Power Maths

White Rose Maths

White Rose Maths Edition

Year 6 Textbook 6A

Pearson

Series Editor: Tony Staneff

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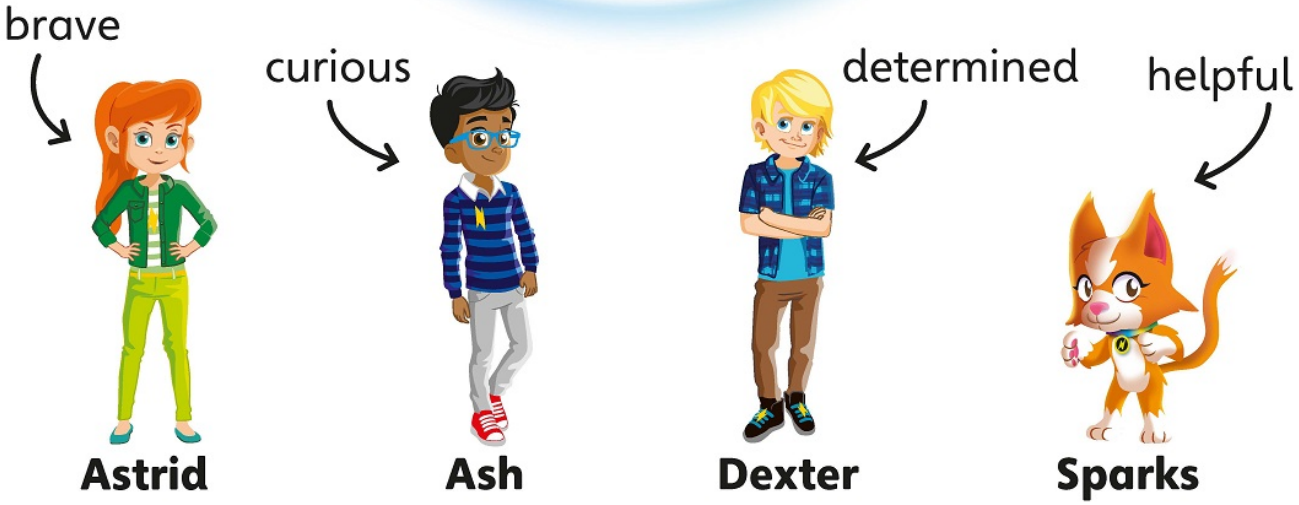
Flo

Flo is flexible.

She looks for different ways to solve a problem.

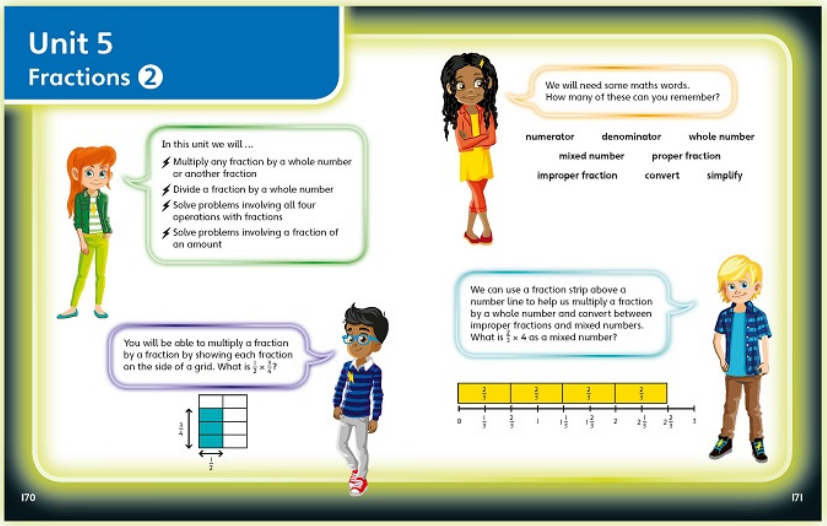


Pearson

Contents

How to use this book

These pages make sure we're ready for the unit ahead. Find out what we'll be learning and brush up on your skills!



Discover

Lessons start with **Discover**.

Here, we explore new maths problems.

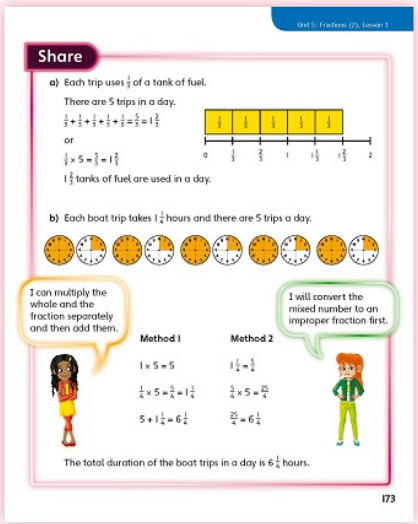
Can you work out how to find the answer?

Don't be afraid to make mistakes. Learn from them and try again!

Share

Next, we share our ideas with the class.

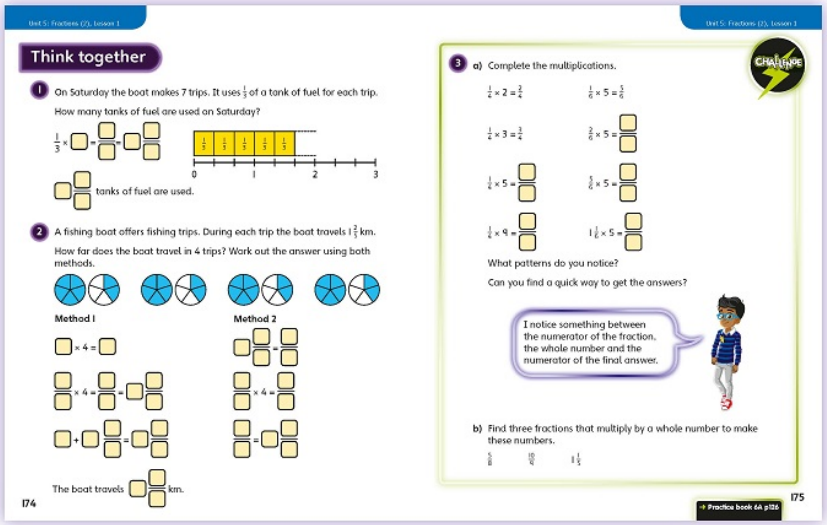
Did we all solve the problems the same way? What ideas can you try?



Think together

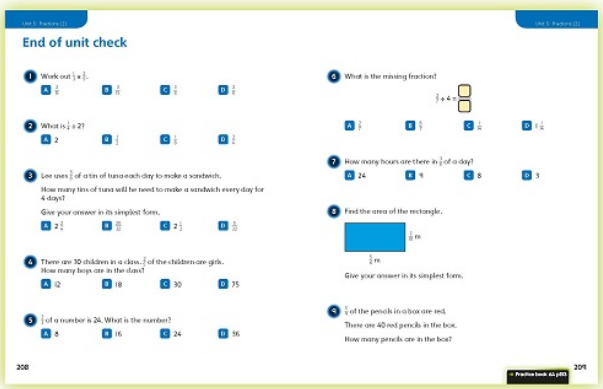
Then we have a go at some more problems together. Use what you have just learnt to help you.

We'll try a challenge too!



This tells you which page to go to in your **Practice Book**.

At the end of each unit there's an **End of unit check**. This is our chance to show how much we have learnt.



Unit 1

Place value within 10,000,000

In this unit we will ...

- Learn to read and write numbers to 10,000,000
- Partition, compare and order numbers up to 10,000,000
- Round numbers
- Work with negative numbers

Do you remember what this is called? We will use it to help identify the place value of digits in a number.

M	HTh	TTh	Th	H	T	O
1	0	0	0	0	0	0

We will need some maths words. Can you explain the words you have met before?

ten thousands (10,000s)

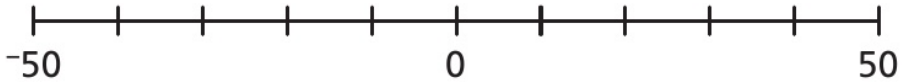
hundred thousands (100,000s)

millions (1,000,000s)

ten million (10,000,000)

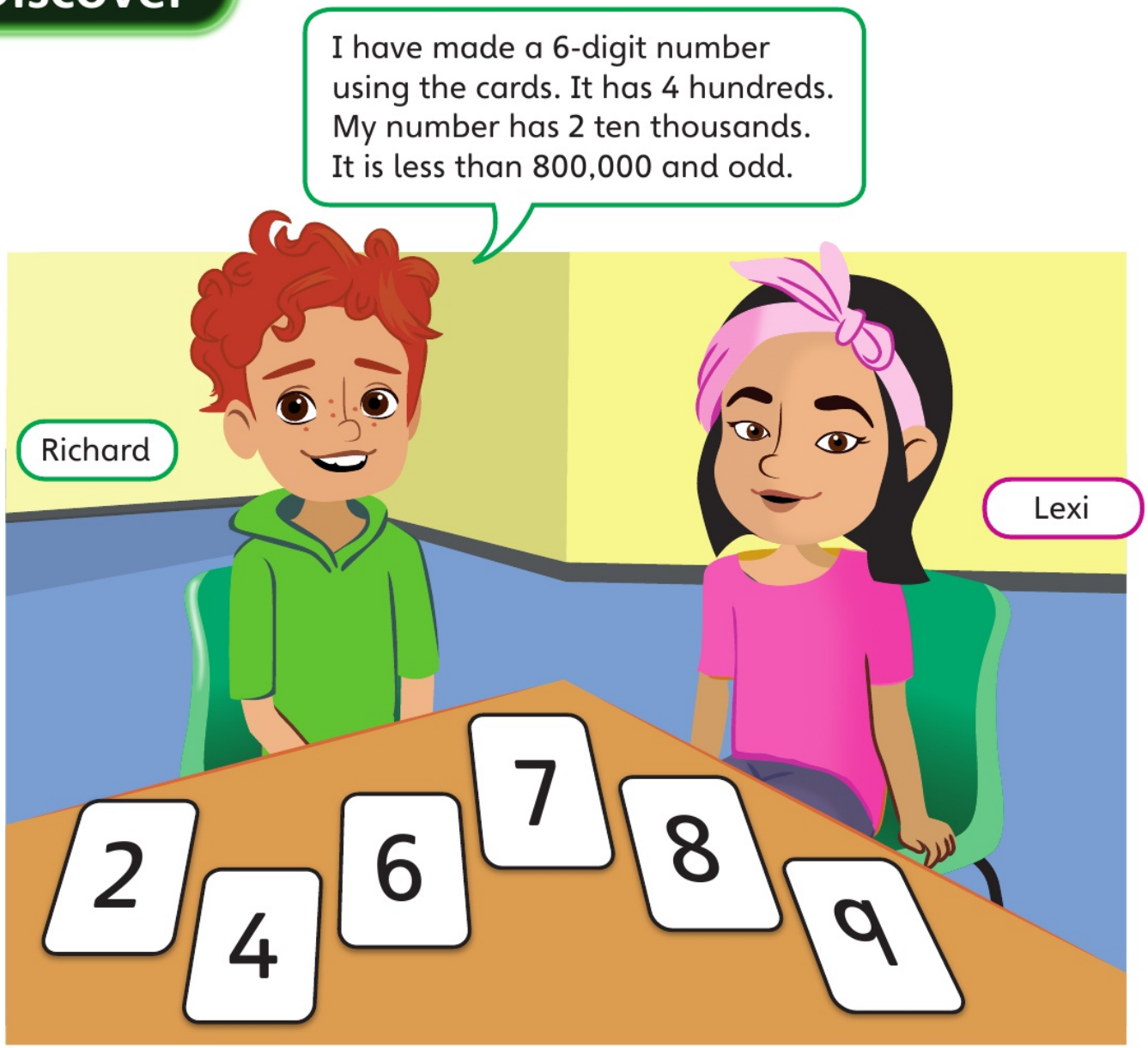
place value	partition	interval
estimate	compare	order
rounding	negative	positive

We will use this too! Can you find what the unlabelled values are?



Numbers to 1,000,000

Discover



1 **a)** What numbers could Richard have made using the digit cards shown?

b) How many different answers can you find?

Share

a) and **b)** Richard's number has 4 hundreds.

Put the 4 in the hundreds column.

HTh	TTh	Th	H	T	O
			4		

Put the 2 in the ten thousands column.

HTh	TTh	Th	H	T	O
	2		4		

The digit in the hundred thousands column must be less than 8.

The 7 or the 9 must go in the ones column to make the number odd.

HTh	TTh	Th	H	T	O
6	2		4		9

The digits that are left can be placed in either the thousands or the tens column. So Richard could have made:

627,489	726,489	629,487
628,479	728,469	628,497

I made 726,489 and 728,469 when I used 7 instead of 6 as the first digit.

I made 629,487 and 628,497 when I used 7 instead of 9 in the ones column.

Think together

1 Richard has made a number using counters on a place value grid.

HTh	TTh	Th	H	T	O
●●		●●●	●●●●	●	●●●●● ●

a) What number has Richard made?

b) What is 1,000 more than Richard's number?

c) What is 10 less than Richard's number?

2 What is the value of the digit 5 in each of these numbers?

a)

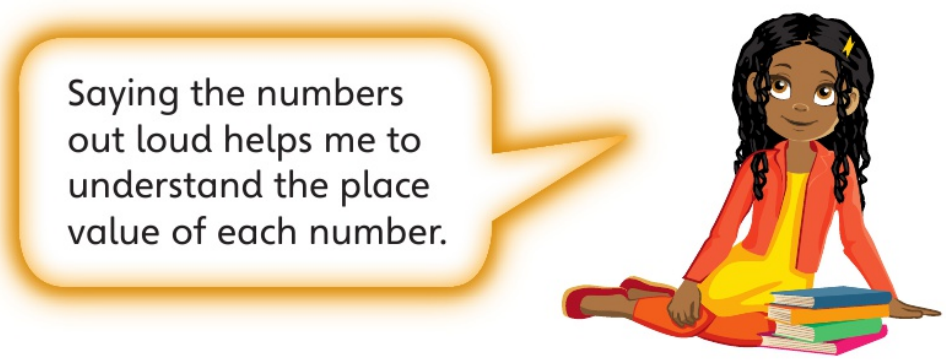
HTh	TTh	Th	H	T	O
1	5	2	1	8	0

b)

HTh	TTh	Th	H	T	O
4	1	2	1	0	5

c) 26,514

d) 519,822

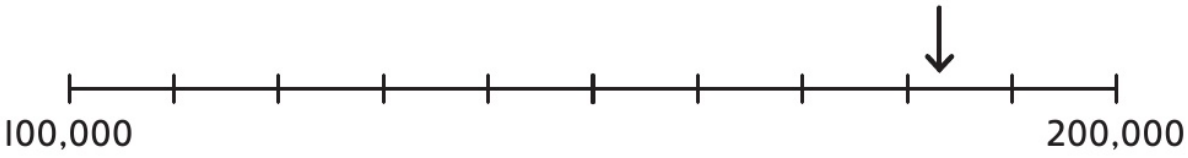


CHALLENGE

3 Lexi makes a number using these digit cards.

0	1	2	4	8	9

She draws an arrow where her number is on a number line.



What number do you think Lexi has made?

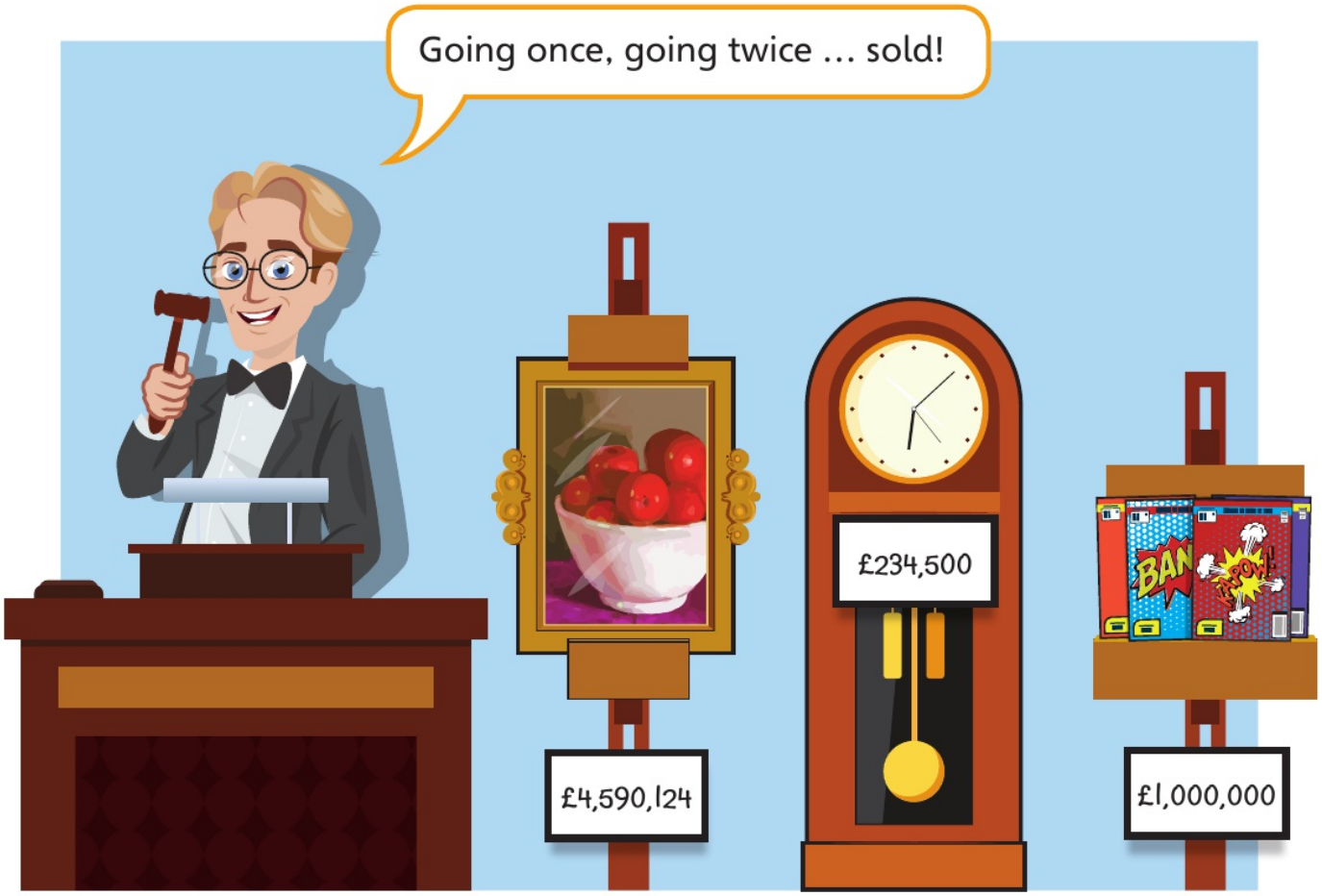
I can see the number line is split into 10 equal parts. This will help me to work out what the missing values are.

I can see what Lexi's number has to start with by looking at where the number line starts and ends.

→ Practice book 6A p6

Numbers to 10,000,000

Discover



1 **a)** The comic books sold for one million pounds.

How many 100,000s are in one million?

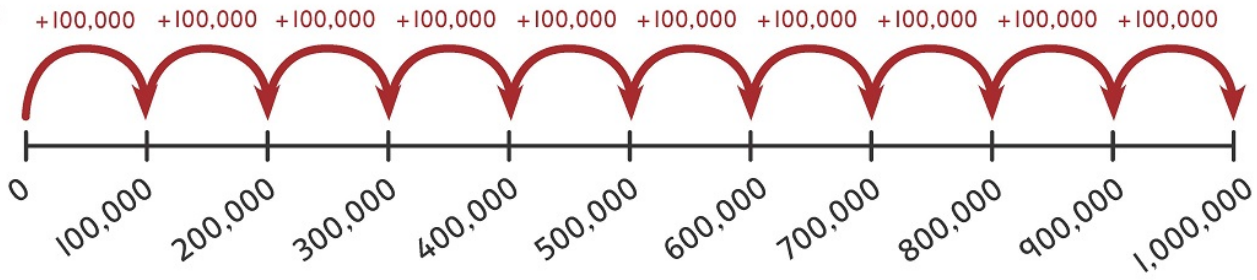
b) Write the sale prices of the painting and the clock on place value grids.

Use the grids to help you to say the numbers out loud.

Share

I used a number line to help me count up in 100,000s until I got to one million.

a)



There are ten 100,000s in one million.

b)

£4,590,124

M	HTh	TTh	Th	H	T	O
4	5	9	0	1	2	4

The painting cost four million, five hundred and ninety thousand, one hundred and twenty-four pounds.

£234,500

M	HTh	TTh	Th	H	T	O
	2	3	4	5	0	0

The clock cost two hundred and thirty-four thousand, five hundred pounds.

Think together

1 What numbers are shown in the place value grids?

Give your answers in numerals and in words.

a)

M	HTh	TTh	Th	H	T	O
	●●●●	●●●●●	●●	●●●		●●●●●

M	HTh	TTh	Th	H	T	O
●●●●●	●		●●●●	●●●		●●●●●

b) Read the number 1,402,315 out loud.

2 Reena writes down the following number.

3,405,782

a) Read Reena's number out loud.

b) What is the value of the number 7 in Reena's number?

c) What number is in the 1,000s position?

d) What is 100,000 more than Reena's number?

CHALLENGE

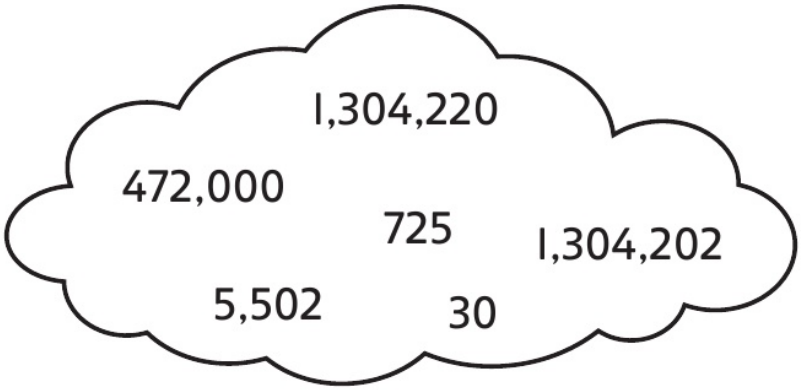
3 Lee is making numbers using counters on a place value grid.

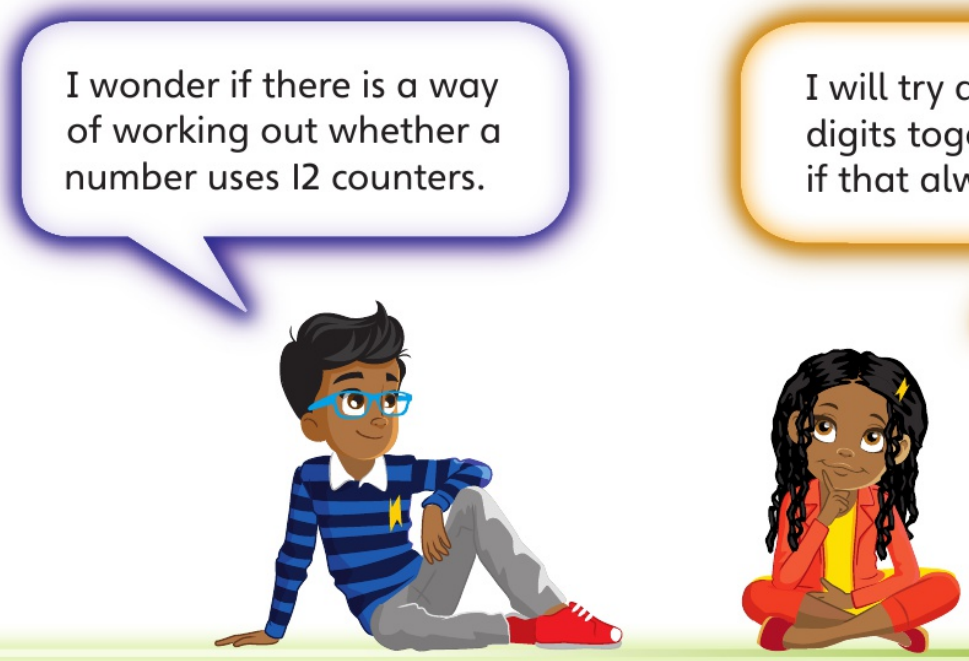
Lee has 12 counters.

M	HTh	TTh	Th	H	T	O
●●	●●●●	●	●	●●●		●

a) What number has Lee made?

b) Which of the following numbers can Lee make using all 12 counters?





→ Practice book 6A p9

Partition numbers to 10,000,000

Discover

1 **a)** In the game, how much money does Jamie have?

b) How much money does Aki have?

Share

a)

I used a place value grid to help me organise the numbers.

M	HTh	TTh	Th	H	T	O

4,000,000 + 500,000 + 20,000 + 100 + 20 + 3 = 4,520,123

Jamie has £4,520,123.

b)

I know that 10 thousands are equal to 1 ten thousand.

M	HTh	TTh	Th	H	T	O
2	0	~~8~~ 7	~~11~~ 1	0	0	0

Aki has £2,071,000.

Think together

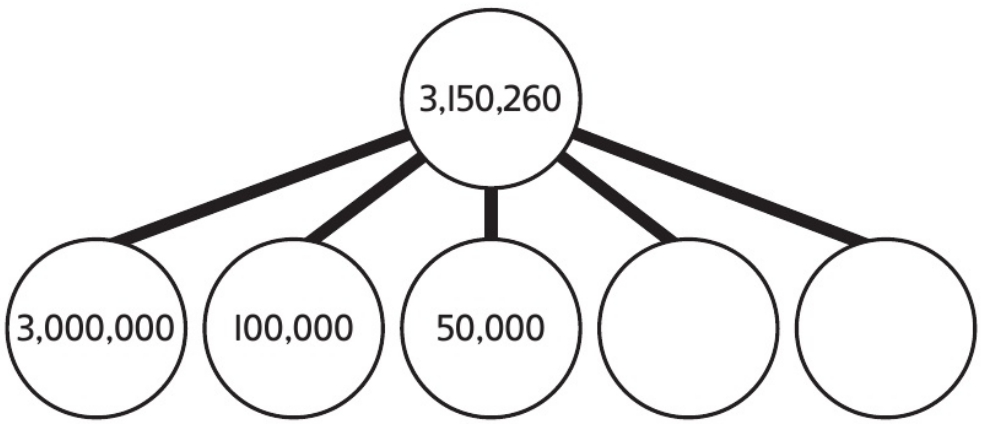
1 Josh writes a number in a place value grid.

HTh	TTh	Th	H	T	O
2	7	6	3	0	2

Complete the partition.

276,302 = 200,000 + 70,000 + ☐ + 300 + 2

2 **a)** Find the missing numbers in this part-whole model.



b) Draw a part-whole model for three and a half million.

I will write three and a half million as a numeral first.

CHALLENGE

3 Write each of these partitioned numbers in numerals.

7,000,000 + 600,000 + 90,000 + 1,000 + 700 + 10 + 2

500,000 + 70,000 + 200 + 9

3 × 100,000 + 4 × 10,000 + 8 × 1,000 + 5 × 100 + 9 × 1

4,000,000 + 38,000 + 200

9,000 + 50,000 + 700,000 + 400 + 20 + 1

four millions, three hundred thousands, nine hundreds, one ten and six ones

300,000 + 90,000 + 9,000 + 710

I am going to write the numbers in a place value grid to help me organise my work.

I don't think I need to use one.

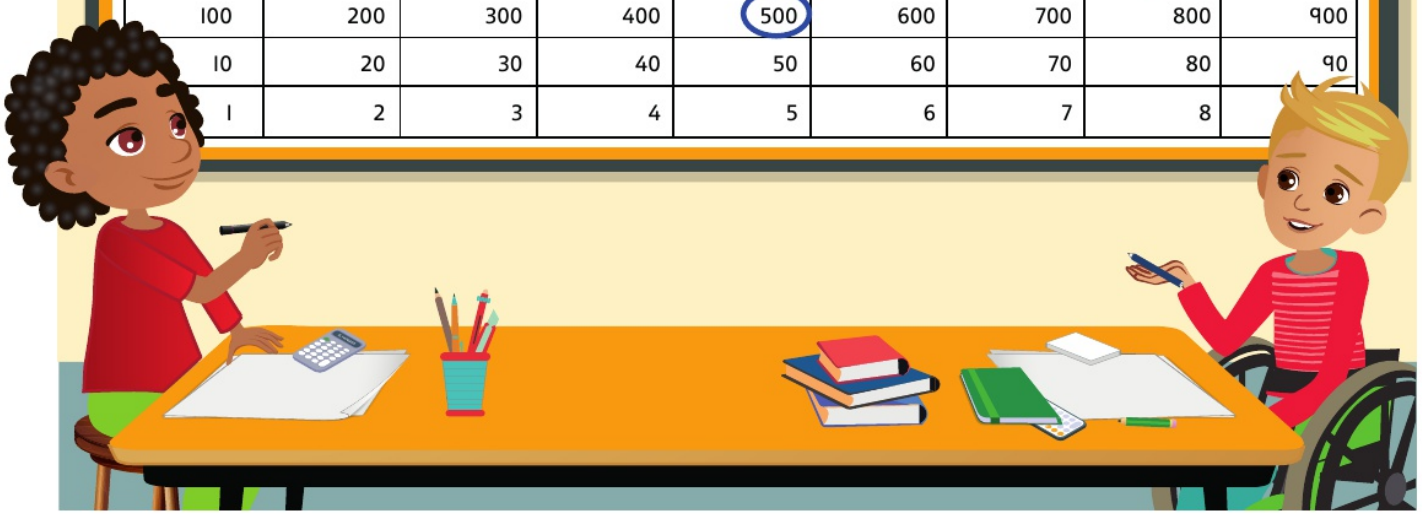
→ Practice book 6A p12

Powers of 10

Discover

Gattegno chart

10,000,000	20,000,000	30,000,000	40,000,000	50,000,000	60,000,000	70,000,000	80,000,000	90,000,000
1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	6,000,000	7,000,000	8,000,000	9,000,000
100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	



1 **a)** What number is shown on the chart?

b) What is 10 times the number?

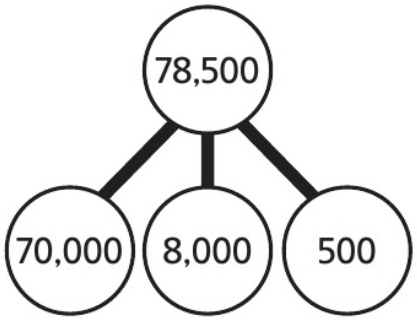
What is 100 times the number?

A Gattegno chart is made up of rows that show numbers 10, 100, 1,000 times bigger or smaller.

Share

a) The number in the chart is made of 70,000, 8,000 and 500.

The number is 78,500.



b) Move up one row to find 10 times bigger.

10 times larger (× 10)

10,000,000	20,000,000	30,000,000	40,000,000	50,000,000	60,000,000	70,000,000	80,000,000	90,000,000
1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	6,000,000	7,000,000	8,000,000	9,000,000
100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

10 times smaller (÷ 10)

10 times 78,500 is 785,000.

10 times larger (× 10)

10,000,000	20,000,000	30,000,000	40,000,000	50,000,000	60,000,000	70,000,000	80,000,000	90,000,000
1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	6,000,000	7,000,000	8,000,000	9,000,000
100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

10 times smaller (÷ 10)

100 times 78,500 is 7,850,000.

Think together

1 **a)** Represent 3,750 on the Gattegno chart using counters.

10,000,000	20,000,000	30,000,000	40,000,000	50,000,000	60,000,000	70,000,000	80,000,000	90,000,000
1,000,000	2,000,000	3,000,000	4,000,000	5,000,000	6,000,000	7,000,000	8,000,000	9,000,000
100,000	200,000	300,000	400,000	500,000	600,000	700,000	800,000	900,000
10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000
1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000
100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9

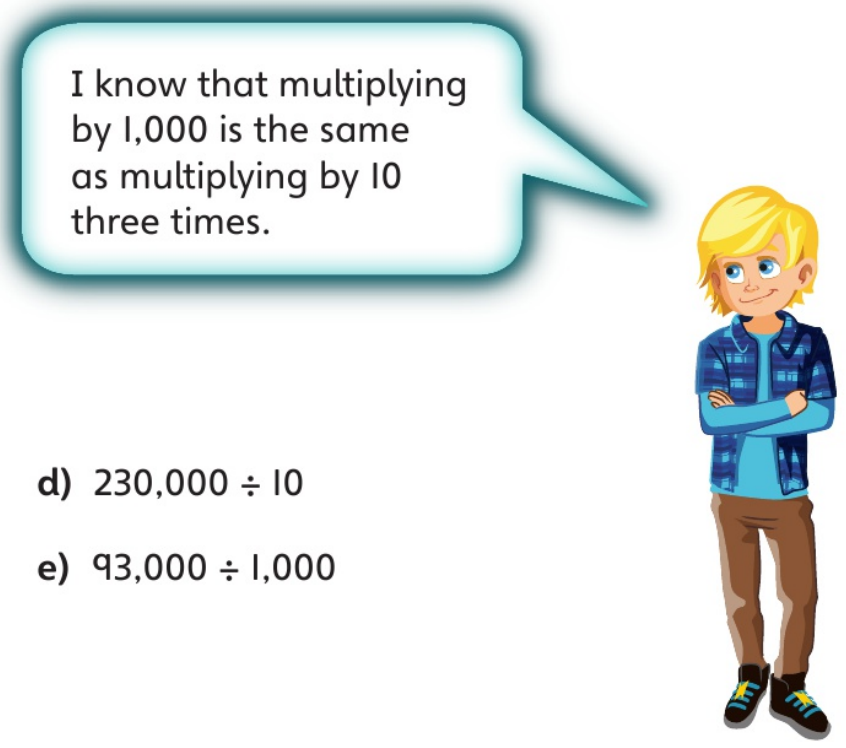
b) Use the Gattegno chart to help you work these out.

3,750 × 10

3,750 ÷ 10

3,750 × 100

3,750 × 1,000



2 Work out

a) 230,000 × 10

b) 93,000 × 100

c) 624 × 10,000

d) 230,000 ÷ 10

e) 93,000 ÷ 1,000