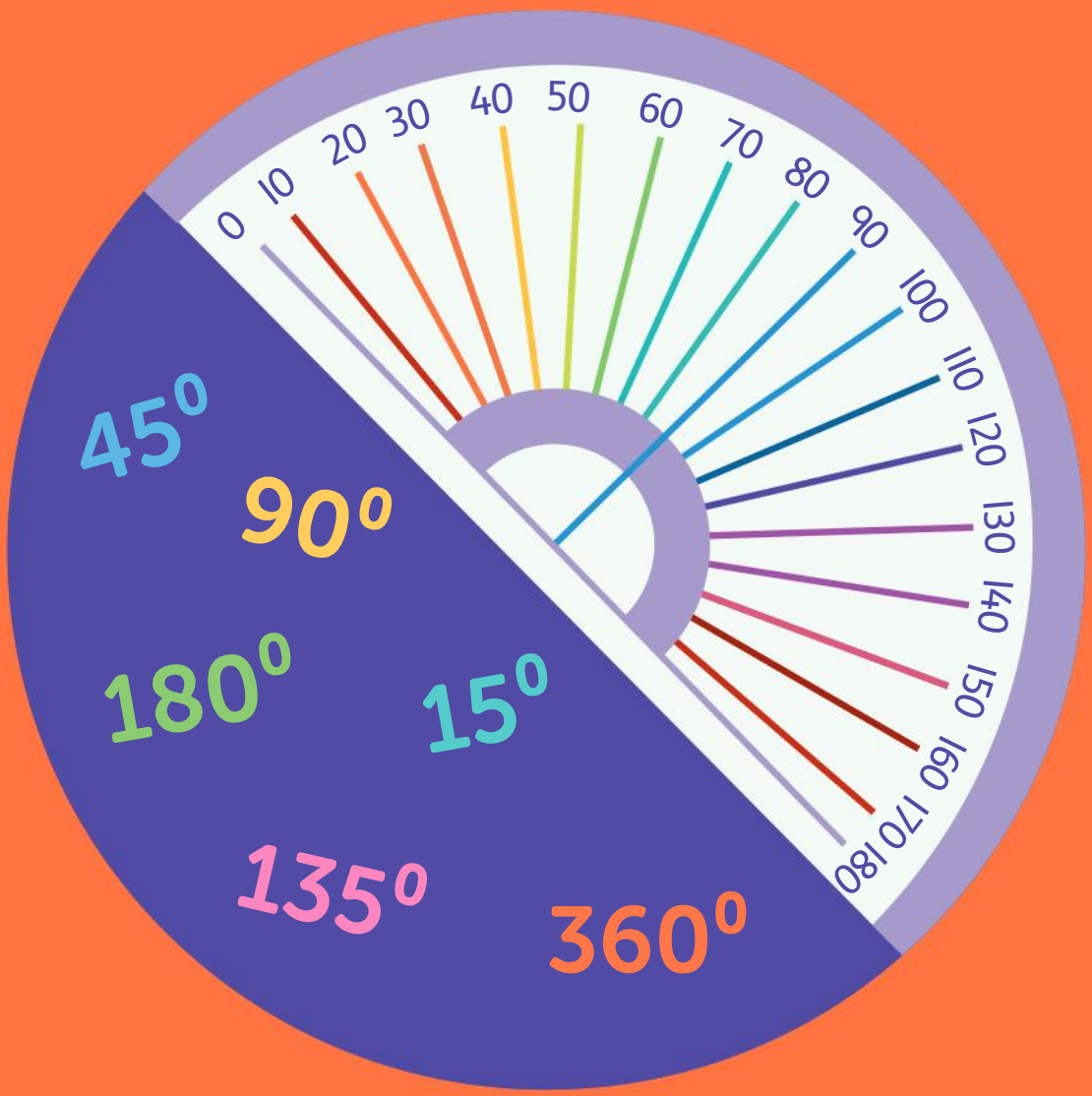
Oxford International Primary

5

Maths

Student Book



Second edition

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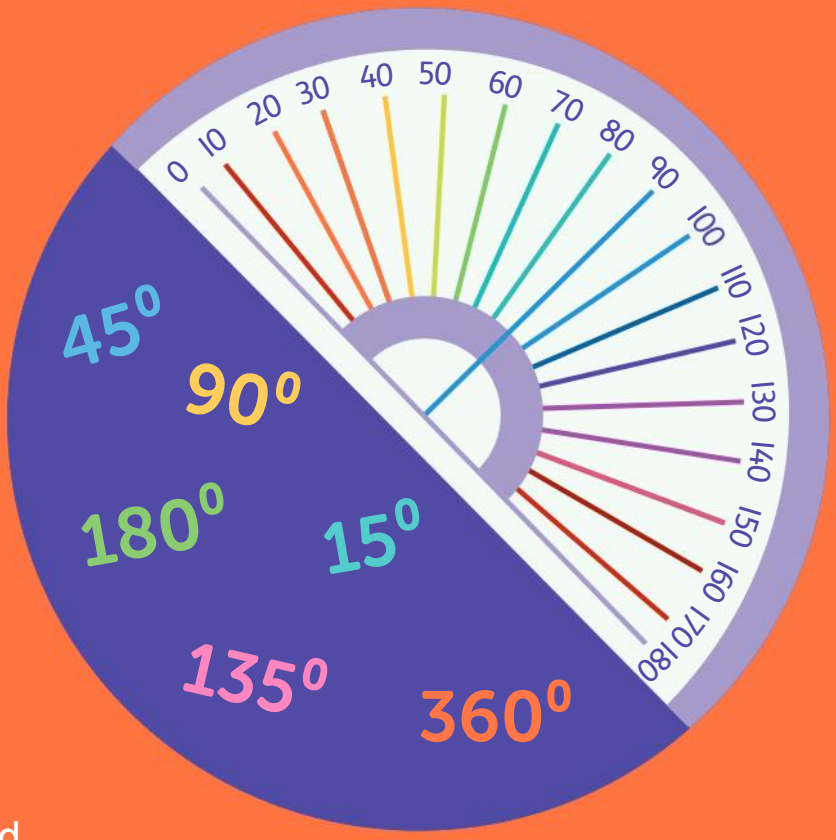

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OXFORD

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP, United Kingdom

Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide. Oxford is a registered trade mark of Oxford University Press in the UK and in certain other countries.

First published in 2014

British Library Cataloguing in Publication Data

Data available

ISBN 9781382006705

1 3 5 7 9 10 8 6 4 2

Paper used in the production of this book is a natural, recyclable product made from wood grown in sustainable forests. The manufacturing process conforms to the environmental regulations of the country of origin.

Printed in Great Britain by Bell and Bain Ltd. Glasgow.

Acknowledgements

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Contents

How to use this book

The Student Book for *Oxford International Primary Maths* forms part of your mathematics lessons for this year. Your teacher will introduce the ideas through whole-class activities, then you will explore them in more depth using this book, before all coming back together to discuss what you have learned. Find out more at: www.oxfordprimary.com/international-maths

Structure of the book

This book is divided into 10 units. Each unit covers a different strand of mathematics.

What you will find in each unit

There are five types of lessons:

Engage introduces the unit's mathematical ideas.

It tells you what you will learn in the unit and includes the big question.

Discover introduces mathematical skills and concepts.

In **Explore** you practise the skills you learned in Discover.

Connect helps you make links between the different areas of mathematics in the unit.

In **Review** you show your teacher what you have learned in the unit.

What you will find in the lessons

Although each lesson is unique, they have common features:

Discover / **Explore** The lesson type tells you whether you are discovering new mathematical concepts or exploring concepts you have already been introduced to.

Key words
- analogue
- digital

This box gives the key words for the lesson.

Stretch zone This challenges you to take your learning further.

In the speech bubbles, you will find useful hints, examples of how to complete a question, or extra questions to get you thinking about the mathematics you are doing.

Additional features

This shows you where you can practise the key vocabulary, either by writing the words or through a discussion.

This shows you where you can practise your mental maths skills such as your times tables or other key number facts.

This shows you where you need to record your work in a notebook.

Glossary Key words are listed in a picture glossary at the end of the book. You can write your own definition for each word.

Teacher's Guides

The Teacher's Guide that accompanies this book provides lesson notes for each page.

Practice Book

At the bottom of each page in this book, there is a link to the Practice Book, where you can find extra practice to do in your lesson or at home.

1 Number and place value

In this unit you will:

- count on and back in powers of 10 up to 1 000 000
- read, write and compare numbers up to 1 000 000
- round numbers
- use negative numbers
- use Roman numerals up to 1000
- solve number problems.

How can I extend my knowledge of place value so that I understand numbers up to 1 million?

Engage

Choose a whole number. This is your start number. Write a sequence of 11 numbers, with your start number in the middle. Your sequence must go on and back in a constant step size.

Give your sequence to a partner. Can they work out the step size? Can they add 10 more numbers at the beginning and at the end?

Vihaan has made a sequence with ten numbers. The step size is 10. The sequence finishes on $^{-}50$. What is her start number?

Blaine has made a sequence with six numbers. It starts on 150 and finishes on 400. What is the sequence step size?

1A Place value

Discover

Write 6-digit numbers

Key words
- thousands
- ten thousands
- hundred thousands

1 Choose one number from each column and use the numbers to make a 6-digit number.
- Repeat to make six different 6-digit numbers.

2 Write your numbers here.

100 000	10 000	1000	100	10	1
200 000	20 000	2000	200	20	2
300 000	30 000	3000	300	30	3
400 000	40 000	4000	400	40	4
500 000	50 000	5000	500	50	5
600 000	60 000	6000	600	60	6
700 000	70 000	7000	700	70	7
800 000	80 000	8000	800	80	8
900 000	90 000	9000	900	90	9

3 Now write your numbers in order in the place-value table, from smallest to largest.

100 000	10 000	1000	100	10	1
5	7	2	4	9	3

I chose 500 000, 70 000, 2000, 400, 90 and 3. I made the number 572 493

4 **a** Haris picked 600 000, 4000, 60 and 2.

What number did he make?

b Sofia picked 100 000, 70 000 and 900.

What number did she make?

Stretch zone

Use the digits 0, 0, 1, 3, 7, 9 to make four different 6-digit numbers. Write them in ascending order.

■ For more practice, go to Practice Book 5 page 14.

1A Place value

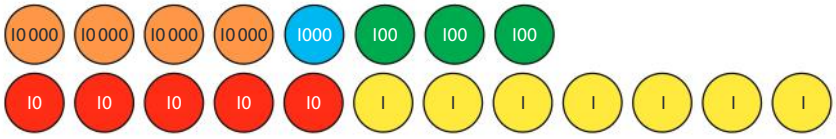
Explore

Read and write large numbers

1 Choose five cards from a set of digit cards 0–9. Make a 5-digit number.

- Write your number here.

2 Use place-value counters to partition your number into ten thousands, thousands, hundreds, tens and ones.



3 Write how many of each place value counter you need to make your number.

Ten thousands	
Thousands	
Hundreds	
Tens	
Ones	

4 Now make a 6-digit number and complete the table.

- Write your number here.

Hundred thousands	
Ten thousands	
Thousands	
Hundreds	
Tens	
Ones	

Key words

- thousands
- ten thousands
- hundred thousands

I made the number 41 357 using place-value counters.

I wrote the digits in this table.

Ten thousands	4
Thousands	1
Hundreds	3
Tens	5
Ones	7

1A Place value

Explore (continued)

5 Write these numbers in words.

a 72 923 seventy-two thousand, nine hundred and twenty-three

b 40 467 _____

c 89 508 _____

d 25 049 _____

e 17 001 _____

f 234 020 _____

Use the words in the word cloud below to help you.

The first one is done for you.

thousand twenty eighty two forty sixty seven nine thirty seventeen five one hundred four eight

Stretch zone

Yukesh makes a number with 5 ten thousands, 6 thousands, no hundreds, 3 tens and 2 ones. What is his number?

He then swaps the 2 and 5. Approximately how much smaller is his new number than his first number?

■ For more practice, go to Practice Book 5 page 15.

1B Rounding

Discover

Key words
- rounding
- nearest 1000/100/10

Round to the nearest 1000, 100 and 10

1 Estimate where these numbers go on the number line.

450, 125, 20, 805, 345, 675, 950, 515

- Mark the numbers on the number line.

2 Complete this table.

Round each number to...	the nearest 100 000	the nearest 10 000	the nearest 1000	the nearest 100	the nearest 10
450 725					
125 317					
205 565					
805 402					
345 591					
675 333					
950 026					
515 255					

3 a Benji's parents are saving to buy two bicycles. Each bicycle costs $199.99.

They have saved $400. Is that enough? How do you know?

_____

b Trudi thinks of a number between 8500 and 9000.

Rounded to the nearest 100, her number is 8700.

What number might Trudi be thinking of? ☐

Compare your answer with a partner. Do you both have the same answer? Are both answers correct?

Stretch zone

Rasheed thinks of a number between 7000 and 8000. It is a multiple of 10. Rounded to the nearest thousand his number is 7000. What number might Rasheed be thinking of?

■ For more practice, go to Practice Book 5, page 16.

1B Rounding

Key words

- rounding
- nearest 1000/100/10

Explore

Rounding game

Play this game with a partner to practise your rounding skills.

- Pick one of the stars.
- Say a number that rounds to the number on the star to the nearest 10.
- Your partner checks if you are correct.
- If you are correct, cover the star with a counter.
- Now it is your partner's turn.

  Continue playing until all the stars are covered.

Stretch zone

I am thinking of a number. I round my number to 35 400 to the nearest 100.
What is the largest number I could be thinking of?

■ For more practice, go to Practice Book 5 page 17.

1C Ordering and comparing

Key words

- greater than (>)
- less than (<)

Discover

Order and compare numbers

Work with a partner.

1 Write ten numbers each on a piece of paper.

- Write a variety of numbers with different numbers of digits.
- You can write positive and negative numbers.

	4	5	9	8
3	2	6	7	1

- Cut out your numbers and place them in a pile, face down in front of you.
- Take it in turns to take a number and place it face up on the table.
- As you take numbers, place them in order, from lowest to highest.
- Write all the numbers, in order.

My first number is 4598. My second number is 32 671. My third number…

2 Choose five pairs of numbers from your list.

- Write a number sentence to compare each pair of numbers. Use the symbol > or <.

My first number sentence is 32 671 > 4598

1C Ordering and comparing

Discover (continued)

3 Diego has 1245 shells. Arjun has 1425 shells.

Who has more shells? _____

By how many? ☐

- Write a number sentence to compare the two numbers. Use the < or > symbol.

_____

4 The library has 27 585 fiction books and 27 858 non-fiction books.

Does it have more fiction books or non-fiction books?

_____

By how many? ☐

- Write a number sentence to compare the two numbers. Use the < or > symbol.

_____

5 The population of a city was 389 409 in 2020. It was 398 490 in 2018.

Did the population get bigger or smaller? _____

By how much? ☐

- Write a number sentence to compare the two numbers. Use the < or > symbol.

_____

Find out the population of your town or city now and two years ago. Compare the two numbers, then find the difference between them.

Stretch zone

Write three number sentences to compare 6-digit numbers. Use the < and > symbol in each number sentence.

■ For more practice, go to Practice Book 5 page 18.

1C Ordering and comparing

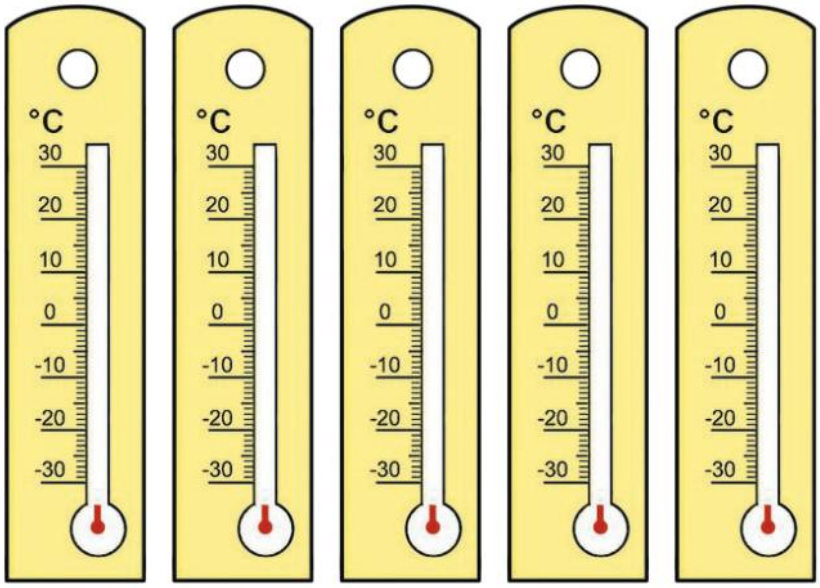
Explore

Order and compare temperatures

Key words
- positive number
- negative number
- below freezing

1 Mark these temperatures on the thermometers.

a 30 °C **b** 10 °C **c** ⁻25 °C **d** ⁻5 °C **e** 24 °C



Remember: °C means 'degrees Celsius'.

2 Write three number sentences using < and > to compare temperatures. Include positive and negative temperatures.

I wrote 30 °C > 24 °C.

3 Write three statements to match your number sentences. An example is shown below.

I wrote ⁻15 °C < 4 °C.

30 °C is 6 degrees hotter than 24 °C.

Stretch zone

Write three number sentences comparing pairs of temperatures with a difference of 25 degrees. Each pair should include one temperature below zero.

■ For more practice, go to Practice Book 5, page 19.

1D Number sequences

Discover 1

Linear number sequences

In a linear number sequence, the difference between consecutive numbers stays the same. For example, this is a linear number sequence with the rule '+ 4': 5, 9, 13, 17, 21

Key words

- number sequence
- count on/back in tens
- hundreds
- thousands

1 Pick two cards from a set of digit cards 1–9.

- Use the digits to make two different 2-digit numbers. These are your two start numbers.
- Complete these linear number sequences.

Rule	Start number: _____					
+ 10						
+ 100						
+ 1000						
Rule	Start number: _____					
+ 10						
+ 100						
+ 1000						

I made 24 and 42. Here are the first few numbers in my sequences for 24:
24, 34, 44, ...
24, 124, 224, ...
24, 1024, 2024, ...

2 Repeat the activity, but this time pick three digit cards and make two 3-digit start numbers.

Rule	Start number: _____					
+ 10						
+ 100						
+ 1000						
Rule	Start number: _____					
+ 10						
+ 100						
+ 1000						

What stays the same and what changes in these sequences?

Stretch zone

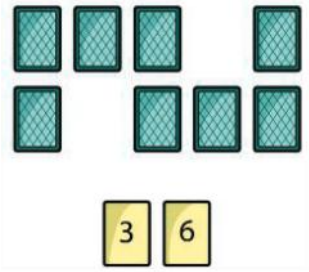
Use the same start numbers and write sequences with the rule + 10 000.

■ For more practice, go to Practice Book 5 page 20.

1D Number sequences

Discover 2

Rules for number sequences



Key words
- number sequence
- rule

1 Place a set of digit cards 0–9 face down on the table in front of you.
- Pick two cards.
- Use the numbers on the cards as the first two numbers in two different number sequences. Each sequence must have six numbers.
- You choose the rule for each sequence.

Worked example

Sequence: 3, 6, 12, 24, 48, 96 Rule: *double*

Sequence: 3, 6, 9, 12, 15, 18 Rule: *add 3*

I picked 3 and 6. Look at the two sequences that I made.

- Write your two sequences and the rules.

Digit cards: ☐ ☐

Sequence 1: _____ Rule: _____

Sequence 2: _____ Rule: _____

2 Repeat the activity three more times.

Digit cards: ☐ ☐

Sequence 1: _____ Rule: _____

Sequence 2: _____ Rule: _____

Digit cards: ☐ ☐

Sequence 1: _____ Rule: _____

Sequence 2: _____ Rule: _____

Digit cards: ☐ ☐

Sequence 1: _____ Rule: _____

Sequence 2: _____ Rule: _____

You can make sequences that get smaller and that go below zero.

Stretch zone

Write a sequence that uses two operations. For example: 2, 5, 11, 23, 47, 95.
Rule: double then add 1. Can your partner work out your rule?

■ For more practice, go to Practice Book 5, page 21.

1D Number sequences

Explore 1

Key words
- count on/back in tens
- hundreds
- thousands

Write linear number sequences

1 Pick five cards from a set of digit cards 1–9.

- Use the digits to make two different 5-digit numbers. These are your two start numbers.
- Complete these linear number sequences.

Rule	Start number: _____					
– 10						
– 100						
– 1000						
Rule	Start number: _____					
– 10						
– 100						
– 1000						

2 Repeat the activity, but this time pick six digit cards and make two 6-digit start numbers.

Rule	Start number: _____					
– 10						
– 100						
– 1000						
Rule	Start number: _____					
– 10						
– 100						
– 1000						

Stretch zone

Use the same start numbers and write sequences with the rule – 10 000.

■ For more practice, go to Practice Book 5 page 22.

1D Number sequences

Explore 2

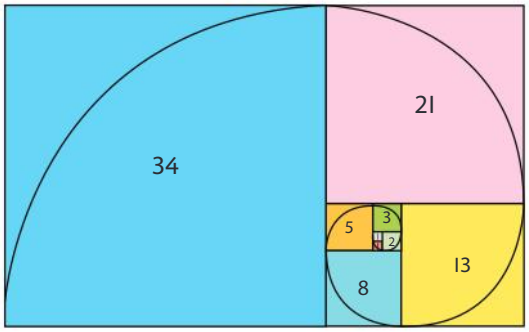
Special number sequences

Key words
- sequence
- rule
- pattern

Each number in a Fibonacci sequence is the sum of the two previous numbers. For example: 1, 1, 2, 3, 5, 8, 13, …

1 + 1 = 2, 1 + 2 = 3, 2 + 3 = 5, …

When we make squares with these widths, we make a spiral.



We can see this pattern in nature.

1 Extend the Fibonacci sequence. Add another ten numbers.

2 Continue these Fibonacci-type sequences until you pass 100.

a 4, 7, 11, 18,

b 12, 23, 35,

c 1, 10, 11,

3 Make up two of your own Fibonacci-type sequences.

Fibonacci was an Italian mathematician from the 12th century. He recognised a common sequence in numbers.

Stretch zone

Mariam made up a Fibonacci-type sequence. It contains 89. It starts with 2. What is the sequence?

■ For more practice, go to Practice Book 5, page 23.