the cheapest item in the list. Go around to check that the pupils answered correctly. If time permits, you may also ask the pupils to arrange the items from the cheapest to the most expensive.
2. Revise and go through pupils' homework.

Unit 6: Shapes and Patterns

SEMICIRCLES AND QUARTER CIRCLES

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- identify, names and describe semicircles and quarter circles

Instructions

Let's Learn...

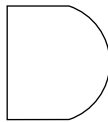
Activity 1 (15 min): Introduce semicircles

Things you need: a big cut-out shape of a semicircle

1. Refer to page 104 of the Student's Book and guide the pupils through the instructions to make a semicircle.
2. Introduce the word 'semicircle' as half circle. Emphasize that a circle is made up of two semicircles.
3. Using a cut-out shape of a semicircle, show that a semicircle has a straight line and a curve.
4. Ask the pupils to think of real-life items that have a shape of a semicircle. List down on the board all the examples given by the pupils.
5. Draw on the board some examples of shapes that look like semicircles but are not:



This figure has 2 curves.



This figure has 3 straight lines and one curve.

6. Explain that to test whether a shape is a semicircle, put two pieces of the same shape together and if they form a circle, then the shape is a semicircle, otherwise it is not a semicircle.

Activity 2 (15 min): Introduce quarter circles

Things you need: a big cut-out shape of a quarter circle

1. Refer to page 105 of the Student's Book and guide the pupils through the instructions to create quarter circles.
2. Introduce the word 'quarter circle' as $\frac{1}{4}$ of a circle. Emphasize that a circle is made up of 4 quarter circles and a semicircle is made up of 2 quarter circles.

- Using a cut-out shape of a quarter circle, show that a quarter circle has 2 straight lines and a curve. Point out that the 2 straight lines are perpendicular to each other, i.e at right angles.
- Ask the pupils to think of real-life items that have the shape of a quarter circle. List down on the board all the examples given by the pupils.
- Draw on the board some examples of shapes that look like quarter circles but are not:



The 2 straight lines are not perpendicular to each other

- Explain that to test whether a shape is a quarter circle, put four pieces of the same shape together and if they form a circle, then the shape is a quarter circle, otherwise it is not a quarter circle. Another test is to see if the two straight lines are perpendicular to each other, i.e at right angles.

Activity 3 (10 min): Identify semicircles and quarter circles in a figure

- Refer the pupils to the figures (a) and (b) shown on page 106 of the Student's Book. Lead them to count the number of semicircles and quarter circles in the figures.

Activity 4 (25 min): Create figures using semicircles and quarter circles

Things you need: coloured paper, drawing paper, scissors, glue sticks

- Hand out a variety of coloured paper and drawing paper to all the pupils. Explain to the pupils that they are to create a figure using cut-outs of semicircles and quarter circles. The pupils have to draw circles on the coloured papers and cut them out. From the cut-out circles, the pupils are to cut further to create semicircles and quarter circles and then paste them on the drawing paper to create a figure. The pupils can create any figure of their choice. Acknowledge 4 to 5 figures that are the most creative and well-formed.
- Next, ask the pupils to exchange their completed figure with their partner and ask them to count the number of semicircles and quarter circles in their partner's figure.

Let's Try...

Activity 5 (15 min): Individual practice

- Ask the pupils to try the exercises on page 107 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheet 21.

Answers



page 107

- 3 semicircles, 4 quarter circles

WORK *Sheet* 21

1. (a) 8 (b) 2 (c) 2
2. 4, 1, 7, 3, 1
3. (a) 3, 5 (b) 5, 2 (c) 3, 3

MAKING FIGURES FROM SHAPES

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- identify the basic shapes that make up a given figure
- form different 2-D figures with cut-outs of:
rectangles, squares, triangles, semicircles, quarter circles

Instructions

Let's Learn...

Activity 1 (20 min): Recall the basic shapes—rectangle, square, triangle and circle

Things you need: cut-outs of rectangles, squares, triangles, and circles

1. Recall the basic shapes by showing the cut-outs of rectangles, squares, triangles, and circles and asking the class to name them one by one.

Activity 2 (20 min): Identify basic shapes that make up a figure

1. Go through with the pupils the examples on pages 108–109 of the Student's Book to identify the basic shapes that make up the figures.

Activity 3 (40 min): Form 2-D figures from cut-outs of basic shapes

Things you need: coloured paper, drawing paper, scissors, glue sticks

1. Hand out a variety of coloured paper and drawing paper to all the pupils. Explain to the pupils that they are to create a figure using cut-outs of rectangles, squares, triangles, circles, semicircles and quarter circles. The pupils have to draw the basic shapes, cut them out and paste them in the drawing paper to create a figure. The pupils are to create any figure of their choice using not less than 12 pieces of cut-outs involving all the basic shapes. Acknowledge 4 to 5 figures that are the most creative and well-formed.
2. Next, ask the pupils to exchange their completed figure with their partner and ask them to name the shapes and count them.

Let's Try...

Activity 6 (20 min): Individual practice

1. Ask pupils to do the exercises on page 110 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheet 22.

Answers



page 110

- (a) semicircles, rectangles, triangles
(b) semicircle, rectangle, quarter circles

WORK **Sheet** 22

- (a) 4, 10, 0 (b) 7, 5, 6, 1
- (b) 3 triangles, 3 semicircles, 1 square
(c) 1 quarter circle, 1 triangle, 3 rectangles, 1 square

Let's Explore

Activity 7 (20 min): Interesting activity to enhance learning

Things you need: square paper for every pupil

- Let the pupils try the activity on page 111 of the Student's Book. Guide the pupils through the activity step by step. Ensure that everyone completes a step before giving the instruction for the next step.

FORMING PATTERNS

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- make patterns with 2-D cut-outs according to one or two of the following attributes: shape, size, orientation, colour
- complete patterns with 2-D cut-outs according to one or two attributes

Instructions

Let's Learn...

Activity 1 (20 min): Make and complete patterns of 2-D cut-outs according to change in shape

Things you need: cut-outs of rectangles, squares, triangles, circles, semicircles, and quarter circles

1. Take some cut-outs of semicircles, quarter circles, and triangles and arrange them in a pattern as follows:



2. Explain to the class that this is an example of a pattern based on change in shape. Emphasize that the semicircle, triangle, and quarter circle repeat themselves in that order. Explain that to identify a pattern, they need to look for a set of items that repeats itself.
3. Arrange the same cut-outs to form another pattern. Ask a pupil to continue the pattern with 4 more pieces of cut-outs. Repeat this for 3 other pupils.
4. Give each pupil a set of cut-outs comprising 3 cut-outs for every basic shape and ask them to form any pattern according to change in shape. Go from table to table to inspect the patterns created by the pupils.

Activity 2 (20 min): Make and complete patterns of 2-D cut-outs according to change in size

Things you need: cut-outs of semicircles of different sizes but of the same colour

1. Show cut-outs of two different sizes of semicircles as follows:



2. Explain to the class that this is an example of a pattern based on change in size. Point out to the pupils that the small and big semicircles repeat themselves. Remind the pupils that to identify a pattern, they need to look for a set of items that repeats itself.
3. Give each pupil a set of cut-outs of semicircles of 4 different sizes and instruct them to form any pattern according to change in size. Go from table to table to ask the patterns created by the pupils.

Activity 3 (20 min): Make and complete patterns of 2-D cut-outs according to change in orientation

Things you need: cut-outs of quarter circles and semicircles

1. Show cut-outs of quarter circles as follows:

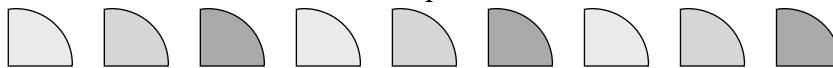


2. Explain to the class that this is an example of a pattern based on change in orientation or position. Lead the pupils to see that quarter circles are positioned differently based on a clockwise rotation.
3. Give each pupil a set of cut-outs of quarter circles of the same size and colour and ask them to form any pattern according to change in orientation. Go from table to table to inspect the patterns created by the pupils.

Activity 4 (20 min): Make and complete patterns of 2-D cut-outs according to change in colours

Things you need: cut-outs of different colours of quarter circles

1. Show cut-outs of three different coloured quarter circles as follows:



2. Explain to the class that this is an example of a pattern based on change in colours. Remind the pupils that to identify a pattern, they need to look for a set of items that repeats itself.
3. Give each pupil a set of cut-outs of quarter circles of 4 different colours and ask them to form any pattern according to change in colour. Go from table to table to inspect the patterns created by the pupils.

Activity 5 (10 min): Class practice

1. Go through with the pupils the examples on page 112 of the Student's Book.

Let's Think

Activity 6 (15 min): Challenging problems to enhance learning

1. Ask the pupils to work in pairs to solve the challenging problems on page 113 of the Student's Book.

Let's Try...

Activity 7 (15 min): Individual practice

1. Ask pupils to do the exercises on page 114 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheet 23 and Practice 6.

Answers

Practice 6

2. 1 quarter circle, 2 rectangles
2 semicircles, 1 triangle, 2 rectangles

Revision (40 min)

Fun with Maths

Things you need: follow the list as stated in the textbook

1. Ask the pupils to create pattern mobiles based on the instructions on page 115 of the Student's Book. Go around the class to guide the pupils. Hang up all the pattern mobiles as displays.
2. Revise and go through pupils' homework.

Unit 7: Lines, Curves and Surfaces

STRAIGHT LINES AND CURVES

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- identify lines and curves

Instructions

Let's Learn...

Activity 1 (20 min): Identify lines and curves

1. Draw some straight lines on the board using the metre rule and explain to the class that these are straight lines. Draw some curves on the board and explain that these are curves.
2. Ask the pupils to look around in the classroom for straight lines and curves. Let every pupil have the chance to respond.
3. Go through with the pupils the examples on page 118 of the Student's Book.
4. Show more examples of 2-D figures and ask the pupils to identify and count the number of straight lines and curves.

Activity 2 (20 min): Game to identify straight lines and curves

1. Play a game to let pupils practise identifying straight lines and curves as follows:
 - Divide the pupils into groups of 4–5 pupils.
 - Flash a long word for 30 secs and ask the pupils to count the number of straight lines and curves. Each group will send a representative to write the answers on the board.
 - For every correct answer, 10 points will be awarded to the group, and for every wrong answer, 5 points will be deducted.
 - The game continues until every pupil in the group has the chance to be the group representative to write the answers on the board.
 - The group with the highest score wins a prize.

Let's Think

Activity 3 (20 min): Further class practice to enhance learning

Things you need: a flag of Pakistan

1. Go through Exercise (A) and (B) on page 119 of the Student's Book.

Let's Try...

Activity 4 (20 min): Individual practice

1. Let the pupils try the exercises on page 120 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheet 24.

Answers



page 120

1. (a) 3 straight lines, 2 curves (b) 4 straight lines, 5 curves
(c) 6 straight lines, 5 curves (d) 3 straight lines, 6 curves
(e) 2 straight lines, 1 curves

WORK *Sheet* 24

2. (a) 0, 1 (b) 4, 0 (c) 2, 1 (d) 5, 0

FLAT SURFACES

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- identify flat faces of a 3-D object

Instructions

Let's Learn...

Activity 1 (40 min): Identify flat surfaces of 3-D objects

Things you need: a ball and a closed rectangular box

1. Show the class a ball and a closed rectangular box. Ask the class, 'Which object has a flat surface?' Lead the class to see that the closed rectangular box has 6 flat surfaces whereas the ball does not have any flat surface.
2. Go through with the pupils the examples on pages 121–122 of the Student's Book.
3. Ask the pupils to look around the classroom to find objects that have flat surfaces. Every pupil takes a turn to say one object with at least one flat surface.
4. Ask the pupils to look for an item in their bags that have at least 2 flat surfaces. Go around to assess the pupils' understanding of flat surfaces.

Let's Explore

Activity 2 (60 min): Identify flat surfaces by feeling the objects

1. Carry out the activity as stated on page 123 of the Student's Book. Also, ask the pupil to count the number of flat surfaces by feeling the object. Ensure that every pupil gets a chance to play the game. You may also ask the pupil to guess the object after feeling it for flat surfaces.

Let's Try...

Activity 3 (20 min): Individual practice

1. Ask pupils to do the exercises on pages 124–125 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Worksheet 25.





Answers



page 124–125

1. (i) (a), (c), (d), (e)
(ii) (a): rectangle
(c): circle
(d): circle
(e): circle

2.

Figure	Number of:		
	straight lines	curves	flat surface
	4	1	
	7	3	
			6
			1

WORK **Sheet** 25

3. square, 6 circle, 2 square, 2 rectangle, 4

FORMING 3-D FIGURES

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- form different 3-D figures with concrete models of: cubes, cuboids, cones, and cylinders

Instructions

Let's Learn...

Activity 1 (20 min): Introduce cube, cuboid, cone, and cylinder

Things you need: a cube, cuboid, cone, and cylinder

1. Show the class concrete models of the cube, cuboid, cone, and cylinder. You may briefly explain the solids as follows:

Cube

It has 6 flat surfaces.

All the surfaces are of the same size.

All the surfaces are squares.

Cuboid

It has 6 flat surfaces.

Not all the surfaces are of the same size.

Some of the surfaces are rectangles.

Cone

It has one flat surface.

The flat surface is a circle.

Cylinder

It has 2 flat surfaces.

The flat surfaces are circles.

2. Pass around the solids and let the pupils see and touch them.

Activity 2 (20 min): Form 3-D figures using the solids.

1. Pair up the pupils. Give each pair a set of solids and ask them to form any 3-D structures.

Let's Explore

Activity 3 (20 min): Interesting activity to enhance learning

1. Let the pupils try the activity on page 127 of the Student's Book.

Homework

Ask the pupils to do Workbook 2A—Practice 7.

Answers

Practice 7

1. 2, 6, 5, 3
2. A, E, F, I, K, M, N, T, V, W, X, Y, Z;
O, C, S, Q;
J, P, B, D, G, R, U.

Fun with Maths

1. Encourage the pupils to carry out the activity on page 128 of the Student's Book at home, using the computer. They may get the help of their parents or siblings.

Revision (20 min)

1. Ask pupils to submit their work for the activity on page 128 of the Student's Book. Hang up the pupils' work on the charts.
2. Revise and go through pupils' homework.



Revision 3

4. (a) 4, 1 (b) 6, 1 (c) 0, 6
5. (a) Rs 12.65 (b) 715 paise (c) Rs 3.85 (d) 760 paise
6. (a) shirt (b) pen
7. (a) $12 \div 3 = 4, 4$ (b) $18 \div 3 = 6, 6$
8. (a) 2, 2 (b) 10, 0 (c) 3, 1



Revision 4

1. (a) quarter circle, semicircle, rectangle (b) circle, semicircle, triangle
(c) quarter circle, square, rectangle (d) semicircles, quarter circle, triangle
2. (a) more (b) less (c) less (d) more
3. Rs 30
4. Rs 160
5. Rs 18.25
7. (a) B, C, D, E, F (b) B : 4, C : 6, D : 2, E : 6, F : 1
8. (a) Rs 12.25, Rs 12.75, Rs 12.50, Set B (b) Rs 4.50, Rs 4.75, Rs 4.25, Set Z
9. (a) Rs 0.90 (b) Rs 2.70 (c) Rs 8.05
10. (a) 25 paise (b) 305 paise (c) 675 paise
11. $14 \div 2 = 7, 7$
12. $24 \div 3 = 8, 8$
13. $18 \div 2 = 9, 9$
14. $18 \div 3 = 6, 6$

Unit 8: Multiplying by 4, 5 and 10

MULTIPLYING BY 4

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- build up the multiplication table of 4 and commit to memory

Instructions

Let's Learn...

Activity 1 (15 min): Recall the concept of multiplication by repeated addition

Things you need: 5 clear containers and 20 ping-pong balls

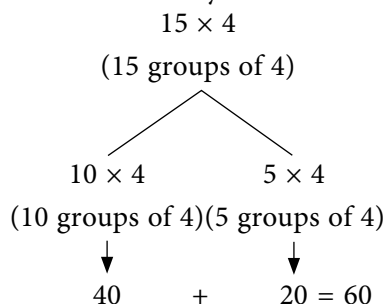
1. Put 3 clear containers on the table and ask a pupil to throw 4 ping-pong balls into each container. Ask the class 'How many ping-pong balls are there altogether?' Explain the concept of multiplication as repeated addition as follows:
 - Write on the board: $4 + 4 + 4 = 12$
 - Say: 'There are 12 ping-pong balls altogether.'
 - Lead the class to see that the number 4 is added 3 times to arrive at 12.
 - Write on the board the multiplication sentence: $3 \times 4 = 12$
 - Read the multiplication sentence as '3 multiplied by 4 equals 12' or '3 groups of 4 is 12' and ask the class to repeat both multiplication statements.
 - Point out to the pupils that multiplying a number is known as multiplication.
2. Repeat the above using different numbers of clear containers and ping-pong balls to show the following:
 $4 + 4 + 4 + 4 = 16$ \rightarrow $4 \times 4 = 16$ (4 groups of 4)
 $4 + 4 + 4 + 4 + 4 = 20$ \rightarrow $5 \times 4 = 20$ (5 groups of 4)
 $4 + 4 + 4 = 12$ \rightarrow $3 \times 4 = 12$ (3 groups of 4)

Activity 2 (15 min): Recall the concept of multiplication by grouping of items

Things you need: picture of horses on page 129 of the Student's Book and more pictures of animals or items in groups

1. Refer to the picture of the horses on page 129 of the Student's Book. Recall the concept of multiplication by grouping of items as follows:

- Ask the class: ‘How many hooves does Mr Greg have to trim and shoe?’
- Ask the class to count the number of horses.
- Lead the class to see that since each horse has 4 hooves and there are 15 horses, we can say that there are 15 groups of 4 hooves.
- Write on the board the multiplication sentence: $15 \times 4 = 60$
- Read the multiplication sentence as ‘15 multiplied by 4 equals 60’ or ‘15 groups of 4 is 60’ and ask the class to repeat both the multiplication sentences
- Explain to the class that the number 15 refers to the number of groups and the number 4 refers to the number of hooves in each group.
- Show the class how you obtain the answer 60 as follows:



2. Ask the class to interpret the multiplication sentence as follows:
 - The first number refers to the number of groups
 - The second number refers to the number of items in each group.
3. Provide pictures as examples for pupils to practise writing multiplication sentences involving the number 4.
4. Remind the pupils that in multiplication, if the order of the numbers is reversed, the answer is still the same. For example:

15 groups of 4 will give the same answer as 4 groups of 15

Or

15×4 will give the same answer as 4×15

However, remind the pupils that it is important to always put the number of groups as the first number and the number of items in each group as the second number. Even though 15 groups of 4 will give the same answer as 4 groups of 15, the meaning for each is different when used in word problems.

Activity 3 (10 min): Recall the multiplication tables of 2 and 3

Things you need: multiplication tables of 2 and 3 chart

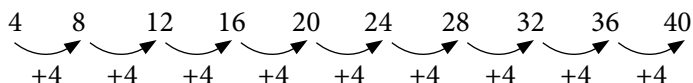
1. Pin up the multiplication tables of 2 and 3 charts of the revise with the class.
2. Write on the board the following multiplication sums of 2 and 3 and ask individual pupil to fill in the blanks:

$$\begin{array}{cccccc}
 2 \times \underline{\quad} = 6 & \underline{\quad} \times 2 = 18 & 3 \times \underline{\quad} = 27 & 2 \times \underline{\quad} = 16 & \underline{\quad} \times 3 = 3 \\
 3 \times \underline{\quad} = 21 & 2 \times \underline{\quad} = 14 & \underline{\quad} \times 3 = 9 & \underline{\quad} \times 2 = 12 & 3 \times \underline{\quad} = 24 \\
 2 \times \underline{\quad} = 2 & 3 \times \underline{\quad} = 6 & 3 \times \underline{\quad} = 18 & 2 \times \underline{\quad} = 10 & \\
 \underline{\quad} \times 2 = 20 & \underline{\quad} \times 3 = 30 & 3 \times \underline{\quad} = 15 & 2 \times \underline{\quad} = 4 &
 \end{array}$$

Activity 4 (30 min): Multiply by 4

Things you need: picture of 40 monkeys as shown on pages 130–131 of the Student’s Book and a chart of the multiplication table of 4

1. Refer to the picture of the monkeys. Circle every 4 monkeys and lead the class to count the monkeys in fours: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
2. Show the class the concept of multiplication by repeated addition of fours as follows:



3. With reference to the picture of the 40 monkeys grouped in fours, show the class the concept of multiplication by groups of items as follows:
 - Box up 1 group of monkeys, say ‘1 group of 4’ and write: $1 \times 4 = 4$
 - Box up 2 groups of monkeys, say ‘2 groups of 4’ and write: $2 \times 4 = 8$
 - Box up 3 groups of monkeys, say ‘3 groups of 4’ and write: $3 \times 4 = 12$
 - Box up 4 groups of monkeys, say ‘4 groups of 4’ and write: $4 \times 4 = 16$
 - Box up 5 groups of monkeys, say ‘5 groups of 4’ and write: $5 \times 4 = 20$
 - Box up 6 groups of monkeys, say ‘6 groups of 4’ and write: $6 \times 4 = 24$
 - Box up 7 groups of monkeys, say ‘7 groups of 4’ and write: $7 \times 4 = 28$
 - Box up 8 groups of monkeys, say ‘8 groups of 4’ and write: $8 \times 4 = 32$
 - Box up 9 groups of monkeys, say ‘9 groups of 4’ and write: $9 \times 4 = 36$
 - Box up 10 groups of monkeys, say ‘10 groups of 4’ and write: $10 \times 4 = 40$
4. Introduce to the class, the multiplication table of 4. Pin up the multiplication table of 4 chart.

Activity 5 (15 min): Class practice

1. Go through with the pupils the examples on pages 132–133 of the Student’s Book. Ask a few pupils to share their answers with the class.

Activity 6 (15 min): Memorize the multiplication table of 4

1. Ask the pupils to work in pairs to write down the multiplication table of 4 from $1 \times 4 = 4$ to $10 \times 4 = 40$ and then backwards from $10 \times 4 = 40$ to $1 \times 4 = 4$.
2. Encourage the pupils to memorize the multiplication table of 4. To help pupils recall the multiplication table, use the count with finger and break into 2 steps methods, as done for multiplication tables of 2 and 3.

Let’s Explore

Activity 7 (15 min): Interesting activity to enhance learning

1. Let the pupils try the interesting activity on page 134 of the Student's Book. Ask the pupils to share their answers with their partners.

Let's Try...

Activity 8 (15 min): Individual practice

1. Ask the pupils to try the exercises on page 135 of the Student's Book. Ask some pupils to share their answer with the class.

Homework

1. Ask the pupils to do Workbook 2B—Worksheet 26.
2. Ask the pupils to memorize the multiplication table of 4.

Answers



page 135

1. 8
2. 16
3. (a) 32, 32 (b) 40, 40 (c) 28, 28

WORK *Sheet* 26

1. (a) 8, 12, 16 (b) 8, 12, 16, 20, 24, 28, 32 (c) 8, 12, 16, 20 (d) 8, 12, 16, 20, 24
4, 4, 16 8, 8, 32 5, 5, 20 6, 6, 24
2. 24, 24 8, 8 36, 36
3. E A R T H

MULTIPLYING BY 5

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- build up the multiplication table of 5 and commit to memory

Instructions

Let's Learn...

Activity 1 (15 min): Recall the multiplication tables of 2, 3, and 4

Things you need: multiplication tables of 2, 3, and 4 charts.

1. Pin up the multiplication tables of 2, 3, and 4 charts and revise with the class.

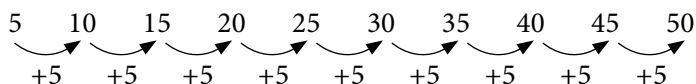
2. Write on the board the following multiplication sums of 2, 3, and 4 and ask individual pupil to fill in the blanks:

$2 \times \underline{\quad} = 6$	$\underline{\quad} \times 2 = 18$	$3 \times \underline{\quad} = 27$	$2 \times \underline{\quad} = 16$
$3 \times \underline{\quad} = 21$	$2 \times \underline{\quad} = 14$	$\underline{\quad} \times 3 = 9$	$\underline{\quad} \times 2 = 12$
$2 \times \underline{\quad} = 2$	$3 \times \underline{\quad} = 6$	$3 \times \underline{\quad} = 18$	$2 \times \underline{\quad} = 10$
$\underline{\quad} \times 3 = 3$	$\underline{\quad} \times 2 = 20$	$\underline{\quad} \times 3 = 30$	$3 \times \underline{\quad} = 15$
$2 \times \underline{\quad} = 4$	$3 \times \underline{\quad} = 24$	$4 \times \underline{\quad} = 20$	$\underline{\quad} \times 4 = 12$
$\underline{\quad} \times 4 = 32$	$4 \times \underline{\quad} = 8$	$4 \times \underline{\quad} = 16$	$\underline{\quad} \times 4 = 4$
$\underline{\quad} \times 4 = 40$	$4 \times \underline{\quad} = 28$	$4 \times \underline{\quad} = 24$	$\underline{\quad} \times 4 = 36$

Activity 2 (25 min): Multiply by 5

Things you need: picture of 50 frogs as shown on pages 136–137 of the Student’s Book and the chart of the multiplication table of 5

- Refer to the picture of the frogs on above-mentioned pages. Circle every 5 frogs and lead the class to count the monkeys in fives: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
- Show the class the concept of multiplication by repeated addition of fives as follows:



- With the picture of the 50 monkeys grouped into fives, show the class the concept of multiplication by grouping of items as follows:
 - Box up 1 group of monkeys, say ‘1 group of 5’ and write: $1 \times 5 = 5$
 - Box up 2 groups of monkeys, say ‘2 groups of 5’ and write: $2 \times 5 = 10$
 - Box up 3 groups of monkeys, say ‘3 groups of 5’ and write: $3 \times 5 = 15$
 - Box up 4 groups of monkeys, say ‘4 groups of 5’ and write: $4 \times 5 = 20$
 - Box up 5 groups of monkeys, say ‘5 groups of 5’ and write: $5 \times 5 = 25$
 - Box up 6 groups of monkeys, say ‘6 groups of 5’ and write: $6 \times 5 = 30$
 - Box up 7 groups of monkeys, say ‘7 groups of 5’ and write: $7 \times 5 = 35$
 - Box up 8 groups of monkeys, say ‘8 groups of 5’ and write: $8 \times 5 = 40$
 - Box up 9 groups of monkeys, say ‘9 groups of 5’ and write: $9 \times 5 = 45$
 - Box up 10 groups of monkeys, say ‘10 groups of 5’ and write: $10 \times 5 = 50$
- Introduce to the class the multiplication table of 5. Pin up the multiplication table of 5 chart.

Activity 3 (10 min): Class practice

- Go through with the pupils the examples on pages 138–139 of the Student’s Book. Ask a few pupils to share their answers with the class.

Activity 4 (20 min): Memorize the multiplication table of 5

- Ask the pupils to work in pairs to write down the multiplication table of 5 from $1 \times 5 =$

5 to $10 \times 5 = 50$ and then backwards from $10 \times 5 = 50$ to $1 \times 5 = 5$.

2. Encourage the pupils to memorize the multiplication table of 5. To help pupils recall the multiplication table, using the count with finger and break into 2 steps methods, as done for multiplication tables of 2, 3, and 4.
3. Draw the attention of the class to see that the numbers end with either the digit '0' or '5'.

Let's Try...

Activity 5 (10 min): Individual practice

1. Ask the pupils to try the exercises on page 139 of the Student's Book.

Homework

1. Ask the pupils to do Workbook 2B—Worksheet 27.
2. Ask the pupils to memorize the multiplication table of 5.

Answers



page 139

1. 20
2. (a) 10, 10 (b) 50, 50

WORK **Sheet** 27

1. (a) 10, 15 (b) 10, 15, 20, 25 (c) 10, 15, 20, 25, 30, 35 (d) 10, 15, 20, 25
3, 3, 15 5, 5, 25 40, 45 9, 9, 45 30, 6, 6, 30
3. 10, 20, 25, 30, 35, 45, 50

MULTIPLYING BY 10

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- build up the multiplication table of 10 and commit to memory

Instructions

Let's Learn...

Activity 1 (15 min): Recall the multiplication tables of 2, 3, 4, and 5

Things you need: multiplication tables of 2, 3, 4, and 5 chart.

1. Pin up the multiplication tables of 2, 3, 4, and 5 charts and revise with the class.
2. Write on the board the following multiplication problems of 2, 3, 4, and 5 and ask individual pupils to fill in the blanks:

$2 \times \underline{\quad} = 6$	$\underline{\quad} \times 2 = 18$	$3 \times \underline{\quad} = 27$	$2 \times \underline{\quad} = 16$
$3 \times \underline{\quad} = 21$	$2 \times \underline{\quad} = 14$	$\underline{\quad} \times 3 = 9$	$\underline{\quad} \times 2 = 12$
$2 \times \underline{\quad} = 2$	$3 \times \underline{\quad} = 6$	$3 \times \underline{\quad} = 18$	$2 \times \underline{\quad} = 10$
$\underline{\quad} \times 3 = 3$	$\underline{\quad} \times 2 = 20$	$\underline{\quad} \times 3 = 30$	$3 \times \underline{\quad} = 15$
$2 \times \underline{\quad} = 4$	$3 \times \underline{\quad} = 24$	$4 \times \underline{\quad} = 20$	$\underline{\quad} \times 4 = 12$
$\underline{\quad} \times 4 = 32$	$4 \times \underline{\quad} = 8$	$4 \times \underline{\quad} = 16$	$\underline{\quad} \times 4 = 4$
$\underline{\quad} \times 4 = 40$	$4 \times \underline{\quad} = 28$	$4 \times \underline{\quad} = 24$	$\underline{\quad} \times 4 = 36$
$5 \times \underline{\quad} = 25$	$\underline{\quad} \times 5 = 45$	$\underline{\quad} \times 5 = 10$	$5 \times \underline{\quad} = 5$
$5 \times \underline{\quad} = 50$	$\underline{\quad} \times 5 = 20$	$\underline{\quad} \times 5 = 40$	$5 \times \underline{\quad} = 15$

Activity 2 (30 min): Multiply by 10

Things you need: picture of 100 birds as shown on pages 140–141 of the Student’s Book and a chart of the multiplication table of 10

1. Refer to the picture of the birds on the above-mentioned pages. Circle every 10 birds and lead the class to count the birds in tens: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100.
2. Show the class the concept of multiplication by repeated addition of tens as follows:

$$\begin{array}{cccccccccccc}
 10 & 20 & 30 & 40 & 50 & 60 & 70 & 80 & 90 & 100 \\
 \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright & \curvearrowright \\
 +10 & +10 & +10 & +10 & +10 & +10 & +10 & +10 & +10 & +10
 \end{array}$$

3. With the picture of the 100 birds grouped into tens, show the class the concept of multiplication by grouping of items as follows:
 - Box up 1 group of birds, say ‘1 group of 10’ and write: $1 \times 10 = 10$
 - Box up 2 groups of birds, say ‘2 groups of 10’ and write: $2 \times 10 = 20$
 - Box up 3 groups of birds, say ‘3 groups of 10’ and write: $3 \times 10 = 30$
 - Box up 4 groups of birds, say ‘4 groups of 10’ and write: $4 \times 10 = 40$
 - Box up 5 groups of birds, say ‘5 groups of 10’ and write: $5 \times 10 = 50$
 - Box up 6 groups of birds, say ‘6 groups of 10’ and write: $6 \times 10 = 60$
 - Box up 7 groups of birds, say ‘7 groups of 10’ and write: $7 \times 10 = 70$
 - Box up 8 groups of birds, say ‘8 groups of 10’ and write: $8 \times 10 = 80$
 - Box up 9 groups of birds, say ‘9 groups of 10’ and write: $9 \times 10 = 90$
 - Box up 10 groups of birds, say ‘10 groups of 10’ and write: $10 \times 10 = 100$
4. Introduce to the class the multiplication table of 10. Pin up the multiplication table of 10 chart.

Activity 3 (10 min): Class practice

1. Go through with the pupils the examples on pages 142–143 of the Student’s Book. Ask a few pupils to share their answers with the class.

Activity 4 (15 min): Memorize the multiplication table of 10

1. Ask the pupils to work in pairs to write down the multiplication table of 10 from $1 \times 10 = 10$ to $10 \times 10 = 100$ and then backwards from $10 \times 10 = 100$ to $1 \times 10 = 10$.
2. Encourage the pupils to memorize by hard the multiplication table of 10. To help pupils recall the multiplication table, use the count with fingers method as done for the multiplication table of 2, 3, 4, and 5.
3. Short-cut to Multiplication of 10

- Draw the attention of the class to see that all the numbers end with the digit ‘0’. The numbers can be obtained simply by adding a zero to the number as follows:

$$9 \times 10 = 90$$

Let’s Explore

Activity 5 (15 min): Exercise to enhance learning

1. Let the pupils try the multiplication problems on page 144 of the Student’s Book. Ask the pupils to share their answers with their partners. Lead the pupils to conclude the following:
 - Any number multiplied by 1 will result in the same number, in other words, multiplying by 1 does not change the number
 - Any number multiplied by 10 is same as multiplying by one ten and the result can be obtained by simply adding a zero to the number

Let’s Try...

Activity 6 (15 min): Individual practice

1. Ask the pupils to try the exercises on page 145 of the Student’s Book.

Homework

1. Ask the pupils to do Workbook 2B—Worksheet 28.
2. Ask the pupils to memorize the multiplication table of 10.

Answers



page 145

1. 70
2. 100
3. (a) 80, 80 (b) 90, 90

WORK **S**heet **28**

1. (a) 20, 30, 40, 50 (b) 20, 30, 40, 50 (c) 20, 30, 40, 50, 60 (d) 20, 30, 40
5, 5, 50 60, 70, 7, 7, 70 70, 80, 90, 9, 9, 90 4, 4, 40

2. (a) 3, 3, 30 (b) 3, 3, 30 (c) 6, 10, $6 \times 10 = 60$ (d) 10, 6, $10 \times 6 = 60$
3. 40 10
 70 70
 20 40
 10 20
4. 20, 60, 50, 70, 30, 100

WORD PROBLEMS

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- solve 1-step word problems involving multiplication

Instructions

Let's Learn...

Activity 1 (40 min): Solve 1-step word problems involving multiplying by 4, 5, and 10

1. Go through with the pupils the examples on pages 146–147 of the Student's Book. Read each of the word problem together with the class. Remind the pupils of the following steps in solving multiplication word problems:
 - Look for the number of identical groups
 - Look for the number of items in each group
 - Write the multiplication sentence
 - Solve the multiplication by recalling facts from multiplication table. Use 'count with fingers' method or 'break into 2 steps' method to help recall the facts.
 - Write the answer statements.
2. Write on the board more examples of one-step word problems that involve multiplying by 4, 5, and 10 and ask the pupils to solve them.

Activity 2 (40 min): Create 1-step word problems from pictures

Things you need: pictures of items grouped in 4s, 5s, and 10s

1. Show the pictures of items grouped in 4s, 5s, and 10s to the class. Ask the pupils to create 1-step word problems from the pictures. For example, you may show a picture of 5 boxes of pies with 4 pies in each box and the pupils can create a word problem as follows:
 There are 5 boxes of pies. Each box has 4 pies. How many pies are there altogether?
2. Ask some pupils to share some of the word problems they have created. Pair up the pupils and ask them to solve each other's word problems.

Let's Try...

Activity 3 (10 min): Individual practice

1. Ask the pupils to work out the word problems on page 148 of the Student's Book. Ask some pupils to show their workings on the board.

Homework

Ask the pupils to do Workbook 2B—Worksheet 29 and Practice 8.

Answers



page 148

1. 32
2. 50
3. 45
4. 28
5. 30

WORK 29

1. $10 \times 6 = 60, 60$
2. $3 \times 5 = 15, 15$
3. $4 \times 9 = 36, 36$
4. $5 \times 7 = 35, 35$
5. $7 \times 4 = 28, 28$
6. $8 \times 10 = 80, 80$
7. $10 \times 5 = 50, 50$
8. $4 \times 8 = 32, 32$



2. (a) 30 (b) 30 (c) 36 (d) 70 (e) 40 (f) 24
4. $10 \times 10 = 100, 100$
5. $4 \times 6 = 24, 24$

Revision (30 min)

Fun With Maths

1. Let the pupils try the interesting activity on page 149 of the Student's Book. Ask some pupils to share their answers with the class.
2. Revise and go through pupils' homework.

Unit 9: Dividing by 4, 5, and 10

DIVIDING BY 4

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- use the division symbol to write mathematical statements for given situations
- recognise the relationship between multiplication and division involving 4

Instructions

Let's Learn...

Activity 1 (20 min): Recall the multiplication table of 4

1. Pin up the chart of the multiplication table of 4 and revise with the class.
2. Tell the class that in order to do division, one must know the multiplication tables well.
3. Write on the board the following multiplication sums and ask individual pupils to fill in the blanks:

$$\begin{array}{llll} 4 \times \underline{\quad} = 28 & 4 \times \underline{\quad} = 24 & \underline{\quad} \times 4 = 8 & \underline{\quad} \times 4 = 4 \\ 4 \times \underline{\quad} = 40 & 4 \times \underline{\quad} = 4 & \underline{\quad} \times 4 = 12 & \underline{\quad} \times 4 = 20 \\ 4 \times \underline{\quad} = 36 & 4 \times \underline{\quad} = 16 & & \end{array}$$

Activity 2 (15 min): Recall the concept of division

Things you need: cubes

1. Recall the concept of division as in finding the number of items in a group as follows:
 - Select 16 pupils to come forward and arrange them into 4 equal groups. Explain that you have just done a division. Ask the pupils 'How many pupils are there in each group?' Then, ask a pupil to write the division sentence on the board.
 - Repeat the above for different number of pupils for 5 more times to help pupils recall the concept of division as in finding the number of items in a group.
2. Revise the concept of division as in finding number of equal groups as follows:
 - Explain to the class that you want to distribute 16 cubes equally among some pupils and each pupil is to have 4 cubes. Ask the class 'How many pupils will receive the cubes?' Lead the class to see that to find the answer is to find the number of equal groups of 4. Write the division sentence: $16 \div 4 = 4$. Hence, the number of equal groups

or the number of pupils receiving the cubes is 4. Remind the class that to obtain the answer 4, the pupils need to refer to the multiplication table of 4.

- Repeat the above for different number of cubes and ask the pupils to write the division sentences.

Activity 3 (40 min): Divide by 4

Things you need: picture of 40 chairs arranged in 4 rows as shown on page 150 of the Student's Book, and other pictures showing different number of animals, fruits, and other items

1. Refer to the picture of 40 chairs arranged in 4 rows on the above mentioned page. Ask the pupils, 'How many chairs are there in each row?' Lead the class to see that a division is needed to find the answer. Show the division by circling the rows to form 4 groups. Write on the board the division sentence: $40 \div 4 = 10$. Hence, there are 10 chairs in each row. Tell the class that to obtain the answer 10, the pupils need to refer to the multiplication fact of $10 \times 4 = 40$ in the multiplication table of 4.
2. Repeat the above using different pictures showing different number of items.

Activity 4 (40 min): Relate multiplication and division

Things you need: a chart of multiplication table of 4

1. Write on the board: $4 \times 2 = 8$. Remind the pupils that division is the opposite of multiplication. Show the relation as follows:
 $4 \times 2 = 8$ can be written in division sentences as
 $8 \div 2 = 4$ or $8 \div 4 = 2$
2. Refer the pupils to the multiplication table of 4 chart. For each multiplication sentence, ask two pupils, one at a time, to come forward to write the two corresponding division sentences on the board. The pupils can refer to the multiplication table chart for help.

Activity 5 (20 min): Class practice

1. Go through with the pupils the examples on pages 151–153 of the Student's Book.

Let's Try...

Activity 6 (30 min): Individual practice

1. Ask the pupils to try the exercises on page 154 of the Student's Book. Ask a few pupils to share their answers with the class.

Homework

1. Ask the pupils to do Workbook 2B—Worksheet 30.
2. Ask the pupils to review the multiplication table of 5 in preparation for the next lesson on Dividing by 5.

Answers



page 154

1. 5 2. 9 3. 4
4. (a) 4, 4 (b) 7, 7 (c) 10, 10 (d) 8, 8

WORK **Sheet** 30

1. (a) $28 \div 4 = 7, 7$ (b) $12 \div 4 = 3, 3$
2. (a) $20 \div 4 = 5$ (b) $32 \div 4 = 8$
3. 2, 2; 6, 6; 4, 4; 9, 9

DIVIDING BY 5

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- recognize the relationship between multiplication and division involving 5

Instructions

Let's Learn...

Activity 1 (20 min): Recall the multiplication table of 5

1. Pin up the multiplication table of 5 chart and revise with the class.
2. Tell the class that in order to do division, one must know the multiplication tables well.
3. Write on the board the following multiplication sums and ask pupils to fill in the blanks:

$$\begin{array}{llll} 5 \times \underline{\quad} = 30 & 5 \times \underline{\quad} = 25 & \underline{\quad} \times 5 = 40 & 5 \times \underline{\quad} = 10 \\ \underline{\quad} \times 5 = 15 & 5 \times \underline{\quad} = 50 & 5 \times \underline{\quad} = 35 & \\ \underline{\quad} \times 5 = 45 & \underline{\quad} \times 5 = 5 & 5 \times \underline{\quad} = 20 & \end{array}$$

Activity 2 (20 min): Recall the concept of division

Things you need: cubes

1. Recall the concept of division as in finding the number of items in a group as follows:
 - Select 15 pupils to come forward and arrange them into 3 equal groups. Explain that you have just done a division. Ask the pupils 'How many pupils are there in each group?' Then, ask a pupil to write the division sentence on the board.
 - Repeat the above for different number of pupils for 5 more times to help pupils recall the concept of division as in finding the number of items in a group.

3. Revise the concept of division as in finding number of equal groups as follows:
 - Explain to the class that you want to distribute 30 cubes equally among some pupils and each pupil is to have 5 cubes. Ask the class ‘How many pupils will receive the cubes?’ Lead the class to see that to find the answer is to find the number of equal groups of 5. Write the division sentence: $30 \div 5 = 6$. Hence, the number of equal groups or the number of pupils receiving the cubes is 6. Remind the class that to obtain the answer 6, the pupils need to refer to the multiplication table of 5.
 - Repeat the above for different number of cubes and ask the pupils to write the division sentences.

Activity 3 (40 min): Divide by 5

Things you need: pictures showing different number of animals, fruits and other items

1. Show a picture of 40 apples (or can be any objects) to the pupils. Explain the class that you are going to arrange the apples into 5 equal groups and ask the class ‘What would be the number of apples in each group?’ Lead the class to see that a division is needed to find the answer. Show the division by circling the apples to form 5 groups of 8 apples each. Count the number of apples in each group and write on the board the division sentence: $40 \div 5 = 8$. Explain that to obtain the answer 8, the pupils need to refer to the multiplication fact of $8 \times 5 = 40$ in the multiplication table of 5.
2. Repeat the above using different pictures showing different number of items.

Activity 4 (40 min): Relate multiplication and division

Things you need: a chart of the multiplication table of 5

1. Write on the board: $4 \times 5 = 20$. Remind the pupils that division is the opposite of multiplication. Show the relation as follows:
 $4 \times 5 = 20$ can be written in division sentences as
 $20 \div 4 = 5$ or $20 \div 5 = 4$
2. Refer the pupils to the multiplication table of 5 chart. For each multiplication sentence, ask two pupils one at a time to come forward to write the two corresponding division sentences on the board.

Activity 5 (20 min): Class practice

1. Go through with the pupils the examples on pages 155–157 of the Student’s Book.

Let’s Try...

Activity 6 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 158 of the Student’s Book. Ask a few pupils to share their answers with the class.

Homework

1. Ask the pupils to do Workbook 2B—Worksheet 31.
2. Ask the pupils to review the multiplication table of 10 in preparation for the next lesson on Dividing by 10.

Answers



page 158

1. 2 2. 3 3. 8
4. (a) 5, 5 (b) 9, 9 (c) 10, 10 (d) 6, 6

WORK **Sheet** 31

1. (a) $15 \div 5 = 3, 3$ (b) $25 \div 5 = 5, 5$
2. (a) 4, 20, 4 (b) 7, 35, 7
3. 2 6
 7 8
 8 2
 3 3
 6 7

DIVIDING BY 10

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- recognize the relationship between multiplication and division involving 10

Instructions

Let's Learn...

Activity 1 (15 min): Recall the multiplication table of 10

- Pin up the multiplication table of 10 chart and revise with the class.
- Explain to the class that in order to do division, one must know the multiplication tables well.
- Write on the board the following multiplication sums and ask individual pupil to fill in the blanks:

$$\begin{array}{lll} 10 \times \underline{\quad} = 60 & 10 \times \underline{\quad} = 10 & \underline{\quad} \times 10 = 70 \\ \underline{\quad} \times 10 = 30 & 10 \times \underline{\quad} = 40 & 10 \times \underline{\quad} = 90 \\ \underline{\quad} \times 10 = 50 & \underline{\quad} \times 10 = 80 & 10 \times \underline{\quad} = 20 \quad 10 \times \underline{\quad} = 100 \end{array}$$

Activity 2 (25 min): Divide by 10

Things you need: pictures showing different number of animals, fruits and other items

1. Show a picture of 50 apples (or can be any objects) to the class. Explain that you are going to arrange the apples into 10 equal groups and ask the class ‘What would be the number of apples in each group?’ Lead the class to see that a division is needed to find the answer. Show the division by circling the apples to form 10 groups of 5 apples each. Count the number of apples in each group and write on the board the division sentence: $50 \div 10 = 5$. Explain that to obtain the answer 5, the pupils need to refer to the multiplication fact of $5 \times 10 = 50$ in the multiplication table of 10.
2. Repeat the above using different pictures showing different number of items.
3. Show the class that there is a short cut to dividing by 10 as follows:
 - The answer can be obtained by simply removing the zero from the number as follows:

$$90 \div 10 = 9$$

Activity 3 (20 min): Relate multiplication and division

Things you need: a chart of the multiplication table of 10

1. Write on the board: $8 \times 10 = 80$. Remind the pupils that division is the opposite of multiplication. Show the relation as follows:
 $8 \times 10 = 80$ can be written in division sentences as
 $80 \div 8 = 10$ or $80 \div 10 = 8$
2. Refer the pupils to the multiplication table of 10 chart. For each multiplication sentence, ask two pupils, one at a time, to come forward to write the two corresponding division sentences on the board.

Activity 4 (10 min): Class practice

1. Go through with the pupils the examples on pages 159–161 of the Student’s Book.

Let’s Try...

Activity 5 (10 min): Individual practice

1. Ask the pupils to try the exercises on page 162 of the Student’s Book. Ask a few pupils to share their answers with the class.

Homework

1. Ask the pupils to do Workbook 2B—Worksheet 32.

Answers



page 162

1. 3 2. 8 3. 6
4. (a) 2, 2 (b) 9, 9 (c) 10, 10 (d) 5, 5

WORK *Sheet* 32

- (a) $20 \div 10 = 2, 2$ (b) $60 \div 10 = 6, 6$
- (a) $40 \div 10 = 4, 4$ (b) $50 \div 10 = 5, 5$
- 1, 1; 8, 8; 3, 3; 7, 7

WORD PROBLEMS

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- solve 1-step word problems involving division by 4, 5, and 10

Instructions

Let's Learn...

Activity 1 (40 min): Solve word problems involving dividing by 4, 5, and 10

- Go through with the pupils the examples on page 163 of the Student's Book. Read together with the class each of the word problems. Explain to the pupils the following steps in solving division word problems:
 - Look for the total number of items given
 - Look for:
 - Number of equal groups to be formed
 - or
 - Number of items to be given to each group
 - Write the division sentence
 - Solve the division by recalling facts from the multiplication table.
 - Write the answer statements.
- Provide more examples of 1-step word problems for the pupils to practise.

Let's Try...

Activity 2 (15 min): Individual practice

- Ask the pupils to work out the word problems on page 164 of the Student's Book. Go around and provide individual guidance to pupils where necessary. Ask some pupils to show their workings on the board.

Homework

Ask the pupils to do Workbook 2B—Worksheet 33 and Practice 9.

Answers



page 164

1. 7 2. 8 3. 7 4. 10

WORK **Sheet** 33

1. $10 \div 5 = 2, 2$ 2. $30 \div 10 = 3, 3$ 3. $45 \div 5 = 9, 9$ 4. $32 \div 4 = 8, 8$
5. $25 \div 5 = 5, 5$ 6. $50 \div 10 = 5, 5$ 7. $80 \div 10 = 8, 8$ 8. $20 \div 5 = 4, 4$
9. $70 \div 10 = 7, 7$

P practice 9

2. (a) 9 (b) 7 (c) 5 (d) 6 (e) 4 (f) 6 (g) 9 (h) 4
3. (a) 6 (b) 3 (c) 4 (d) 9 (e) 5 (f) 8
4. (a) 32 (b) 60 (c) 35 (d) 15 (e) 8 (f) 40
5. $20 \div 4 = 5, 20 \div 5 = 4$
 $30 \div 10 = 3, 30 \div 3 = 10$
 $40 \div 8 = 5, 40 \div 5 = 8$
 $50 \div 10 = 5, 50 \div 5 = 10$
 $80 \div 8 = 10, 80 \div 10 = 8$
6. $36 \div 4 = 9$, Lisa gets Rs 9.
7. $60 \div 10 = 6$, George needs 6 boxes.
8. $4 \times 8 = 32$, Usman picks 32 fruits.

Revision (25 min)

Fun With Maths

Things you need: division discs and 3 cards with a hole and fastener

1. Let the pupils play the interesting game in pairs on page 165 of the Student's Book.
2. Revise and go through pupils' homework.

Unit 10: Fractions

RECOGNIZING FRACTIONS

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- recognize unit fractions

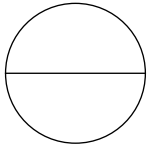
Instructions

Let's Learn...

Activity 1 (20 min): Know the concept of fractions as equal parts of a whole parts

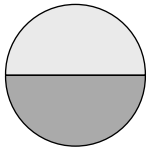
Things you need: a circle, a rectangular strip, square, and a marker

1. Show the class a big circle. Fold the circle into 2 equal parts. Unfold it and then tell the class that you have created 'two equal parts of a whole.'



Two equal parts of a whole

2. Next, shade one of the equal parts and tell the class '1 out of 2 equal parts' is shaded. Ask the class to repeat '1 out of 2 equal parts is shaded.'



1 out of 2 equal parts is shaded

3. Introduce the concept of fractions by writing the fraction corresponding to '1 out of 2 equal parts' as follows:

$\frac{1}{2}$ ← 1 out of
2 ← 2 equal parts

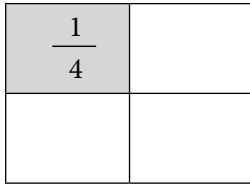
4. Read the fraction as 'one half'. Ask the class to repeat after you.
5. Show $\frac{1}{3}$ (one third) using a rectangular strip as follows:



1 out of 3 equal parts is shaded

One third

6. Show $\frac{1}{4}$ (one quarter) using a square as follows:



1 out of 4 equal parts is shaded

7. Emphasize to the pupils that the parts divided must be equal in order to form fractions.
 8. Explain to the pupils that the bottom number tells how many equal parts something has while the top number tells how many equal parts are being talked about. The bottom number is known as the 'denominator' and the top number is known as the 'numerator'.
 Write on the board as follows:

$\frac{2}{3}$ ← numerator, it tells how many equal parts are being talked about

3 ← denominator, it tells how many equal parts something has

9. Ask the class to repeat the words 'denominator' and 'numerator'.

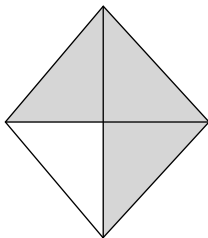
Activity 2 (20 min): Identify and write fractions from a given shape with equal parts

Things you need: 12 rectangular strips

1. Explain to the class the following steps in writing fractions from a given shape with equal parts shaded:

- Check that parts divided are equal or stated as equal
- Count the total number of equal parts which forms the denominator
- Count the number of shaded equal parts which forms the numerator
- Combine the denominator and numerator to form a fraction

For example: Find the fraction represented by the shaded equal parts in the diamond shape

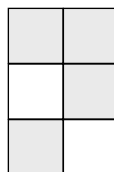
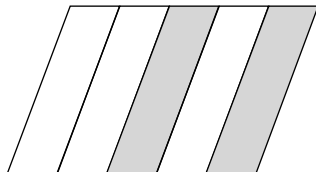
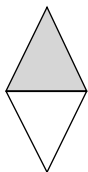


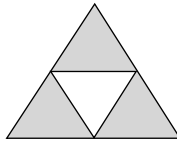
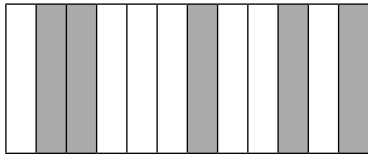
Total number of equal parts is 4.

Number of equal parts shaded is 3

The fraction represented by the shaded parts is $\frac{3}{4}$.

2. Provide more examples of shapes with equal parts shaded for pupils to practise writing fractions with denominators up to 12. Try to provide example of fractions that are already in the lowest terms.





Activity 3 (10 min): Class practice

1. Go through with the class the examples on pages 167–169 of the Student's Book.

Let's Try...

Activity 4 (30 min): Individual practice

1. Ask pupils to do the exercises on page 170 of the Student's Book.

Homework

Ask pupils to do Workbook 2B—Worksheet 34.

Answers



page 170

4. (a) $\frac{5}{6}$ (b) $\frac{2}{8}$

WORK **Sheet** 34

3. 1, 3; 2, 4; 2, 4; 2, 2

5. (a) $\frac{2}{9}$ (b) $\frac{3}{4}$ (c) $\frac{5}{12}$ (d) $\frac{3}{10}$

PARTS OF A WHOLE

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- interpret fractions as part of a whole

Instructions

Let's Learn...

Activity 1 (20 min): Identify and relate the parts and the whole in a given situation

1. Make up stories and draw rectangular strips for pupils to identify the parts and the whole in a given situation. For each example, ask the pupils to identify the parts.

Example 1

A loaf of bread is cut into 10 slices. 3 slices have been eaten.

Ask, 'Which is the whole which are the equal parts?'

(Answer: bread is the whole and the slices are the equal parts)

Ask, 'How many equal parts make one whole?' (Answer:10)

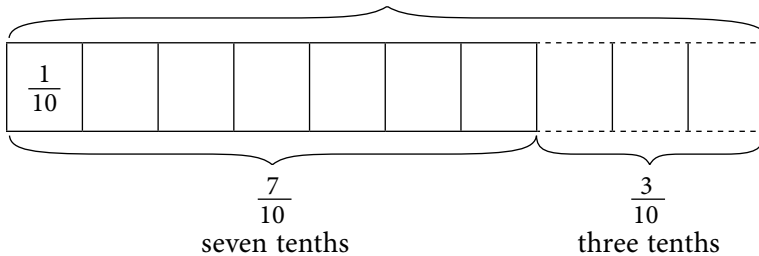
Ask, 'What is one equal part?' (Answer: $\frac{1}{10}$ or one tenth)

Ask, 'What fraction of the bread was eaten?' (Answer: $\frac{3}{10}$ or three tenths)

Ask, 'What fraction of the bread was left?' (Answer: $\frac{7}{10}$ or seven tenths)

Draw the rectangular strip as you lead the pupils through each question.

1 whole (10 equal parts)



(7 out of 10 equal parts)

(3 out of 10 equal parts)

Example 2: A cake was cut into 8 equal pieces. 5 pieces were given away.

Ask, 'Which is the whole and the equal parts?' (cake and smaller pieces)

Ask, 'How many equal parts make one whole?' (Answer: 8)

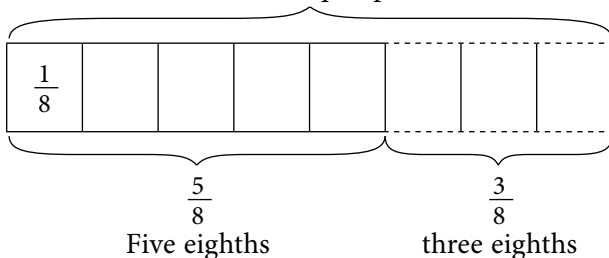
Ask, 'What is one equal part?' (Answer: $\frac{1}{8}$ or one eighth)

Ask, 'What fraction of the cake was given away?' (Answer: $\frac{5}{8}$)

Ask, 'What fraction of the cake was left?' (Answer: $\frac{3}{8}$)

Draw a rectangular strip as you lead the pupils through each question.

1 whole (8 equal parts)



(5 out of 8 equal parts) (3 out of 8 equal parts)

Example 3: A bar of chocolate was split into 12 equal pieces. Tom ate 5 small pieces.

Ask, 'Which is the whole and the equal parts?'

(Answer: the bar of chocolate is the whole and the equal smaller pieces are the equal parts)

Ask, 'How many equal parts make one whole?' (12)

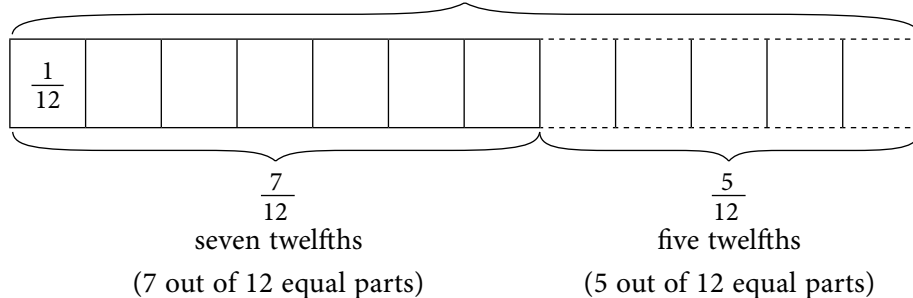
Ask, 'What is one equal part?' ($\frac{1}{12}$ or one twelfth)

Ask, 'What fraction of the chocolate did Tom eat?' ($\frac{5}{12}$ or five twelfths)

Ask, 'What fraction of the chocolate was left?' ($\frac{7}{12}$ or seven twelfths)

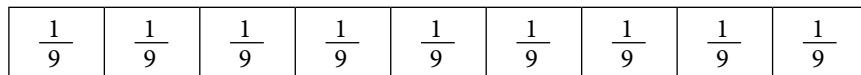
Draw the rectangular strip as you lead the pupils through each question.

1 whole (12 equal parts)



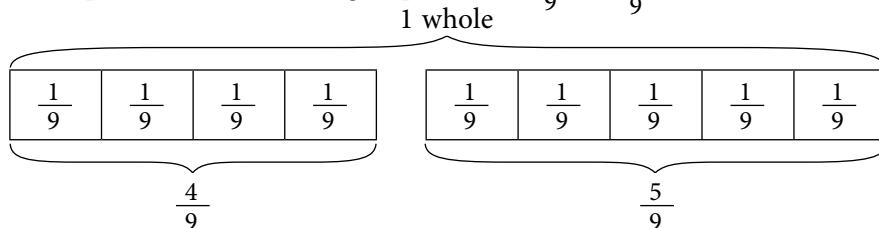
Activity 2 (20 min): Find fractions to make one whole

1. Draw on the board a rectangular strip and divide it into 9 equal parts and show that nine ninths make one whole as follows:



Write on the board: 1 whole = $\frac{9}{9}$ and read it as 'one whole equals nine ninths'.

2. Cut the rectangular strip so that you have nine small pieces of $\frac{1}{9}$. Place them on the table and separate them into two groups to show $\frac{4}{9}$ and $\frac{5}{9}$ make 1 whole as follows:



3. Ask a few pupils one at a time to come forward and arrange the pieces to create other combinations of fractions that make 1 whole. Ask each pupil to write the fractions on the board.

Activity 3 (20 min): Class practice

1. Go through with the pupils the examples on page 171 of the Student's Book.

Let's Try...

Activity 4 (20 min): Individual practice

1. Ask pupils to do the exercises on page 172 of the Student's Book.

Homework

Ask pupils to do Workbook 2B—Worksheet 35.

Answers



page 172

- (a) $\frac{1}{3}$ (b) $\frac{3}{4}$ (c) $\frac{2}{5}$
- Z

WORK **Sheet** 35

- (a) $\frac{1}{4}, \frac{3}{4}$ (b) $\frac{1}{3}, \frac{2}{3}$
- (a) $\frac{1}{5}$ (b) $\frac{5}{12}$ (c) $\frac{5}{9}$

COMPARING AND ORDERING FRACTIONS

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- read and write fractions
- compare and order
 - unit fractions
 - like fractions

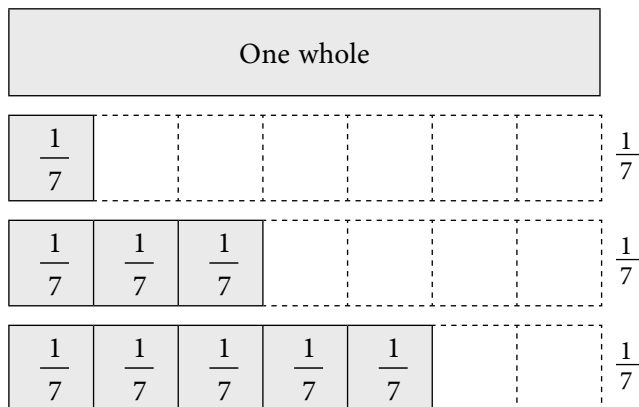
Instructions

Let's Learn...

Activity 1 (30 min): Compare and order fractions with same denominators (or like fractions)

- Write on the board a fraction. Recall the concept of fraction and the meaning of the top and bottom numbers as follows:
 $\frac{2}{3}$ ← numerator, it tells how many equal parts that are being talked about
3 ← denominator, it tells how many equal parts something has

2. Draw on the board a rectangular strip to show a whole. Draw another 3 same size rectangular strips to show $\frac{1}{7}$ and $\frac{3}{7}$ and $\frac{5}{7}$ as follows:



3. Ask the class to identify the biggest fraction and the smallest fraction by looking at the rectangular strips. Provide a few more examples for different denominators using rectangular strips and test the pupils' understanding. Lead the class to see that for fractions with the same denominators, the bigger the numerator, the bigger the fraction.

Activity 2 (10 min): Class practice

1. Go through with the pupils the examples on pages 173–175 of the Student's Book.

Let's Explore

Activity 3 (30 min): Compare fractions with different denominators but same numerators

Things you need: 12 strips of paper per group

- Divide the class into groups of 6. Guide the groups to make strips of paper showing $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{7}$, $\frac{1}{8}$, $\frac{1}{9}$, $\frac{1}{10}$, $\frac{1}{11}$ and $\frac{1}{12}$ as described in the **Let's Explore** activity on pages 176–177 of the Student's Book.
- Lead the class to arrange from the smallest to the biggest fractions:
 $\frac{1}{12}$, $\frac{1}{11}$, $\frac{1}{10}$, $\frac{1}{9}$, $\frac{1}{8}$, $\frac{1}{7}$, $\frac{1}{6}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$
- Explain to the class that the numerators of the above fractions are the same but the denominators are different. Explain to the class that when the denominator gets bigger, it means that the whole is split into more equal parts and therefore each part becomes smaller.
- Ask the class to try arranging the fractions if all the numerators are changed to 2. Lead the pupils to see that for fractions having the same numerators, the bigger the denominator, the smaller the fractions. Recall that for fractions having the same denominators, the opposite is true, that is, the bigger the numerator, the bigger the fraction. Show the following examples to further emphasize this:

Fractions with same denominators (or like fractions) but different numerators

$\frac{4}{9}$ is more than $\frac{2}{9}$ and $\frac{7}{12}$ is more than $\frac{5}{12}$

Fractions with different denominators (or unlike fractions) but same numerators

$\frac{2}{5}$ is more than $\frac{2}{7}$ and $\frac{5}{6}$ is more than $\frac{5}{8}$

5. Go through with the pupils the examples on page 178 of the Student's Book.

Let's Try...

Activity 4 (10 min): Individual practice

1. Ask pupils to do the exercises on page 179 of the Student's Book.

Homework

Ask pupils to do Workbook 2B—Worksheet 36.

Answers



page 179

1. (a) $\frac{1}{4}$ (b) $\frac{4}{10}$
2. (a) $\frac{8}{9}, \frac{5}{9}, \frac{2}{9}$ (b) $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}$
3. (a) $\frac{1}{11}, \frac{2}{11}, \frac{5}{11}$ (b) $\frac{1}{12}, \frac{1}{10}, \frac{1}{7}$

WORK *Sheet* 36

1. (a) $\frac{1}{7}$ (b) $\frac{1}{12}$ (c) $\frac{5}{6}$ (d) $\frac{4}{11}$
2. (a) $\frac{1}{5}$ (b) $\frac{1}{7}$ (c) $\frac{7}{12}$ (d) $\frac{5}{8}$
3. (a) $\frac{1}{9}$ (b) $\frac{3}{7}$ (c) $\frac{4}{12}$ (d) $\frac{1}{12}$
4. (a) $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ (b) $\frac{9}{10}, \frac{7}{10}, \frac{4}{10}$ (c) $\frac{1}{5}, \frac{1}{7}, \frac{1}{11}$ (d) $\frac{1}{4}, \frac{1}{7}, \frac{1}{11}$
5. (a) $\frac{2}{8}, \frac{3}{8}, \frac{7}{8}$ (b) $\frac{1}{11}, \frac{1}{9}, \frac{1}{4}$ (c) $\frac{1}{7}, \frac{4}{7}, \frac{6}{7}$
6. (a) $\frac{10}{11}$ (b) $\frac{3}{11}$ (c) $\frac{10}{11}$ (d) $\frac{3}{11}$ (e) $\frac{10}{11}, \frac{8}{11}, \frac{7}{11}, \frac{5}{11}, \frac{3}{11}$

ADDING LIKE FRACTIONS

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- add like fractions within one whole

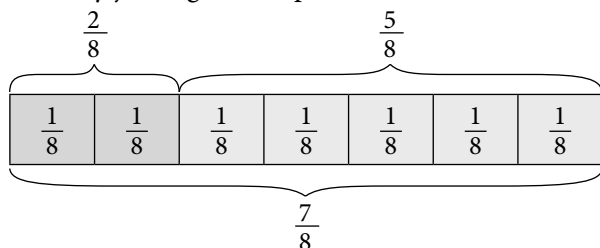
Instructions

Let's Learn...

Activity 1 (40 min): Add like fractions

Things you need: strips of paper showing the fractions involved in the addition

1. Recall the terms numerator and denominator. Explain that like fractions are fractions that have the same denominators. Ask some pupils to write on the board examples of fractions.
2. Display the 2 strips of paper showing 2 like fractions, $\frac{2}{8}$ and $\frac{5}{8}$, and show how to add them by joining the strips end to end as follows:



3. Count the number of $\frac{1}{8}$ s (eighths) and write the addition sentence:

$$\frac{2}{8} + \frac{5}{8} = \frac{7}{8}$$

2 eighths + 5 eighths = 7 eighths

4. Emphasize to the pupils that in adding like fractions, the denominators are not to be added, only the numerators are added. For example:

$$\frac{3}{8} + \frac{2}{8} \neq \frac{5}{16}$$

5. Provide more examples using different rectangular strips and ask the pupils to practise writing addition sentences for fractions.

Activity 2 (20 min): Class practice

1. Go through with the pupils the examples on pages 180–181 of the Student's Book.
2. Explain that the addition method can only be used for like fractions. It cannot be used for fractions that have different denominators (unlike fractions).

Let's Try...

Activity 3 (20 min): Individual practice

1. Ask pupils to do the exercises on page 182 of the Student's Book.

Homework

Ask pupils to do Workbook 2B—Worksheet 37.

Answers



page 182

- (a) $\frac{5}{6}$ (b) $\frac{6}{7}$ (c) $\frac{7}{8}$ (d) $\frac{6}{11}$

WORK **Sheet** 37

1. (a) $\frac{7}{12}$ (b) $\frac{5}{8}$ (c) $\frac{4}{6}$ (d) $\frac{7}{9}$
2. (a) $\frac{4}{5}$ (b) $\frac{4}{7}$ (c) $\frac{3}{4}$ (d) $\frac{7}{10}$ (e) $\frac{7}{9}$
(f) $\frac{4}{11}$ (g) $\frac{9}{10}$ (h) $\frac{7}{8}$ (i) $\frac{10}{12}$ (j) $\frac{3}{6}$

SUBTRACTING LIKE FRACTIONS

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- subtract like fractions within one whole

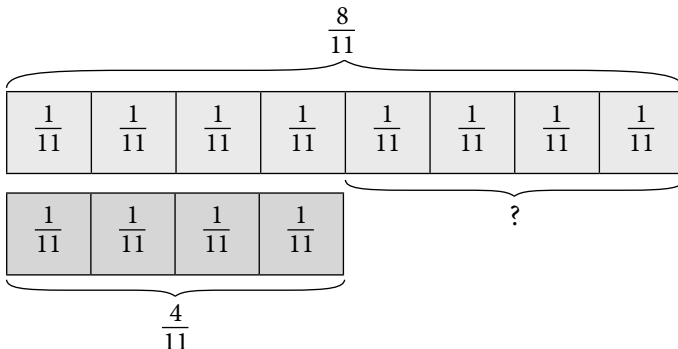
Instructions

Let's Learn...

Activity 1 (40 min): Subtract like fractions

Things you need: strips of paper showing the fractions involved in the subtraction

1. Recall the terms numerator and denominator. Remind the class that like fractions are fractions that have the same denominators. Ask some pupils to write on the board examples of fractions.
2. Display the 2 strips of paper showing 2 like fractions $\frac{8}{11}$ and $\frac{4}{11}$ and show the subtraction by aligning the strips as follows:



3. Count the number of $\frac{1}{11}$ s (elevenths) and write the subtraction sentence:

$$\frac{8}{11} - \frac{4}{11} = \frac{4}{11}$$

8 elevenths – 4 elevenths = 4 elevenths

5. Emphasize to the pupils that in subtracting like fractions, the denominators are not to be subtracted, only the numerators are subtracted. For example:

$$\frac{8}{11} - \frac{4}{11} \neq \frac{4}{0}$$

6. Remind the pupils that only a bigger fraction can subtract a smaller fraction and not the other way round.
7. Provide more examples using different rectangular strips and ask the pupils to practise writing subtraction sentences for fractions.

Activity 2 (20 min): Class practice

1. Go through with the pupils the examples on page 183 of the Student's Book.
2. Explain that the subtraction method can only be used for like fractions. It cannot be used for fractions that have different denominators (unlike fractions).

Let's Try...

Activity 3 (20 min): Individual practice

1. Ask pupils to do the exercises on page 184 of the Student's Book.

Homework

Ask pupils to do Workbook 2B—Worksheet 38 and Practice 10.

Answers



page 184

- (a) $\frac{1}{5}$ (b) $\frac{2}{7}$ (c) $\frac{5}{9}$ (d) $\frac{6}{12}$

WORK *Sheet* 38

1. (a) $\frac{2}{4}$ (b) $\frac{3}{6}$ (c) $\frac{4}{7}$ (d) $\frac{5}{10}$
2. (a) $\frac{2}{8}$ (b) $\frac{5}{11}$ (c) $\frac{1}{5}$ (d) $\frac{3}{12}$ (e) $\frac{3}{7}$

Practice 10

2. $\frac{2}{3}, \frac{2}{5}$

3. $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{6}$

4. (a) $\frac{1}{2}$ (b) $\frac{2}{3}$

5. (a) $\frac{3}{8}$ (b) $\frac{5}{8}$

6. (a) Lionel (b) $\frac{1}{6}$

Revision (40 min)

Fun With Maths

1. Guide the pupils to play the game on page 185 of the Student's Book.
2. Revise and go through pupils' homework.

Unit 11: Time

TELLING THE TIME TO 5 MINUTES

Suggested Duration

2 periods (120 min)

Learning Outcomes

Pupils should be able to:

- tell and write the time to 5 minutes

Instructions

Let's Learn

Activity 1 (40 min): Learn about the hour hand and minute hand

Things you need: A clock face with movable hour and minute hands; and a real clock.

1. Revise telling and writing the time to the hour and half hour with the pupils. Recall that for o'clock, the minute hand must be at the number 12 while the hour hand is exactly at the number. For half hour, the minute hand must be at the number 6 while the hour hand is midway between 2 numbers. Test the pupils' understanding by asking some pupils to show on the clock face some examples of time to the hour and half hour.
2. Show the real clock and adjust the hands to show 3 o'clock. Move the minute hand one round and recall that this is equivalent to a time of 1 hour. Introduce the concept of minutes as the smaller units of 1 hour. Write: 1 hour = 60 minutes and say '1 hour is the same as 60 minutes'. Write, half an hour = 30 minutes and say 'half an hour is the same as 30 minutes.'
3. Explain that the hour hand points to the hour while the minute hand points to the minutes. The short form for hour is h and for minutes is min.

Activity 2 (30 min): Tell and write the time to 5 minutes

Things you need: a real clock

1. Show the real clock and ask a pupil to adjust the hands to show 4 o'clock. Move the minute hand from 12 to 1 and explain that this represents a time of 5 minutes. Move the minute hand from 12 to 1, 1 to 2, 2 to 3 ...and 11 to 12. Lead the pupils to count in fives to tell the time. Write on the board the time accordingly as follows:

4.05 read as 'four o five'

4.10 read as 'four ten'

4.15 read as 'four fifteen'

4.20 read as 'four twenty'
4.25 read as 'four twenty five'
4.30 read as 'four thirty'
4.35 read as 'four thirty five'
4.40 read as 'four forty'
4.45 read as 'four forty-five'
4.50 read as 'four fifty'
4.55 read as 'four fifty-five'
5.00 read as 'five o'clock'

2. Lead the class to see that as the minute hand points to a number on the clock, the time in minutes can be obtained by multiplying the number by 5. For example, if the minute hand points at the number 7, then the time is $7 \times 5 = 35$ minutes. Explain further that each number on the clock is a multiple of 5 minutes.
3. Go through with the pupils the examples on pages 187–188 of the Student's Book.
4. Ask 3 pupils to come forward. One pupil will adjust the hands to show a time to 5 minutes, another pupil will read out loud the time shown, and the third pupil will write the time on the board. Ask the rest of the class to check if the time is correctly shown and written. The 3 pupils take turns to try each other's role. Repeat this with other groups of pupils.

Let's Try...

Activity 2 (30 min): Individual practice

1. Ask the pupils to work in pairs to try the exercises on pages 189–190 of the Student's Book.

Homework

Ask the pupils to do Workbook 2B—Worksheet 39.

Answers



page 189–190

1. (a) 1.25 (b) 5.50 (c) 3.35 (d) 1.55

WORK **Sheet** 39

1. Sue: 9.00 Riaz: 9.05 Lili: 9.10 Jo: 9.15
Babar: 9.20 Tom: 9.25 Meilin: 9.30

USING A.M. AND P.M.

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- use a.m. and p.m. in writing the time

Instructions

Let's Learn

Activity 1 (40 min): Learn and use the terms a.m. and p.m.

Things you need: a clock with movable hour and minute hands

1. Introduce the terms a.m. and p.m. using the examples on pages 191–194 of the Student's Book. Ensure that pupils know when a.m. and p.m. start and end. Lead the class to see that each a.m. and p.m. is a duration of 12 hours and for every set of time shown on the clock, it can be either a.m. or p.m. Hence, it is necessary to write a.m. or p.m. after the time.

Activity 2 (20 min): Learn about activities done in a.m. and p.m.

1. Ask the class to write down the things that are commonly done in a.m. and p.m. Ask them to share their answers with their partners.
2. Show a time on the clock. Ask pupils to share the things that they are likely to be doing for the time in a.m. and p.m. Show more times and let pupils share with their partners.

Let's Try...

Activity 3 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 195 of the Student's Book.

Homework

Ask the pupils to do Workbook 2B—Worksheet 40.

Answers



page 195

1. (a) 9.20 a.m. (b) 9.15 p.m. (c) 8.10 p.m. (d) 8.05 a.m.

WORK 40

1. (a) 7.30 a.m. (b) 10.30 a.m. (c) 2.25 p.m. (d) 10.00 p.m.

TELLING THE TIME BEFORE AND AFTER

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- use abbreviations h and min
- tell the time one hour/half hour from an o'clock time
- draw hands on the clock face to show the time

Instructions

Let's Learn

Activity 1 (10 min): Use abbreviations h and min

Things you need: a real clock

1. Show what is 1 hour by moving the minute hand one round. Bring to the pupils' attention that the minute hand has moved through 60 minutes while the hour hand has moved from one digit to the next digit.
2. Write 1 hour = 60 min.
3. Emphasize that the abbreviation for hour is h and for minute is min.

Activity 2 (30 min): Tell and write the time before and after involving the words 'later', 'after' and 'before'

Things you need: a real clock

1. Write on the board the words, 'later', 'after', and 'before'. Using the real clock and setting it at 9 a.m., show how these words can be used to tell the time as follows:
First, adjust the clock to show 9 a.m.:
 - To show 1 hour later than 9 a.m., move the minute hand forward by one round so that the time becomes 10 a.m.
 - To show 1 hour after 10 a.m., move the minute hand forward by one round so that the time becomes 11 a.m.
 - To show 1 hour before 11 a.m., move the minute hand backwards by one round so that the time becomes 10 a.m.Next, adjust the clock to show 10 a.m.:
 - To show half an hour or 30 min later than 10 a.m., move the minute hand forward by half a round to point at the number 6 so that the time becomes 10.30 a.m.
 - To show half an hour or 30 min after 10.30 a.m., move the minute hand forward by half a round to point at the number 12 so that the time becomes 11 a.m.
 - To show half an hour or 30 min before 11 a.m., move the minute hand backwards by half a round to point at the number 6 so that the time becomes 10.30 a.m.

2. Go through with the pupils the examples on pages 196–197 of the Student’s Book.
3. Let the pupils practise writing and telling the time before and after involving the words ‘later’, ‘after’, and ‘before’ as follows:
 - Ask 3 pupils to come forward. Read out a question, e.g. ‘What is 1 hour before five p.m.?’ One pupil will adjust the clock to show the answer, another pupil will write the time in numbers (4.00 p.m.), and the third pupil will write the time in words (four p.m.) Ask more such questions and let the 3 pupils take turns in showing and writing the answer.
 - Repeat this activity with other pupils and give questions that involve 30 minutes. One pupil will adjust the hands to show a time to 5 minutes, another pupil will read out loud the time shown, and the third pupil will write the time on the board. Ask the rest of the class to check if the time is correctly shown and written. The 3 pupils take turns to try out each other’s role. Repeat this with other groups of pupils and with questions involving 30 min.

Activity 3 (40 min): Draw hands on the clock face to show the time

Things you need: pictures of clock face without the hands and ice cream sticks of different lengths

1. Pin up a picture showing the clock face without the hands. Write a time and then draw the hour and minute hands on the clock to correspond to the time. Do a few examples. Remind the pupils that the hour hand is the shorter hand.
2. Give each pupil a picture showing the clock face without the hands and two ice cream sticks of different lengths. Write a time on the board and ask the pupils to show the time by placing the ice cream sticks on the face of the clock. Have the pupils check their partner’s work. Do this for about 10 times.
3. Repeat step 2, but this time, ask the pupils to draw the hour and minute hands on the clock face to correspond to the time given.
4. Test further the pupils’ understanding by pairing them up and having one pupil draw the hour hand while having the other pupil draw the minute hand and vice versa.

Let’s Explore

Activity 4 (20 min): Challenging exercise to enhance understanding

Things you need: a real clock

1. Ask the pupils to try exercise on page 198 of the Student’s Book, before going through with them as follows:
 - Ask the class what is the meaning of ‘The clock is 1 hour fast.’ Lead them to see that this means that actual time is slower. Demonstrate this by moving the minute hand backwards by one round.
 - Ask the class what is the meaning of ‘The clock is 30 min slow.’ Lead them to see that this means that the actual time should be faster. Demonstrate this by moving the minute hand forward by 30 min.

Let's Try...

Activity 5 (20 min): Individual practice

1. Ask the pupils to try the exercises on pages 199–200 of the Student's Book. Ask some pupils to share their answers with the rest of the class.

Homework

Ask the pupils to do Workbook 2B—Worksheet 41 and Practice 11.

Answers



page 199–200

1. (a) 2.30 (b) 10.30
3. Answers may vary. Accept reasonable answers.

WORK *Sheet* 41

1. (a) 12.30, 30, 1.00 (b) 7.00, 1, 6.00
(c) 10.00, 1, 11.00 (d) 9.30, 30, 9.00
2. (a) 4 o' clock (b) 7.30 (c) 11.00 (d) 7.30 (e) 7.00 p.m.
3. (a) 1.00, 12.00 (b) 6.30, 7.00 (c) 4.30, 4.00 (d) 12.00, 1.00

Practice 11

1. 4.50
2. 2.50
3. 3.35
4. (a) 8.55 p.m. (b) 6.40 a.m. (c) 2.05 p.m.
5. (a) a.m. (b) a.m. (c) p.m. (d) p.m. (e) p.m. (f) a.m.
6. 9.00
8. 6.30, 6.30
9. 9.00, 9.00
10. (a) 11.45 a.m. (b) 3.30 p.m. (c) 8.05 p.m.

Revision (40 min)

Fun with Maths

Things you need: a set of time cards

1. Pair up the pupils and guide them to play the time game on page 201 of the Student's Book.
2. Revise and go through pupils' homework.



Revision 1 (Workbook 2B)

3. (a) 2.00 (b) 5.05 (c) 8.30 (d) 11.15 (e) 2.35 (f) 4.15
5. (a) $40 \div 10 = 4$ (b) $35 \div 5 = 7$
6. (a) 10.30, 30, 10.00 (b) 12.00, 1, 11.00
(c) 3.00, 1, 4.00 (d) 7.00, 1, 8.00
7. (a) $\frac{7}{12}$ (b) $\frac{7}{11}$ (c) $\frac{7}{3}$ (d) $\frac{3}{6}$ (e) $\frac{8}{9}$ (f) $\frac{4}{8}$
8. (a) 30, 10, 45, 25, 35, 30, 50
(b) 28, 24, 8, 12, 36, 32, 4
(c) 50, 90, 20, 70, 10, 30, 100
9. $\frac{9}{10}$
10. $\frac{1}{11}$
11. (a) greater (b) smaller (c) smaller
- 12.

Divisibility by 2		
Number	Is the last digit even?	Divisible by 2?
690	yes	yes
536	yes	yes
861	no	no
592	yes	yes
343	no	no
975	no	no

Divisibility by 5		
Number	Is the last digit 5 or 0?	Divisible by 5?
182	no (2)	no
630	yes (0)	yes
688	no (8)	no
215	yes (5)	yes
552	no (2)	no
990	yes (0)	yes

Divisibility by 10		
Number	Is the last digit 0?	Divisible by 10?
215	no (5)	no
380	yes (0)	yes
132	no (2)	no
800	yes (0)	yes
814	no (4)	no
390	yes (0)	yes

13.

Numbers	Last digit	Divisible by		
		2	5	10
336	6	✓		
445	5		✓	
170	0	✓	✓	✓
678	8	✓		
951	1			
200	0	✓	✓	✓
590	0	✓	✓	✓
875	5		✓	
729	9			
155	5		✓	
380	0	✓	✓	✓
888	8	✓		
215	5		✓	
746	6	✓		
809	9			



Revision 2

1. (a) 7.00 a.m. (b) 1.30 p.m. (c) 4.30 p.m. (d) 6.00 a.m.
2. (a) $4 \times 2 = 8, 8$ (b) $4 \times 3 = 12, 12$
3. (a) $\frac{2}{3}$ (b) $\frac{3}{7}$ (c) $\frac{8}{11}$ (d) $\frac{2}{3}$
4. (a) 1 (b) 30
5. (a) $\frac{1}{7}, \frac{1}{6}, \frac{1}{4}, \frac{1}{3}$ (b) $\frac{1}{8}, \frac{3}{8}, \frac{5}{8}, \frac{7}{8}$
6. (a) $\frac{10}{12}, \frac{6}{12}, \frac{5}{12}, \frac{2}{12}$ (b) $\frac{1}{2}, \frac{1}{9}, \frac{1}{10}, \frac{1}{12}$
7. $5 \times 7 = 35, 35$
8. $5 \times 10 = 50, 50$
9. $32 \div 4 = 8, 8$
10. $25 \div 5 = 5, 5$
11. $9 \times 4 = 36, 36$
12. $50 \div 10 = 5, 513$.

Unit 12: Length

MEASURING LENGTH IN METRES

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- estimate and measure length in metres

Instructions

Let's Learn...

Activity 1 (20 min): Know the 'metre' as a standard unit for measuring length

Things you need: 1-metre ruler

1. Recall the concept of length as the distance between the 2 ends of an object. Show the length of any object by pointing to its two ends.
2. Explain to the pupils that the height of an object or a person is also a form of length. Ask a pupil to stand in front of the class and show the height by pointing at his feet and moving up to the top of his head.
3. Point to the teacher's table and ask the pupils 'What is the length of the table?' and 'What is the height of the table?' The pupils should be able to differentiate between the two.
4. Explain to the class that there are standard units used to measure length. One of the standard units is the 'metre'. Say aloud the word metre and ask the class to repeat after you. Write on the board the word metre and show that the short form of writing metre is 'm'.
5. Ask the class to guess how long 1 metre is. Then, show the class a 1-metre ruler. Explain that the length of the 1-metre ruler is 1 metre or 1 m.
6. Ask a pupil to stand in front of the class and stretch out his/her arms. Use the 1-metre ruler to measure the distance from the tip of one arm to the other. Do the same for two more pupils to show that, in general, the length of a child's arm span is about 1 m.
7. Ask a pupil to stand in front of the class and ask the class if he is taller than 1 metre. Use the 1-metre ruler to show that he is taller than 1 m.
8. Ask the class if they could name objects in the classroom that are about 1 metre long, more than 1 metre long, and less than 1 metre long.

Activity 2 (20 min): Measure length in metres (m)

Things you need: 1-metre ruler and strings of 1 m long

1. Ask the class how long 2 m is. Show the class how to obtain 2 m by marking out two times the length of the 1-metre ruler. Similarly, one can obtain 3 m by marking out three times the length of the 1-metre ruler.
2. Give each pupil a string that is 1 m long. Ask the pupils to use the string to measure and record the distance of the items listed in the table below. If the item is less than 1 m long, indicate in the table as 'less than 1 m'.

Item	Length in metres (m)
Length of the teacher's table	
Length of the whiteboard	
Width of the door	
Length of a pupil's table	
Width of a pupil's table	
Height of the teacher's table	
Height of a pupil's table	

Activity 3 (10 min): Class exercise

1. Go through with the pupils the examples on pages 203–204 of the Student's Book.

Let's Explore

Activity 4 (20 min): Work in pairs

1. Ask the pupils to work in pairs on the activity on page 204 of the Student's Book. Provide each pair a paper to record their measurements. You may want to pre-design a table for the pupils as follows to guide them in recording their findings.

Less than 1 m	About 1 m	About 2 m	About 3 m	About 4 m

Let's Try...

Activity 5 (10 min): Individual practice

1. Ask the pupils to try the exercises on page 205 of the Student's Book.

Homework

Ask the pupils to do Workbook 2B—Worksheet 42.

Answers



page 205

school bench: 2 m

cupboard: 2 m

stage: 8 m

WORK **Sheet** 42

Answers may vary for both questions. Accept any reasonable answer.

MEASURING LENGTH IN CENTIMETRES

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- estimate and measure length in centimetres
- draw a straight line of given length

Instructions

Let's Learn...

Activity 1 (15 min): Know the 'centimetre' as a standard unit for measuring length

Things you need: sets of 4 strings: less than 1m long, 1m long, 2 m long, and 3 m long

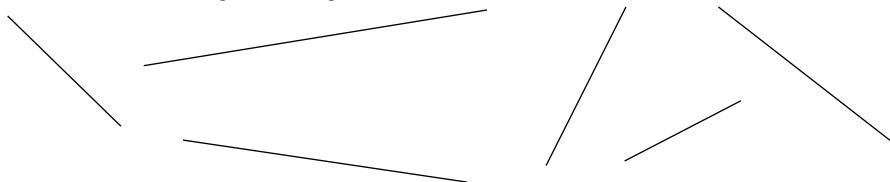
1. Revise with the class how to measure lengths in metres (m). Remind the pupils that the length of 1 m is about the length of a child's arm span. Give each pair a set of 4 strings without telling them their lengths and ask them to estimate the length of the strings using the arm span.
2. Explain to the class that besides the metre (m), another standard unit used to measure length is the 'centimetre'. Say aloud the word centimetre and ask the class to repeat after you. Write on the board the word centimetre and show that the short form of writing centimetre is 'cm'.
3. Ask the class if anyone knows how long 1 centimetre is. Then, ask the pupils to take out their ruler and ask them to look for the word 'cm' on the ruler. Help them to recognize the length of 1 cm by looking at the ruler. Explain that 1 cm is about the width of a finger. Explain further that centimetres are used to measure the length of small objects.

Activity 2 (25 min): Measure length in centimetres (cm)

1. Explain to the class that the easiest way to measure length in centimetres is to use the

ruler. Demonstrate how to use the ruler to measure length by drawing a line on the board and placing the ruler against it and reading off the number from the ruler.

2. Draw more lines as follows and ask pupils to come forward to demonstrate how to measure their lengths using the ruler:



3. Ask the pupils to use their rulers to measure the items listed in the table and to record their readings. Ask several pupils to share their readings with the class.

Item	Length in centimetres
Length of a notebook	
Length of a paper clip	
Length of an eraser	
Length of a pair of scissors	

4. Ask the class ‘How many centimetres make up 1 metre?’ Use the 1-metre ruler to show that 100 cm make up 1 metre. Write on the board: 100 cm = 1 m.

Activity 3 (10 min): Class exercise

1. Go through with the pupils the examples on page 206 of the Student’s Book.

Let’s Think

Activity 4 (30 min):

1. Refer to the three different curves in the exercise on page 207 of the Student’s Book and ask the class ‘How to measure their lengths?’. Demonstrate measuring them by using a string to trace the curves and then measure the length of the string using the ruler.
2. Provide more irregular curves for the pupils to practise measuring. Help the pupils to see that a string combined with a ruler can be used to measure lengths of irregular lines and curves. Ask the class if there is another way of measuring curves. Show the measuring tape and explain that since it is flexible it can also be used to measure curves. The next exercise in the *Let’s Explore* section will let pupils practise using the measuring tape to measure lengths of curves and irregular lines.

Let’s Explore

Activity 5 (20 min): Work in pairs

Things you need: measuring tapes

1. Pair up the pupils. Ask them to work together to measure the size of different parts of the body as in the exercise on page 207 of the Student’s Book. You may provide a table as follows to guide the pupils in the exercise:

Parts of body	Length in centimetres (cm)
neck	
head	
waist	
arm	
shoulders	

Let's Try...

Activity 6 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 208 of the Student's Book.

Homework

Ask the pupils to do Workbook 2B—Worksheet 43.

Answers



page 208

- 4 cm, 10 cm
- Answers may vary.

WORK **Sheet** 43

- Answers may vary. Accept any reasonable answer.
- Estimate: Answers may vary. Accept any reasonable answer.
Actual: AB = 5 cm; CD = 8 cm; EF = 17 cm; GH = 12 cm; KL = 7 cm

COMPARING LENGTHS

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- compare lengths

Instructions

Let's Learn...

Activity 1 (40 min): Compare lengths in metres by finding the difference

- Refer to the pictures of the sand pit, playground, and swimming pool as shown on page 209 of the Student's Book. Explain to the pupils that one way to compare lengths is to find

the difference in the lengths of the items. To find the difference in length of the items, subtraction is needed. Revise with the class how to perform subtraction of 2 numbers.

- Lead the class to see that there are 3 ways to compare the lengths of the 3 items by finding the difference of two items at a time as follows:
 - Difference in length between sand pit and playground
 - Difference in length between swimming pool and playground
 - Difference in length between the sand pit and playground
- For each of the above, write the corresponding subtraction sentence and the answer statement as shown on page 209 of the Student's Book.
- Ask the class 'Which item is the longest?' and 'Which item is the shortest?'
- Provide more picture examples for the pupils to practise.

Activity 2 (30 min): Compare lengths in centimetres by finding their difference

- Refer to the pictures of the teaspoon, tablespoon, and ladle as shown on page 210 of the Student's Book. Recall that one way to compare the lengths of the items is to find their difference in length. Revise with the class how to perform a subtraction of 2 numbers.
- Lead the class to see that there are 3 ways to compare the lengths of the 3 items by finding the difference of two items at a time as follows:
 - Difference in length between the teaspoon and the tablespoon
 - Difference in length between ladle and the tablespoon
 - Difference in length between the teaspoon and ladle
 - For each of the above, write the corresponding subtraction sentence and the answer statement as shown on page 210 of the Student's Book.
- Ask the class 'Which item is the longest?' and 'Which item is the shortest?'
- Provide more examples for the pupils to practise.

Let's Try...

Activity 3 (10 min): Individual practice

- Ask the pupils to try the exercises on pages 211–212 of the Student's Book.

Homework

- Ask the pupils to do Workbook 2B—Worksheet 44.

Answers



pages 211–212

- (a) TU (b) no (c) RS, 2 cm
- (d) EF, 2 cm
- (a) seismosaurus (b) camptosaurus (c) 23 m

WORK *Sheet* 44

- (a) car (b) train (c) 7 (d) 10
- (a) 13 (b) 6 (c) 3 (d) 7 (e) pencil (f) safety pin
- (a) 10 (b) 11 (c) 15 (d) 1 (e) EF (f) AB

WORD PROBLEMS

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- solve word problems involving length

Instructions

Let's Learn...

Activity 1 (10 min): Recall solving word problems

1. Revise solving simple word problems on addition and subtraction with the pupils. Explain the use of models and write addition and subtraction sentences on the board.
2. Do the same for multiplication and division word problems.
3. Provide more word problems for the pupils to practise.

Activity 2 (15 min): Add and subtract length in either metres or centimetres

Things you need: coloured strips of different lengths

1. Explain to the class that adding and subtracting length in either metres or centimetres is the same as adding and subtracting numbers. The only difference is the adding of the unit m and cm. For example:

$$6 \text{ m} + 2 \text{ m} = 8 \text{ m}$$

$$32 \text{ cm} - 4 \text{ cm} = 28 \text{ cm}$$

Activity 3 (15 min): Multiply and divide length in either metres or centimetres

1. Explain to the class that multiplying and dividing lengths in either metres or centimetres is similar to multiplying and dividing numbers. The only difference is the adding of the unit m and cm. For example:

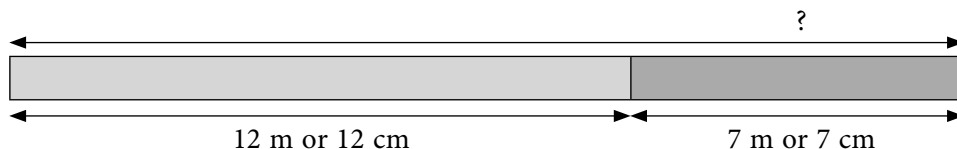
$$6 \text{ m} \times 2 = 12 \text{ m}$$

$$32 \text{ cm} \div 4 = 8 \text{ cm}$$

2. Give some simple examples for pupils to practise. The examples should only involve multiplication and division of numbers that are found in the multiplication tables of 2, 3, 4, 5, and 10 as the pupils have not yet learnt other multiplication tables at this point.

Activity 4 (20 min): Solve word problems involving addition and subtraction of length in either metres or centimetres

1. Show 2 coloured strips of different lengths table to the pupils. Ask the class ‘What is the total length of both strips?’ Show the addition of lengths by joining the strips and writing the addition sentence as follows:



If in metres

$$12 \text{ m} + 7 \text{ m} = 19 \text{ m}$$

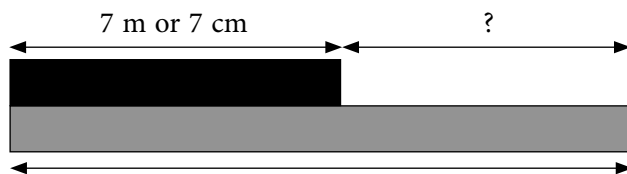
The total length of the strips is 19 m.

If in centimetres

$$12 \text{ cm} + 7 \text{ cm} = 19 \text{ cm}$$

The total length of the strips is 19 cm.

2. Next, ask the class ‘Which strip is longer and how much longer?’ Show the subtraction of lengths by placing the shorter strip over the longer strip and writing the subtraction sentence as follows:



If in metres

$$12 \text{ m} - 7 \text{ m} = 5 \text{ m}$$

The grey strip is 5 m longer than the black strip.

or

The black strip is 5 m shorter than the grey strip.

If in centimetres

$$12 \text{ cm} - 7 \text{ cm} = 5 \text{ cm}$$

The grey strip is 5 cm longer than the black strip.

or

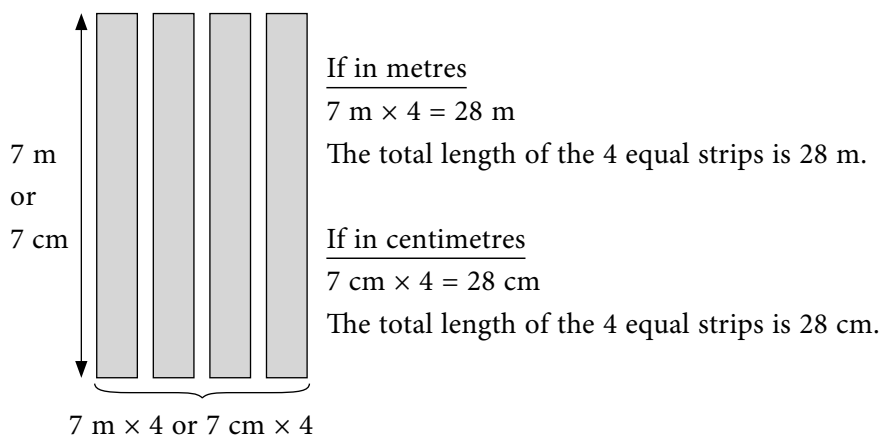
The black strip is 5 cm shorter than the grey strip.

Activity 5 (20 min): Solve word problems involving multiplication and division of length in either metres or centimetres

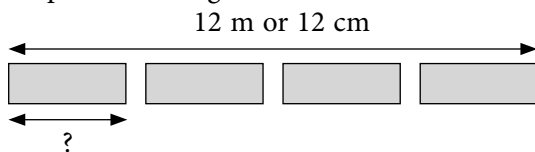
Things you need: coloured strips of different lengths

1. Show 4 strips of equal length and ask the class, ‘What is the total length of the strips?’

Show the multiplication of length by placing the strips side by side and writing the multiplication sentence as follows:



2. Next, show a strip representing length of either 12 m or 12 cm. Explain to the class that you wish to cut the strip into 4 equal small strips. Ask the class, ‘What will be the length of each small strip?’ Show the division of lengths by cutting the 12 cm strip into 4 equal strips and writing the division sentence as follows:



If in metres

$$12 \text{ m} \div 4 = 3 \text{ m}$$

The length of each small strip is 3 m.

If in centimetres

$$12 \text{ cm} \div 4 = 3 \text{ cm}$$

The length of each small strip is 3 cm.

Activity 6 (15 min): Class exercise

- Go through with the class the examples on pages 213–214 of the Student’s Book. Provide additional word problems on length for the pupils to practise on the board. Ask 2 pupils to work on each example on the board. One pupil takes charge of drawing the model while the other does the calculations.

Let’s Try...

Activity 7 (25 min): Individual practice

- Ask the pupils to work out the word problems on page 215 of the Student’s Book. Ask some pupils to show their workings on the board. Remind the pupils to use the addition and subtraction algorithms in working out the answers.

Homework

Ask the pupils to do Workbook 2B—Worksheet 45 and Practice 12.

Answers



page 215

1. 85 m 2. 740 m 3. 14 m 4. 5 cm

WORK **Sheet** 45

1. (a) 430 m (b) 110 m
2. 690 m
3. 170 cm
4. (a) 3 m (b) 55 m
5. 16 m
6. 6 m
7. 45 cm
8. 3 m

Practice 12

1. (a) 9 (b) 13 (c) 10 (d) 4 (e) 3 (f) French bean
2. (a) 3 cm (b) 121 cm (c) 9 m (d) 15 cm (e) 26 cm
3. (a) m (b) cm (c) cm (d) cm (e) m
4. 178 cm
5. 6 m

Revision (40 min)

Fun With Maths

1. Organize the pupils to try the activity on page 216 of the Student's Book. Ask the pupils to share their answers. Some pupils may have different answers as the size of their feet may differ from one another.
2. Revise and go through pupils' homework .

Unit 13: Mass

MEASURING MASS IN KILOGRAMS

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- estimate and measure mass in kilograms

Instructions

Let's Learn...

Activity 1 (20 min): Know the 'kilogram' as a standard unit for measuring mass

Things you need: 1-kilogram mass

1. Recall the concept of mass as 'how heavy' or 'how light' an object is.
2. Ask two pupils to come forward. Select two objects with a great difference in size. Ask each of them to take turns lifting the objects. Ask the pupils 'Which object is heavier?'
3. Show the balance and recall how to use the balance to compare the masses of two objects. Recall the use of a marble as a non-standard unit to measure mass.
4. Show the kitchen scale and bathroom scale as common tools for measuring mass.
5. Explain to the class that there are standard units for measuring mass. One of the standard units is the 'kilogram'. Say aloud the word kilogram and ask the class to repeat after you. Write on the board the word kilogram and show that the short form of writing kilogram is 'kg'.
6. Ask the class to guess how heavy 1 kilogram is. Then, show the class a 1-kilogram mass and explain that its mass is exactly 1 kg. Pass the mass around for the pupils to hold and feel. Explain to the class that the unit kg is used to measure mass of heavy objects.

Activity 2 (20 min): Measure mass in kilograms (kg) using balance and 1-kg masses

Things you need: five pieces of 1-kg mass and balance, a bag of apples, a bunch of bananas, a bag of pears, half dozen of canned drinks, kitchen scales in kg and bathroom scales

1. Ask the class how heavy 2 kg is. Show the class how to obtain 2 kg by putting together two pieces of the 1-kg mass. Similarly, one can obtain 3 kg by putting together 3 pieces of the 1-kg mass.
2. Hang a pupil's bag on one arm of the balance and hang the 1-kg mass on the other arm. Show the class that the mass of the bag is either less than 1 kg or more than 1 kg or is about the same as 1 kg.

3. Do the same for other objects such as filled water bottles, a bag of pears, a bag of apples, a bunch of bananas, and half dozen cans of soft drink, etc. Ask the pupils to try putting the 1-kg mass. If the mass of the object is more than 1 kg, the pupils can add more 1-kg masses until the balance levels up.
4. Show the class the kitchen scale for kilograms. If a physical scale is not available, use a picture instead. Point to the word 'Kilograms' or 'Kg' to show that the scale is meant for measuring masses in kg.
5. Explain to the class how to read from the kitchen scale by looking at where the pointer points. Provide some examples by placing different objects on the scale and getting the pupils to read from the pointer. If you are using pictures, then show several pictures with the pointer pointing at different readings for different objects.
6. Next show the bathroom scale. Place a heavy object such as a huge stack of books on the bathroom scale. Explain that the bathroom scale is meant for measuring the mass of human beings. Show the pupils how to read the bathroom scale. Do this several times for different objects.
7. Go through with the pupils the examples on pages 218–219 of the Student's Book.
8. Let the pupils practise reading and measuring mass in kilograms from a scale by taking the masses of their friends. Find out who is the heaviest and lightest in the class.

Activity 3 (20 min): Pair work for further learning

Things you need: pictures of an elephant, a tiger, a dog, and a baby, a bag of oranges, and a table

1. Prior to the activity, find out the mass of each of the items and, for each item, write the mass on a card. (Please verify the masses are correct before printing them in the cards. You may choose to use different items.)

Write this on a card

elephant	1000 kg
tiger	180 kg
dog	25 kg
baby	8 kg
bag of oranges	1 kg
table	3 kg

2. Pair up the pupils and give each pair a set of the cards showing the different masses in kg. Show the pictures of the items and ask the pair to discuss and match the pictures with the masses shown on the cards. Write the name of each item on the corresponding card. Go around and check the pupils' answers.

Let's Try...

Activity 4 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 220 of the Student's Book.

Homework

Ask the pupils to do Workbook 2B—Worksheet 46.

Answers



page 220

1. 25 kg, less than 1 kg, 2 kg, 75 kg
2. 3 kg, 2 kg, 6 kg

WORK **S**heet **46**

1. Answers may vary. Accept any reasonable answer.
2. (a) 1 (b) 3
3. (a) 6 (b) 4

MEASURING MASS IN GRAMS

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- estimate and measure mass in grams

Instructions

Let's Learn...

Activity 1 (15 min): Know the 'gram' as a standard unit for measuring mass

1. Revise with the class how to measure mass in kilograms (kg) using the balance and the 1-kg mass. Show the weighing scale in kg and bathroom scale as other tools of measuring masses. Pair up the pupils. Remind the pupils that the kg unit is used for measuring heavy objects.
2. Explain to the class that besides the kilogram (kg), another standard unit used to measure mass is the 'gram'. Say aloud the word gram and ask the class to repeat after you. Write on the board the word gram and show that the short form of writing gram is 'g'.
3. Put a pen cap (choose one that is about 1 gram heavy and weigh it beforehand to ensure it is about 1 gram) on one pan of the balance. Ask if the 1-kg mass can be used to measure the mass of the cap. Put the 1-kg mass on the other pan of the balance and show that the pen cap is too light to be measured by the 1-kg mass.
4. Replace the 1-kg mass with a 1-gram mass. The pupils should see that the balance starts to level up. Tell the class that the mass of the pen cap is about 1 gram.

5. Explain that the gram is used to measure light objects.

Activity 2 (25 min): Measure mass in grams (g) using balance and 1-g, 10-g, and 100-g masses

Things you need: Twenty pieces of 1-g mass, 10-g mass, and 100-g mass and a balance.

1. Ask the class how heavy 2 g is. Show the class how to obtain 2 g by putting together two pieces of the 1-g mass. Similarly, one can obtain 3 g by putting together 3 pieces of the 1-g mass. Let the pupils hold and feel the masses.
2. Ask the class how heavy 20 g is. Show the class how to obtain 20 g by putting either 20 pieces of 1-g mass or 2 pieces of 10-g mass. ($10\text{ g} + 10\text{ g} = 20\text{ g}$). Let the pupils hold and feel the masses.
3. Ask the class how heavy 200 g is. Show the class how to obtain 200 g by putting together either 20 piece of 10-g mass or 2 pieces of 100-g mass. ($100\text{ g} + 100\text{ g} = 200\text{ g}$). Let the pupils hold and feel the masses
4. By using a combination of 1-g, 10-g, and 100-g masses, show the class how to obtain masses of different objects. Remind the pupils that the balance must be level in order to have accurate reading. Advise the pupils that if they want the balance to level up in big steps, add or remove the 100-g mass and if they want the balance to level up in small steps, then add or remove the 1-gram mass.

Activity 3 (25 min): Measure mass in grams (g) using kitchen scale for grams

Things you need: kitchen scale in grams

1. Show the class the kitchen scale for grams. If a physical scale is not available, use a picture instead. Point to the word 'Grams' or 'g' on the scale to show that the scale is meant for measuring masses in grams.
2. Explain to the class how to read from the scale by looking at where the pointer points. Provide some examples by placing different objects on the scale and asking the pupils to read from the pointer. If you are using pictures, then show several pictures with the pointer pointing at different readings for different objects.
3. Ask the class if the bathroom scale can be used to measure masses in grams. Remind the pupils that the bathroom scale is meant for measuring the weights of human beings which is in kg. Hence, it cannot be used to measure light objects in grams.
4. Explain to the class that 1000 g is equal to 1 kg. Write on the board: $1\text{ kg} = 1000\text{ g}$.

Activity 4 (15 min): Class exercise

1. Go through with the pupils the examples on page 221 of the Student's Book.

Activity 5 (15 min): Pair work to enhance learning

Things you need: pictures of objects such as a two-rupee coin, a book, an apple, a sweet, a tiger, a dog, a baby, a bag of oranges, etc.

1. Prior to the activity, find out the mass of each of the items and for each item, write the mass on a card. (Please verify the masses are correct before printing them in the cards. You may choose to use different items.)

Example:

Write this on a card

two-rupee coin	10 g
an apple	200 g
a pair of shoes	400 g
a comb	100 g
a loaf of bread	450 g
a pencil	25 g
1-litre milk	950 g
a wall clock	650 g

2. Pair up the pupils and give each pair a set of the cards showing the different masses in grams. Show the pictures of the items and ask the pairs to discuss and match the pictures with the masses shown on the cards. Write the name of each item on the corresponding card. Go around and check the pupils' answers.

Let's Explore

Activity 5 (15 min): Individual exercise to enhance learning

1. Let the pupils try the exercise on page 222 of the Student's Book. Ask some pupils to share their answers with the class. After finding the masses, ask the pupils if they can find the mass of each of the objects. Lead the class to do a division to get the answer.

Let's Try...

Activity 6 (10 min): Individual practice

1. Ask the pupils to try the exercises on page 223 of the Student's Book.

Homework

1. Ask the pupils to do Workbook 2B—Worksheet 47.

Answers



page 223

bowl: 600 g, plastic plate: 150 g, glass: 400 g, spoon: 10 g

WORK **Sheet** 47

1. Answers may vary. Accept any reasonable answer.
2. (a) 400 (b) 200 (c) 300 (d) 200 (e) 500 (f) 700

COMPARING MASSES

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- compare masses

Instructions

Let's Learn...

Activity 1 (40 min): Compare masses in kilograms by finding the difference

1. Refer to the pictures of the green beans, peanuts, and coffee beans as shown on page 224 of the Student's Book. Explain to the pupils that one way to compare lengths is to find the difference in the masses of the items. To find the difference in mass of the items, subtraction is needed. Revise with the class how to perform subtraction of 2 numbers.
2. Lead the class to see that there are 3 ways to compare the mass of the 3 items by finding the difference of two items at a time as follows:
 - Difference in mass between the green beans and peanuts
 - Difference in mass between peanuts and coffee beans
 - Difference in mass between the green beans and coffee beans
3. For each of the above, write the corresponding subtraction sentence and the answer statement as shown on page 224 of the Student's Book.
4. Ask the class 'Which item is the heaviest?' and 'Which item is the lightest?'
5. Provide more picture examples for the pupils to try out.

Activity 2 (30 min): Compare masses in grams by finding their difference

1. Refer to the pictures of the pack of salt, 3 eggs, and piece of cheese as shown on page 225 of the Student's Book. Recall that to find their difference in mass, we subtract. Revise with class how to perform subtraction of 2 numbers.
2. Lead the class to see that there are 3 ways to compare the masses of the 3 items by finding the difference in mass of two items at a time as follows:
 - Difference in mass between the pack of salt and the eggs
 - Difference in mass between cheese and the eggs
 - Difference in mass between the pack of salt and the cheese
 - For each of the above, write the corresponding subtraction sentence and the answer statement.
3. Ask the class 'Which item is the heaviest?' and 'Which item is the lightest?'
4. Provide more picture examples for the pupils to practise.

Let's Try...

Activity 3 (10 min): Individual practice

1. Ask the pupils to try the exercises on page 226 of the Student's Book.

Homework

2. Ask the pupils to do Workbook 2B—Worksheet 48.

Answers



page 226

1. (a) rice (b) fish, potatoes
2. (a) 250 g (b) 350 g

WORK **Sheet** 48

1. (a) heavier than (b) as heavy as (c) lighter than
2. (a) 2 (b) 3 (c) 3 (d) potatoes (e) fish (f) watermelon, fish
3. (a) 600 (b) 400 (c) 100 (d) bread, biscuits (e) bread (f) biscuits

WORD PROBLEMS

Suggested Duration

4 periods (160 min)

Learning Outcomes

Pupils should be able to:

- solve word problems involving mass

Instructions

Let's Learn...

Activity 1 (20 min): Add and subtract masses in either kilograms or grams

1. Revise solving simple word problems on addition and subtraction with the pupils. Explain the use of models and write addition and subtraction sentences on the board.
2. Do the same for multiplication and division word problems.
3. Provide more word problems for the pupils to try out.
4. Explain to the class that adding and subtracting masses in either kilograms or grams is the same as adding and subtracting numbers. The only difference is the addition of the unit kg or g. For example:

$$6 \text{ kg} + 2 \text{ kg} = 8 \text{ kg} \quad \text{or} \quad 32 \text{ g} - 4 \text{ g} = 28 \text{ g}$$

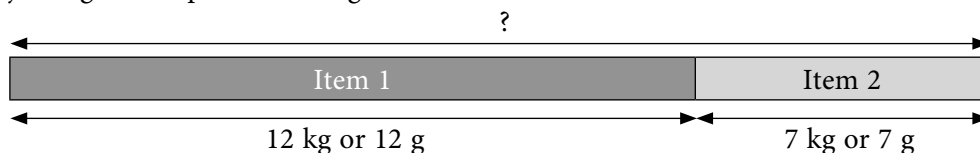
Activity 2 (20 min): Multiply and divide mass in either kilograms or grams

1. Explain that multiplying and dividing mass in either kilograms or grams is similar to multiplying and dividing numbers.
2. Give some simple examples for pupils to practise. The examples should only involve multiplication and division of numbers that are found in the multiplication tables of 2, 3, 4, 5, and 10 as the pupils have not yet learnt other multiplication tables at this point.

Activity 3 (20 min): Solve word problems involving addition and subtraction of mass in either kilograms or grams

Things you need: coloured strips of different length

1. Show table 2 coloured strips of different lengths to represent different masses of 2 items. Ask the class ‘What is the total mass of the 2 items?’ Show the addition of masses by joining the strips and writing the addition sentence as follows:



If in kilograms

$$12 \text{ kg} + 7 \text{ kg} = 19 \text{ kg}$$

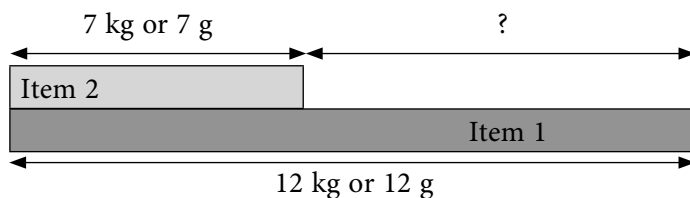
The total mass of the 2 items is 19 kg.

If in grams

$$12 \text{ g} + 7 \text{ g} = 19 \text{ g}$$

The total mass of the 2 items is 19 g.

2. Next, ask the class ‘Which item is heavier and how much heavier?’ Show the subtraction of masses by placing the shorter strip over the longer strip and write the subtraction sentence as follows:



If in kilograms

$$12 \text{ kg} - 7 \text{ kg} = 5 \text{ kg}$$

Item 1 is 5 kg heavier than Item 2 or Item 2 is 5 kg lighter than Item 1.

If in grams

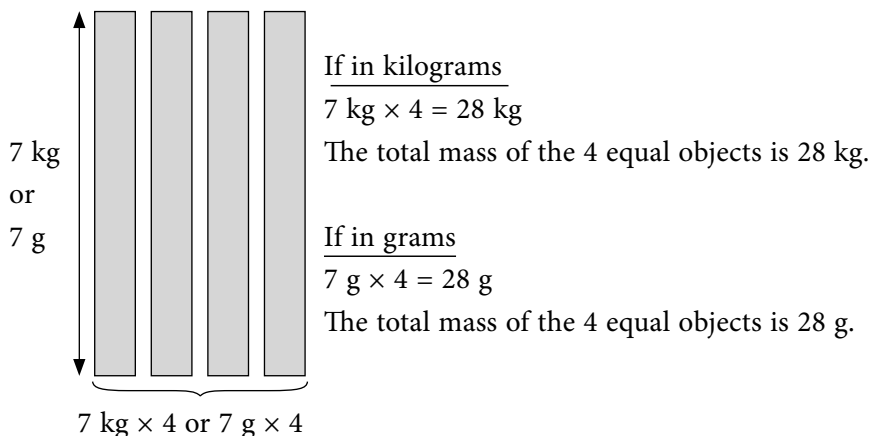
$$12 \text{ g} - 7 \text{ g} = 5 \text{ g}$$

Item 1 is 5 g heavier than item 2 or Item 2 is 5 g lighter than Item 2.

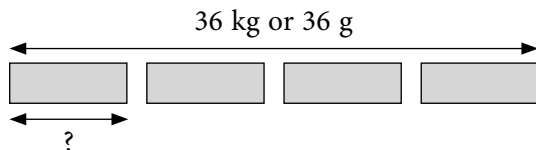
Activity 4 (20 min): Solve word problems involving multiplication and division of mass in either kilograms or grams

Things you need: coloured strips of different length

1. Show 4 strips of equal length to represent the masses of 4 identical objects and ask the class, 'What is the total mass of the 4 objects?' Show the multiplication of masses by placing the strips side by side and writing the multiplication sentence as follows:



2. Next, show a strip to represent the mass of a pack of rice. Explain to the class that the pack of rice is to be shared with 4 people. Ask the class, 'What will be the mass of rice each person get?' Show the division of mass by cutting the strip into 4 equal strips and write the division sentence as follows:



If in kilograms

$$36 \text{ kg} \div 4 = 9 \text{ kg}$$

The mass of rice each person gets is 9 kg.

If in grams

$$36 \text{ g} \div 4 = 9 \text{ g}$$

The mass of rice each person gets is 9 g.

Activity 5 (20 min): Class exercise

1. Go through with the class the examples on pages 227–228 of the Student's Book. Provide additional word problems on length for the pupils to practise on the board. Ask 2 pupils to work on each example on the board. One pupil takes charge of drawing the model while the other does the calculations.

Let's Try...

Activity 6 (20 min): Individual practice

1. Ask the pupils to work out the word problems on page 229 of the Student's Book. Ask some pupils to show their workings on the board. Remind the pupils to use the addition and subtraction algorithms in working out the answers.

Homework

Ask the pupils to do Workbook 2B—Worksheet 49 and Practice 13.

Answers



page 229

1. 6 kg
2. 423 g
3. 10 g
4. 16 kg

WORK **S**heet **49**

1. 700 g
2. 66 kg
3. 325 g
4. 35 kg
5. 3 kg
6. 202 kg
7. 4 kg
8. 20 kg

Pactice 13

1. (a) 4 g (b) 300 g (c) 6 g (d) 2 kg (e) 20 kg (f) 5 kg (g) 300 g
3. (a) 500 (b) 800 (c) 300 (d) 700 (e) 400 (f) A
4. (a) 39 (b) 23

Revision (40 min)

Fun With Maths

1. Organize the pupils to try the activity on page 230 of the Student's Book. Ask the pupils to share their answers.
2. Revise and go through pupils' homework.

Unit 14: Volume

UNDERSTANDING VOLUME

Suggested Duration

1 period (40 min)

Learning Outcomes

Pupils should be able to:

- develop the concept of volume of liquids

Instructions

Let's Learn...

Activity 1 (20 min): Understanding volume as the amount of liquid

Things you need: 3 mineral water bottles of different sizes filled with water and 3 milk packets of different sizes

1. Show the pupils 3 mineral water bottles of different sizes filled with water. Ask the class, 'Which bottle has the most amount of water?'
2. Show the pupils the 3 milk packets of different sizes and ask the class again, 'Which milk packet has the most amount of milk?'
3. Explain to the pupils that water and milk belongs to the category of substances called liquids. Ask the class to name some other types of liquids.
4. Explain to the class that all liquids take up space and this space is known as the volume. Tell the class, 'The volume of a liquid is the amount of space that the liquid takes up.' Ask the class to repeat what volume is.
5. Show both the 3 mineral water bottles and 3 milk packets. Reinforce the understanding of volume by asking the class, 'Which container has the most volume of liquid and which has the least volume of liquid?'
6. Go through with the pupils the example on page 232 of the Student's Book.

Let's Explore

Activity 2 (20 min): Experiment on volume of water in different containers

Things you need: 3 empty containers of different sizes

1. Perform the experiment on page 233 of the Student's Book to show that the volume of water does not change when poured into different containers. To do this, first divide the pupils into 3 groups and have each group take turns to gather around you to watch at close range as you perform the experiment.

COMPARING VOLUME

Suggested Duration

2 periods (80 min)

Learning Outcomes

Pupils should be able to:

- estimate and compare volumes

Instructions

Let's Learn...

Activity 1 (20 min): Compare the volumes of liquids using greater than and less than, greatest and smallest

Things you need: 3 similar mineral water bottles

1. Show the pupils 2 similar mineral water bottles filled with different volumes of water. Lead the class to compare the amount of water in the bottles by looking at the water level. Ask the class, 'Which bottle has a greater volume of water?' and 'Which bottle has a lesser volume of water?' Lead the class to say 'The volume of water in bottle ___ is greater than that in bottle ___' and 'The volume of water in bottle ___ is less than that in bottle ___'.
2. Add one mineral water bottle filled with water to a different level and lead the class to compare 3 different amounts of water by using greatest and smallest. Ask the class, 'Which bottle has the greatest volume of water?' and 'Which bottle has the smallest volume of water?' Lead the class to say 'The volume of water in bottle ___ is the greatest.' and 'The volume of water in bottle ___ is the smallest.'
3. Point out to the class that to compare volumes of liquids in similar containers, one simply needs to look at the height of the liquid level. The one with the highest level of liquid has the greatest volume of liquid.

Activity 2 (20 min): Compare the volumes of water in different containers

Things you need: 3 different transparent containers

1. Show the pupils 3 different transparent containers filled with water at the same level. Ask the class, 'Which container has the greatest volume of water?' Lead the class to estimate by looking at the size of the containers. Explain that if the water levels are the same, then the container that appears to be the biggest is likely to contain the greatest volume of water.
2. Ask the class, 'How do you compare volumes if the sizes of the containers and their water levels are both different?' Explain that to do so, we need to pour the water into 3 similar containers and then compare by looking at the water levels in the similar containers. Go through the example on pages 235–236 of the Student's Book.

Let's Explore

Activity 3 (20 min): Pair work to compare volumes using smaller similar containers

Things you need: plastic cups and different types of containers

1. Pair up the pupils. Guide them in the activity on page 236 of the Student's Book.

Let's Try...

Activity 4 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 237 of the Student's Book.

Homework

Ask the pupils to do Workbook 2B—Worksheet 50.

Answers



page 237

1. (a) P (b) S (c) P (d) S
2. (a) A (b) B (c) A (d) B

WORK **Sheet** 50

2. (a) False (b) True (c) False
3. (a) A (b) B, C (c) A
4. (a) Y, X (b) 5
5. (a) Z (b) X
6. The container on the right.

MEASURING VOLUME IN LITRES

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- estimate and measure volume of liquids in litres

Instructions

Let's Learn...

Activity 1 (20 min): Introduce the litre as a unit for measuring volume

Things you need: 1-litre beaker and plastic cups

1. Recall the meaning of the volume of a liquid.

2. Ask the pupils to name the units for measuring length and mass (metre and centimetre for length, and kilogram and gram for mass). Write these units on the board. Ask the class if anyone knows the unit for measuring volume. Write 'litre' on the board and explain that litre is a unit for measuring volume. Read out litre and ask the class to repeat the word.
3. Ask some pupils to write on the board the short form for metre, centimetre, kilograms and gram. Explain that there is also a short form for writing litre which is 'l'.
4. Show the class a 1-litre beaker. Fill the beaker with water to show 1 litre of water. Point out that the water level is at the 1-litre mark on the beaker indicating that the volume of the water is 1 litre. Ask the pupils to say, 'The volume of water is 1 litre.'
5. Go through with the pupils the example on page 238 of the Student's Book.

Activity 2 (20 min): Estimate volume using 'more than' or 'less than' 1 litre

Things you need: different types of containers

1. Show the pupils different types of containers. Ask some pupils to pour water into these containers. Ask the class to estimate whether each of the volumes is more or less than 1 l. Ask them to write their estimates on a paper.
2. Ask some pupils to pour the water in the containers into the 1-litre beaker one at a time to check whether the estimates are correct.
3. Go through with the pupils the examples on page 239 of the Student's Book.

Let's Explore

Activity 3 (40 min): Estimate the volume of water in litres

Things you need: 4 empty containers of different sizes and shapes and a 1-l beaker

1. Carry out the activity on page 240 of the Student's Book. Ask 2 pupils to come forward. One will guess the volume of water in the container while the other will use the 1-l beaker to find out if the guess is right.
2. Repeat step 1 using different volumes of water and/or different containers. Do this until all the pupils have the chance to try out the activity.

Let's Think

Activity 4 (20 min): Challenging exercise

1. Ask the pupils to think through the challenging question on page 240 of the Student's Book. Ask them to do this individually and without consulting one another.
2. After about 10 minutes, explain the solution to the pupils.

Let's Try...

Activity 5 (20 min): Individual practice

1. Ask the pupils to try the exercises on page 241 of the Student's Book.

Homework

Ask the pupils to do Workbook 2B—Worksheet 51.

Answers



page 241

- (a) 3 l (b) 2 l (c) 5 l (d) bucket (e) watering can (f) fish bowl

WORK *Sheet* 51

1. (a) 5 l (b) 2 l (c) 3 l
2. (a) 4 l (b) 4 l (c) 7 l (d) 6 l (e) 15 l (f) 6 l
3. (a) True (b) True (c) False
4. (a) C (b) 2 l (c) 3 l

WORD PROBLEMS

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- solve word problems involving volumes

Instructions

Let's Learn...

Activity 1 (10 min): Recall solving word problems

1. Revise solving simple word problems on addition and subtraction with the pupils. Write addition and subtraction sentences on the board.
2. Do the same for multiplication and division word problems
3. Provide more word problems for the pupils to try out.

Activity 2 (15 min): Add and subtract volumes in litres

1. Explain to the class that adding and subtracting volumes in litres is the same as adding and subtracting numbers. The only difference is the adding of the unit 'l' to the numbers. For example:

$$6\text{ l} + 2\text{ l} = 8\text{ l} \quad \text{or} \quad 32\text{ l} - 4\text{ l} = 28\text{ l}$$

Activity 3 (15 min): Multiply and divide volumes in litres

1. Explain that multiplying and dividing volumes in litres is similar to multiplying and dividing numbers. The only difference is the adding of the unit 'l' to the numbers. For example:

$$6\text{ l} \times 2 = 12\text{ l} \quad \text{or} \quad 32\text{ l} \div 4 = 8\text{ l}$$

2. Give some simple examples for pupils to practise. The examples should only involve multiplication and division of numbers that are found in the multiplication tables of 2, 3, 4, 5, and 10 as the pupils have not yet learnt other multiplication tables at this point.

Activity 4 (20 min): Solve word problems involving addition and subtraction of volumes in litres

1. Go through with the class the examples on pages 242–243 of the Student’s Book. For each example, ask a pupil to read aloud the question and analyse it together with the pupils. Remind them that understanding the question is a necessary step towards solving word problems and if they need to, they should read the question several times.
2. Provide more word problems on volume for the pupils to practise on the board.

Let’s Explore

Activity 5 (20 min): Solve word problems involving addition and subtraction of volumes in litres

1. Ask the pupils to work on the exercise on page 244 of the Student’s Book. Ask the pupils to do this individually and without consulting one another.

Let’s Try...

Activity 6 (10 min): Individual practice

Ask the pupils to work out the word problems on page 245 of the Student’s Book. Ask some pupils to show their workings on the board. After about 10 minutes, ask them to compare their answers with their classmates.

Homework

Ask the pupils to do Workbook 2B—Worksheet 52 and Practice 14.

Answers



page 245

1. 57 l 2. 152 l 3. 30 l 4. 6 l

WORK **Sheet** 52

1. 43 l 2. 17 l 3. 18 l 4. 3 l 5. 19 l 6. 79 l 7. 7 bottles 8. 40 l

P practice 14

2. X: 4, Y: 7, Z: 2
(a) 3 l (b) 2 l (c) Z, X, Y
3. 18 l
4. 10 l
5. (a) 77 l (b) 867 l

Revision (30 min)

Fun With Maths

- Carry out the fun activity on page 246 of the Student's Book. Ask the pupils to come forward to try making music using the glasses containing different amounts of water. Ask the pupils if they can relate the volume of water to the pitch of the sound produced. (The greater the volume, the lower the pitch, while the lesser the volume, the higher the pitch.)
- Revise and go through the pupils' homework.

Unit 15: Picture Graphs

MAKING PICTURE GRAPHS WITH SCALES

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- make picture graphs with scales

Instructions

Let's Learn...

Activity 1 (40 min): Make picture graphs with scales

Things you need: different number of cut-outs of stars, circles, squares, and triangles. Ensure that there are even numbers of each shape and one of the shapes is exceptionally large in quantity.

1. Recall what a picture graph is. Show an example of a picture graph. You could show examples taken from NSPM Book 1.
2. Divide the class into groups of 4 or 5. Refer to page 247 of the Student's Book. Ask the pupils to talk about the picture in their respective groups. They may share about the types of toys that they have. After that, revise with the class how to draw a picture graph using the information presented.
4. Go through with the pupils the example on page 248 of the Student's Book. Ask the class if there is a simpler picture graph. Show page 249 of the Student's Book and explain how to have a simpler picture graph by making each symbol represent more than 1 unit of the items.
5. Give every pupil a cut-out shape randomly. On the board, draw four columns and write star, circle, square and triangle at the bottom of the columns. Ask the pupils to draw a cross at the column of their shape. The crosses should be lined vertically.
6. Ask 4 pupils to count the number of crosses for each of the shapes and then write the numbers at the end of the columns. Emphasize that each cross represents one shape.
7. Lead the pupils to see that one of the shapes is exceptionally large in quantity. Next, ask the class if there is a simpler way of drawing the picture graph. Ask a few pupils to try giving some solutions. Suggest to the class to let each cross represent 2 units of the shapes instead of 1. Ask 4 pupils to recalculate the number of crosses needed for each shape by dividing by 2. Lead the class to see that the number of crosses needed has now been reduced, resulting in a simpler picture graph. Explain that this is an example of a picture graph with scale of 2.

8. Go through with the pupils the example on pages 250–251 of the Student’s Book.

Activity 2 (40 min): Group game to enhance learning

Things you need: dice and paper with table drawn on it

1. Divide the class into groups of 4 or 5. Give each group a dice and an A4-size paper with a table drawn (use the whole page) as follows:

(name)	(name)	(name)	(name)	(name)

2. Have the pupils write their names at the bottom of the columns.
3. The pupils take turns to roll the dice. Whoever gets 1 or 6 on the dice gets to draw 3 small circles in his column. If he gets a 6, he also gets another chance to roll the dice again. Stop the game once someone gets a total of 30 small circles.
4. Next, the group is to discuss how to make a simpler picture graph. The solution is to divide the number of circles by 3. The group that can correctly draw a simpler picture graph first is the winner. Explain that this is an example of a picture graph with a scale of 3.

Let’s Think

Activity 3 (20 min): Challenging activity

1. Pair up the pupils and let them discuss and work on the challenging activity on page 252 of the Student’s Book. The pupils should be able to use division to arrive at the answer.

Let’s Try...

Activity 4 (20 min): Individual practice

1. Ask the pupils to try the exercises on pages 254–255 of the Student’s Book. Ask a few pupils to share their answers.

Homework

Ask the pupils to do Workbook 2B—Worksheet 53.

READING PICTURE GRAPHS WITH SCALES

Suggested Duration

3 periods (120 min)

Learning Outcomes

Pupils should be able to:

- read and interpret picture graphs with scales
- solve problems using information presented in picture graphs

Instructions

Let's Learn...

Activity 1 (40 min): Read and interpret picture graphs with scales

1. Refer to the picture graph on page 256 of the Student's Book showing the number of pupils who like different types of food in a bakery. Ask the pupils to talk about the data shown on the picture graph. Pupils should take note that each triangle represents 2 pupils and they should be able to use simple multiplication to arrive at the number of pupils who like the respective bakery food as follows:

There are 12 (6 triangles \times 2) pupils who like chocolate eclairs.

There are 8 (4 triangles \times 2) pupils who like breads.

There are 10 (5 triangles \times 2) pupils who like doughnuts.

There are 8 (4 triangles \times 2) pupils who like cupcakes.

2. Go through with the pupils the rest of the example in finding more information from the data represented.
3. Refer to the example on page 258 of the Student's Book and ask a few pupils to take turns to work out the answers. Compare the solutions obtained.

Activity 2 (40 min): Fun game — group competition

Things you need: 40 animal cards printed with the picture of an animal as follows: 4 cards for cow, 8 cards for dog, 12 cards for cats, and 16 cards for duck

1. Play the game as follows:
 - Draw on the board a blank picture graph to show number of animals according to 4 different types of animals: (cow, dog, cat, and duck).
 - A playing time of 30 minutes is given for the game.
 - Each pupil is given an animal card. They are to look for their own type of animal by using the sound of the animal. For example, if a pupil is holding a cat card, he is to make the sound 'meow meow' so as to identify himself with the rest of the cats. Animals belonging to the same type are to assemble together. The group that comes together first is the winner.
 - Once everyone is gathered according to their animal type, ask them to count the

number of pupils belonging to their animal type. Ask a volunteer from each animal type to come to the board and draw crosses on the picture graph to correspond to the number counted.

- Next, have everyone return to their seats. Divide the class into groups of 5. Provide every pupil with a blank paper and ask them to draw a simpler picture graph with scales based on the picture graph drawn on the board. (There are two ways to simplify the picture graph: Either use a scale of 2 or use a scale of 4.) The pupils are not to discuss with one another while drawing the simplified picture graphs.
 - After about 30 minutes, collect all the picture graphs completed. The group with the most correct simplified picture graphs is the winner.
2. Using the picture graph, ask some pupils to describe the information that can be obtained.

Let's Try...

Activity 3 (20 min): Individual practice

1. Ask the pupils to try the exercises on pages 259–261 of the Student's Book.

Homework

Ask pupils to do Workbook 2B—Worksheet 54 and Practice 15.

Answers



pages 259–261

1. (a) 24 (b) 8 (c) Sara (d) 36
2. (a) 35 (b) 15 (c) 45 (d) 20
3. (a) 4 (b) 20 (c) 10

WORK **Sheet** 54

1. 15 2. 80 3. 20 4. 30
5. (a) December (b) March & September (c) 6 (d) 21
6. (a) 12 (b) Cheryl & Tina (c) 20 (d) 4
7. (a) 15 (b) 12 (c) 6 (d) 9 (e) 24
8. (a) Ali (b) 4 (c) 8 (d) 12
9. (a) Hide-and-seek (b) Five-stones (c) 20 (d) 28
10. (a) Dina (b) Limin, Rs 20 (c) Rs 20 (d) \$40

Practice 15

3. (a) 4 (b) 16 (c) 12 (d) 80
4. (a) 3 (b) 12 (c) 3 (d) 6 (e) 7 5.

Revision (20 min)

Fun With Maths

1. Ask the pupils to try the activity on page 262 of the Student's Book. Advise them to use a suitable scale. Encourage the pupils to try exploring, using the computer to draw the bar graph at home.
2. Revise and go through the pupils' homework.



Revision 3

2. (a) cm (b) cm (c) m
3. (a) A, C (b) 2
4. (a) $5 + 3 = 8$ (b) $7 + 3 + 3 = 13$
5. (a) 11 (b) 14 (c) 7
6. 100, 400, 200
7. 2 l, 6 l, 5 l, 6 l
8. 6 m
9. (a) Y (b) Y (c) Z
11. 126, 155, 165
12. (a) 10 (b) 30 (c) 40 (d) 10
13. (a) 10 (b) 2 (c) 18
14. (a) 500 (b) 200 (c) 100 (d) orange



Revision 4

2. (a) 3 (b) 13 (c) 6 (d) 8 (e) paper clip (f) pen
3. (a) A, C (b) 10 (c) 4 (d) A, C
4. (a) 18 (b) 16 (c) 8 (d) Saturday
5. (a) 597 g (b) 895 g (c) 334 g
6. 18 m 7. 83 l
8. 45 kg 9. 14 l
10. (a) 22 cm (b) 93 cm
11. 12 l 12. 8 packets
13. 7 cm 14. 6 l