Oxford International Primary Maths Course Guide

A problem-solving approach to learning that fully supports the latest Cambridge Primary Maths curriculum framework

For your FREE digital inspection copy go to www.oxfordprimary.com/inspect
**For the student**

*Oxford International Primary Maths* takes a problem-solving-based approach, engaging students in the topics through asking questions that make them think, and activities that encourage them to explore and practise.

As students progress through the course, they not only learn about maths but *how* to learn about maths as well as the language of maths. For example, how to express comparisons, and what words such as *probability* and *factors* mean in the context of maths.

**NEW – Oxford International Primary Maths Workbooks**

These resources provide additional classroom or homework tasks based directly on the content within the student books. Full support is provided per theme for both teachers and parents.

**NEW – Oxford International Primary Maths Student e-books**

Enhanced e-books with embedded audio glossary, self-marking activities and animations. Providing ideal support for EAL learners at home or in the classroom.

**For the teacher**

*Teacher’s Guides* provide step-by-step notes for each lesson, guiding students through the topic, and supporting them with the language used to talk about the topic.

**NEW – Oxford International Primary Maths Assessment Pack**

This pack provides Cambridge International Examinations style practice questions in order to help prepare your students for Cambridge Primary Checkpoint exam success.

Introducing the full suite of levelled primary courses with your multi-cultural classroom in mind.
Oxford International Primary Maths takes a 5-step problem-solving approach to learning.

1 Engage
The topic opens with a big question to get everyone thinking.

2 Discover
Students discover the key idea of the topic by working through an activity.

3 Explore
Activities practise the concept, and explore how it is used in everyday life.

4 Connect
Drawing together all the ideas in the topic allows students to extend their learning.

5 Review
Review exercises check progress and understanding.

Engage your teachers with the problem-solving approach to Primary Maths

Inspirational face-to-face training
Experts provide in-depth training into teaching primary maths as well as practical classroom ideas.

Orientation training
Tailored product orientation training options available – please contact the International training team for details.

Online Support
Coming Soon – video series from author Tony Cotton discussing the problem-solving approach to teaching Maths.
Available at www.oxfordprimary.com.

Contact us
To discuss your specific training needs, please contact our dedicated International Training Team:
Training.international@oup.com +44 1865 354520
**Number and Place Value**

Engage

An intriguing photo attracts students’ attention and interest.

I think there are at least 100.

I guess there are fifty newspapers.

There are seven days in a week. How many newspapers do we buy in a week?

How many newspapers are in this pile?

No, not that many!

Students can record any new words they have learned, and write their own definitions, in the Glossary at the back of their Workbooks. The Teacher’s Guides include a completed Glossary for checking.

**Unit 1A Counting in tens and ones**

**Explore**

Specific Learning Foci
- Count, read and write numbers to at least 100 and back again
- Know what each digit represents in two-digit numbers; partition into tens and ones
- Count in ones and tens from single- and two-digit numbers and back again

Problem Solving Foci
- Explain methods and reasoning orally
- Explore number problems and puzzles
- Identify simple relationships between numbers and shapes, e.g. this number is double...
- These shapes all have...

Resources
- Place value cards
- Digit
- Value

**Introduction**

Give each pair of children a set of ones and tens place value cards and a 100 square. Ask them to arrange the cards in two columns in order, with the 1 and 0 closest to them and the 9 and 90 furthest away. Count up and back along each column with the whole class. Say the number 18 and ask each pair to find the correct number of tens and ones to make that number. They should then find and colour 18 on their pupil book page. Explain that the same digits, 1 to 9 on cards, but their value depends on where they are placed. So the single-digit numbers are all ones. In a 2-digit number, the digit on the left shows how many tens in the number. The digit is in the tens place. The cards are called place-value cards because they help us to see which place each digit is in, so we know its value. Check the children’s understanding by asking them to make 2-digit numbers such as 25, 57 and 83. Ask questions such as How many tens in the number? How many ones?

**Resources**
- Place value cards
- Digit
- Value

**Main Activity**

- Choose a tens card and a ones card to create one 2-digit number.
- Choose a coloured pencil or crayon and colour that number on the 100 square.
- First child counts forwards or back by 12 numbers in ones from the coloured number and marks that square.
- Second child starts at the new number and counts in tens forwards or back from the top or bottom of the column. They then continue to count along the same column until they have counted 8 to 12 numbers from the marked square and mark the last number they said.
- Both children colour the marked squares in the same colour as the first square.
- Children swap counting in ones and tens regularly and choose a new colour for each count.

**Learning Review**

Look at the set of numbers in the pupil book. Ask different pairs to share how they worked out which were the start numbers and which were the end numbers. Ask a pair to count aloud to match one of their sentences. Does it correctly match the numbers? How many correct but different ways can the class find?
**1A Counting in Tens and Ones**

**Explore**

1. Fill in the missing numbers. Complete the sentences using the words **on** or **back** in the second space.

   - **Count** in **ones**
   - **Count** in **tens**

2. This is counting **on** in **ones**

3. Colour in 54, 62 and 12 in the same colour on the 100 square. This sentence shows how two pupils counted from 54 to 62 in ones then back from 62 to 12 in tens.

   - **Start at** 54, **count** on in **ones** to 62 then count back in **tens** to 12.

4. Colour in these numbers on the 100 square: 67, 76, 16

5. Using the three numbers above, fill in the missing numbers and complete each sentence. Use one of the words **on** or **back** or one of the words **ones** or **tens** in each space.

   - **Start at**, **count** in **ones** to **then count** **in** **tens** to **.**
This is a cuboid made with 48 cubes:

How many different cuboids can you make with 48 cubes?

Choose another starting number to let you make a lot of different cuboids. Why did you choose this number?

Which starting numbers will only let you make a single cuboid?

Number and Place Value

Connect

Does it have 2 decimal places?

Does it have 6 as a factor?

Does it have an odd number in the thousands column?

Is it a 3-digit number?

Is it an odd number?

• Pick a two-digit number.
• Write your number in the box.
• Write ten facts about the number.

• Pick any 3-digit number.
• Write your number in the box.
• Write ten facts about the number.

Guess my Number

Review

Number and Place Value

Students draw together topics from across the unit in a single ‘connect’ activity to show how maths problems are often combined in real life.

Review pages check the students’ knowledge of all of the concepts within the unit.
This is a cuboid made with 48 cubes:

How many different cuboids can you make with 48 cubes?

Choose another starting number to let you make a lot of different cuboids. Why did you choose this number? Which starting numbers will only let you make a single cuboid?

Number and Place Value

Connect

Specific Learning Foci
- Find factors of 2-digit numbers.
- Find some common multiples, e.g. for 4 and 5.
- Recognise prime numbers up to 20 and find all prime numbers less than 100.

Problem Solving Foci
- Explain why they chose a particular method to perform a calculation and show working.
- Use logical reasoning to explore and solve number problems and mathematical puzzles.
- Use ordered lists or tables to help solve number problems systematically.

Resources
- At least 48 cubes for each group

Introduction
For ‘Connect’ activities ask students to work in groups of four. Encourage them to try to interpret and begin the activity with no teacher input. Organise students into groups and ask them to begin the activity in their books.

Main Activity
As students explore the activity, ask questions, for example:
- Can you show me a cuboid with 48 cubes?
- How can you record this?
- Can you think of a way to record your results in a table?
- How will you record your results?
- How do you know you have all the possibilities?
When groups have found all the possibilities with 48 cubes, ask them to explore other starting numbers.

Learning Review
At the end of the lesson ask groups to report their results to each other. Students should try to reflect on the learning. Ask individual students: What have you learnt in the lesson?

Possible Additional Activities
Look at how foodstuff that comes in small cubes, or cuboids, is packaged. Explore the best way to arrange these containers to minimise the surface area of the packaging.

Language Support
Encourage students to use mathematical terms in their explanations such as factor, multiple and prime number. Ask questions, for example:
- How will you record your results?
- How do you know you have all the possibilities?

Written by experts in maths for primary-aged students
The author team, Tony Cotton (Lead Author), Janet Rees, Cherri Moseley, Linda Glithro and Caroline Clissold are experienced examiners, teachers and maths consultants who understand how to equip students with the skills and knowledge they need for their studies now and in the future.

The language consultants for the series, Liz and John McMahon, are experts in developing language skills in the primary years.
Digital Resource Packs to support each module

Front of class animations and materials for added teacher support.

Interactive games help get students involved.

Full glossary, with an option to hear the words spoken.

Activities to present each topic to your class.
Oxford International Primary Maths Assessment Pack

NEW Oxford International Primary Maths Assessment Pack

On the CD you will find:

- Tests to comprehensively assess stages 3-6 following the Cambridge International Primary Maths Curriculum
- Practice questions to help prepare your students for Cambridge Primary Checkpoint exam success

1 Tens and Ones

Introduction
Students need to understand the decimal nature of the number system. This unit introduces them to the idea that the number system is based on tens. Students will begin to understand that in a number such as 57:
• the 5 stands for 50 or 5 tens
• the 7 stands for 7 ones.

Ways to help
At this stage it is still very helpful to count as often as possible. Starting at different numbers and counting forwards and backwards up to 100 allows students to hear the patterns and become secure with the names of the numbers. Looking for numbers in the environment and saying them aloud is also very helpful.

1A Counting in tens and ones

Explore
Practise counting on in ones and counting back in tens. Write the missing numbers. Say each number aloud as you write it. The first one is done for you.

1. Count on in 1s
   71 72 73 74 75 76 77 78 79 80 81
   Count back in 10s
   71 61 51 41 31

2. Count on in 1s
   83
   Count back in 10s
   83

3. Count on in 1s
   65
   Count back in 10s
   65

4. Count on in 1s
   89
   Count back in 10s
   89

5. Count on in 1s
   48
   Count back in 10s
   48

6. Count on in 1s
   52
   Count back in 10s
   52

7. Count on in 1s
   66
   Count back in 10s
   66

8. Count on in 1s
   27
   Count back in 10s
   27

Worbook units use the same topics as the Student Workbook, providing follow-up activities to increase understanding.

Key Words
count forwards; count backwards; how many tens?; how many ones?; one, two … ninety-nine; one hundred

Hints and tips are provided, to help children study independently.

Perfect for homework tasks or for additional practice for students in class.
1A Counting in tens and ones

Discover

Write the missing numbers for each question. Colour in the patterns on the 100 square. Use a different colour for each question. Say each number aloud as you write it and colour it. The first one is done for you.

1. Count on in tens from 31.
   31 41 51 61 71 81

2. Count on in tens from 18.
   18

3. Count back in tens from 82.
   82

4. Count back in tens from 65.
   65

5. Count on in tens from 23.
   23

6. Count on in tens from 49.
   49

7. Count back in tens from 70.
   70

8. Count back in tens from 97.
   97

Extra practice materials reinforce mathematical principles explained within class.

Review sections, to monitor progress of each topic.

1 Review

You will need a set of 0–9 digit cards for this activity. Pick two cards, for example:

0 1 2 3 4
5 6 7 8 9

Make the largest number you can using these two digits. This is your start number. Then practice counting back in ones and counting on in tens. Say each number aloud as you write it. The first one is done for you.

1. Start number | Count back in 1s | Start number | Count on in 10s
               | 63 62 61 60 59 58 57 56 | 63 73 83
2. Start number | Count back in 1s | Start number | Count on in 10s
3. Start number | Count back in 1s | Start number | Count on in 10s
4. Start number | Count back in 1s | Start number | Count on in 10s
5. Start number | Count back in 1s | Start number | Count on in 10s
6. Start number | Count back in 1s | Start number | Count on in 10s
7. Start number | Count back in 1s | Start number | Count on in 10s
Oxford International Primary Maths

A problem-solving approach to learning that fully supports the latest Cambridge Primary Maths curriculum framework.

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- Workbook 978 019 836526 6
- Teacher’s Guide 978 019 839465 5
- Digital Resource Pack 978 019 839471 6

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