

Fully
Recommended
by the DfE!

**The whole-class mastery approach
that works for every child**


Created in
partnership
with






**At the heart of
Power Maths
is the belief that all
children can achieve.
It's built on an
exciting growth
mindset and
problem-solving
approach.**

Key aims of *Power Maths*

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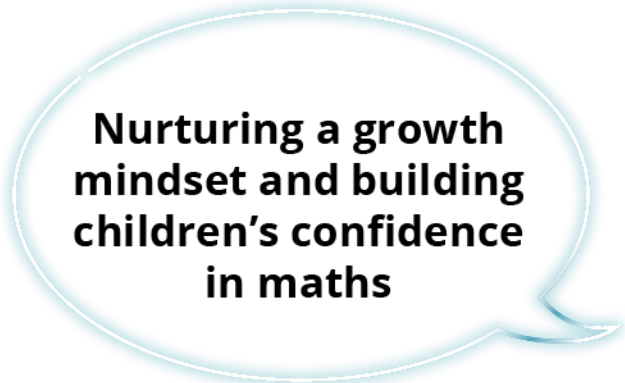
Keeping the whole class progressing together

A yellow-green speech bubble with a white outline and a soft glow effect.

Providing rich problem solving to challenge and engage every child






A purple speech bubble with a white outline and a soft glow effect.

Practical assessment to reveal misconceptions and inform speedy interventions

A light blue speech bubble with a white outline and a soft glow effect.

Nurturing a growth mindset and building children's confidence in maths

In a nutshell ...

-  An exciting **whole-class mastery approach** for Reception to Year 6
-  Written by **mastery experts** and inspired by best practice from around the world
-  Fully **recommended by the Department for Education**
-  Created specifically for **UK classrooms**
-  Makes maths an adventure and helps build a culture of **excitement and confidence!**

What is mastery?

“Mastering maths means acquiring a deep, long-term, secure and adaptable understanding of the subject” – NCETM

We achieve this by ...

Developing
mathematical
thinking

Carefully
sequenced,
small step
learning

Building
fluency

Representation
that expose
mathematical
structures

Growth mindset

Fixed mindset

"I'm not good at maths – I've never been good at maths"

"I give up – I can't make this any better"

"If I fail I am a failure"

"I can't do this – I keep making mistakes"

Growth mindset

"I'm finding maths hard now, but I can improve with time and effort"

"I can improve if I keep trying"

"Most successful people fail along the way"

"Mistakes help me learn"

Meet the growth-mindset characters!

Flo

Flo is flexible and creative. She often with new methods to solve problems.

Can we do it differently?



Dexter

Dexter is determined. When he makes a mistake he learns from it and tries again.

Let's try again!

Meet the growth-mindset characters!



Astrid

Astrid is brave and confident. She is not afraid to make mistakes.

I will share my ideas!

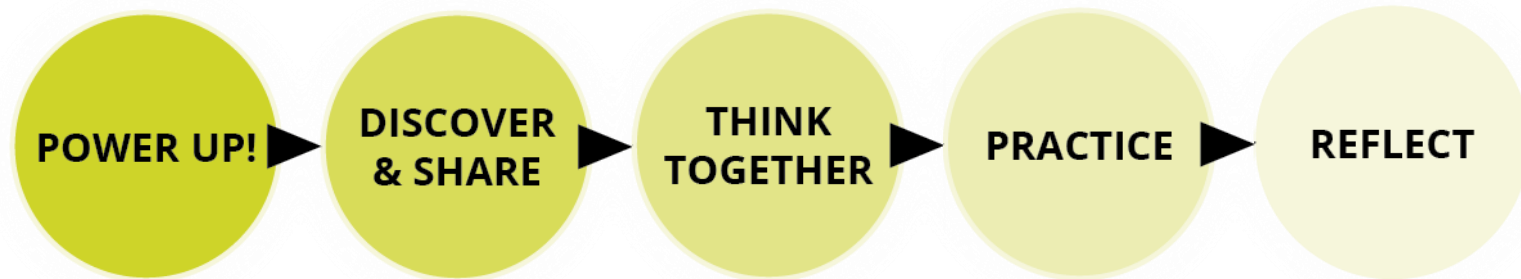


Is there a pattern?

Ash

Ash is curious and inquisitive. He loves to explore new concepts

See the lesson structure



Same Day Intervention



Discover and Share

Unit 7: Multiplication and division (2), Lesson 8

Dividing up to a 4-digit number by a 1-digit number 2

Discover



- How many pieces of litter has each child picked up?
- Mr Jones has picked up 351 pieces of litter. He shares them equally between 3 bags.
How many pieces of litter are in each bag?

36

Engaging scenarios

Concrete-Pictorial-Abstract approach

Share

- 4 children picked up 92 pieces of litter.

They each picked up the same number of pieces.

To work this out, I need to divide 92 by 4. I will use the method of short division that we learnt in the last lesson.

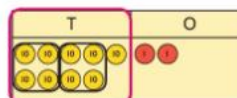
$$4 \overline{) 92}$$



First, lay out the problem.



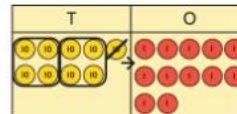
$$4 \overline{) 92}$$



How many groups of 4 go into 9 tens?

2 groups of 4 tens with 1 ten left over.

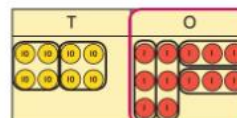
$$4 \overline{) 92}$$



Exchange the 1 ten left over for 10 ones.

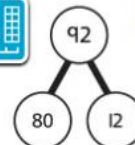
We now have 12 ones.

$$4 \overline{) 92}$$



How many groups of 4 go into 12 ones?

3 groups of 4 ones.



$$80 \div 4 = 20 \quad 12 \div 4 = 3$$

$$20 + 3 = 23$$

92 ÷ 4 = 23, so each child picked up 23 pieces of litter.

I used a part-whole model to partition the number into two numbers that divide by 4.



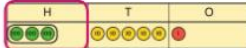
Think together

Unit 7: Multiplication and division (2), Lesson 8

Unit 7: Multiplication and division (2), Lesson 8

- b) Mr Jones shares 351 pieces of litter equally between 3 bags.

$$\begin{array}{r} 1 \\ 3 \overline{) 351} \end{array}$$



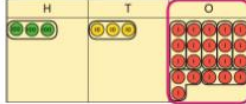
There is 1 group of 3 hundreds.

$$\begin{array}{r} 1 \quad 1 \\ 3 \overline{) 352} \end{array}$$



There is 1 group of 3 tens and 2 tens left over.

$$\begin{array}{r} 1 \quad 1 \quad 7 \\ 3 \overline{) 3521} \end{array}$$



Exchange the 2 tens for 20 ones. You now have 21 ones

There are 7 groups of 3 ones in 21.

$$351 \div 3 = 117$$

There are 117 pieces of litter in each bag.

Think together

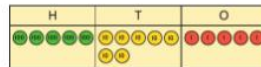
- 1 The children have a flask containing 575 ml of juice.

They share the juice equally among themselves and Mr Jones.

How much juice does each person get?

$$575 \div 5 = \square$$

Each person gets \square ml of juice.

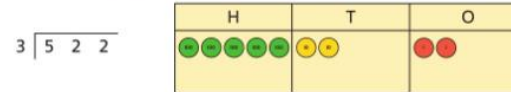


- 2 Complete these short divisions.

a) $726 \div 6 = \square$



b) $522 \div 3 = \square$



- 3 a) Look at these division problems.

There are 312 eggs.
How many boxes of 6 eggs can be made?

Divide 1,980 by 2

$485 \div 5$

What is different about these divisions compared with the ones you have been doing so far?

I think there is something different in the first step of each division.

- b) Max tries to work out the third division problem. What mistake has Max made?

$$\begin{array}{r} 0 \quad 3 \quad 5 \\ 5 \overline{) 4 \quad 17 \quad 25} \end{array}$$



Friendly, supportive characters help children develop a growth mindset.

Practice

Questions are presented
in a logical sequence.

→ Textbook 5B p36

Unit 7: Multiplication and division (2), Lesson 8

Unit 7: Multiplication and division (2), Lesson 8

Dividing up to a 4-digit number by a 1-digit number ②

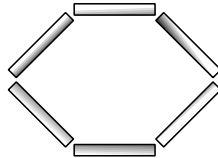
- 1 Mo is dividing 78 by 3. Complete his working.

$$3 \overline{) 78}$$

T	O
<div> <div>10</div> <div>10</div> <div>10</div> <div>10</div> </div>	<div> <div>10</div> <div>10</div> <div>10</div> <div>10</div> </div>

$$78 \div 3 = \square$$

- 2 Olivia is making hexagons with straws, like this:



Olivia has 96 straws. How many hexagons
can she make?

$$6 \overline{) 96}$$

T	O
<div> <div>10</div> <div>10</div> <div>10</div> <div>10</div> </div>	<div> <div>10</div> <div>10</div> <div>10</div> <div>10</div> </div>

Olivia can make hexagons.

- 3 Work out these divisions.

a) $642 \div 6 = \square$

b) $725 \div 5 = \square$

c) $5,016 \div 3 = \square$

$$6 \overline{) 642}$$

$$5 \overline{) 725}$$

$$3 \overline{) 5016}$$

- 4 Calculate the answers to these divisions.

a) $7,924 \div 7 = \square$

b) $711 \div 3 = \square$

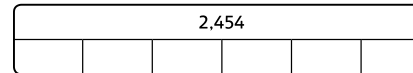
c) $916 \div 4 = \square$

$$7 \overline{) 7924}$$



- 5 What division does this bar model model represent?

Write the calculation and then solve it.



- 6 Isla has made a number and then divided her number by 4 using short division.

What mistake has Isla made?

$$4 \overline{) 0879}$$

Th	H	T	O
<div> <div>1000</div> </div>	<div> <div>100</div> <div>100</div> <div>100</div> <div>100</div> </div>	<div> <div>10</div> </div>	<div> <div>10</div> <div>10</div> <div>10</div> <div>10</div> </div>

- 7 Fill in the missing numbers in these short divisions.

a) $\begin{array}{r} 2 \\ 4 \overline{) 72} \end{array}$

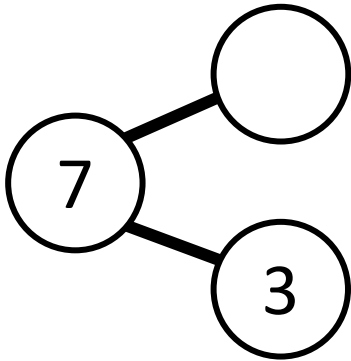
b) $\begin{array}{r} 22 \\ 3 \overline{) 873} \end{array}$

c) $\begin{array}{r} 6 \\ 5 \overline{) 30} \end{array}$

Calculations are connected so that children
think about the underlying concepts.

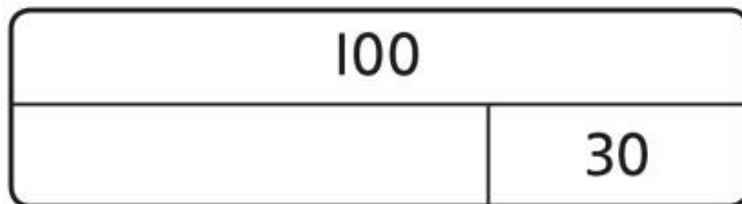
Models and representations

Part-whole models



Shows how numbers can be split into parts. Helps show the connection between addition and subtraction.

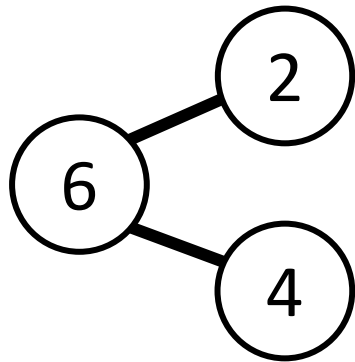
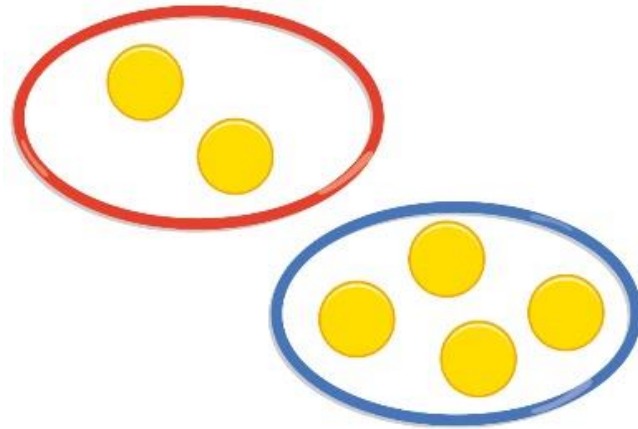
Bar models



Helps show the maths problem as a picture.



Models and representations



$$2 + 4 = 6$$

The part-whole model 1

Discover

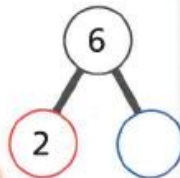


- 1** a) How many children are there?
How many children are there in each **group**?

- b) Complete the **part-whole model**.



This is a part-whole diagram. It shows that 6 is the **whole**. 2 is a **part**. The other part is missing.



Share

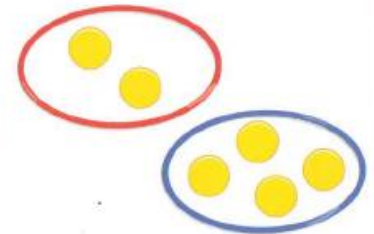
a)



I drew the children.

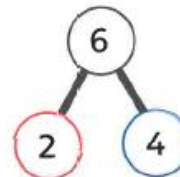


I used counters.



There are 6 children.
There are 2 children in the red hoop.
There are 4 children in the blue hoop.

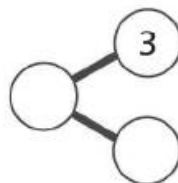
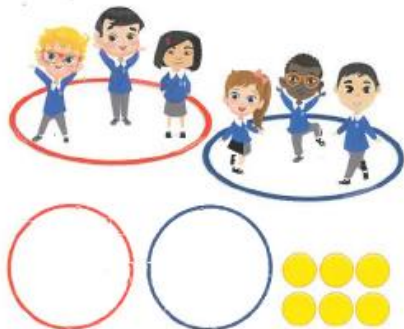
b)




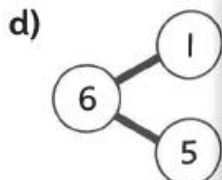
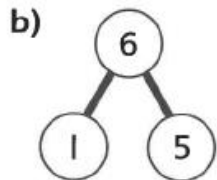
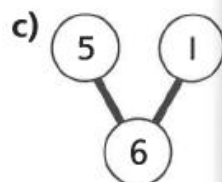
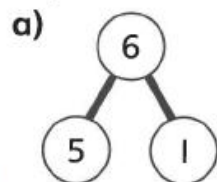
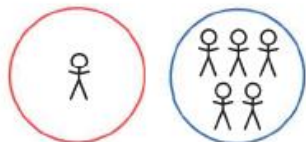
Think together

1 Now the children are in these 2 groups.

Show the groups and complete the part-whole diagram.



2 Is each  correct?



3 How could the children be put into two groups?



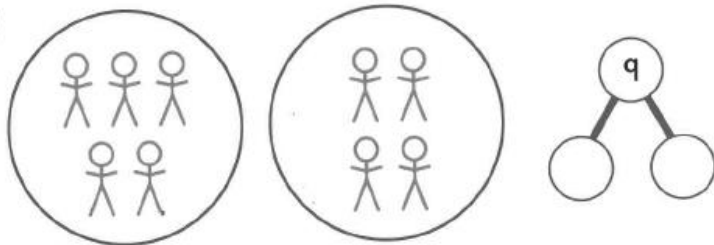
Is there just one way? Can you find a different way?



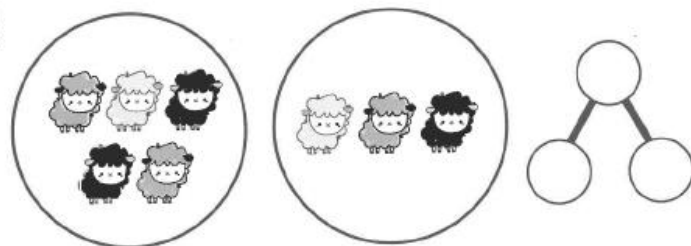
The part-whole model 1


1 Complete the .

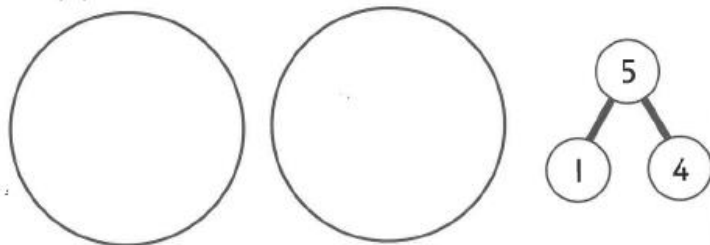
a)




b)



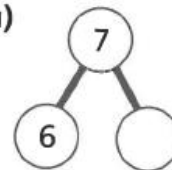
2 Draw  to show the two parts.



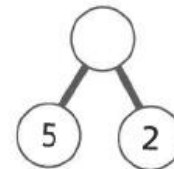
3 Complete each . Use 7 counters to help you.



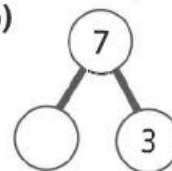
a)



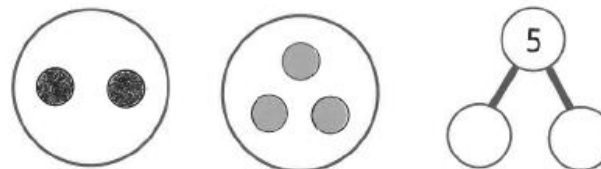
c)



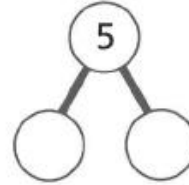
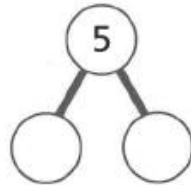
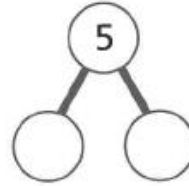
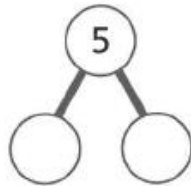
b)



4 Complete the .



5 Complete each  in a different way.



Reflect

In a part-whole model, the whole is always the largest number.

True or false?



Adding money

Discover

Can I have a cup of tea and slice of cake, please?



Sofia

Lee

- i**
- How much do the tea and cake cost Sofia in total?
 - Lee wants juice and a toastie.
How much does this cost him in total?

Key 1p 2p 5p 10p 20p 50p £1 £2

Share

I made each amount with coins and added them together.



- A cup of tea costs £1 and 20p.
A slice of cake costs £2 and 32p.



£1 and 20p + £2 and 32p = £3 and 52p



Add the pounds first: £1 + £2 = £3

Then add the pence: 20p + 32p = 52p

The tea and cake cost Sophia £3 and 52p in total.

- £1 and 45p = 145p

£2 and 80p = 280p

H	T	O
1	4	5
+	2	8
4	2	5

I changed each amount to pence and then did a column addition.



425p is the same as £4 and 25p.

The juice and toastie cost Lee £4 and 25p in total.

£5 £10 £20 £50

Think together

1 What is the total cost?



Add the pounds. $£2 + £3 = £$

Add the pence. $20p + 58p =$ p

The total cost is £ and p.

2 What is the total cost?



£1 and 80p = p

£1 and 45p = p

p = £ and p

H	T	O
1	8	0
+	1	4
		5

78 **Key** 1p 2p 5p 10p 20p 50p £1 £2

CHALLENGE

3 The tills show the cost of some items from the café.



Work out what each person bought.

I used the end numbers to help me.

I wonder if anyone bought more than two items.

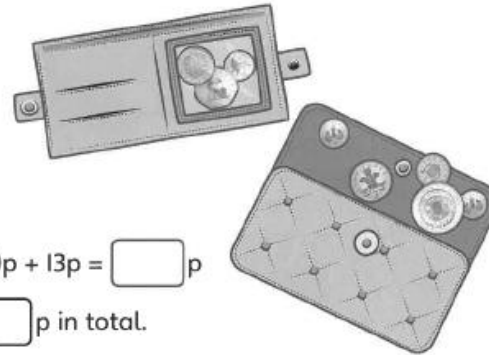
£5 £10 £20 £50

→ Practice book 3B p57

Adding money

1 How much money in total?

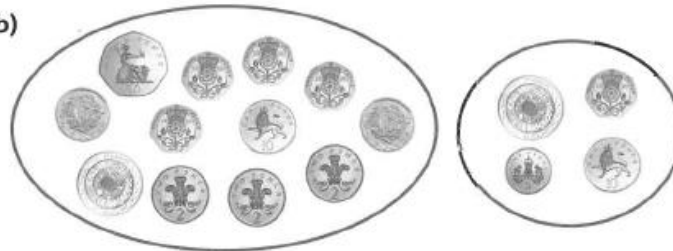
a)



$$£1 + £2 = £ \boxed{} \text{ and } 60\text{p} + 13\text{p} = \boxed{} \text{p}$$

There is £ and p in total.

b)



$$£ \boxed{} + £ \boxed{} = £ \boxed{}$$

$$\boxed{} \text{p} + \boxed{} \text{p} = \boxed{} \text{p}$$

There is £ and p in total.

2 What is the total cost?

$$£1 + £2 = £ \boxed{}$$

$$35\text{p} + 42\text{p} = \boxed{} \text{p}$$

The total cost is £ and p.



- 3 Work out how much each person pays.

a)

Please can I have a sandwich and a cup of tea?



Tea	£1 and 40p
Coffee	£1 and 60p
Sandwich	£2 and 55p
Cheese on Toast	£1 and 78p



The total cost is £ and p.



The total cost is £ and p.

b)

May I have a cup of coffee and a sandwich, please?



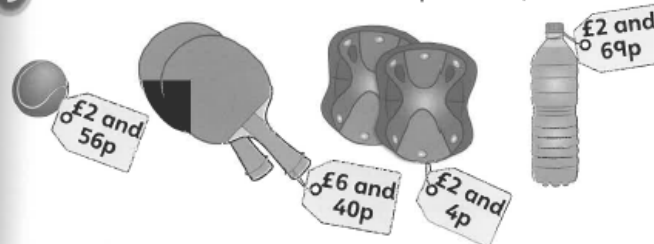
- 4 Work out these additions.

- a) £2 and 10p + £3 and 45p = £ and p
 b) £1 and 42p + £5 and 39p = £ and p
 c) £4 and 45p + £2 and 70p = £ and p
 d) £6 and 47p + 75p = £ and p
 e) £14 + 286p = £ and p



Try to work some of these out in your head. Check your answers using a written method.

- 5 Here are some items for sale in a sports shop.



CHALLENGE

- a) Which two items add together to make the greatest cost?

 b) What is this cost?

 c) Which two items add to make £4 and 60p?

 d) Which two items add to 525p?

Reflect

Add together £2 and 36p and £2 and 87p. Explain your method.



Deepen Activities

- 1 I have six different coins in my purse. How much money could I have?

Write down all the different amounts.



I will work systematically to find all the solutions.

- 2 Using only 5p and 2p coins, which amounts, up to 20p, can you make?

For example, $4p = 2p + 2p$.



I'm sure there is more than one way to make some of these amounts.



- 3 I buy a book that costs between £8 and £10. I hand over a whole number of pounds. The change I get is three different silver coins.

What could the price of the book be?
Explain your working out.



I wonder how many different prices the book could have.



MATHS

IS AN ADVENTURE

