

# Oxford **Mathematics**

Primary Years Programme



3

Annie Facchinetti

**OXFORD**  
UNIVERSITY PRESS

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 trademark of Oxford University Press in the UK and in certain other countries.

Published in Australia by  
Oxford University Press  
Level 8, 737 Bourke Street, Docklands, Victoria 3008, Australia.

© Oxford University Press 2019

The moral rights of the author have been asserted

First published 2019

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, without the prior permission in writing of Oxford University Press, or as expressly permitted by law, by licence, or under terms agreed with the reprographics rights organisation. Enquiries concerning reproduction outside the scope of the above should be sent to the Rights Department, Oxford University Press, at the address above.

You must not circulate this work in any other form and you must impose this same condition on any acquirer.

ISBN 978 0 19 031222 0

Edited by Rebecca Hill  
Illustrated by Ben Whitehouse  
Typeset by Newgen KnowledgeWorks Pvt. Ltd., Chennai, India  
Proofread by Kylie Cockle  
Printed in China by Leo Paper Products Ltd

**Acknowledgements**

Cover: Getty/Dave King. Internal: Shutterstock.

## To the teacher

*Oxford Mathematics PYP* provides students with guided and independent work to support mathematical skills and understandings, as well as opportunities for problem-solving in real-world contexts. Teachers will find the supporting materials clear, comprehensive and easy to use. While the series offers complete coverage of the PYP mathematics scope and sequence, teachers can also use the topics that fit well with other areas of work to support student learning across the PYP curriculum.

## Student Books

Each topic features:

- **Guided practice** – a worked example of the concept, followed by the opportunity for students to practise, supported by careful scaffolding
- **Independent practice** – further opportunities for students to consolidate their understanding of the concept in different ways, with a decreasing amount of scaffolding
- **Extended practice** – the opportunity for students to apply their learning and extend their understanding in new contexts.

## Differentiation

Differentiation is key to ensuring that every student can access the curriculum at their point of need. In addition to the gradual release approach of the Student Books, the Teacher Books help teachers to choose appropriate pathways for students, and provide activities for students who require extra support or extension.

# Oxford Mathematics

## Primary Years Programme



### Contents

#### NUMBER, PATTERN AND FUNCTION

##### Unit 1 Number and place value

1. Place value	2
2. Odd and even	6
3. Addition mental strategies	10
4. Addition written strategies	14
5. Subtraction mental strategies	19
6. Subtraction written strategies	23
7. Inverse operations	28
8. Multiplication and division facts	32
9. Multiplication and division mental strategies	36
10. Multiplication written strategies	40
11. Number relationships	44

##### Unit 2 Fractions and decimals

1. Fractions	48
2. Fractions on number lines	52

##### Unit 3 Money and financial mathematics

1. Money	56
----------	----

##### Unit 4 Patterns and algebra

1. Number patterns	60
2. Problem solving	64

#### MEASUREMENT, SHAPE AND SPACE

##### Unit 5 Using units of measurement

1. Length and area	68
2. Volume and capacity	73
3. Mass	78
4. Time	82

##### Unit 6 Shape

1. 2D shapes	86
2. 3D shapes	90

##### Unit 7 Geometric reasoning

1. Angles	94
-----------	----

##### Unit 8 Location and transformation

1. Symmetry	98
2. Slides and turns	102
3. Grids and maps	106

#### DATA HANDLING

##### Unit 9 Data representation and interpretation

1. Collecting data	110
2. Graphs	114
3. Interpreting data	118
4. Diagrams	122

##### Unit 10 Chance

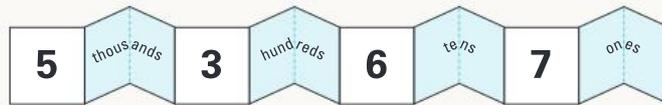
1. Chance events	126
2. Chance experiments	130

Glossary	134
Answers	144

# UNIT 1: TOPIC 1

## Place value

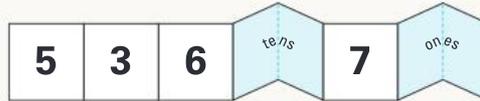
5367 is the same as:



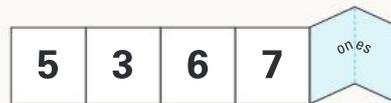
or



or



or



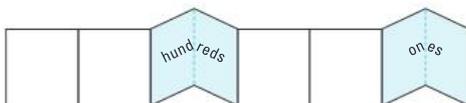
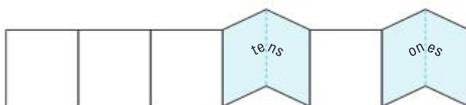
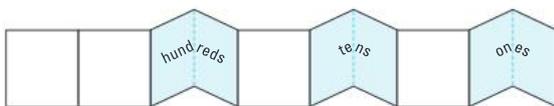
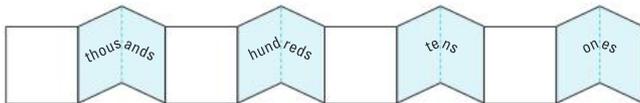
Can you think of any other ways to rename 5367?



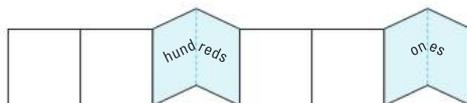
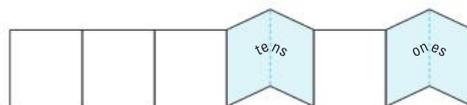
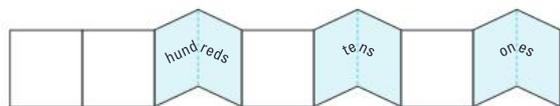
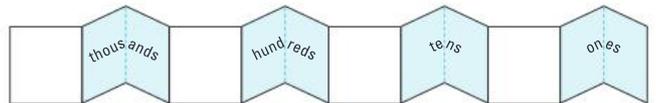
### Guided practice

1 Show these numbers on the number expanders.

a 2431



b 8276



## Independent practice

Write each number:

1 in words.

a 4568 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b 8043 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c 7109 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 on the place value chart.

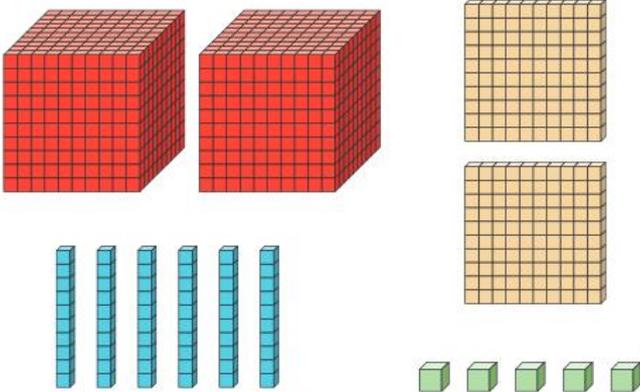
Th	H	T	O

How do the numbers in words connect with the place value chart?

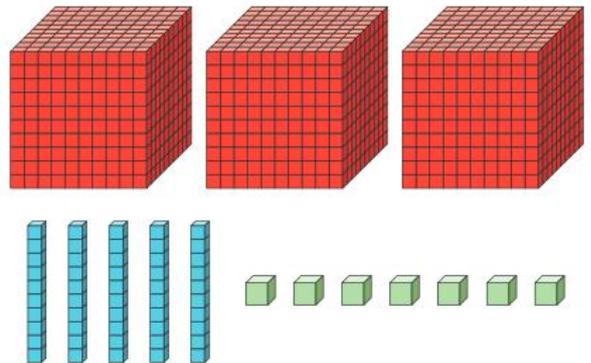


3 How many?

a




b



4 Rewrite the number of people in the table from largest to smallest.

WORLD PARTICIPATION RECORDS

Event number	Event	Number of people	Event number	Number of people
1	Most people dressed as Smurfs	4891		
2	Largest Riverdance line	1693		
3	Largest Thai dance	5255		
4	Largest umbrella dance	1688		
5	Largest lion dance	3971		
6	Largest scarecrow display	3812		

5 Make the largest number possible with 1, 7, 8 and 0.

--	--	--	--

6 Use the number from question 5 to find:

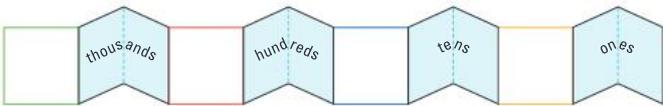
a	10 more.	<input type="text"/>	b	10 less.	<input type="text"/>
c	20 more.	<input type="text"/>	d	20 less.	<input type="text"/>
e	100 more.	<input type="text"/>	f	100 less.	<input type="text"/>
g	200 more.	<input type="text"/>	h	200 less.	<input type="text"/>
i	1000 more.	<input type="text"/>	j	1000 less.	<input type="text"/>

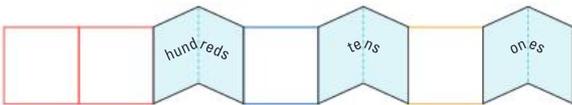
7 Make the smallest number possible with 3, 8, 2 and 3.

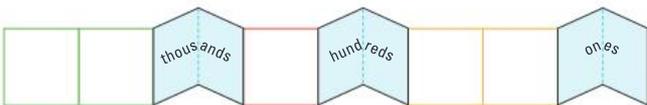
--	--	--	--

## Extended practice

1 Write on the expander, then complete the sum.

a  $3790 =$    $=$  

b  $8052 =$    $=$  

c  $24\ 160 =$    $=$  

2 Circle the number in which:

a 4 has the greatest value.      3472      6324      4012

b 9 has the smallest value.      6889      3914      1900

c 1 has the greatest value.      5217      1024      9199

d 5 has the smallest value.      19 875      2536      6851

3 a Write the largest and the smallest 4-digit number possible with 7 in the tens column.

--	--	--	--	--	--	--	--

b Write the largest and the smallest 4-digit number possible with 4 in the hundreds column.

--	--	--	--	--	--	--	--

# UNIT 1: TOPIC 2

## Odd and even

Even numbers can be grouped into 2s.



Odd numbers cannot.

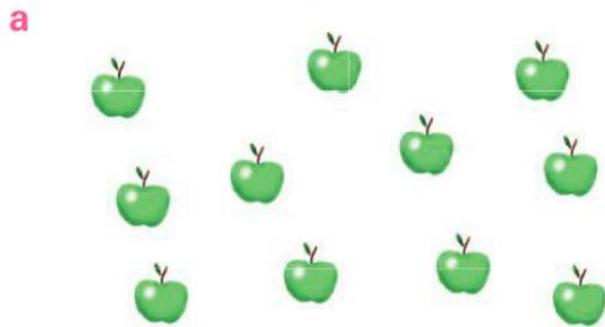


What is an odd number? What other meaning does the word **odd** have?

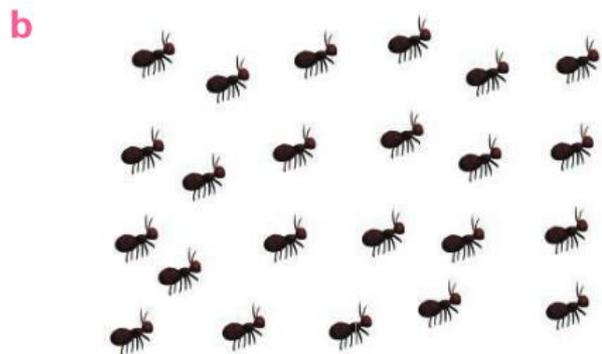
### Guided practice



1 Circle groups of 2, and then colour if the total is odd or even.



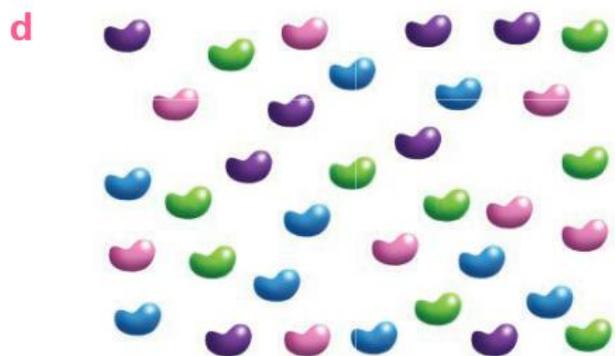
Odd    Even



Odd    Even



Odd    Even



Odd    Even

## Independent practice

1 Draw on the ten frames, and then choose if the numbers are odd or even.

a 17

Odd
Even


b 26

Odd
Even


c 28

Odd
Even


d 14

Odd
Even


e 25

Odd
Even


f 15

Odd
Even


2 Finish the number patterns.

a Odd:

21		25	27			33		
----	--	----	----	--	--	----	--	--

b Even:

44	46			52			58	
----	----	--	--	----	--	--	----	--

c Even:

20	24	28			40			52
----	----	----	--	--	----	--	--	----

3

31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60

- a Circle all the even numbers in **red**.
- b Circle all the odd numbers in **blue**.
- c What digits can even numbers end in?

--	--	--	--	--

- d What digits can odd numbers end in?

--	--	--	--	--

Which place value column tells you if a number is odd or even?



4

Rewrite the numbers in the correct column.

Odd	Even

- |      |      |      |
|------|------|------|
| 76   | 143  | 258  |
| 103  | 575  | 1974 |
| 1361 | 3870 | 5002 |
| 867  | 9998 | 9999 |

5

Odd or even?

- a The number of fingers on one hand \_\_\_\_\_
- b On two hands \_\_\_\_\_
- c The number of wheels on one car \_\_\_\_\_
- d On two cars \_\_\_\_\_

## Extended practice

**1** Add the pairs of even numbers.

**a**  $6 + 2 =$

**b**  $14 + 10 =$

**c**  $28 + 8 =$

**d** All the answers are:

---

**2** Add the pairs of odd numbers.

**a**  $5 + 3 =$

**b**  $11 + 17 =$

**c**  $21 + 9 =$

**d** All the answers are:

---

**3** Add the pairs of even and odd numbers.

**a**  $4 + 5 =$

**b**  $12 + 15 =$

**c**  $20 + 19 =$

**d** All the answers are:

---

**4** Add the pairs of odd and even numbers.

**a**  $5 + 6 =$

**b**  $17 + 10 =$

**c**  $23 + 14 =$

**d** All the answers are:

---

**5** Will the answer be odd or even?

**a**  $24 + 56$

**b**  $45 + 38$

**c**  $72 + 93$

**d**  $88 + 66$

**e**  $97 + 75$

**f**  $51 + 94$

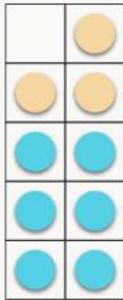
# UNIT 1: TOPIC 3

## Addition mental strategies

One-digit numbers can help you add bigger numbers.

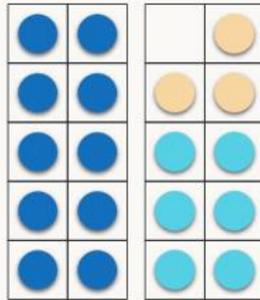
If you know:

$$6 + 3 = 9$$



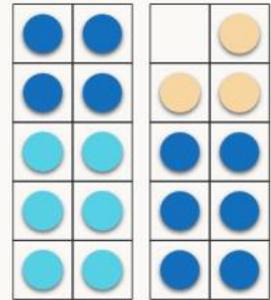
You also know:

$$16 + 3 = 19$$



Or:

$$6 + 13 = 19$$



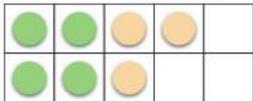
What would  
 $16 + 13$  be?



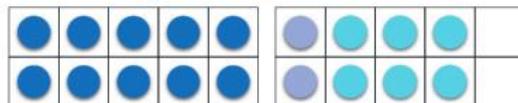
### Guided practice

1 Find the answers.

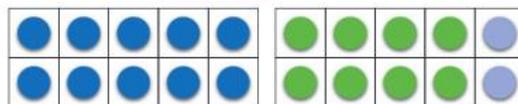
a  $4 + 3 = \square$  and  $14 + 3 = \square$



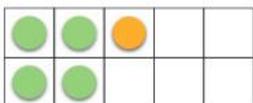
b  $2 + 6 = \square$  and  $12 + 6 = \square$



c  $8 + 2 = \square$  and  $8 + 12 = \square$



d  $1 + 4 = \square$  and  $21 + 4 = \square$



## Independent practice

1 Extend the number facts to solve.

a  $2 + 7 = \square$  and  $22 + 7 = \square$

b  $5 + 3 = \square$  and  $5 + 13 = \square$

c  $2 + 4 = \square$  and  $12 + 14 = \square$

d  $1 + 8 = \square$  and  $31 + 8 = \square$

e  $6 + 4 = \square$  and  $6 + 34 = \square$

What other mental addition strategies could you use?



2 Use doubles facts to solve.

a If  $3 + 3 = 6$ , then  $30 + 30 = \square$ .

b If  $4 + 4 = \square$ , then  $40 + 40 = \square$ .

c If  $5 + 5 = \square$ , then  $50 + 50 = \square$ .

d If  $2 + 2 = \square$ , then  $\square + \square = 40$ .

e If  $8 + 8 = \square$ , then  $\square + \square = 160$

f If  $1 + 1 = \square$ , then  $100 + 100 = \square$ .

g If  $6 + 6 = \square$ , then  $600 + 600 = \square$ .

h If  $7 + 7 = \square$ , then  $700 + 700 = \square$ .

**3** Split into 10s and 1s to add.

**a**  $23 + 12 =$    $+$    $=$

**b**  $26 + 31 =$    $+$    $=$

**c**  $45 + 42 =$    $+$    $=$

**d**  $34 + 55 =$    $+$    $=$

**e**  $43 + 27 =$    $+$    $=$

When adding in your head, it's easier if you can make pairs that equal a 10.



**4** Rearrange the numbers to make them easier to add.

**a**  $6 + 7 + 4 =$    $+$    $+$    $=$

**b**  $5 + 4 + 25 =$    $+$    $+$    $=$

**c**  $17 + 2 + 4 + 3 =$    $+$    $+$    $+$    $=$

**d**  $3 + 11 + 2 + 19 =$    $+$    $+$    $+$    $=$

**5** Solve using a mental addition strategy of your choice.

**a**  $90 + 90 =$

**b**  $46 + 52 =$

**c**  $4 + 37 =$

**d**  $17 + 8 + 3 + 12 =$

**e**  $21 + 68 =$

**f**  $500 + 500 =$

**g**  $61 + 17 =$

**h**  $14 + 30 + 6 =$

## Extended practice

The table below shows how many people went on each ride at an amusement park in a one-hour period.

Ride	Roller coaster	Carousel	Big slide	Haunted house	Ferris wheel	Tea cups	Giant drop	Dodgem cars
Number of people	23	8	7	54	135	12	39	221

**1** Write the numbers in the easiest adding order to find how many people went on:

**a** the carousel, big slide and tea cups.

$$\square + \square + \square = \square$$

**b** the big slide, tea cups and roller coaster.

$$\square + \square + \square = \square$$

**c** the carousel, dodgem cars and giant drop.

$$\square + \square + \square = \square$$

**2** Add in your head to find how many people went on:

**a** the haunted house and the giant drop.

$$\square + \square = \square$$

**b** the dodgem cars and the roller coaster.

$$\square + \square = \square$$

**c** the Ferris wheel and the haunted house.

$$\square + \square = \square$$

**d** the dodgem cars and the Ferris wheel.

$$\square + \square = \square$$

**e** the roller coaster, the carousel, the tea cups and the big slide.

$$\square + \square + \square + \square = \square$$