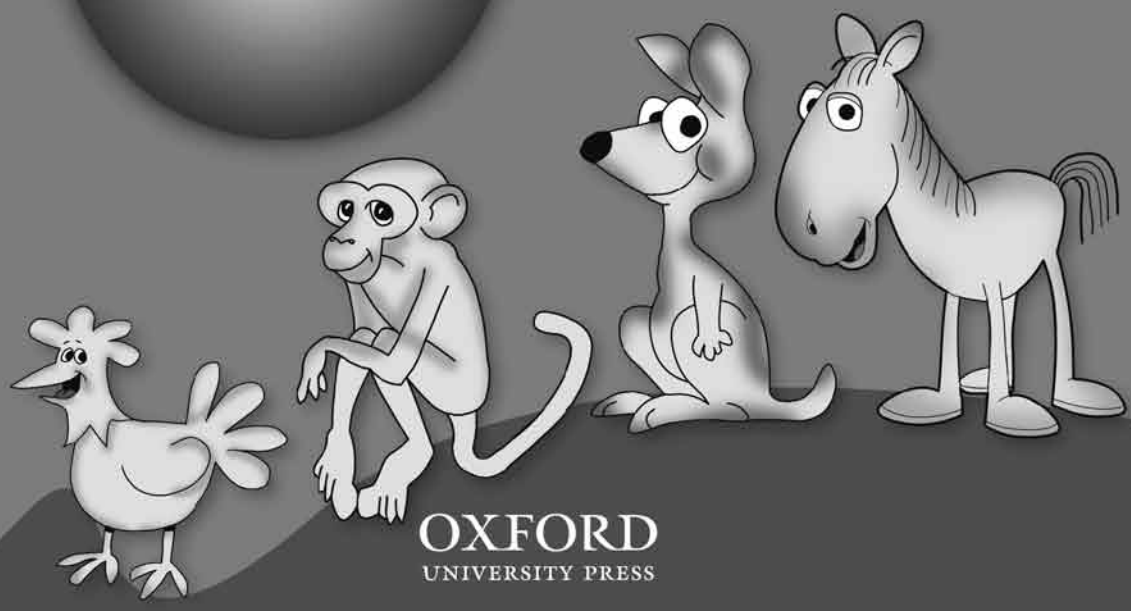
MATHS

Teaching Guide 3

Learning Numbers to 20
Add and Take Away to 20
Learning Numbers to 90
Multiply and Divide

SUE GILBERT

Real Learning
Real Maths
Really Fun!



OXFORD
UNIVERSITY PRESS

Contents

Introduction

Given that no two students are alike in the way they learn, and no two teachers are alike in the way they teach, it would be impossible to provide a set of definitive plans for any lesson. The lesson plans in this teaching guide are therefore exactly as the title states – guides.

The material and suggestions they contain will, I hope, help teachers to deliver their lessons effectively, but only if modified by the teacher's own knowledge and understanding of their students' interests, strengths, and weaknesses.

This crucial, early stage of a child's education forms the basis for their learning throughout life. If the time spent in the classroom is fun, and success is reinforced through praise, students will be eager and active learners. As well as verbal praise, make sure that the students' books are collected regularly and plenty of positive feedback is given through the use of stickers, stars, smiley faces, etc.

At the same time, any problems that are not addressed at this stage may affect future learning adversely, so make sure that potential problems are identified early and that remedial action is taken when and where necessary.

Although each of the lessons is intended to take one 35–40 minute period, please be flexible as far as timing is concerned and only move on from one topic to the next when you are certain that no misunderstandings remain. A little extra time spent on learning the basics at this stage will ensure steady progress through the later stages.

The book is full of illustrations of objects that should be familiar to the students. Encourage them to talk about these objects in either English or their first language and share their ideas. Similarly, explanations and instructions given in English can be repeated in the students' first language when necessary to reinforce understanding.

Practical work is of great importance in making classroom maths relevant to the world outside. To enable this, ask the students to help you collect simple, everyday items that can be used for practical classroom activities. Items such as plastic bottle tops, buttons, large beads, clean yoghurt pots, plastic bottles of different shapes and sizes, clean, empty packets from toothpaste, soap, tissues, cereal and other food items boxes, and cardboard tubes from kitchen and toilet rolls (these can be sterilized by placing them in a microwave oven for a minute or two) will all be useful for introductory and recapitulation activities. Begin the collection well in advance of when you will need to use the items.

A list of specific materials is given at the start of each lesson plan so that these can be prepared in advance.

Please ensure that all visual aids are large enough and clear enough to be seen by the students sitting furthest away from the teacher. When small items are used, make it clear to the students that they should not be placed in the mouth, nose, ears, etc. and always collect all the materials at the end of the lesson.

Students work at different rates and to accommodate this, those who finish the work ahead of the others can be asked to colour some of the pictures in the textbook. Colouring is an excellent way to develop fine, motor skills and hand-eye co-ordination, so encourage students who do not have time to colour in class to take their books home and do this for homework.

I hope that both teachers and students will enjoy using the **Excel Maths** series and that a lot of excellent learning will be the result.

Learning Numbers to 20

What's in this section?

Once the children have learnt to count, recognize and manipulate numbers to 10 (as covered in Maths Book 2, Sections 1 and 2 of this series), the next step for them is to learn numbers to 20. In this section, the children will:

- revise counting and using numbers to 9
- learn how to make groups of 10 plus 'extras' to add up to 20
- match correct numerals to groups of objects.

The teacher will need to work actively with the children for each activity so they understand what they are expected to do on each page. The children will listen as the teacher reads out the instructions for each activity, and then perform the tasks in the correct sequence. Selected answers are provided at the back of the book.

Reviewing numbers 1–9 Pages 2–3

Teaching Objectives

- to revise writing numerals 1–9
- to teach students to read/write the numbers 1–9 in words
- to revise counting groups of items from 1–9
- to help students draw groups of a given number (1–9) of items

Learning Outcomes

Students should be able to

- write numerals 1–9.
- read/write the numbers 1–9 in words.
- accurately count groups from 1- 9 items and write the correct numeral.
- draw groups of a given number (1–9) of items.

Lesson 1 Pages 2–3 Revising numbers 1–9

Materials required

- flashcards of the numerals 1–9; flashcards of the numbers 1- 9 written in words; Blutak, masking tape or similar adhesive material; mini-whiteboards made by placing a sheet of plain paper inside a plastic envelope; marker and eraser/tissues for each student;

Introduction

Ask nine students to come to the front of the class and give each of them a numeral flashcard. Ask them to stand in a line in ascending, numerical order. Ask all the students to count from 1–9. Repeat the activity with different students, asking them to line up in descending, numerical order.

Teach the written numbers using the flashcards and the 'look and say' method.

Fix the numeral cards on one side of the board and the written numbers at the bottom edge of the board. Ask students to place the correct word next to each numeral. Leave the display on the board for reference.

Student activity

Ask the students to open their books at pages 2–3. Use the example to explain the task and work through the next exercise together. Look through the other exercises to check that the students understand what needs to be done for each of them. Give the students a set amount of time to complete the work on both pages before checking the work as a class.

Recapitulation

Give each student a mini-whiteboard, marker and eraser. Hold up a written flashcard and ask the students to write the numeral on the whiteboard. Partners can check each other's work.

Writing numbers before and after from 1–10 Pages 4–5

Teaching Objectives

- to teach the meanings of the terms before and after
- to help students complete a written sequence of three consecutive numbers from 1–10

Learning Outcomes

Students should be able to

- use the terms before and after correctly.
- demonstrate understanding of the terms before and after by writing numerals in the correct place.
- complete a sequence of three written, consecutive numbers from 1–10.

Lesson 2 Pages 4–5 Writing numbers before and after from 1–10

Materials required

- none

Introduction

Write the numbers 1, 2, and 3 on the board. Ask the students to read the number in the middle (2). Point to number 1 and explain that 1 comes before 2; point to number 3 and explain that 3 comes after 2.

Draw a number line on the board, marked from 0–10. Point to one of the numbers on the line and ask the students to tell you the number that comes before/after that number. Repeat this for other numbers on the line.

Rub out the numbers 1, 3, 7, and 9, and ask individual students to write the numbers that come before/after 2, 5 and 8.

Student activity

Ask the students to open their books at pages 4–5. Look at the example and ask them to read the number in the centre; then ask them to tell you the number that comes before 5, and after 5. Work through the next example together and ensure that all the students understand the task before giving them a set amount of time to complete the work on both pages. Check their work as a class.

Recapitulation

Play a team game: divide the class into teams and draw a column on the board for each team. Ask members of the teams to come to the board and write (e.g.) the number before 4, the number after 7, etc.

Writing missing numbers from 1–10 Pages 6–7

Teaching Objectives

- to help students complete a written sequence of numbers from 1–9

Learning Outcomes

Students should be able to

- complete a written sequence of numbers from 1–9.

Lesson 3 Pages 6–7 Writing missing numbers from 1–9

Materials required

- mini-whiteboards, marker and eraser/tissues for each student; sets of number flashcards from 1–9, each on a different colour card or written with a different colour marker; (enough cards for each student to have one card);

Introduction

Begin by counting round the class from 1–9 or by counting as a ball is thrown from one student to another in a circle.

Give each student a mini-whiteboard, marker and eraser. Write an interrupted sequence of numbers on the board, e.g. 2 _ 4, and ask the students to write the missing number on their whiteboard and hold it up so that you can see the number. Repeat this, for longer sequences, e.g. 4 _ _ 7, or _ 5 _ etc.

Student activity

Ask the students to open their books at pages 6–7. Look at the example to explain the task and then work through the first exercise with the students. Depending on the students' confidence, either ask them to complete page 6, or both pages, before checking their work.

Recapitulation

Depending on the amount of space available, it might be better to take the students outside or into a hall for this activity. Give each student one number flashcard. Explain that they should find the other 8 students who have cards belonging to their set (same colour card or writing) and line up in the correct order. The first complete, correct line will be the winners. Collect the cards when all the lines have been made and redistribute them so that they can play again.

Making groups of 10 Pages 8–9

Teaching Objectives

- to help students make or draw groups of 10

Learning Outcomes

Students should be able to

- make or draw groups of 10.

Lesson 4 Pages 8–9 Making groups of 10

Materials required

- sets of twenty small items such as plastic bottle tops, counters, buttons, wooden blocks, etc.; tape/cd/dvd/youtube clip of one or more of the songs Ten Green Bottles, or There Were Ten in the Bed;

Introduction

Begin by forming a circle and counting to ten as a ball is thrown from student to student. When the students return to their seats, give each pair twenty of the items you have prepared and ask each of them to make a set of 10. Ask if there are any items left over; they have each made a set of ten and there are no extra pieces.
Ask a student to come to the board and draw sets of e.g. ten crosses, ten triangles, etc.
Draw two boxes on the board, one under the set of ten and the other to the right of it. Ask the students to tell you how many groups of ten there are, and write the answer (1) in the first box. Ask how many extra there are, and write the answer (0)in the second box. Explain to the students that when we write the number 10, it means that there is one complete set of ten, and no extras.

Student activity

Ask the students to open their books at pages 8–9. Ask them to count their fingers and thumbs and ascertain that they each have exactly ten. Look at the drawing of the pair of hands and ask the students to place their hands on top and count the fingers again before tracing over the outline. Explain what the writing under the drawing says and point out the numbers written in the boxes. Work through the flower exercise together. Next make sure the students understand the tasks on page 9. Give them a set amount of time to complete the tasks and check their progress as they work.

Recapitulation

Take the students outside if possible. Ask them to take ten steps forwards, jump ten times, bend down and stand up ten times, etc. and /or sing one of the songs you have prepared.

Making groups of 10 and 1 extra Pages 10–11

Teaching Objectives

- to teach students that 11 means a group of ten and one extra
- to help students make and draw groups of ten and one extra
- to teach students that a group of ten and a group of one extra is represented by the number 11

Learning Outcomes

Students should be able to

- explain that 11 means a group of ten and one extra.
- show 11 as a group of ten and a group of one.
- represent a group of ten and a group of one extra by writing the number 11.

Lesson 5 Pages 10–11 Making groups of 10 and 1 extra

Materials required

- selection of small items as used in the previous lesson;

Introduction

Ask the students to clap their hands ten times. Draw two boxes on the board and ask them how many lots of ten claps they did; write 1 in the first box. Ask how many extra claps they did; write 0 in the second box. Ask the students to say the number (10). Now ask them to clap ten times and then clap one extra time. Draw two more boxes on the board, below the others, and ask the students the same questions in order to complete the boxes with 1 and 1. Ask if anybody knows the number that you have written (11). If necessary, tell them that it is number 11 and it means one set of ten and one extra.

Student activity

Ask the students to open their books at page 10. Look at the example and ask the students how many fingers are on the first two hands; elicit that it would be a group of 10. Explain that to make a group of 11, they will have to take one extra from the third hand. Ask them to trace the fingers and write over the numbers in the boxes.

Look at the first flower. Ask the students to make a small mark on one of the petals and starting from that petal, count how many petals there are on one flower (10). Establish that those petals make a group of ten and ask them what they will need to do to make a group of 11. Ask them to colour the 11 petals and write the numbers in the boxes.

Now ask the students to look at page 11. Explain the task and ask a student to tell you how to make the group of 11. Ask another student what will be written in the boxes. Then ask yet another student how to draw the 11 sausages: What will s/he draw on the first plate, and what will s/he draw on the second plate? What will be written in the boxes? Give the students a set amount of time to complete the work on both pages and check their progress as they attempt the tasks.

Recapitulation

Give each student some of the items you have prepared and ask them to make a group of 11.

Making groups of 10 and 2 extra Pages 12–13

Teaching Objectives

- to teach students that 12 means a group of ten and two extra
- to help students make and draw groups of ten and two extra
- to teach students that a group of ten and a group of two extra is represented by the number 12

Learning Outcomes

Students should be able to

- explain that 12 means a group of ten and two extra.
- show 12 as a group of ten and a group of two.
- represent a group of ten and a group of two extra by writing the number 12.

Lesson 6 Pages 12–13 Making groups of 10 and 2 extra

Materials required

- mini-whiteboards, markers and erasers;

Introduction

Draw two boxes on the board and write in them the numerals 1 and 2; ask the students to tell you what each of the numbers represents (a group of 10 and 2 extra). Ask a student volunteer to draw the correct number of e.g. circles under each box. Count the circles and introduce the number twelve to represent one group of 10 and 2 extra.
Call twelve students to the front of the class and ask them to make groups to represent 12 (10 + 2 extra).

Student activity

Ask the students to open their books at page 12.
Complete the tasks in the book as for Lesson 5.

Recapitulation

Give each student a mini-whiteboard, marker and eraser. Ask them to draw groups for the numbers you call out (10, 11, and 12). Ask them to hold up their work for you to see.

Guessing and counting to 12 Pages 14–15

Teaching Objectives

- to help students become more accurate at estimating the number of items in a set of up to 12 items

Learning Outcomes

Students should be able to

- estimate the number of items in a set of up to 12 items with increasing accuracy.

Lesson 7 Pages 14–15 Guessing and counting to 12

Materials required

- quantities of objects for students to estimate and count e.g. piles of books, bundles of pencils, sets of wooden blocks, bottle tops, etc.

Introduction

Show the students one book, and then show them a pile of books and ask 3 or 4 individual students to guess how many books are in the pile. Explain that they should not count, only guess, or estimate. Write the estimates on the board and then ask a student to count the books to see which estimate was closest.

Show the students a second pile of similar books and, before asking for estimates, ask the students to decide whether there will be more, or fewer, books in the second pile in order to help them estimate more accurately.
Repeat this with the different sets of objects you have prepared.

Student activity

Ask the students to open their books at page 14. Explain the task by studying the example and then ask them all to quickly write estimates for the remaining groups on page 14. Count the items and assess how close the students' estimates were. Give the students a set amount of time to write estimates for the groups on page 15 before counting the items.

Recapitulation

Give the students sets of items and ask them to work in pairs, taking turns to prepare sets and make estimates.

Making groups of 10 and 3 extra Pages 16–17

Teaching Objectives

- to teach students that 13 means a group of ten and three extra
- to help students make and draw groups of ten and three extra
- to teach students that a group of ten and a group of three extra is represented by the number 13

Learning Outcomes

Students should be able to

- explain that 13 means a group of ten and three extra.
- show 13 as a group of ten and a group of three.
- represent a group of ten and a group of three extra by writing the number 13.

Lesson 8 Pages 16–17 Making groups of 10 and 3 extra

Materials required

- plain paper; crayons or coloured pencils;

This lesson can be taught following the structure of Lesson 6.
As students become more familiar with the concepts, you may wish to reduce the amount of introductory activity.

Recapitulation

Give the students paper and crayons or coloured pencils. Ask them to work in groups to draw groups of 10, 10 + 1, 10 + 2, and 10 + 3, and write on them the numbers 10, 11, 12, and 13. Use their work to start a display of numbers from 10–20

Making groups of 10 and 4 extra Pages 18–19

Teaching Objectives

- to teach students that 14 means a group of ten and four extra
- to help students make and draw groups of ten and four extra
- to teach students that a group of ten and a group of four extra is represented by the number 14

Learning Outcomes

Students should be able to

- explain that 14 means a group of ten and four extra.
- show 14 as a group of ten and a group of four.
- represent a group of ten and a group of four extra by writing the number 14.

Lesson 9 Pages 18–19 Making groups of 10 and 4 extra

This lesson can be taught following the structure for Lesson 8.

Recapitulation

Divide the students into teams and draw a column on the board for each team.
Ask the members of the teams to come to the board and either draw the group for the number you say, or draw the number for a group you describe, e.g. a group of ten and a group of 3 extra.

Guessing and counting to 14 Pages 20–21

Teaching Objectives

- to help students become more accurate at estimating the number of items in a set of up to 14 items

Learning Outcomes

Students should be able to

- estimate the number of items in a set of up to 14 items with increasing accuracy.

Lesson 10 Pages 20–21 Guessing and counting to 14

This lesson can follow the structure for Lesson 7.

Making groups of 10 and 5 extra Pages 22–23

Teaching Objectives

- to teach students that 15 means a group of ten and five extra
- to help students make and draw groups of ten and five extra
- to teach students that a group of ten and a group of five extra is represented by the number 15

Learning Outcomes

Students should be able to

- explain that 15 means a group of ten and five extra.
- show 15 as a group of ten and a group of five.
- represent a group of ten and a group of five extra by writing the number 15.

Lesson 11 Pages 22–23 Making groups of 10 and 5 extra

This lesson can be taught following the structure for Lesson 8.

Making groups of 10 and 6 extra Pages 24–25

Teaching Objectives

- to teach students that 16 means a group of ten and six extra
- to help students make and draw groups of ten and six extra
- to teach students that a group of ten and a group of six extra is represented by the number 16

Learning Outcomes

Students should be able to

- explain that 16 means a group of ten and six extra.
- show 16 as a group of ten and a group of six.
- represent a group of ten and a group of six extra by writing the number 16.

Lesson 12 Pages 24–25 Making groups of 10 and 6 extra

This lesson can be taught following the structure for Lesson 8.

Guessing and counting to 16 Pages 26–27

Teaching Objectives

- to help students become more accurate at estimating the number of items in a set of up to 16 items

Learning Outcomes

Students should be able to

- estimate the number of items in a set of up to 16 items, with increasing accuracy.

Lesson 13 Pages 26–27 Guessing and counting to 16

This lesson can follow the structure for Lesson 7.

Recapitulation

Ask students to work in groups to continue the display work by drawing groups for 14, 15, and 16.

Making groups of 10 and 7 extra Pages 28–29

Teaching Objectives

- to teach students that 17 means a group of ten and seven extra
- to help students make and draw groups of ten and seven extra
- to teach students that a group of ten and a group of seven extra is represented by the number 17

Learning Outcomes

Students should be able to

- explain that 17 means a group of ten and seven extra.
- show 17 as a group of ten and a group of seven.
- represent a group of ten and a group of seven extra by writing the number 17.

Lesson 14 Pages 28–29 Making groups of 10 and 7 extra

This lesson can follow the structure for Lesson 8.

Making groups of 10 and 8 extra Pages 30–31

Teaching Objectives

- to teach students that 18 means a group of ten and eight extra
- to help students make and draw groups of ten and eight extra
- to teach students that a group of ten and a group of eight extra is represented by the number 18

Learning Outcomes

Students should be able to

- explain that 18 means a group of ten and eight extra.
- show 18 as a group of ten and a group of eight.
- represent a group of ten and a group of eight extra by writing the number 18.

Lesson 15 Pages 30–31 Making groups of 10 and 8 extra

This lesson can follow the structure for Lesson 8.

Guessing and counting to 18 Pages 32–33

Teaching Objectives

- to help students become more accurate at estimating the number of items in a set of up to 18 items

Learning Outcomes

Students should be able to

- estimate the number of items in a set of up to 18 items with increasing accuracy.

Lesson 16 Pages 32–33 Guessing and counting to 18

This lesson can follow the structure for Lesson 7.

Making groups of 10 and 9 extra Pages 34–35

Teaching Objectives

- to teach students that 19 means a group of ten and nine extra
- to help students make and draw groups of ten and nine extra
- to teach students that a group of ten and a group of nine extra is represented by the number 19

Learning Outcomes

Students should be able to

- explain that 19 means a group of ten and nine extra.
- show 19 as a group of ten and a group of nine.
- represent a group of ten and a group of nine extra by writing the number 19.

Lesson 17 Pages 34–35 Making groups of 10 and 9 extra

This lesson can follow the structure for Lesson 8.

Making 2 groups of 10 Pages 36–37

Teaching Objectives

- to teach students that 20 means two complete groups of ten
- to help students make and draw two groups of ten
- to teach students that two groups of ten is represented by the number 20

Learning Outcomes

Students should be able to

- explain that 20 means two complete groups of ten.
- show 20 as two groups of ten.
- represent two groups of ten by writing the number 20.

Lesson 18 Pages 36–37 Making 2 groups of 10

Materials required

- sets of twenty small items such as beads, buttons, counters, bottle tops etc. for each student or pair of students; plain paper; crayons or coloured pencils;

Introduction

Give out the materials you have prepared and ask the students to make a set of ten and to see how many extra items they have; they will discover that they have two sets of ten. While they are doing this, draw two boxes on the board as in previous lessons. Ask one of the students to write the number they have made in the boxes on the board (2 and 0). Explain that 20 is the number twenty and it means two complete sets of ten. You may want to ask students to suggest how they could write a number to show e.g. two groups of ten and 4 extra, etc.

Student activity

Ask the students to open their books at page 36. Work through the example with them. Look at the second task and ask them how many groups of ten candles they will need to draw; establish that there will be ten candles on each cake, and ask the students to draw them neatly. Explain the tasks on page 37 and give the students a set amount of time to complete them. Check their progress as they work.

Recapitulation

Complete the display material by asking students to draw groups of two 10s and write the number 20.

Finding the matching number Pages 38–39

Teaching Objectives

- to help students match a given number of articles (11–20) to the numeral representing that number

Learning Outcomes–

Students should be able to

- match a given number of articles (11–20) to the numeral representing that number.

Lesson 19 Pages 38–39 Finding the matching number

Materials required

- class sets of numerals 11–20 made using Resource sheet 1; picture flashcards of sets containing 11–20 items, arranged in groups of 10 + the extra number; tape/cd/dvd/ youtube clip of One, Two, Buckle My Shoe

Resource sheet 1 Sets of numerals 11–20

Photocopy this sheet on to good quality paper or thin card and cut it up to make a set of numerals 11–20 for each student in the class.

11	12	13	14	15
16	17	18	19	20
11	12	13	14	15
16	17	18	19	20

Introduction
Give each student a set of numeral cards and ask them to place these on their desk face up in the correct order. This will enable you to check that each student has a full set of cards. Show the students one of the flashcards; ask them to count how many items there are in the set, and to hold up the correct numeral card so that you can see it clearly. Repeat this for all the flashcards.

Student Activity
Ask the students to open their books at pages 38–39. Look at the example and elicit that the number 12 has been circled because the illustration shows a group of 10 and two extra. Look at the next picture and elicit from the students that they should identify a group of ten by circling ten items to help them find how many extra there are. Do this together, count the extra items, and then circle the correct number. Depending on how much help the students require, either work through page 38 with them before asking them to continue with the work on page 39, or give them a set amount of time to complete the work on both pages before checking their work as a class.

Recapitulation
Use the tape/cd/dvd/youtube clip to teach One, Two, Buckle My Shoe.

Writing numbers before and after from 1–20 Pages 40–41

Teaching Objectives
- to revise the meanings of the terms before and after
- to help students complete a written sequence of three consecutive numbers from 11–20

Learning Outcomes
Students should be able to
- use the terms before and after correctly.
- demonstrate understanding of the terms before and after by writing numerals in the correct place.
- complete a written sequence of three consecutive numbers from 11–20.

Lesson 20 Pages 40–41 Writing numbers before and after from 11–20

Materials required
- sets of numbers 11–20 written on sheets of A4 sized card or paper (see recapitulation activity);

Introduction
Write a number, e.g. 15 on the board. Ask the students to read the number and ascertain that it represents a group of ten and five extra. Ask a student to tell you which number comes before 15, and another student to tell you which number comes after 15. Repeat the activity with a different sequence of three numbers.

Student activity

Ask the students to open their books at pages 40–41. Look at the example and ask the students to read the number in the centre; then ask them to tell you the number that comes before and after it. Work through the next example together and ensure that all students understand the task before giving them a set amount of time to complete the work on both pages. Check their work as a class.

Recapitulation

Play a team game: divide the students into teams of ten and give each team a set of the large numerals; each student should take one numeral. If any team is short of members, ask some members to have more than one number.

Ask the student from each team with the number e.g. 17, to stand at the front of the class. Ask the students with the numbers before and after 17 to come and stand next to him/her in the correct order. Give points to the team that is first to complete the sequence correctly. Repeat this for other sequences of numbers.

Writing the missing numbers from 10–20 Pages 42–43

Teaching Objectives

- to help students complete a written sequence of numbers from 10–20

Learning Outcomes

Students should be able to

- complete a written sequence of numbers from 10–20.

Lesson 21 Pages 42–43 Writing the missing numbers from 10–20

Materials required

- none

Introduction

Begin by counting from 1–20 round the class. Draw a number line on the board from 10–20, but only write numbers 10, 12, 14 and 17 on it. Ask individual students to come to the board and write the missing numbers in the correct places. Leave the completed number line on the board for students' reference during the textbook activity.

Student activity

Ask the students to open their books at pages 42–43. Look at the example to explain the task and then work through the first exercise with the students. Depending on the students' confidence, either ask them to complete the work on page 42, or on both pages, before checking their work.

Recapitulation

Play a game: Ask the students to listen to you as you count; explain that at some point you will stop counting and clap instead. The students should continue to count (one number for each clap) and when you stop and point to a student, s/he should tell you the next number. For example, 13, 14, (clap, clap, clap,) (student–18). You could invite individual students to take turns to lead the game.

Writing the missing numbers from 1–20 Pages 44–45

Teaching Objectives

- to help students complete a written sequence of numbers from 1–20
- to introduce the concept of odd and even numbers

Learning Outcomes

Students should be able to

- complete a written sequence of numbers from 1–20.
- to have some awareness of the concept of odd and even numbers.

Lesson 22 Pages 44–45 Writing the missing numbers from 1–20

Materials required

- mini-whiteboard, marker and eraser for each student; a ball;

Introduction

Give each student a mini-whiteboard, marker and eraser and demonstrate that they should use the board landscape style in order to have plenty of space. Ask them to write the numbers 1–10 in a line; as they do this, write the numbers on the board. Then ask them to write the numbers 11–20 underneath the numbers they have just written; do the same on the board. Look at the rows of numbers and observe the pattern of how e.g. 2 and 12 , 7 and 17 are together.
Ask them to clean the board and turn it so that it is being used portrait style, and write the numbers 1–5; ask them to write the numbers 6–10 below these, and then the numbers 11–15 and finally, 16–20, so that there are 4 rows of numbers. Ask them to look for any patterns. They may identify the patterns found on alternating rows, e.g. 3 and 13 and 8 and 18 in the centre column.

Student activity

Ask the students to open their books at pages 44–45. Explain the tasks and give the students a set amount of time to complete the work on both pages. After checking the work as a class, Ask the students to read out all the numbers printed in black on page 44, and then on page 45. Counting in odd and even numbers will be reinforced in the recapitulation activity.

Recapitulation

Ask the students to stand in a circle. Explain that they are going to take turns to count as the ball is thrown; the person receiving the ball says the next number and then throws it to another student. Do this to count from 1–20. On the second round, explain that they are going to do the same, but without saying some of the numbers; the second person will nod and remain quiet and the next person will say 3, then the next person will nod and remain quiet and the next person say 5, etc. Play a third time, beginning with a silent nod and only counting aloud the even numbers.

Joining the dots Pages 46–47

Teaching Objectives

- to reinforce the sequence of written numbers from 1–20

Learning Outcomes

Students should be able to

- follow correctly a written sequence of numbers from 1–20.

Lesson 23 Pages 46–47 Joining the dots.

Materials required

- number cards from 1–20; Blutak, masking tape or similar adhesive material; tape/cd/dvd/ youtube clip of *One, Two, Buckle My Shoe*.

Introduction

Draw a large shape on the board such as a triangle or star. Give out the number cards 2–20 to nineteen students. Fix the number 1 card on the board at one point on the shape, and ask the others to come in turn and complete the sequence of numbers around the edges of the shape. With a finger, or marker, follow the sequence of numbers round the shape.

Student activity

Ask the students to open their books at pages 46–47. They will be familiar with this activity, so give them a set amount of time to complete the work on both pages.

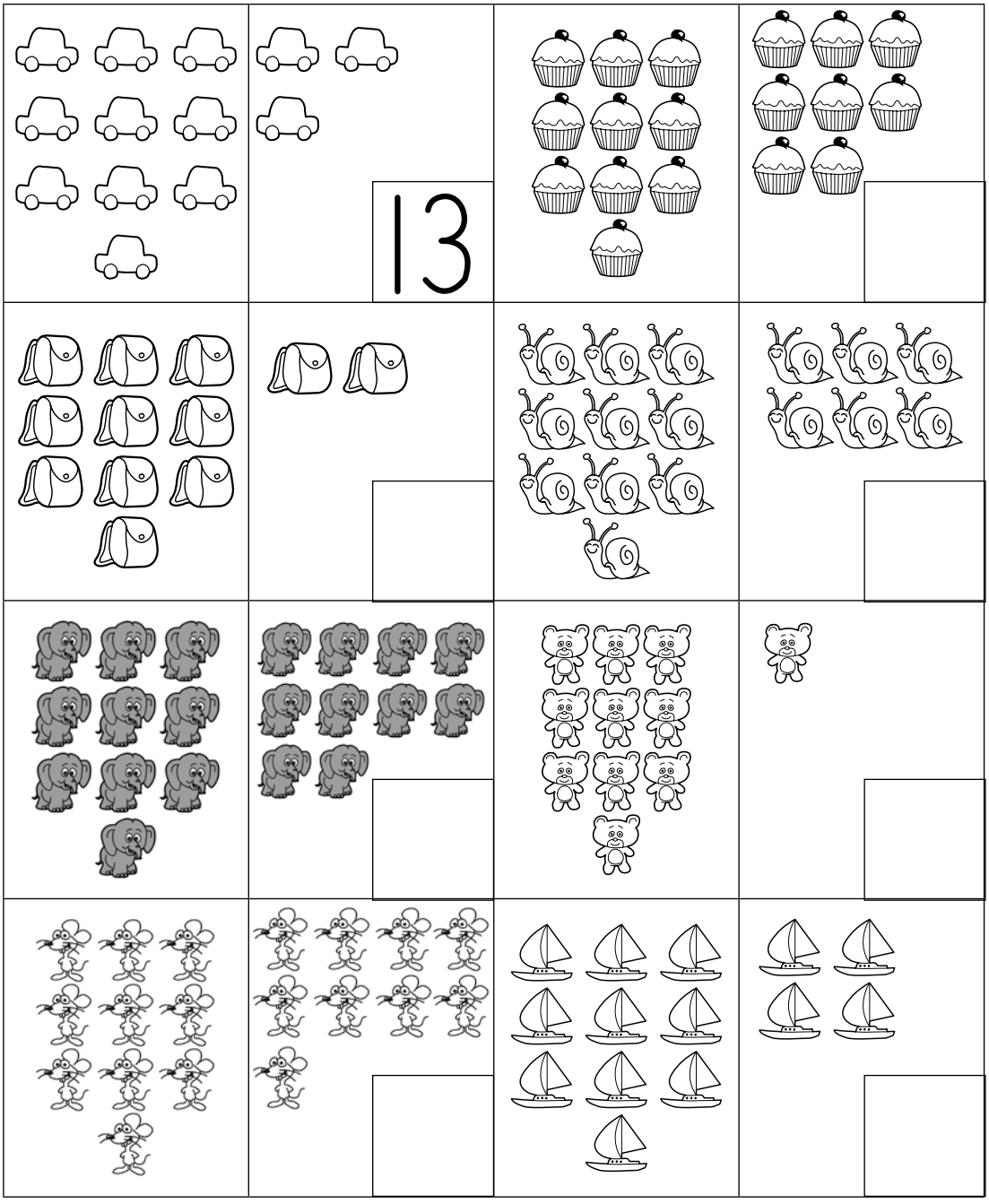
Recapitulation

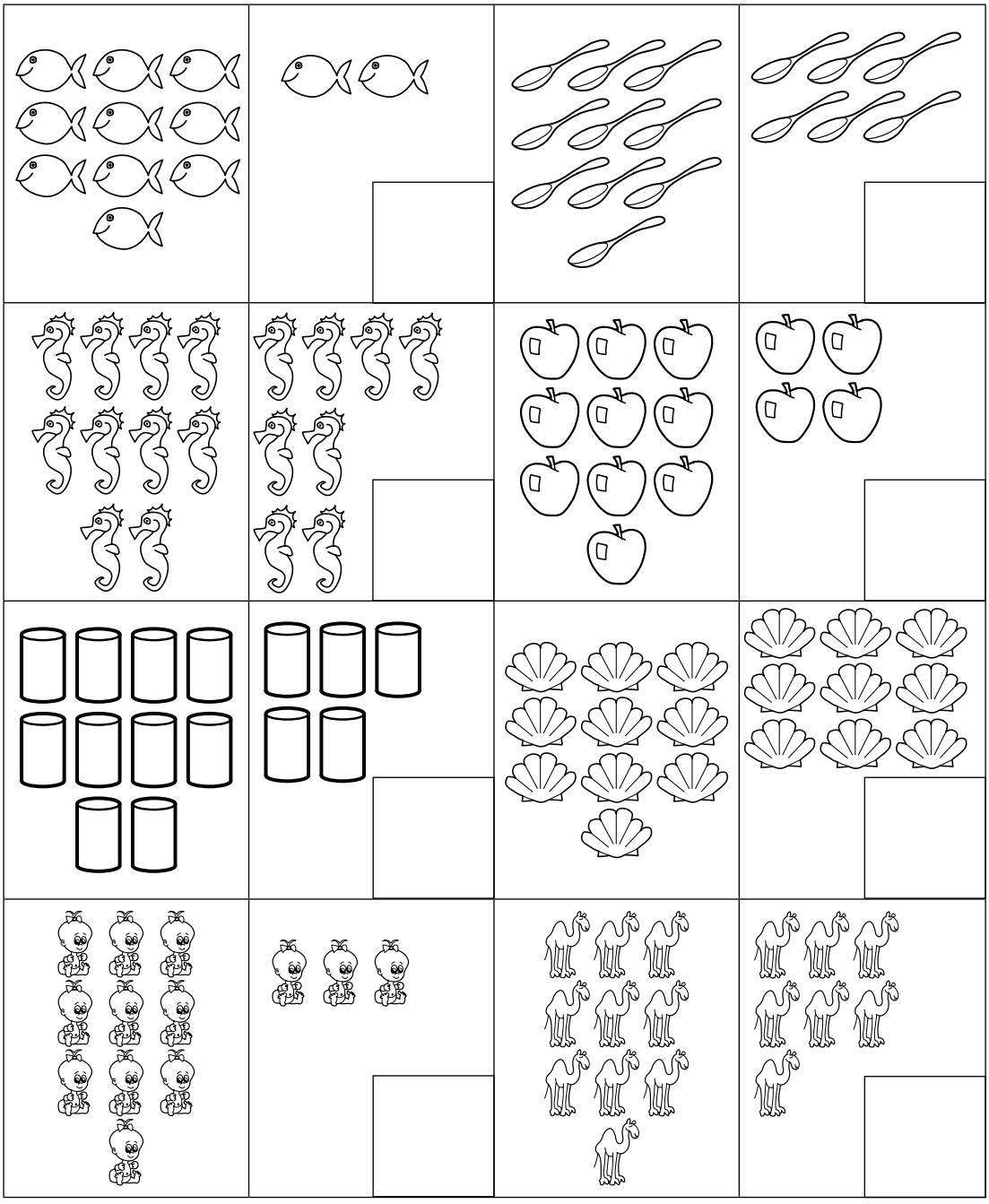
Sing One, Two, Buckle My Shoe.

At this point you might wish to ask students to complete the two short assessment sheets. Make sure that the students understand exactly what they are required to do for each task and reassure them that the purpose of the assessment is to help you discover any topics that might need further teaching.

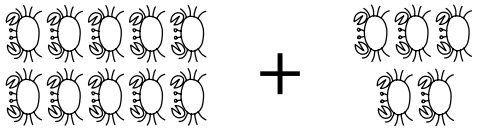
Assessment Sheet 1A Numbers 11 to 20

1. Count how many items in each picture and write the correct number in the box



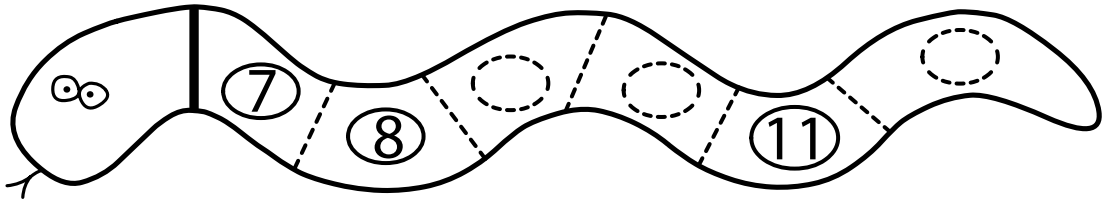


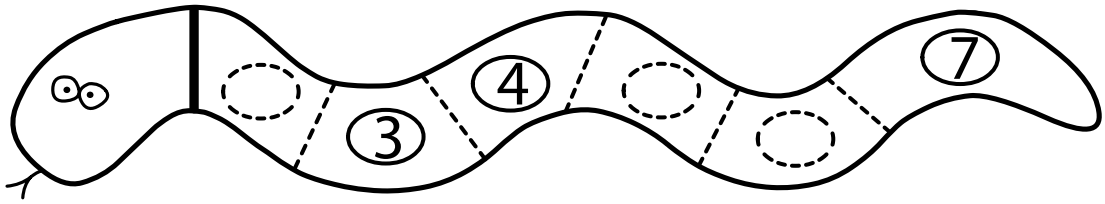
2. Draw groups to show the following numbers. You can draw any shape or object you choose.

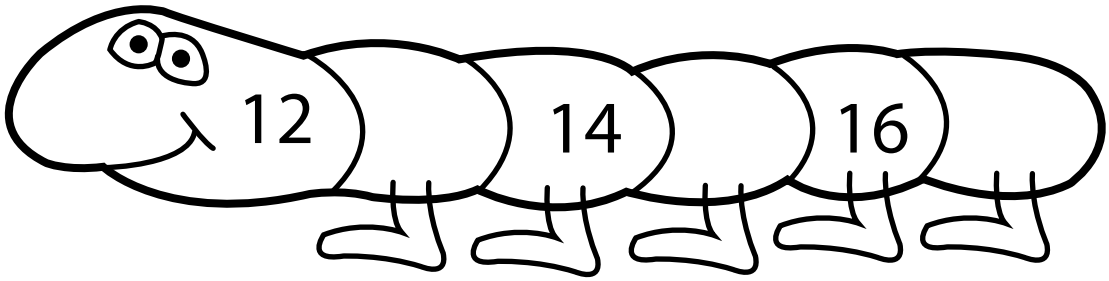
15	
17	
12	
18	
16	
11	
20	
13	

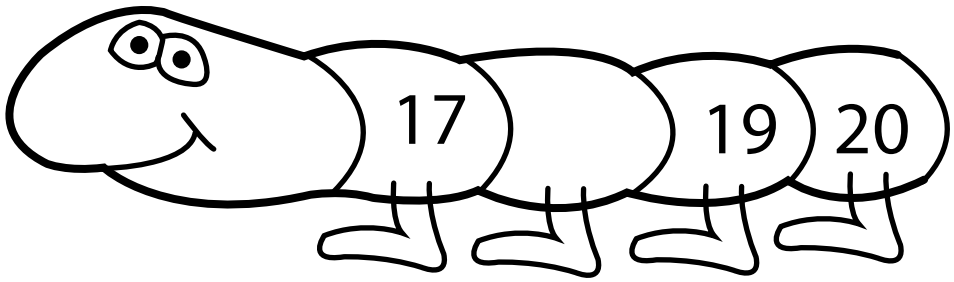
Assessment Sheet 1B Number sequences from 1–20

Write the missing numbers in the spaces.









Add and Take Away to 20

What's in this section?

Once the children have learnt to count and recognize numbers to 20 (see Section 1), and have learnt to add and take away to 10 (see Book 2, Section 2), they can then learn to focus on adding and subtracting with totals of up to 20. In this section, the children will:

- revise adding and subtracting to 10
- learn to add and subtract numbers to 20
- become more confident with using numbers to 20.

Throughout this series the children will learn to recognize numbers all around them and become more confident in using them.

The teacher will need to work actively with the children for each activity so they understand what they are expected to do on each page. The children will listen as the teacher reads out the instructions for each activity, and then perform the tasks in the correct sequence.

Adding up 10 or less Pages 50–51

Teaching Objectives

- to revise the meaning of the + (plus) sign
- to revise adding two numbers to make a total of 10 or less

Learning Outcomes

Students should be able to

- explain that the + (plus) sign means add.
- add two numbers correctly to make a total of 10 or less.

Lesson 24 Pages 50–51 Adding up (to?) 10 or less

Materials required

- small objects to be used for counting; paper cups; a small plastic bowl or box;
- Before the lesson, place different numbers of small objects in pairs of paper cups so that the totals will be 10 or fewer, and write on the cup the number of items it contains.

Introduction

Write the + sign on the board and ask the students to explain what it means.
Place the plastic bowl or box on the table and take two of the cups that you have prepared. Show the students the number you have written on the first and ask them to count the items as you drop them into the bowl. Show the students the number on the second cup and ask them to continue counting as you add those items to the bowl. Write the sum for the activity you have just performed, on the board, referring to the cups for the two numbers, and adding the + sign and the total.
Repeat this with another pair of cups and ask a student volunteer to write the sum on the board.

Student activity

Ask the students to open their books at pages 50–51. Look at the example to explain the task and count the fish to check the total. Ask a student to explain how s/he will do the next exercise and then complete it with the students. If there are no difficulties, give the students a set amount of time to complete the work on both pages. As you check, ask the students to tell you the number story for each sum.

Recapitulation

Tell some number stories and ask the students to hold up the correct number of fingers to show each total.

Adding up to 10 Pages 52–53

Teaching Objectives

- to revise and practise number bonds for 10

Learning Outcomes

Students should be able to

- recognize number bonds for 10.

Lesson 25 Pages 52–53 Adding up to 10

Materials required

- red and blue board markers/chalk; red and blue coloured pencils; student sets of 12 small items such as counters, buttons, bottle tops etc.;

Introduction

Draw a line of ten circles or triangles on the board. Colour all of them red. Ask the students to count the red shapes; ask them if there are any shapes of another colour. Next to the circles write 10 +0 = 10.

Draw another line of ten circles and this time colour 9 of them red and one of them blue. Repeat the questions and write 9 + 1 = 10.

Repeat this for all the number bonds, ending with 0 + 10 = 10.

Ask the students to look at your work on the board and explain that it shows all the different ways of making ten with two numbers. You may wish to introduce the term number bonds. Leave the work on the board for reference.

Student activity

Ask the students to open their books at pages 52–53. Use the example to explain the task and work through the next exercise together. If the students are confident, give them a set amount of time to complete the work on both pages before checking the work as a class.

Recapitulation

Ask the students to work in pairs; give each pair a set of small items. Explain that you are going to say the first half of a number bond for 10. One student should count that many items and the second student should then find the correct amount to add to it to make ten. Ask different pairs of students to tell you the complete number bond, e.g. six and four are ten.

Counting on to 10 Pages 54–55

Teaching Objectives

- to teach students to use a number line to do addition by counting on
- to teach students to add to a total of 10 by the counting on method

Learning Outcomes

Students should be able to

- use a number line to do addition correctly by counting on.
- use the counting on method to add two numbers up to a total of 10.

Lesson 26 Pages 54–55 Counting on to 10

Materials required

- a cardboard frog; Blutak; sets of ten counters, blocks, buttons, bottle tops etc. for each student; chalk;

Introduction

Before the lesson draw a number line from 0–10 on the board. Fix the cardboard frog by the 0, and underneath write __ + ___

Tell the students that the frog is going to help them do some adding. Ask a student to give you a number between 1–5 to write in the first space, and a second student to give you a number between 1–5 for the second space. Explain that the first number tells the frog where to start, and move the frog to the correct number; explain that the second number is how many jumps the frog must make, and move it the correct number of jumps, counting the jumps as you move it. Explain that the number the frog rests on is the answer to the sum. The students can check this by counting on their fingers.

Repeat the activity with different numbers and if they can reach, ask students to move the frog.

Student activity

Ask the students to open their books at pages 54–55. Look at the example and work through it together, then work through the first exercise in the same way. If the students are confident, give them a set amount of time to complete the work on both pages. Before you check their work, give each student a set of ten objects and show them how to use these to check their answers.

Recapitulation

If possible, take the students outside and draw a large number line on the ground with chalk. Give individual students sums and ask them to jump along the line like the frog to find the answer. If this is not possible, you could try it with a line of ten chairs, numbered 1–10.

Finding the partner to 10 Pages 56–57

Teaching Objectives

- to help students complete simple additions to 10 by counting on to find the missing value

Learning Outcomes

Students should be able to

- find, by counting on, the correct value to complete a simple additional sum to 10.

Lesson 27 Pages 56–57 Finding the partner to 10

Materials required

- sets of up to 10 common items. e.g. books, pencils, paper cups, etc.; sets of ten counters, blocks, buttons, bottle tops etc. for each student; set of cards made using resource sheet 2 for each pair/group of students;

Resource sheet 2: Partners to 10

Photocopy this sheet on to good quality paper or thin card and cut it up to make a set of cards for each student pair/group of four in the class.

1	2	3	4	5
6	7	8	9	10
1	2	3	4	5
6	7	8	9	0

Introduction
Show the students a number of items, e.g. four pens; explain that you need seven pens. Write on the board 4 + ? = 7. Ask them to suggest how you can find out how many more pens you need. If necessary, help them by drawing 4 pens on the board underneath the number 4, and then drawing more pens under the ? as you count on to 7; then count the number of pens underneath the ? and write this number in place of the ?
Repeat this with other sets of objects and other pairs of numbers. As the students become more confident, miss out the drawing stage and simply count on, using fingers.

Student activity
Ask the students to open their books at pages 56–57. Look at the example and work through it, making it clear that the number in blue shows how many must be added on to the first number (4) to reach the total (7). Work through one or two more exercises before giving the students a set amount of time to complete the work on both pages. Give them sets of ten items to check their answers before or as you check their work as a class.

Recapitulation
Play a game: give each pair of students a set of cards and ask them to place them face down on the desk in 5 rows of 4. They should take turns to turn over two cards. If the numbers on the cards add up to 10, the student keeps the pair of cards; if they do not add up to 10, the cards are replaced in their original positions and the second student takes a turn. You may wish to demonstrate the game before the students begin to play.

Adding on from 10 Pages 58–59

Teaching Objectives
- to help students add a number from 1–9 to 10

Learning Outcomes
Students should be able to
- correctly add to 10 a number from 1–9.

Lesson 28 Pages 58–59 Adding on from 10

Materials required
- groups of 10, e.g. bundle of ten pencils/pile of ten books/bag of 10 carrots, etc. plus extra items of each type; coloured pencils;

Introduction
Draw two boxes on the board with a + sign between them, and show the students one of the groups of ten items. Tell them that it is a group of e.g. ten pencils, and ask them how you could show this number using the boxes on the board. Write 10 in the first box. Then show the students the extra items, count them and write the number in the second box, e.g. 4. Ask the students to count on from 10 a further 4 to find the total number of pencils, and write the total as the answer.

Repeat the activity with the other materials you have prepared, missing out the first step on the board as the students become more confident.

Student activity

Ask the students to open their books at pages 58–59. make sure each student has a coloured pencil and use the example to explain the task. Work through the second exercise as a class before giving the students a set amount of time to complete the work on both pages. Check the work as a class.

Recapitulation

Play a team game: divide the students into teams and draw a column for each team on the board. Ask a member of each team to come to the board and write down the answer to the 10 + sum that you give them. Repeat this so that each student has a turn.

Adding 10 to 0-9 Pages 60–61

Teaching Objectives

- to help students add 10 to a number from 1–9

Learning Outcomes

Students should be able to

- correctly add 10 to a number from 1–9.

Lesson 29 Pages 60–61 Adding 10 to 0-9

Materials required

- groups of 10, e.g. bundle of ten pencils/pile of ten books/bag of 10carrots, etc. plus extra items of each type; coloured pencils; (as for the previous lesson)

Introduction

Draw two boxes on the board with a + sign between them. Show the students one of the groups of extra items. Count them to show that it is a group of e.g. six pencils. Then show the students the bundle of e.g. ten pencils and tell them that it is a group of 10. Explain that you are going to write a sum to find out how many pencils you have altogether. Write the numbers 6 and 10 (in that order) as the values in the boxes on the board. Ask the students to count on from 6 a further 10 (they can use their fingers to help them do this) to find the total number of pencils, and write this as the answer.

Repeat the activity with the other materials you have prepared, missing out the first step on the board as the students become more confident.

Student activity

Ask the students to open their books at pages 60–61. Make sure they have red and blue coloured pencils and use the example to explain the task. Work through the second exercise as

a class before giving the students a set amount of time to complete the work on both pages. Check the work as a class.
As you check the answers, ask the students to tell you a number story for each exercise.

Recapitulation

Play a team game: divide the students into teams and draw a column for each team on the board. Ask a member of each team to come to the board and write down the answer to the x + 10 sum that you give them. Repeat this so that each student has a turn.

Adding doubles Pages 62–63

Teaching Objectives

- to explain the meaning of the term double
- to help students add to double a number from 1–9

Learning Outcomes

Students should be able to

- use the term double correctly.
- double a number by adding.

Lesson 30 Pages 62–63 Adding doubles

Materials required

- coloured pencils; sets of twenty counters, buttons, bottle tops, etc. for each pair of students;

Introduction

Ask the students to hold up the forefinger on each hand. Elicit that each hand is showing one finger and that the total number of fingers is 2. Write this on the board as 1 + 1 = 2. Repeat the activity with three fingers on each hand, and five fingers on each hand. Look at the sums you have written on the board and elicit that in each, the numbers being added together are the same. Explain that double means the same thing twice and when we count the same number twice, we are doubling it. Hold up one/four fingers and ask the students to use their own fingers to show you double the number they see.

Student activity

Ask the students to open their books at pages 62–63. Use the example to explain the task and help the students to draw seven spots on each of the butterfly's wings. Ask them to find the total number of spots either by counting all the spots, or by counting on from 7. Look at the second butterfly and sum and ask how many spots should be on each wing and help them students to draw them and then find the total number. Ask the students to complete the tasks on page 62 and check their progress before asking them to continue with the tasks on page 63.

Recapitulation

Ask the students to work in pairs and give each pair a set of twenty items. Explain that they are going to double the number you tell them by each of them making a set of the given number and then combining their sets and counting to find the total. Give them different numbers and ask individual students for the totals.

Adding up to 15 or less Pages 64–65

Teaching Objectives

- to help students add two values correctly to a total of 15 or less

Learning Outcomes

Students should be able to

- add two values correctly to a total of 15 or less.

Lesson 31 Pages 64–65 Adding up to 15 or less

Materials required

- mini-whiteboard, marker and eraser for each student;

Introduction

Revise orally number bonds to 10, e.g. How many do I add to 5 to make 10? What number goes with 3 to make 10? If necessary, remind the students to count on from the number you say in order to find the answer.

Explain that in this lesson you are going to add numbers to make totals of up to 15. Reassure the students that they can do this using the same counting on method. Write a sum on the board, e.g. 8 + 3 =

Ask a student to draw eight circles under the 8, and a second student to draw three circles under the 3; count the circles as a class and write the answer in the correct place.

Repeat the activity with a second example.

Student activity

Ask the students to open their books at pages 64–65. Use the example to explain the task and work through the second exercise together. Give them a set amount of time to complete the work on both pages before checking the work as a class. As you check the answers, ask the students to tell you the number story for each question.

Recapitulation

Give out the mini-whiteboards, markers, and erasers. Write one sum at a time on the board and ask the students to write the answer only on their whiteboard and hold it up for you. Encourage them to use the counting on method, but if necessary, they should draw items to count.

Adding missing numbers up to 15 or less Pages 66–67
Adding more missing numbers up to 15 or less Pages 68–69

Teaching Objectives
- to help students complete simple additions to 15 by counting on to find the missing value

Learning Outcomes
Students should be able to
- find, by counting on, the correct value to complete a simple addition sum to 15.

Lesson 32 Pages 66–67 Adding missing numbers up to 15 or less

Materials required
- sets of up to 15 small items for each pair of students; sheets of plain paper

Introduction
Ask eight boys to stand at the front of the class; tell the students that you need to make a group of 14 students, but so far you only have 8. Write on the board 8 + ? = 14. How many more students do you need? One-by-one, ask girls to join the group, counting until you reach 14. By counting the number of girls, you can find the missing value and complete the sum Repeat the activity for other values up to and including 15, using other students or other classroom items.

Student activity
Ask the students to open their books at pages 66–67. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation
Ask the students to work in pairs. Give them the sets of small items and a sheet of paper. Ask them to work out all the different ways of making 15 with 2 values. They should write their results on the paper. To vary the activity, give different pairs of students different totals, from 11–15.

Lesson 33 Pages 68–69 Adding more missing numbers up to 15 or less

Materials required
- pairs of dice and a paper cup for each pair of students;

This lesson can follow the structure for Lesson 32. The introductory session should revise the work from the previous lesson.

Recapitulation

Ask the students to work in pairs and give each pair two dice in a paper cup. They should shake the cup and add the two values on the dice, either by counting all the spots or by counting on from the larger number.

Adding up to 20 or less Pages 70–71

Teaching Objectives

- to help students add two values correctly to a total of 20 or less

Learning Outcomes

Students should be able to

- add two values correctly to a total of 20 or less.

Lesson 34 Pages 70–71 Adding up to 20 or less

Materials required

- plain paper/coloured sugar paper; crayons, coloured pencils/chalks;

This lesson can follow the structure for Lesson 31.

Recapitulation

Give each student paper and crayons, coloured pencils or chalk. Ask them to draw their own adding up to 20 or less story. Demonstrate on the board that they should choose an object, e.g. bananas, and then draw the sum, (as in the textbook) and write the sum underneath. These can be used to make a classroom display.

Adding missing numbers up to 20 or less Pages 72–73
Adding more missing numbers up to 20 or less Pages 74–75

Teaching Objectives

- to help students complete simple additions to 20 by counting on to find the missing value

Learning Outcomes

Students should be able to

- find, by counting on, the correct value to complete a simple addition sum to 20.

Lesson 35 Pages 72–73 Adding missing numbers up to 20 or less

Materials required
- sets of twenty small items for each pair of students; sheets of plain paper

Introduction
These lessons can follow the structure for Lessons 32 and 33.

Recapitulation
As for Lesson 32, but ask students to find all the ways of making 20; this will probably extend over two lessons.

Counting on to 20 Pages 76–77

Teaching Objectives
- to teach students to use a number line to do addition by counting on
- to teach students to add to a total of 20 by the counting on method

Learning Outcomes
Students should be able to
- use a number line to do addition correctly by counting on.
- use the counting on method to add two numbers up to a total of 20.

Lesson 36 Pages 76–77 Counting on to 20

This lesson should follow the structure for Lesson 26, using a number line from 0–20.

Recapitulation
Carry out the activities suggested at the bottom of pages 76 and 77.

Finding the partner to 20 Pages 78–79

Teaching Objectives
- to help students complete simple additions to 20 by counting on to find the missing value

Learning Outcomes
Students should be able to
- find, by counting on, the correct value to complete a simple addition sum to 20.

Lesson 37 Pages 78–79 Finding the partner to 20

Materials required

- sets of up to twenty common items. e.g. books, pencils, paper cups, etc.; sets of twenty counters, blocks, buttons, bottle tops etc. for each student; set of cards for each pair of students made using numbers 0–20 from resource sheets 1 and 2; an extra number 10 card for each set;

This lesson should follow the structure for Lesson 27.

Recapitulation

Give each student a set of 0–20 cards. Ask them to place them face-up on the desk and use them to make pairs of cards that add up to 20, e.g. 14 and 6. When they have made all ten sets, they could organise them from 0 and 20 to 10 and 10. If you have not provided an extra number 10 card, ask students to tell you the partner for 10.

Taking away from 10 or less Pages 80–81

Teaching Objectives

- to revise subtraction
- to help students subtract values below 10

Learning Outcomes

Students should be able to

- subtract correctly values below 10.

Lesson 38 Pages 80–81 Taking away from 10 or less

Materials required

- sets of classroom items e.g. books, pens, rulers, etc.;

Introduction

Write a large subtraction sign (-) on the board and ask the students to tell you what it means. Show the students a set of items, e.g. six rulers. Ask how many would remain if two were taken away. Ask a student to take two of the rulers and count those remaining to check the students' answer.

Write on the board the sum 6–2 = 4.

Repeat this with other groups of items as many times as necessary to build students' confidence.

Student activity

Ask the students to open their books at pages 81–82. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class and ask for take away stories for each sum.

Recapitulation

Play a team game: divide the students into teams and draw a column on the board for each team. Ask the first members of each team to come to the board and write the answer to a take away sum that you give them.

Taking away from 10 Pages 82–83

Teaching Objectives

- to help students subtract different values from 10

Learning Outcomes

Students should be able to

- correctly subtract different values from 10.

Lesson 39 Pages 82–83 Taking away from 10

Materials required

- tape/cd/dvd/youtube clip of either Ten Green Bottles or There Were Ten in the Bed;

Introduction

Begin by revising number bonds for 10; write them on the board. This activity will help the students with subtraction from 10.
This lesson can follow the structure of the previous lesson

Recapitulation

Sing one of the songs you have prepared.

Counting back from 10 Pages 84–85

Teaching Objectives

- to teach students to use a number line to do subtraction by counting back
- to teach students to subtract from 10 or less by the counting back method

Learning Outcomes

Students should be able to

- use a number line to do subtraction correctly by counting back.
- use the counting back method to subtract two numbers below 10.

Lesson 40 Pages 84–85 Counting back from 10

Materials required

- a cardboard frog (as used in Lesson 26); Blutak; sets of ten counters, blocks, buttons, bottle tops etc. for each student; chalk;

Introduction

Before the lesson draw a number line from 0–10 on the board. Fix the cardboard frog by the 0, and underneath write __ – __ =

Tell the students that the frog is going to help them take away. Ask a student to give you a number between 5–10 to write in the first space, and a second student to give you a number between 1–5 for the second space.

Explain that, as with addition, the first number tells the frog where to start, and move the frog to the correct number. Next explain that, just as with addition, the second number tells the frog how many jumps to make, but at this point ask them how it will jump for taking away.

Encourage them to see that the frog must move backwards. If necessary, remind them that when we take away, the answer is always smaller. Count as you move the frog the correct number of places backwards, and this will be the answer to the sum. The students can check this by counting backwards using their fingers.

Repeat the activity with different numbers and if they can reach, ask students to move the frog.

Student activity

Ask the students to open their books at pages 84–85. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class and ask for take away stories for each sum.

Recapitulation

If possible, take the students outside, draw a number line with chalk, and ask them to work out the answers to the questions in the book by jumping backwards along the line.

Taking away from 15 or less Pages 86–87

Teaching Objectives

- to help students subtract different values from numbers up to 15

Learning Outcomes

Students should be able to

- correctly subtract different values from numbers up to 15.

Lesson 41 Pages 86–87 Taking away from 15 or less

Materials required

- mini-whiteboard, marker and eraser for each student;

Introduction

Draw fourteen e.g. biscuits on the board and ask the students to count them.

Tell the students that six children each ate one of the biscuits, and rub out 6 biscuits as the children count them. Ask the students to tell you how many biscuits are left.

Elicit from the students that you can write your story as the sum 14–6 = 8.

Repeat the activity with a different story and different values.

Student activity

Ask the students to open their books at pages 86–87. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class and ask for take away stories for each sum.

Recapitulation

Give each student a mini-whiteboard, marker and eraser, and ask each student to write his/her own 'taking away from 15 or less' sum. They can take turns to hold up their sum and ask the rest of the students to find the correct answer.

Taking missing numbers away from 15 or less Pages 88–89

Teaching Objectives

- to help students complete subtractions from values up to 15 by counting backwards to find the missing value

Learning Outcomes

Students should be able to

- find, by counting backwards, the correct value to complete a subtraction from values up to 15.

Lesson 42 Pages 88–89 Taking missing numbers away from 15 or less

Materials required

- a ball; set of up to 15 pencils; a large sheet of paper or card to make a poster;

Introduction

Begin by counting up to 15 and then back from 15; do this either round the class or by throwing a ball in a circle of students. Count backwards two or three times.

Hold up a number of pencils, e.g. 13 and count them with the students. Remove some of the pencils and put them to one side, then count how many remain, e.g. 7. Tell the students that you had 13 pencils, but you lost some and now you have only 6. You would like to know how many you lost. Ask the students to help you write this on the board as a sum 13–? = 6. Elicit that by counting backwards from 13 to 6 you can discover how many pencils you lost. When you have counted backwards, write the missing value into the sum and then count the pencils that you put aside to check your answer.

Repeat this with other items and values.

Student activity

Ask the students to open their books at pages 88–89. Use the example to explain the task and then work through the second question together before asking them to complete the work on both pages. After a set amount of time, check their answers as a class and ask for a number story for each sum.

Recapitulation

Ask the students to help you create on the board, or on a large poster, a table of take away sums for values from 15–0 to 15–15.

Taking away from 20 or less Pages 90–91

Teaching Objectives

- to help students subtract different values from numbers up to 20

Learning Outcomes

Students should be able to

- correctly subtract different values from numbers up to 20.

Lesson 43 Pages 90–91 Taking away from 20 or less

Materials required

- mini-whiteboard, marker and eraser for each student;

This lesson can follow the structure for Lesson 41.

Taking missing numbers away from 20 or less Pages 92–93

Teaching Objectives

- to help students complete subtraction from values up to 20 by counting backwards to find the missing value

Learning Outcomes

Students should be able to

- find, by counting backwards, the correct value to complete a subtraction from values up to 20.

Lesson 44 Pages 92–93 Taking missing numbers away from 20 or less

Materials required

- as for lesson 42

This lesson can follow the structure for Lesson 42.

Counting back from 20 Pages 94–95

Teaching Objectives

- to revise using a number line to do subtraction by counting back
- to help students subtract from 20 or less by the counting back method

Learning Outcomes

Students should be able to

- use a number line to do subtraction correctly by counting back.
- use the counting back method to correctly subtract two numbers below 20.

Lesson 45 Pages 94–95 Counting back from 20

Materials required

- a cardboard frog (as used in Lesson 40); Blutak;

Introduction

Before the lesson draw a number line from 0–20 on the board. Fix the cardboard frog by the 0, and underneath write a sum, e.g. 14–9 =
Revise with the students how to use the number line to do subtraction.
Repeat the activity with different numbers.

Student activity

Ask the students to open their books at pages 84–85. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class and ask for take away stories for each sum.

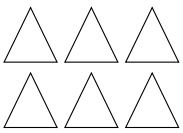
Recapitulation

If possible, take the students outside, draw a number line with chalk, and ask them to work out the answers to the questions in the book by jumping backwards along the line.

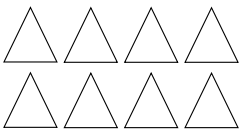
At this point you might wish to ask students to complete the following short assessment sheets. Make sure that the students understand exactly what they are required to do for each task, and reassure them that the purpose of the assessment is to help you discover any topics that might need further teaching.

Assessment Sheet 2a Adding up to 20 or less.

1. Draw triangles to match the given numbers. Count them to find out how many there are altogether, and write the answer in the boxes.



6 + 8



= 14

8 + 9 = ☐☐

10 + 6 = ☐☐

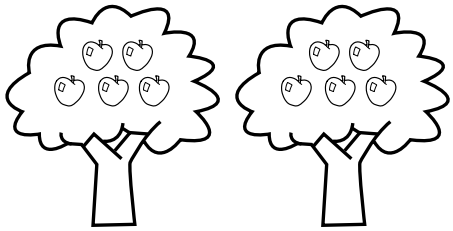
7 + 8 = ☐☐

9 + 7 = ☐☐

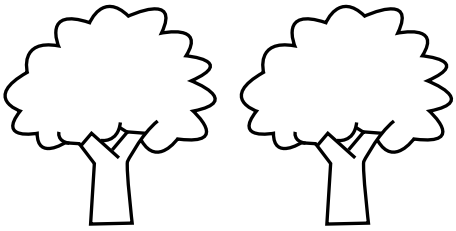
12 + 8 = ☐☐

2. Adding doubles

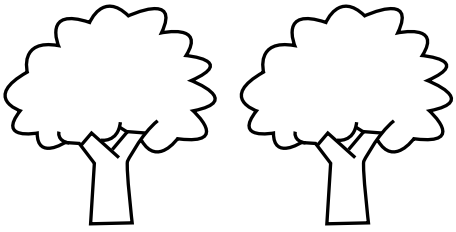
Draw apples on the first tree to match the first number, then draw apples on the second tree to match the second number. How many apples are there altogether? Write the answer in the boxes.



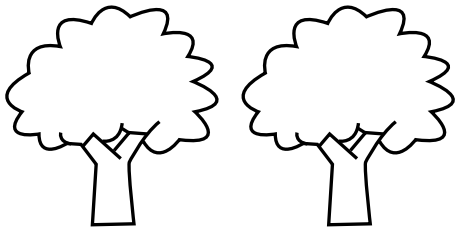
5 + 5 = 10



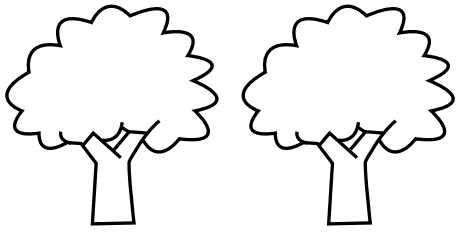
3 + 3 = ☐☐



6 + 6 = ☐☐

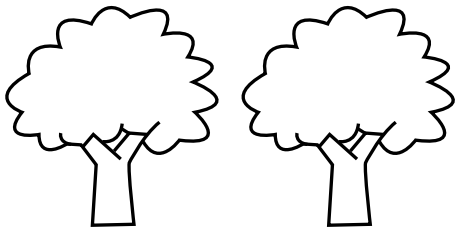


$8 + 8 = \square\square$



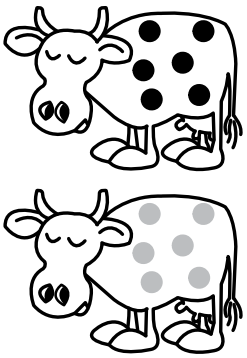
$7 + 7 = \square\square$

$10 + 10 = \square\square$

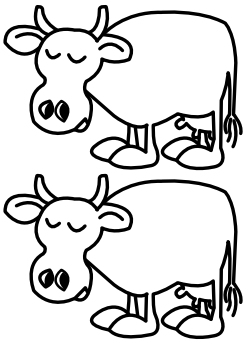


3. Adding missing numbers to 20

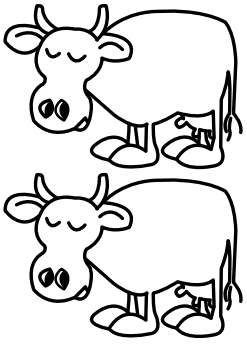
Draw spots on the first cow to match the first number. How many spots will you draw on the second cow so that the numbers add up to the total? Write the missing number in the box.



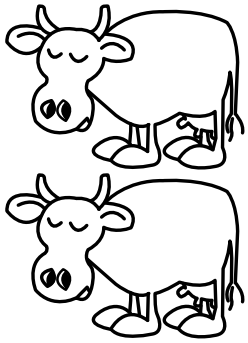
6 + 9 = 15



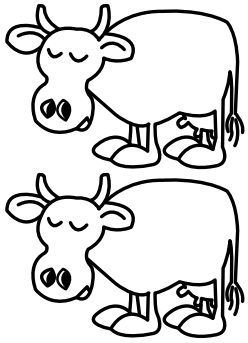
9 + ☐ = 17



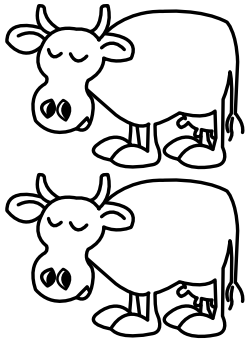
8 + ☐ = 15



$10 + \square = 18$



$7 + \square = 16$

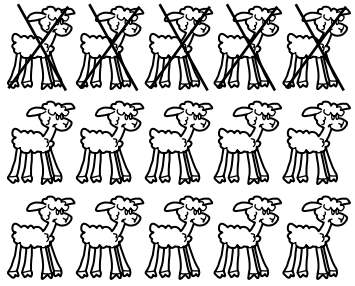


$9 + \square = 14$

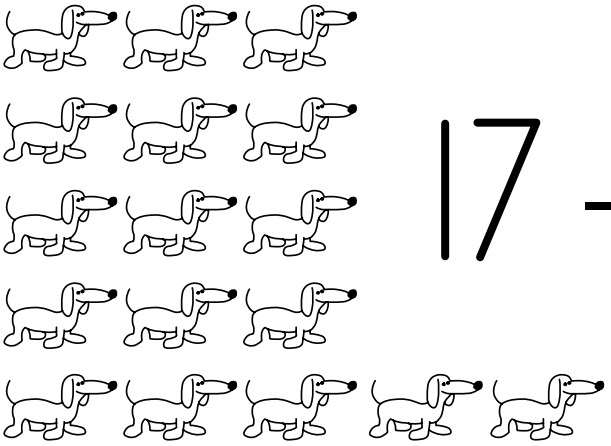
Assessment Sheet 2b Taking away from 20 or less.

1. Taking away from 20 or less

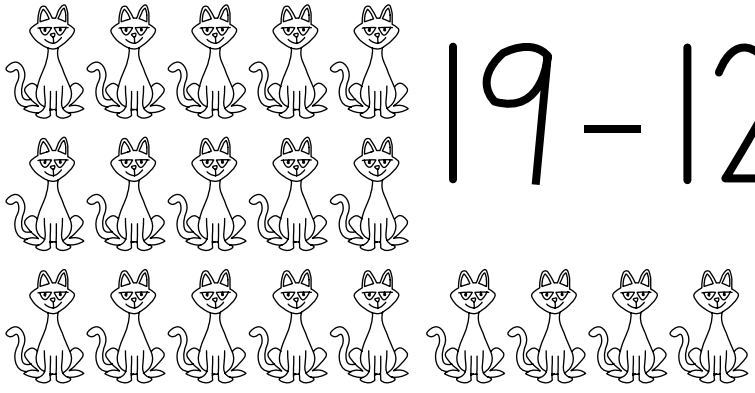
Cross out the animals to match the second number. Count how many animals are left and write the number in the box.



15 – 5 = 10



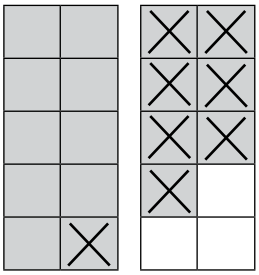
17 – 8 = ☐



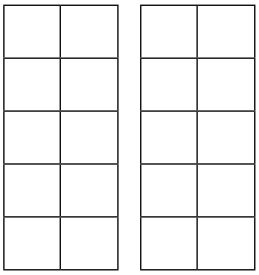
19 – 12 = ☐

2. Taking away missing numbers from 20 or less

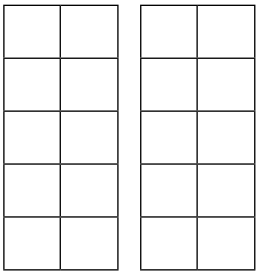
Colour squares to match the first number. How many squares do you have to cross out to leave the number on the right. Count backwards and cross out one square at a time until you reach the correct number. Write the **number you have crossed** out in the square.



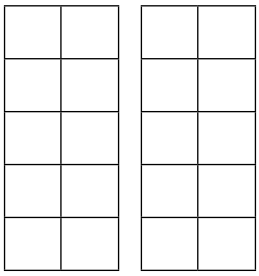
$17 - \boxed{8} = 9$



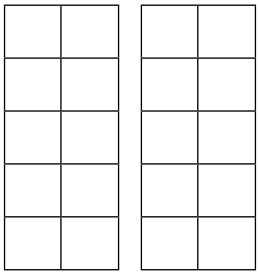
$16 - \square = 10$



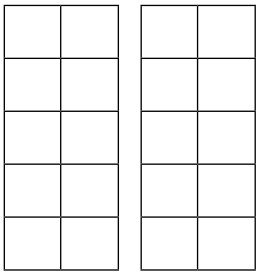
$19 - \square = 7$



$18 - \square = 11$



$20 - \square = 13$



$15 - \square = 6$

Learning Numbers to 99

What's in this section?

This section focuses on introducing the children to the numbers 10–99. In this section, the children will:

- revise numbers 1–20
- count groups of objects from 10–99
- write numbers to 99
- focus on groups of 10 and extras to 99.

Throughout this series the children will learn to recognize numbers all around them and become more confident in using them.

The teacher will need to work actively with the children for each activity so they understand what they are expected to do on each page. The children will listen as the instructions for each activity are read out, and then perform the tasks in the correct sequence.

Finding the matching number up to 20 Pages 98–99

Teaching Objectives

- to revise numbers up to 20
- to help students match a given number of articles (11–20) to the numeral representing that number

Learning Outcomes

Students should be able to

- match a given number of articles (11–20) to the numeral representing that number.
- read numbers up to 20.

Lesson 46 Pages 98–99 Finding the matching number up to 20

Materials required

- as for Lesson 19;

Introduction

This lesson is revision. To introduce it you could use the activity suggested for Lesson 19 using the flashcards and number cards.

Student activity

Ask the students to open their books at pages 98–99. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Ask pairs of students to work together to hold up the number of fingers that you say.

Writing numbers before and after, up to 20 Pages 100–101

Teaching Objectives

- to revise the meanings of the terms before and after
- to revise completing a written sequence of three consecutive numbers from 11–20

Learning Outcomes

Students should be able to

- use the terms before and after correctly.
- demonstrate understanding of the terms before and after by writing numerals in the correct place.
- complete a written sequence of three consecutive numbers from 11–20.

Lesson 47 Pages 100–101 Writing numbers before and after, up to 20

Materials required
- as for Lesson 21;

Introduction
This lesson is revision. To introduce it you could use the activity suggested for Lesson 20.

Student activity
Ask the students to open their books at pages 100–101. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation
Do the activity suggested at the bottom of page 100; this could be organised as a team game.

Writing missing numbers up to 20 Pages 102–103

Teaching Objectives
- to revise completing a written sequence of numbers from 10–20

Learning Outcomes
Students should be able to
- complete a written sequence of numbers from 10–20.

Lesson 48 Pages 102–103 Writing missing numbers up to 20

Materials required
- as for Lesson 21;

Introduction
This lesson is revision. To introduce it you could use the activity suggested for Lesson 21.

Student activity
Ask the students to open their books at pages 102–103. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation
- as for lesson 21

Joining the dots to 20 Pages 104–105

Teaching Objectives

- to revise and reinforce the sequence of written numbers from 1–20

Learning Outcomes

Students should be able to

- follow correctly the written sequence of numbers from 1–20.

Lesson 49 Pages 104–105 Joining the dots to 20

Materials required

- sheets of plain paper;

Introduction

To introduce this already familiar activity, ask the students to open their books at pages 104–105 and tell you what they are required to do to complete the picture.

Student activity

Complete the pictures by joining the dots.

Recapitulation

Give the students a sheet of plain paper and ask them to try the activity on page 105; they can each complete their partner's puzzle

Counting groups of 10 Pages 106–107

Teaching Objectives

- to teach students to count in tens from 10–90
- to help students count groups of 10 from 10–90

Learning Outcomes

Students should be able to

- count correctly in tens from 10–90.
- count correctly groups of 10 from 10–90.

Lesson 50 Pages 106–107 Counting groups of 10

Materials required

- 9 bundles of ten pencils; mini-whiteboard, marker and eraser for each student;

Introduction

Show the students one bundle of ten pencils and ask them to tell you the number that represents one group of 10; write the number 10 on the board.
Show the students two bundles of ten pencils and ask them to tell you the number that represents two groups of 10; write the number 20 on the board.
Show the students three bundles of ten pencils and ask if anybody knows the number that represents three groups of 10. If necessary, teach the number thirty. Ask the students to tell you how they think thirty would be written as a number and write it on the board.
Repeat the activity for 4–9 bundles of pencils. When you reach 40, 60, and 80, go back to the beginning and ask the students to count aloud in tens so that they begin to learn the names of the numbers. Count again when you reach 90. Then ask the students to count in tens round the class.

Student activity

Ask the students to open their books at pages 106–107. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class. For each answer, ask the students to tell you the number that represents that number of tens and how to write it.

Recapitulation

Give each student a mini-whiteboard, marker and eraser; ask then to write the number for the number of tens you say, and hold up their answer for you to see.

Making groups of 10–90 Pages 108–109

Teaching Objectives

- to help students make a given number of groups of ten

Learning Outcomes

Students should be able to

- make a given number of groups of ten.

Lesson 51 Pages 108–109 Making groups of 10–90

Materials required

- coloured pencils or crayons; 9 flashcards, each showing one group of ten items or shapes, e.g. circles, triangles, crosses; Blutak, masking tape or similar adhesive material; a ball;

Introduction

Place the nine flashcards on a table. Fix two of them on the board and ask the students what number it represents. Remove the groups and then repeat the activity with five groups of ten. Ask a student to come and make, e.g. seven groups of 10; ask what number it represents.

Student activity
Ask the students to open their books at pages 108–109. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class. For each answer, ask the students to tell you the number that represents that number of tens and how to write it.

Recapitulation
Ask the students to stand in a circle and count in tens as the ball is thrown between them. If they are confident enough, ask them to count backwards in tens as well.

Counting and writing from 10–90 Pages 110–111

Teaching Objectives
- to help students count groups of ten
- to help students write the number that represents a given number of tens

Learning Outcomes
Students should be able to
- count groups of ten correctly.
- write the correct number to represent a given number of tens.

Lesson 52 Pages 110–111 Counting and writing from 10–90

Materials required
- flashcards from previous lesson; Blutak, masking tape or similar adhesive material;

Introduction
Fix two of the flashcards on the board and ask a student to count them and write the number beside them.
Repeat this for other numbers of cards. Each time, elicit from the students that there are exact groups of 10 and no extra items.

Student activity
Ask the students to open their books at pages 110–111. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class. For each answer, ask the students to say the number.

Recapitulation
Divide the students into teams and draw a column on the board for each team.
Ask the first member of each team to come to the board, show them a number of the flashcards; ask them to write the corresponding number on the board.

Finding the matching number from 10–90 Pages 112–113

Teaching Objectives

- to help students match a given number of items (20–90) to the correct written number

Learning Outcomes

Students should be able to

- match a given number of items (20–90) to the correct written number.

Lesson 53 Pages 112–113 Finding the matching number from 10–90

Materials required

- bundles of 10 pencils (as used in Lesson 50); sheets of plain paper; crayons or coloured pencils;

Introduction

Hold up a number of bundles of pencils, e.g. 4, and ask the students to count them (4 bundles). Ask the students to tell you the total number of pencils (40) and ask a student to write the correct number on the board.
Repeat this for different numbers of bundles.

Student activity

Ask the students to open their books at pages 112–113. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class. For each answer, ask the students to say the number.

Recapitulation

Give each student a sheet of plain paper and coloured pencils or crayons. Ask them to draw a group of ten flowers. Use their drawings to make a display of groups of 10, 20, 30, etc.

Writing numbers before and after from 10–90 Pages 114–115

Teaching Objectives

- to help students complete a written sequence of three consecutive multiples of 10 from 10–90

Learning Outcomes

Students should be able to

- complete a written sequence of three consecutive multiples of 10 from 10–90.

Lesson 54 Pages 114–115 Writing numbers before and after from 10–90

Materials required

- flashcards of the numbers 10, 20, 30–90;

Introduction

Ask the students to count in tens from 10–90 as a class and then round the class.
Hold up one of the flashcards and ask a student to tell you the number (multiple of ten) that comes before it; ask for the multiple of ten that comes after it.
Repeat the activity, beginning with a different multiple of ten each time.

Student activity

Ask the students to open their books at pages 114–115. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class. For each answer, ask the students to say the three numbers in sequence.

Recapitulation

Place the flash cards on a table or desk. Ask a student to come and select one of the cards and hold it in front of him/her, e.g. 40. Ask two other students to come and find the numbers that go before and after the first number (30 and 50), and stand next to the student in the correct places. Invite two more students to find the next before/after numbers (20 and 60). repeat this until the number line from 10–90 is complete.
Repeat the activity with other students.

Joining the dots from 10–90 Pages 116–117

Teaching Objectives

- to reinforce the written sequence of multiples of ten from 10–90

Learning Outcomes

Students should be able to

- follow correctly the written sequence multiples of ten from 10–90.

Lesson 55 Pages 116–117 Joining the dots from 10–90

Materials required

- flashcards from previous lesson; Blutak, masking tape or similar adhesive material; pieces of chalk;

Introduction
Fix the flashcards at the bottom of the board in a random order. Ask individual students to come to the board in turn and place the numbers in the correct sequence. Read through the sequence as a class.
Remove one or two of the numbers and ask the students to read the sequence, filling in the gaps from memory.

Student activity
Ask the students to open their books at pages 116–117. Before they complete the task in pencil, ask them to trace from number to number in the correct sequence with their finger Give the students a set amount of time to complete the work on both pages before checking the work as a class.

Recapitulation
Give each student/pair of students a piece of chalk. Take the class into the playground and mark a starting line on the ground with the chalk. Explain that the students are going to take ninety steps, but before they do, they should write their name at the point where they think the ninety steps will end. Give them a few minutes to do this (without counting) and then make a line and take the ninety steps together. Whose mark was closest to the actual distance?

Counting groups up to 50 Pages 118–119
Making numbers up to 50 Pages 120–121
Counting and writing up to 50 Pages 122–123

Teaching Objectives
- to teach students to recognize, make, count, and write, numbers from 21–50

Learning Outcomes
Students should be able to
- recognize, make, count, and write, numbers from 21–50.

Lesson 56 Pages 118–119 Counting groups up to 50

Materials required
- 5 sets of ten items, e.g. bundles of ten pencils; up to 9 extra items of the same type; mini-whiteboard, marker and eraser for each student;

Introduction
Draw two sets of two boxes on the board, one below the other. Prepare a number of items, e.g. thirty-four pencils. Show the students the three bundles of ten pencils, ask them to count them and say the number thirty. Ask a student to write the number in the correct boxes on the board. Elicit from the students that the number 30 means that there are 3 groups of ten, and no extra. Stress that the number of groups of ten is always written in the first box and the number

of extra items is written in the second box. Then show the students the four extra pencils; put them with the three bundles and ask them to count the new number of pencils (34). Ask a student volunteer to write the new number of pencils in the second set of boxes. Elicit that the number 34 means three groups of 10 and four extra.
Repeat the activity with a different number of items.

Student activity

Ask the students to open their books at pages 118–119. Use the example to explain the task and then work through the second question together before asking the students to complete the work on both pages. After a set amount of time, check their answers as a class. For each answer, ask the students to say the full number.

Recapitulation

Give each student a mini-whiteboard, marker and eraser. Show them bundles of ten and ask them to write down how many there are; show them a number of extra items and ask them to write that number next to the first number. Ask a student to read the number they have made.

Lesson 57 Pages 120–121 Making numbers up to 50

Materials required

- coloured markers or chalk; sheets of plain paper/sugar paper; coloured pencils, crayons/chalk;

Introduction

Before the lesson, draw five groups of ten items on the board, e.g. ten biscuits in each of five jars, ten cupcakes on each of five trays, etc., one empty jar/tray, etc., and two boxes for numbers. Explain that the students are going to make groups to match given numbers up to 50. Ask a student to suggest a number between 20 and 30. Write the number on the board. Ask the students to tell you how many groups of ten you need to make that number, and circle the correct number of groups on the board. Ask how many extra there are and draw that number of items in the empty space (jar/tray etc.).
Count the groups of ten and write the number in the first box; count the extra items and write the number in the second box. Ask the students to check that the number you have written is the same as the number you first wrote on the board.
Repeat the activity, asking students to do the board work.

Student activity

Ask the students to open their books at pages 120–121. Use the example to explain the task and then work through all the questions together. At the end of each, ask students to read the number they have made.

Recapitulation

Give each student a sheet of paper and coloured pencils, crayons/chalks. Ask them to choose a number between 20 and 50 and draw it in groups of 10 and extra items as in the book. Before they begin, discuss the items they might choose. They should also write the number. Display their work in the classroom.
Alternatively, they could use small pasta wheels, dried beans, etc., and stick them to the paper, circling each group of ten.

Lesson 58 Pages 122–123 Counting and writing up to 50

Materials required

- items as used in Lesson 56;

Introduction

On the board write a number between 21–50. Ask a student to come and select the correct number of say bundles of ten pencils and extra items for that number.
Repeat the activity for other numbers.

Student activity

Ask the students to open their books at pages 122–123. Use the example to explain the task and then work through all the questions together. At the end of each, ask them to read the number they have made.

Recapitulation

Write a number between 21–50 on the board and ask individual students to answer questions about it, e.g. for the number 42– How many groups of ten? How many extra items? Please read the number. Are there 2 groups of ten or four groups of ten? What does the 4 mean? What does the 2 mean? Repeat this with other numbers so that all the students answer a question.

Guessing and counting up to 50 Pages 124–125

Teaching Objectives

- to help students become more accurate at estimating the number of items in a set of up to fifty items
- to help students check their estimate by counting in groups of 10 plus extras

Learning Outcomes

Students should be able to

- estimate the number of items in a set of up to fifty items with increasing accuracy.
- check their estimate by counting in groups of 10 plus extras.

Lesson 59 Pages 124–125 Guessing and counting up to 50

Materials required

- sets of up to fifty small items e.g. buttons, counters, plastic bottle tops, Lego blocks, prepared in plastic bags. The bags should be clearly numbered to distinguish one from another. There should be enough sets for each pair or set of three students, and two or three extras. Each set should contain a different number of items; keep a record of how many items in each set; trays if available or the base of a cardboard carton with cut-down sides; a copy of worksheet 1 for each student.

Worksheet 1 Guessing and counting to 50.

Photocopy this worksheet and cut it up so that there is a copy for each student.
Students should write their guess in the column marked **?** and the counted number in the **Count** column. If the guess was too small, they should write **S** in the last column; if it was too large, write **L.**

Name

Number of set	?	Count	S or L

Number of set	?	Count	S or L

Number of set	?	Count	S or L

Number of set	?	Count	S or L

Introduction
Ask the students to stand around a table and place on it a tray containing up to fifty small items. Tell the students that there are between 20–50 items and ask them to guess/estimate the number. Is it more than 10? More than 30? fewer than 40? etc. Ask the students to suggest how you could count them and guide them to make groups of 10 first and then count the extras. Carry out the counting and see who made the closest estimate.

Student activity
Ask the students to open their books at pages 124–125. Use the example to explain the task and then work through the second question together before asking the students to complete the work on the second page. Stress the need to count carefully in order to obtain an accurate total. After a set amount of time, check their answers as a class.

Recapitulation
Ask the students to work in pairs. Give each student a copy of the worksheet and ask him/her to write their name on it. Give each pair one of the bags of items you have prepared and a tray, and ask them to find the number on the label and write it in the first column. Explain that their task is to carefully empty the items onto the tray (desk if trays are not available) and begin by estimating how many items there are in the set. They should write this number in the ? column. It is not necessary for pairs to agree on this number. Next they should work together to count the items by making groups of ten and counting these, plus any extras. They should write this number in the Count column. Finally, they should try to decide if their guess was too large (L) or too small (S). Students should change their set for a different one when they have finished counting.
This activity should continue over the next lesson; practice should help students to improve the accuracy of their estimates.

Finding the matching number up to 50 Pages 126–127

Teaching Objectives
- to help students count accurately up to fifty items
- to help students match a number of items to the correct, written number

Learning Outcomes
Students should be able to
- count accurately up to fifty items.
- match a number of items to the correct, written number.

Lesson 60 Pages 126–127 Finding the matching number up to 50

Materials required
- two large posters, each showing a number of items/shapes, like those on pages 126–127; Blutak, masking tape or similar adhesive material;

Introduction
Fix one of the posters you have prepared to the board and ask three students to estimate the number of shapes. After hearing their guesses, write the three possible numbers on the poster. Ask the students to suggest the best way to count the items; they should suggest making groups of 10. They should see from your numbers how many groups there ought to be. Invite students to come and do this, reminding them to count and draw very carefully in order to obtain an accurate total. Finally, count the number of extras and circle the correct total.
Repeat this with the second poster.

Student activity
Ask the students to open their books at pages 126–127. Use the example to explain the task and then work through the second question together, pointing out that there could be one or two groups of 10. Ask the students to complete the work on the second page. Stress the need to count carefully in order to obtain an accurate total. After a set amount of time, check their answers as a class.

Recapitulation
Continue the estimating activity from the previous lesson.

Writing numbers before and after, up to 50 Pages 128–129

Teaching Objectives
- to help students complete a written sequence of three consecutive numbers from 20–50

Learning Outcomes
Students should be able to
- complete a written sequence of three consecutive numbers from 20–50.

Lesson 61 Pages 128–129 Writing numbers before and after, up to 50

Materials required
- sets of three A4-size flashcards, each set consisting of a different sequence of three numbers from 20–50, e.g. 34, 35, 36. There should be one card for each student.

Introduction
Write a number on the board and ask the students to read it. Ask a student to tell you the number that comes before that number, and to write it on the board in the correct place; do the same for the number that comes after your original number.
Repeat this with a different number. If the students are confident enough, choose a number such as 30 or 39.

Student activity

Ask the students to open their books at pages 128–129. Use the example to explain the task and then work through the second question together. Ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Mix up the flashcards and give one to each student. Ask the first student to come to the front of the class and hold up the number. Ask if a student has the number before/after that number, and invite them to join the first student to make the sequence of three numbers.

Counting groups up to 99 Pages 130–131
Making numbers up to 99 Pages 132–133
Counting and writing up to 99 Pages 134–135

Teaching Objectives

- to teach students to recognize, make, count, and write, numbers up to 99

Learning Outcomes

Students should be able to

- recognize, make, count, and write, numbers up to 99.

Lesson 62 Pages 130 –131 Counting groups up to 99

Materials required

- as for Lesson 56, but for groups of items up to 99;

Introduction

Begin by revising counting in 10s from 10–90.
This lesson can follow the structure for Lesson 56.

Lesson 63 Pages 132–133 Making numbers up to 99

This lesson can follow the structure for Lesson 57.

Lesson 64 Pages 134–135 Counting and writing up to 99

This lesson can follow the structure for Lesson 58.

Guessing and counting up to 99 Pages 136–137

Teaching Objectives

- to help students become more accurate at estimating the number of items in a set of up to 99 items
- to help students check their estimate by counting groups of 10 plus extras

Learning Outcomes

Students should be able to

- estimate the number of items in a set of up to 99 items with increasing accuracy.
- check their estimate by counting groups of 10 plus extras.

Lesson 65 Pages 136–137 Guessing and counting up to 99

Materials required

- as for Lesson 59, but with sets of up to ninety-nine small items. Students could work in groups of 4 since counting will take longer.

This lesson can follow the structure for Lesson 59.

Finding the matching number up to 99 Pages 138–139

Teaching Objectives

- to help students count accurately up to ninety-nine items
- to help students match a number of items to the correct written number

Learning Outcomes

Students should be able to

- count accurately up to ninety-nine items.
- match a number of items to the correct written number.

Lesson 66 Pages 138–139 Finding the matching number up to 99

This lesson can follow the structure for Lesson 60.

Writing numbers before and after, up to 99 Pages 140–141

Teaching Objectives
- to help students complete a written sequence of three consecutive numbers up to 99

Learning Outcomes
Students should be able to
- correctly complete a written sequence of three consecutive numbers up to 99.

Lesson 67 Pages 140–141 Writing numbers before and after, up to 99

This lesson can follow the structure for Lesson 61.

Writing the missing numbers up to 99 Pages 142–143

Teaching Objectives
- to help students complete a written sequence of numbers up to 99

Learning Outcomes
Students should be able to
- correctly complete a written sequence of numbers up to 99.

Lesson 68 Pages 142–43 Writing the missing numbers up to 99

Materials required
- a ball;

Introduction
Choose any number, e.g. 37, and ask the students to start counting on from 37 until you clap (after about six numbers). Repeat the activity, starting from a different number each time.

Student activity
Ask the students to open their books at pages 142–143. Use the example to explain the task and then work through the second question together. Ask the students to complete the work on both pages After a set amount of time, check their answers as a class.

Recapitulation

Ask the students to stand in a circle. Say a number and throw the ball to a student who should say the next number and throw the ball to another student. The throwing and counting should continue until you clap. The student who is holding the ball can then begin the counting from a different number. Any student who makes a mistake or drops the ball, is out and should sit down for a few minutes before rejoining the game.

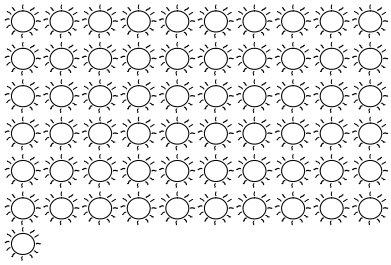
At this point you might wish to ask students to complete the following short assessment sheets.

Make sure that the students understand exactly what they are required to do for each task, and reassure them that the purpose of the assessment is to help you discover any topics that might need further teaching.

Assessment Sheet 3a

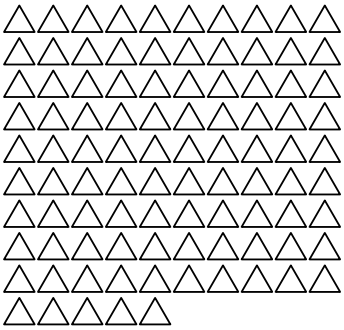
1. Finding the matching number

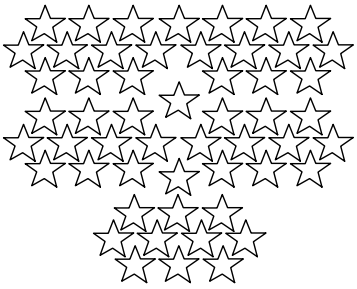
Count how many items in each group and draw a line from the group to the matching number.



72

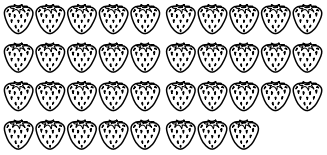
95

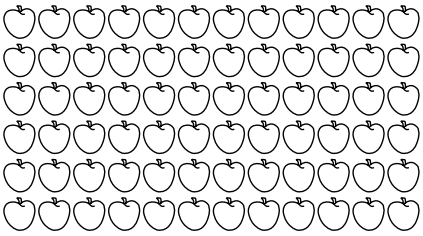




38

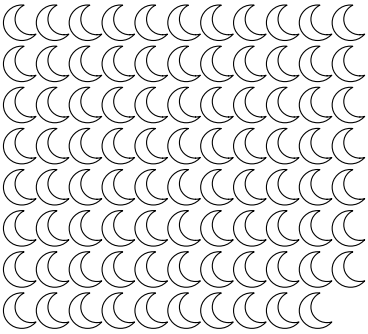
53





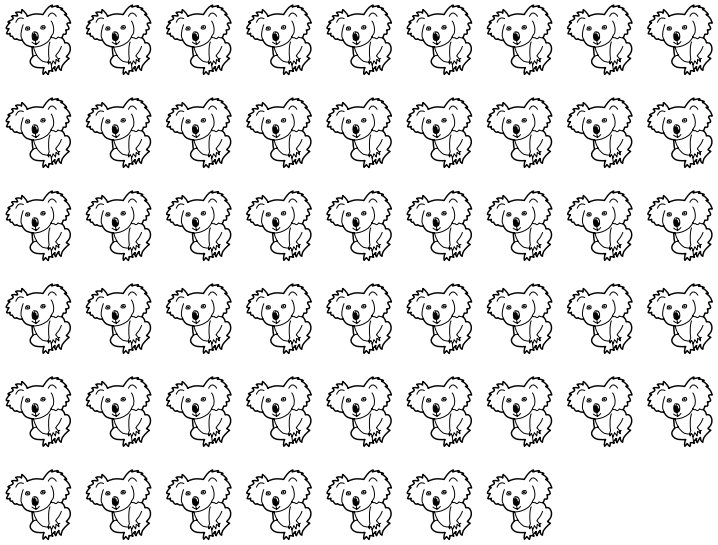
87

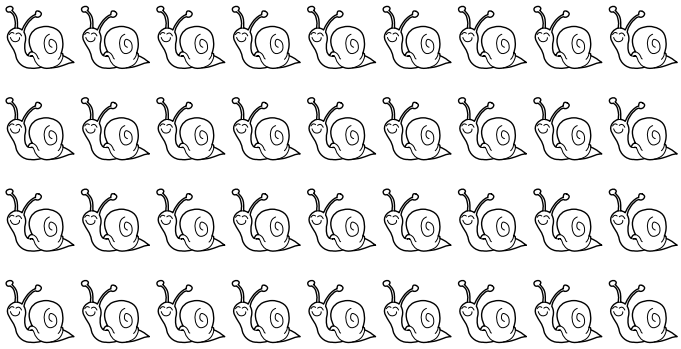
61

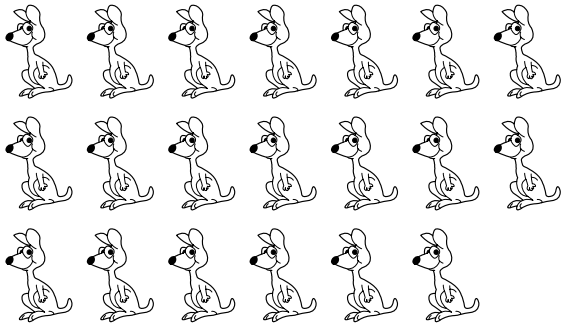


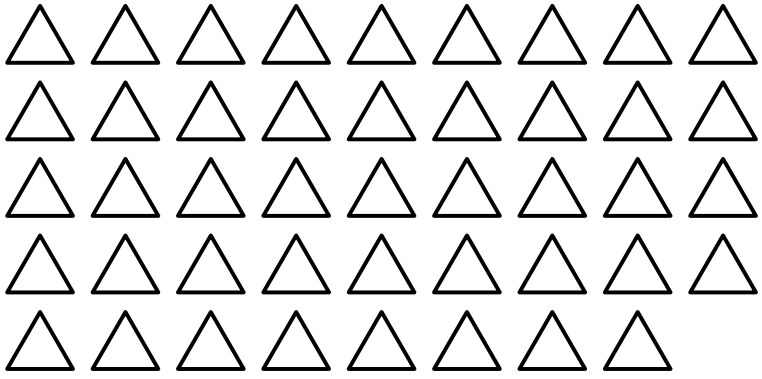
2. Counting and writing numbers up to 99

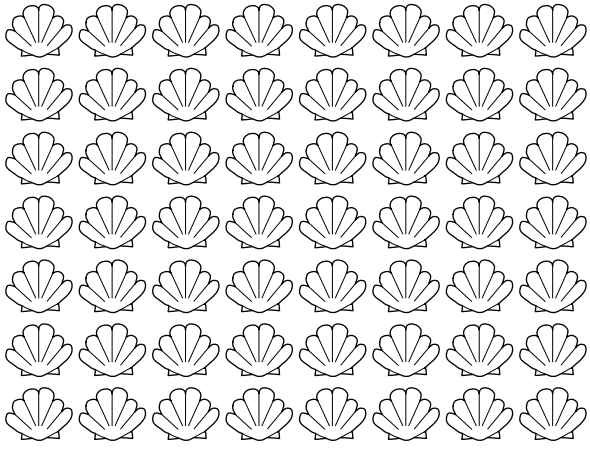
Count the items in each group and write the total number in the box next to them.





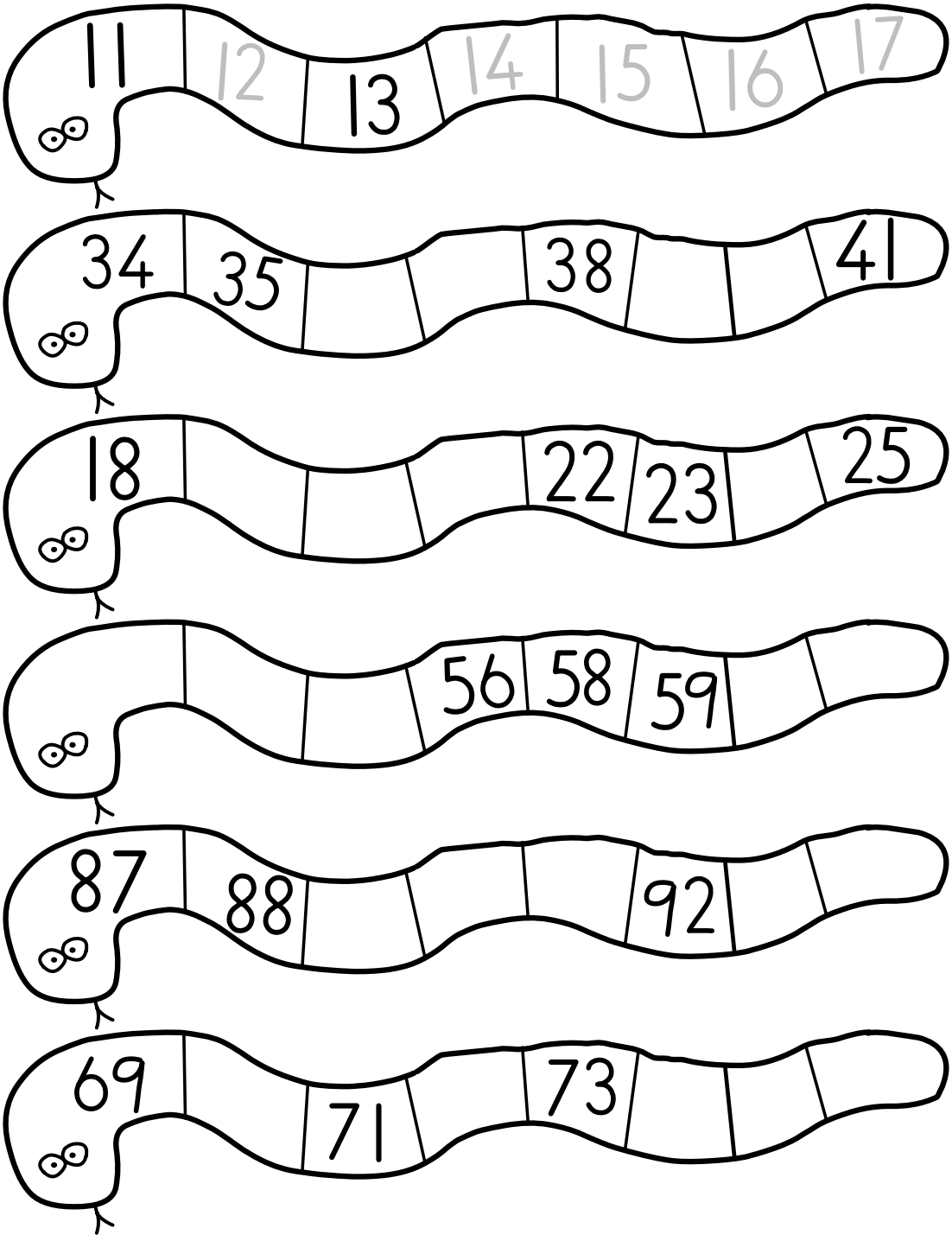






3. Writing the missing number

Count by 1s to write the missing numbers on the snakes.



Multiply and Divide

What's in this section?

Once the children have learnt to add and subtract numbers, the next step is to understand basic multiplication and division. In this section, the children will learn to:

- recognize and draw equal groups of objects
- share objects into equal groups
- count up in groups of 2, 5 and 10.

Throughout this series the children will learn to recognize numbers around them and become more confident in using them.

Selected answers are provided at the back of the book.

Counting by 2s Pages 146–147

Teaching Objectives
- to teach students to count by 2s

Learning Outcomes
Students should be able to
- count by 2s fluently and accurately.

Lesson 69 Pages 146–47 Counting by 2s

Materials required
- tape/cd/dvd/youtube clip of the song Head, Shoulders, Knees and Toes.

Introduction
Ask the students to think about their body and tell you how may arms, legs, knees, thumbs, elbows, lips, eyes, ears, etc. they have.
Ask them to count aloud from 1–20. Write the numbers on the board for reference and ask the students to count again but to whisper the odd numbers and say the even numbers more loudly. Ask them to count a third time, this time nodding for the odd numbers and only saying the even numbers.
Rub the odd numbers off the board and ask the students to count using only the even numbers.
Ask five students to stand in front of the class and hold up their hands. Ask them to count the hands by 2s. Repeat this for e.g. the elbows of six students, etc. to build up students' confidence in counting by 2s.

Student activity
Ask the students to open their books at pages 146–147. Use the example to explain the task and then work through the second question together. Ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation
Use the tape/cd/dvd/youtube clip to sing the song Head, Shoulders, Knees and Toes.

Drawing groups of 2 Pages 148–149
Drawing more groups of 2 Pages 150–151

Teaching Objectives
- to help students draw, count, and add groups of two items

Learning Outcomes
Students should be able to
- draw, count, and add accurately groups of two items.

Lesson 70 Pages 148–149 Drawing groups of 2

Materials required

- a ball; mini-whiteboards, markers and erasers;

Introduction

Ask the students to stand in a circle and use the ball activity to revise counting in 2s.
Draw a group of two simple shapes on the board; ask a student to draw another matching group of two.
Ask the students to count the items by 2s, and write the total (4) by the side.
Repeat this with different shapes and making 4 and 5 groups of two.

Student activity

Ask the students to open their books at pages 148–149. Use the example to explain the task and then work through the second question together. Ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Give each student a mini-whiteboard, marker and eraser. Hold up pairs of items and ask the students to count them by 2s and write the total on their board, then hold it up for you to see.

Lesson 71 Pages 150–151 Drawing more groups of 2

Materials required

Introduction

Count to 20 by 2s round the class.
Continue the introductory work from the previous lesson, asking the students to draw 6, 7, and 8 groups of two and find and write the totals.

Student activity

Ask the students to open their books at pages 150–151. Use the example to explain the task and then work through the second question together. Ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Ask the students to look back at page 148 and help them make a number story for the first question–Four groups of 2 make 8. Repeat this for all the other questions on pages 148–151.

Finding groups of 2 Pages 152–153

Teaching Objectives

- to help students divide a number of items into groups of two and count them by 2s

Learning Outcomes

Students should be able to

- accurately divide a number of items into groups of two and count them by 2s.

Lesson 72 Pages 152–153 Finding groups of 2

Materials required

- sets of twenty small items e.g. counters, buttons, Lego bricks, bottle tops, for each pair of students; a copy of worksheet 2 for each student; poster showing say sixteen stars, twenty smiling faces, etc.; Blutak, masking tape or similar adhesive material;

Introduction

Fix one of the posters you have prepared on the board. Ask one or two individual students to estimate how many items there are, then count them and write the total at the top of the poster. Ask a student to come to the board and make a group of 2 by drawing round two of the items. Repeat this until all the pairs have been grouped, then ask the students to find the total, counting by 2s.
Write underneath e.g. 8 groups of 2 = 16.
Repeat this with the other poster you have prepared.

Student activity

Ask the students to open their books at pages 152–153. Use the example to explain the task and then work through the second question together. Ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Give each pair of students a set of twenty small items and a copy of worksheet 2. Ask them to use the items to make different numbers of groups of 2 and count them to fill in the last column of the worksheet. They can use the worksheet to help them learn the 2 times table.

Worksheet 2. Counting by 2s

Photocopy this worksheet and cut it up so that there is a copy for each student.

Name

Number of sets	Number in each set	Total
1	2	
2	2	
3	2	
4	2	
5	2	
6	2	
7	2	
8	2	
9	2	
10	2	

Number of sets	Number in each set	Total
1	2	
2	2	
3	2	
4	2	
5	2	
6	2	
7	2	
8	2	
9	2	
10	2	

Number of sets	Number in each set	Total
1	2	
2	2	
3	2	
4	2	
5	2	
6	2	
7	2	
8	2	
9	2	
10	2	

Number of sets	Number in each set	Total
1	2	
2	2	
3	2	
4	2	
5	2	
6	2	
7	2	
8	2	
9	2	
10	2	

Making a fair share of 2s Pages 154–155

Teaching Objectives

- to teach students to share a large number of items into groups of 2

Learning Outcomes

Students should be able to

- share a large number of items into groups of 2 correctly.

Lesson 73 Pages 154–155 making a fair share of 2s

Materials required

- a set of twenty small denomination coins (all of the same value) or twenty bottle tops, etc.; a poster of the 2 times table up to 10x;

Introduction

Display the 2 times table and ask the students to read it with you, saying '1 group of 2 is 2; 2 groups of 2 are 4; etc.

Ask some questions such as 'How many groups of 2 make 10? How many groups of 2 make 14? etc. If necessary, show them how to read the table 'backwards' to get this information.

Tell the students that you have six coins and explain that you want to share them between some students so that each student will have a group of 2. Ask them to refer to the table to tell you how many groups of 2 will make 6. Invite three students to come to the front of the class and hold out one hand each. Place a coin on each hand and then place another coin in each hand again. Ask each student how many coins s/he has and conclude that 6 is three groups of 2. Repeat this with other numbers of coins.

Student activity

Ask the students to open their books at pages 154–155. Use the example to explain the task and then work through the second question together. Ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Ask the students to answer some questions about sharing such as

I have twenty biscuits to share among ten students. How many biscuits each?

Mother shared six apples among her three children. How many apples each?

I shared Rs 14 among 7 children. How much did each get?

Joining the dots by 2s Pages 156–157

Teaching Objectives

- to help students follow correctly a written sequence of even numbers from 0–18

Learning Outcomes
Students should be able to
- follow correctly a written sequence of even numbers from 0–18.

Lesson 74 Pages 156–157 Joining the dots by 2s

Materials required
- tape/cd/dvd/youtube clip of The Animals Went in Two by Two

Introduction
Count aloud in 2s from 0 to 20.
Ask the students to write the even numbers in sequence on the board (one number per student).

Student activity
Ask the students to open their books at pages 156–157. They will be familiar with the task, but ask them to trace the sequence of numbers with a finger before they start to work in pencil.

Recapitulation
Use the tape/cd/dvd/youtube clip to sing The Animals Went in Two by Two. Ask the students to count the number of animals in the ark at different points in the song.

Counting by 10s Pages 158–159

Teaching Objectives
- to revise counting by 10s

Learning Outcomes
Students should be able to
- count fluently and accurately by 10s.

Lesson 75 Pages 158–159

Materials required
- a ball; mini-whiteboards, markers and erasers;

Introduction
Use the ball in the circle activity to revise counting by 10s.
Ask a student to come to the front of the class and hold up the fingers of both hands. Ask him/her some to count the. Ask fingers more students to join him/her, and each time count the number of fingers, counting by 10s.

Student activity

Ask the students to open their books at pages 158–159. Use the example to explain the task and then work through the second question together. Look at the third question and elicit from the students that they should divide the beads into groups of ten in order to count them. Ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Give each student a mini-whiteboard, marker, and eraser. Ask them to count your fingers as you put each one up, and write down the total number. They should hold their written answers up for you to check.

Drawing groups of 10 Pages 160–161
Drawing more groups of 10 Pages 162–162

Teaching Objectives

- to help students draw, count, and add groups of ten items

Learning Outcomes

Students should be able to

- draw, count, and add groups of ten items accurately.

Lesson 76 Pages 160–161 Drawing groups of 10

Materials required

- plain paper/sugar paper; coloured pencils or crayons/chalks;

Introduction

Quickly revise counting in tens by counting round the class.
Draw e.g. six large circles on the board to represent plates. Ask some students to come to the board and draw ten biscuits on each plate. Ask the students to count how many biscuits there are altogether. Underneath it write:
6 groups of 10 = 60.
Repeat this for say eight jars of marbles.

Student activity

Ask the students to open their books at pages 160–161. Use the example to explain the task and then work through the second question together. Explain each of the other tasks and then ask them to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation
Give each student paper and coloured pencils, crayons or chalks. Ask them to draw different numbers of sets of ten from 1–9; use their work to make a classroom display.

Lesson 77 Pages 162–163 Drawing more groups of 10

Materials required
- none

Introduction
Count by 10s round the class.
Continue the introductory work from the previous lesson, asking the students to draw groups of ten on the board and write the totals.

Student activity
Ask the students to open their books at pages 162–163. Explain the tasks and help the students divide the page in order to draw the given groups. Remind them to count carefully and keep each group of 10 separate from the others. Check their progress as they work.

Recapitulation
Ask the students to look back at page 160 and help them make a number story for the first question–Three groups of 10 make 30. Repeat this for all the other questions on pages 160–163.

Finding groups of 10 Pages 164–165

Teaching Objectives
- to help students divide a number of items into groups of ten and count them by 10s

Learning Outcomes
Students should be able to
- divide a number of items into groups of ten and count them by 10s accurately.

Lesson 78 Pages 164–165 Finding groups of 10

Materials required
- sets of a hundred small items e.g. counters, buttons, bricks, bottle tops, for each pair/ group of four students; a copy of worksheet 3 for each student; poster showing e.g. forty stars, seventy triangles, etc.; Blutak, masking tape or similar adhesive material;

Introduction
Fix one of the posters you have prepared on the board. Ask one or two individual students to estimate how many items there are, then count them and write the total at the top of the

poster. Ask a student to come to the board and make a group of 10 by drawing round ten of the items. Repeat this until all the items have been grouped, then ask the students to find the total, counting by 10s.
Write underneath e.g. 4 groups of 10 = 40.
Repeat this with the other poster you have prepared.

Student activity
Ask the students to open their books at pages 164–165. Explain the task and ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation
Give each pair of students a set of a hundred small items and a copy of worksheet 2. Ask them to use the items to make different numbers of groups of 10 and count them to fill in the last column of the worksheet. They can use the worksheet to help them learn the 10 times table.

Making a fair share of 10s Pages 166–167

Teaching Objectives
- to teach students to share a large number of items into groups of 10

Learning Outcomes
Students should be able to
- accurately share a large number of items into groups of 10.

Lesson 79 Pages 166–167 Making a fair share of 10s

Materials required
- a set of a hundred counters or bottle tops, etc.; a poster of the 10 times table up to 10x;

Introduction
Display the 10 times table and ask the students to read it with you, saying '1 group of 10 is 10; 2 groups of 10 are 20; etc.
Ask some questions such as: How many groups of 10 make 30? How many groups of 10 make 70? etc. If necessary, show them how to read the table 'backwards' to get this information.
Tell the students that you have fifty counters and explain that you want to share them between some students so that each student will have a group of 10. Ask them to refer to the table to tell you how many groups of 10 will make 50. Invite five students to come to the front of the class and hold out a hand each. Place one coin on each hand and then place a second coin on each hand. Repeat this until no more counters remain. Ask each student how many counters she has and conclude that 50 is five groups of 10.
Repeat this with other numbers of coins.

Worksheet 2. Counting by 10s

Photocopy this worksheet and cut it up so that there is a copy for each student.

Name

Number of sets	Number in each set	Total
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	

Number of sets	Number in each set	Total
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	

Number of sets	Number in each set	Total
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	

Number of sets	Number in each set	Total
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	

Student activity
Ask the students to open their books at pages 166–167. Explain the tasks and ask them to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation
Ask the students to answer some questions about sharing such as
I have twenty biscuits to share among ten students. How many biscuits each?
The farmer put ninety apples into nine boxes. How many apples in each box?
A shopkeeper put forty eggs into four baskets. How many eggs in each basket?

Joining the dots by 10s Pages 168–169

Teaching Objectives
- to help students to follow correctly a written sequence of multiples of ten from 0–100

Learning Outcomes
Students should be able to
- follow correctly a written sequence of multiples of ten from 0–100.

Lesson 80 Pages 168–169 Joining the dots by 10s

Materials required
- sheets of plain paper;

Introduction
Count aloud in 10s from 0 to 100.
Ask some students to write the multiples of 10 in sequence on the board (one number per student).

Student activity
Ask the students to open their books at pages 156–157. They will be familiar with the task, but ask them to trace the sequence of numbers with a finger before they start to work in pencil.

Recapitulation
Give each student a sheet of paper and ask them to make their own join-the-dots picture, using the multiples of 10 to number it.

Counting by 5s Pages 170–171

Teaching Objectives
- to teach students to count by 5s

Learning Outcomes

Students should be able to

- count fluently and accurately by 5s.

Materials required

- tape/cd/dvd/youtube clip of the song Five Little Speckled Frogs

Introduction

On the board write

1 hand	=	fingers		6 hands	=	fingers
2 hands	=	fingers		7 hands	=	fingers
3 hands	=	fingers		8 hands	=	fingers
4 hands	=	fingers		9 hands	=	fingers
5 hands	=	fingers		10 hands	=	fingers

Ask the students to count how many fingers they have on one hand; when they answer, write 5 in the appropriate space on the board.
Ask them how many fingers there are on two hands; when they answer, write 10 on the board.
Repeat the questions for 3, 4, and 5 hands, and continue to complete the table on the board.
Ask the students if they can identify a pattern in the numbers so that they can tell you the numbers to write in the remaining spaces. When the table is complete, explain that the numbers are increasing by 5 each time and ask them to count in 5s as you point to the numbers on the table. Ask them to count in 5s again, trying not to look at the board. Rub out some of the numbers in the table and ask them to count a third time. Gradually remove more of the numbers until they can count by 5s unaided.
Let five students stand at the front of the class and ask all the others to count from 5–50 as the students hold up, one-by-one, the fingers of each hand, ending with all five students showing the fingers of both hands.

Student activity

Ask the students to open their books at pages 170–171. Use the example to explain the task and then work through the second question together. Look at the third question and remind the students to divide the beads into groups of 5 before counting them. Ask them to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Use the tape/cd/dvd/youtube clip to sing the song Five Little Speckled Frogs.

Drawing groups of 5s Pages 172–173
Drawing more groups of 5s Pages 174–175

Teaching Objectives

- to help students draw, count, and add groups of five items

Learning Outcomes

Students should be able to

- draw, count, and add accurately groups of five items.

Lesson 81 Pages 172- 173 Drawing groups of 5

Materials required

- plain paper/sugar paper; coloured pencils or crayons/chalks;

Introduction

Quickly revise counting in 5s by counting round the class.
Draw e.g. five large tents on the board. Ask some students to come to board and draw five people in each tent. Ask the students to count how many people there are altogether. Underneath
5 groups of 5 = 25.
Repeat this for say seven boxes of apples.

Student activity

Ask the students to open their books at pages 172–173. Use the example to explain the task and then work through the second question together. Explain each of the other tasks and then ask the students to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Give each student paper and coloured pencils, crayons or chalks. Ask them to draw different numbers of sets of five from 1–10; use their work to make a classroom display.

Lesson 82 Pages 174–175 Drawing more groups of 5

Materials required

Introduction

Count by 5s round the class.
Continue the introductory work from the previous lesson, asking the students to draw groups of 5 on the board and write the totals.

Student activity

Ask the students to open their books at pages 174–175. Explain the tasks and help the students divide page 175 in order to draw the given groups. Remind them to count carefully and keep each group of 5 separate from the others. Check their progress as they work

Recapitulation

Ask the students to look back at page 172 and help them make a number story for the first question– Four groups of 5 make 20. Repeat this for all the other questions on pages 172 –175.

Finding groups of 5 Pages 176–177

Teaching Objectives

- to help students divide a number of items into groups of five and count them by 5s

Learning Outcomes

Students should be able to

- divide a number of items into groups of five and count them by 5s.

Lesson 83 Pages 176–177 Finding groups of 5

Materials required

- sets of fifty small items e.g. counters, buttons, bricks, bottle tops, for each pair of students; a copy of worksheet 3 for each student; poster showing e.g. thirty ice creams, forty-five bananas, etc.; Blutak, masking tape or similar adhesive material;

Introduction

Fix one of the posters you have prepared on the board. Ask one or two individual students to estimate how many items there are, then count them and write the total at the top of the poster. Ask a student to come to the board and make a group of 5 by drawing round two of the items. Repeat this until all the items have been grouped, then ask the students to find the total, counting by 5s.
Write underneath e.g. 6 groups of 5 = 30.
Repeat this with the other poster you have prepared.

Student activity

Ask the students to open their books at pages 176–177. Explain the task and ask the students to complete the work on both pages After a set amount of time, check their answers as a class.

Recapitulation

Give each pair of students a set of fifty small items and a copy of worksheet 3. Ask them to use the items to make different numbers of groups of 5 and count them to fill in the last column of the worksheet. They can use the worksheet to help them learn the 5 times table.

Making a fair share of 5s Pages 178–179

Teaching Objectives

- to teach students to share a large number of items into groups of 5

Learning Outcomes

Students should be able to

- accurately share a large number of items into groups of 5.

Worksheet 3. Counting by 5s

Photocopy this worksheet and cut it up so that there is a copy for each student.

Name

Number of sets	Number in each set	Total
1	5	
2	5	
3	5	
4	5	
5	5	
6	5	
7	5	
8	5	
9	5	
10	5	

Number of sets	Number in each set	Total
1	5	
2	5	
3	5	
4	5	
5	5	
6	5	
7	5	
8	5	
9	5	
10	5	

Number of sets	Number in each set	Total
1	5	
2	5	
3	5	
4	5	
5	5	
6	5	
7	5	
8	5	
9	5	
10	5	

Number of sets	Number in each set	Total
1	5	
2	5	
3	5	
4	5	
5	5	
6	5	
7	5	
8	5	
9	5	
10	5	

Lesson 84 Pages 178–179 Making a fair share of 5s

Materials required

- a set of fifty counters or bottle tops, etc.; a poster of the 5 times table up to 10x;

Introduction

Display the 5 times table poster and ask the students to read it with you, saying '1 group of 5 is 5; 2 groups of 5 are 10; etc.
Ask some questions such as 'How many groups of 5 make 20?' 'How many groups of 5 make 35?' etc. If necessary, show them how to read the table 'backwards' to get this information.
Tell the students that you have forty counters and explain that you want to share them among some students so that each student will have a group of 5. Ask them to refer to the table to tell you how many groups of 5 will make 40. Invite eight students to come to the front of the class and each hold out hand. Place one counter on each hand and then place a second counter on each hand. Repeat this until no more counters remain. Ask each student how many counters s/he has and conclude that 40 is eight groups of 5.
Repeat this with other numbers of counters.

Student activity

Ask the students to open their books at pages 178–179. Explain the tasks and ask them to complete the work on both pages. After a set amount of time, check their answers as a class.

Recapitulation

Ask the students to answer some questions about sharing such as
I have twenty pencils to share among four students. How many pencils each?
The baker put twenty-five buns into five boxes. How many buns in each box?
A gardener planted fifty plants in ten beds. How many plants did he plant in each bed?

Joining the dots by 5s Pages 180–181

Teaching Objectives

- to help students follow correctly a written sequence of multiples of 5 from 0–50

Learning Outcomes

Students should be able to

- follow correctly a written sequence of multiples of 5 from 0–50.

Lesson 85 Pages 180–181 Joining the dots by 5s

Materials required

- sheets of paper;

Introduction

Count aloud in 5s from 0 to 50.
Ask some students to write the multiples of 5 in sequence on the board (one number per student). Continue the sequence until each student has written a number.

Student activity

Ask the students to open their books at pages 180–181. The students will be familiar with the task, but ask them to trace the sequence of numbers with a finger before they start to work in pencil.

Recapitulation

Give each student a sheet of paper and ask them to make their own join-the-dots picture, using the multiples of 5 to number it.

Lessons 86–90 Are all revision and consolidation of the final section of the book.

They can be used for purposes of assessment, but make sure that every task is clearly explained and fully understood before asking students to do the work.