

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.

Power Maths is an interactive, whole-class teaching model.

It encourages precise mathematical language and allows children to deepen their understanding as far as they can.

Key aims of *Power Maths*

Keeping the whole class progressing together

Providing rich problem solving to challenge and engage every child

Practical assessment to reveal misconceptions and inform speedy interventions

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

The growth mindset approach encourages children to see mistakes as learning opportunities. It promotes hard work and practice, and discourages the idea that some people 'can't do maths'.

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 comes up 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!



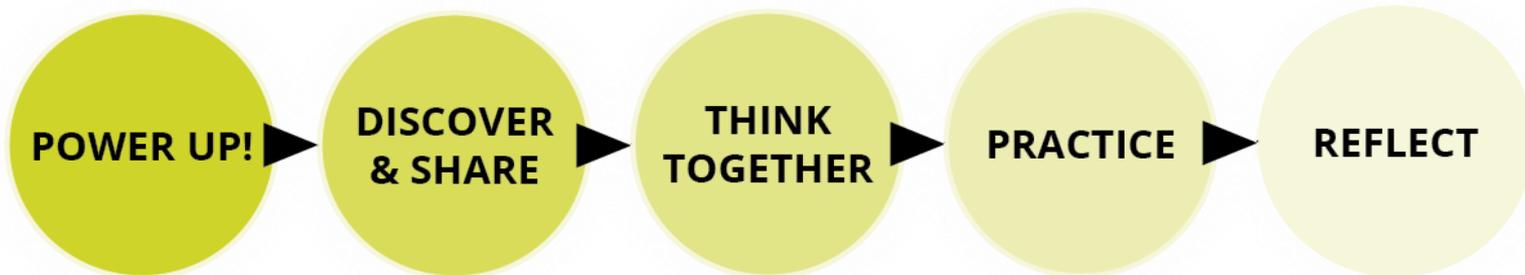
Is there a pattern?

Ash

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

See the lesson structure

A consistent structure for delivering a whole-class mastery approach in which no child is left behind. Each lesson follows the same format. Same-day interventions help us keep the class progressing together, so Power Maths provides plenty of support throughout the journey.



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



- 1 a) How many pieces of litter has each child picked up?
- b) 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?

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Engaging scenarios

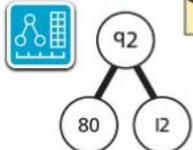
Concrete-Pictorial-Abstract approach

Share

a) 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.

$4 \overline{) 92}$	<table border="1" style="width: 100px; height: 100px; text-align: center;"> <tr><th>T</th><th>O</th></tr> <tr><td>10 10 10 10</td><td>2 1</td></tr> </table>	T	O	10 10 10 10	2 1	<p>First, lay out the problem.</p>
T	O					
10 10 10 10	2 1					
$4 \overline{) \overset{2}{9}2}$	<table border="1" style="width: 100px; height: 100px; text-align: center;"> <tr><th>T</th><th>O</th></tr> <tr><td>20 20 10</td><td>2 1</td></tr> </table>	T	O	20 20 10	2 1	<p>How many groups of 4 go into 9 tens? 2 groups of 4 tens with 1 ten left over.</p>
T	O					
20 20 10	2 1					
$4 \overline{) 212}$	<table border="1" style="width: 100px; height: 100px; text-align: center;"> <tr><th>T</th><th>O</th></tr> <tr><td>20 20 10 10</td><td>3 1 1 1 1</td></tr> </table>	T	O	20 20 10 10	3 1 1 1 1	<p>Exchange the 1 ten left over for 10 ones. We now have 12 ones.</p>
T	O					
20 20 10 10	3 1 1 1 1					
$4 \overline{) 2312}$	<table border="1" style="width: 100px; height: 100px; text-align: center;"> <tr><th>T</th><th>O</th></tr> <tr><td>20 20 10 10</td><td>3 1 1 1 1 1 1</td></tr> </table>	T	O	20 20 10 10	3 1 1 1 1 1 1	<p>How many groups of 4 go into 12 ones? 3 groups of 4 ones.</p>
T	O					
20 20 10 10	3 1 1 1 1 1 1					



$80 \div 4 = 20$ $12 \div 4 = 3$
 $20 + 3 = 23$
 $92 \div 4 = 23$, 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.

Discover and Share

In Discover, appealing real-life scenarios stimulate curiosity, helping children to identify the maths problem and discover patterns and relationships for themselves.

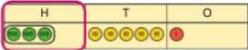
The concept is introduced logically using a Concrete-Pictorial-Abstract approach to help children to make connections and grasp concepts. Here in Share part a), children are shown the pictorial representation of place value counters alongside the more abstract method of short division. The *Power Maths* characters provide support and help children to develop a growth mindset by encouraging them to think, reason and reflect.

Think together

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

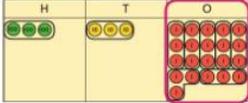
Unit 7: Multiplication and division (2), Lesson 8

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

$$\begin{array}{r} 1 \\ 3 \overline{) 351} \\ \underline{3} \\ 0 \end{array}$$

 There is 1 group of 3 hundreds.

$$\begin{array}{r} 1 \\ 3 \overline{) 3521} \\ \underline{3} \\ 0 \end{array}$$

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

$$\begin{array}{r} 1 \\ 3 \overline{) 3521} \\ \underline{3} \\ 0 \end{array}$$

 Exchange the 2 tens for 20 ones. You now have 21 ones
 There are 7 groups of 3 ones in 21.

$351 \div 3 = 117$

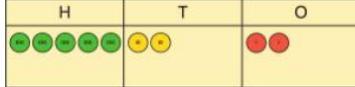
There are 117 pieces of litter in each bag.

2 Complete these short divisions.

a) $726 \div 6 = \square$

$$\begin{array}{r} 6 \overline{) 726} \\ \underline{6} \\ 12 \\ \underline{12} \\ 0 \end{array}$$


b) $522 \div 3 = \square$

$$\begin{array}{r} 3 \overline{) 522} \\ \underline{3} \\ 22 \\ \underline{21} \\ 12 \\ \underline{12} \\ 0 \end{array}$$


Think together

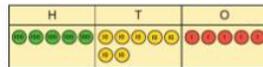
1 The children have a flask containing 575 ml of juice.

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.



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?

$$\begin{array}{r} 0 \\ 5 \overline{) 41725} \\ \underline{4} \\ 17 \\ \underline{15} \\ 25 \\ \underline{25} \\ 0 \end{array}$$



Friendly, supportive characters help children develop a growth mindset.

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Think together

In Think together, the scaffolding is gradually reduced as children become more familiar with the mathematical concept. We encourage children to talk together to explain how they solve the problems.

Throughout, maths language is used consistently to encourage all children to use the correct terms and feel comfortable with them.

Practice

Questions are presented in a logical sequence.

→ Textbook 5B p36

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

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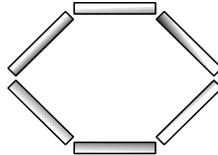
Dividing up to a 4-digit number by a 1-digit number ②

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

	T	O
3 7 8		

$78 \div 3 = \square$

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



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

	T	O
6 9 6		

Olivia can make hexagons.

- 3 Work out these divisions.

a) $642 \div 6 = \square$

b) $725 \div 5 = \square$

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

$6 \overline{) 642}$

$5 \overline{) 725}$

$3 \overline{) 5016}$

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- 4 Calculate the answers to these divisions.

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

b) $711 \div 3 = \square$

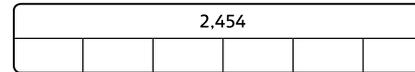
c) $916 \div 4 = \square$

$7 \overline{) 7924}$



- 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

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

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

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

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

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

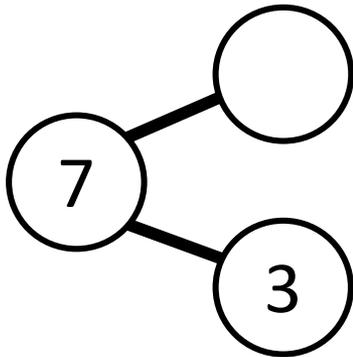
Practice

This is continued in the Practice Books, where each question varies one small element to move children on in their thinking.

Children complete intelligent practice independently, ending in a Reflect section where children reveal the depth of their understanding before moving on.

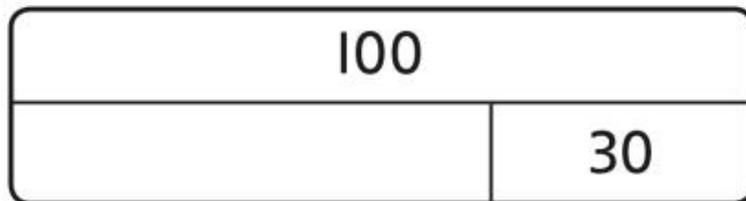
Models and representations

Part-whole models



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

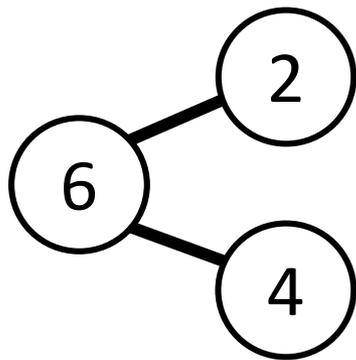
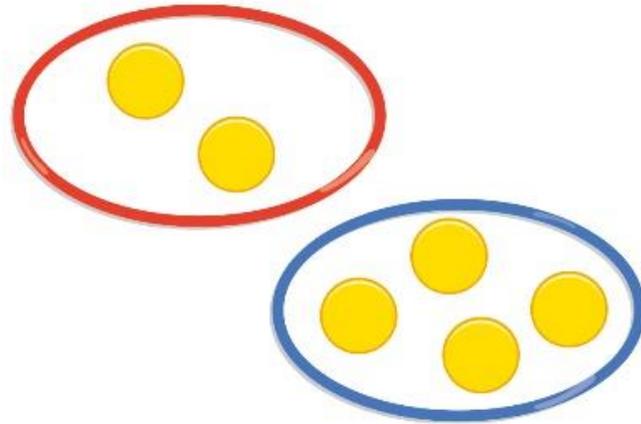
Bar models



Helps show the maths problem as a picture.



Models and representations



$$2 + 4 = 6$$

Models and representations

Children are encouraged to solve problems each day through the use of concrete resources, pictorial representations and abstract thinking (the C-P-A approach). This helps children tackle concepts in a tangible and more comfortable way.

C = Concrete. A familiar object that a child can manipulate to help bring the maths to life. Children make the connection between the number and the object. It could be cakes, cars or children!

P = Pictorial. This uses pictorial representations and diagrams of objects to 'see' what maths problems look like. This might be drawn counters which represent each child in the maths problem.

A = Abstract. The ultimate goal is for children to understand abstract mathematical concepts and symbols.