



At Beech Hill Primary School





What is Power Maths?

- *Power Maths* is a resource that has been designed for UK schools based on research and extensive experience of teaching and learning around the world and here in the UK.
- It has been designed to support and challenge all pupils, and is built on the belief that EVERYONE can learn maths successfully.





- Everyone can!
- Founded on the conviction that every child can achieve, Power Maths enables children to build number fluency, confidence and understanding, step by step.





How does this support our approach to teaching?

- Being successful in maths is not just about rote-learning procedures and methods
- It is instead about problem solving, thinking and discussing.

Many people feel they were taught maths in a way that was about memorising formulas and calculation methods, then having to apply them without any real understanding of what or how these methods actually work

Power Maths includes practice questions to help children develop fluent recall and develop their conceptual understanding.





- *Power Maths* uses growth mindset characters to prompt, encourage and question children.
- They spark curiosity, engage reasoning, secure understanding and deepen learning for all.



POWER MATHS



Dexter

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



Flo

Flo is flexible and creative. She often comes up with new methods.



Ash

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



Astrid

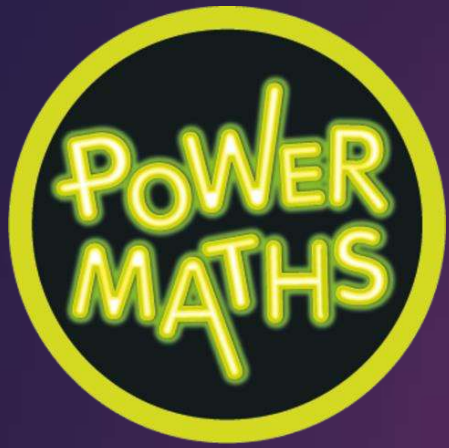
Astrid is brave and confident. She is not afraid to make mistakes.



Sparks

Sparks is helpful and supportive. He will remind you of things that may help you.

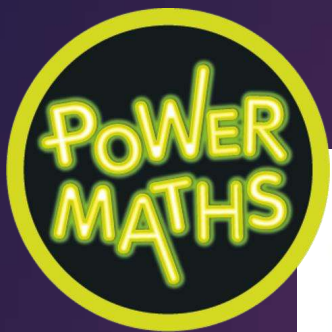




How will the lessons work?

- Each lesson has a progression, with a central flow that draws the main learning into focus.
- There are different elements, informed by research into best practice in maths teaching, that bring the lessons to life:





POWER UP

Power Up ⌚ 5 minutes

Each lesson begins with a Power Up activity (available via the online subscription) which supports fluency in key number facts.

The whole-class approach depends on fluency, so the Power Up is a powerful and essential activity.

TOP TIP


If the class is struggling with the task, revisit it later and check understanding.

Power Ups reinforce key skills such as times-tables, number bonds and working with place value.

Unit 2: Lesson 2

Power Up


Use number bonds to 10 to help with number bonds to 100.

$●●● + \square = 10$	So I know ...	 + $\square = \square$
$10 - 4 = \square$	So I know ...	$100 - \square = \square$

Explain to your partner how you can use this ten frame to find a number bond to 100.

●	●	●	●	●
●	●	●		

I wonder if I can turn the ten frame into an addition or subtraction number sentence.





- **Discover** – each lesson begins with a problem to solve, often a real-life example, sometimes a puzzle or a game. These are engaging and fun, and designed to get all children thinking.

Discover ⌚ 10 minutes

A practical, real-life problem arouses curiosity. Children find the maths through story-telling.


A real-life scenario is provided for the Discover section but feel free to build upon these with your own examples that are more relevant to your class.

TOP TIP
Discover works best when run at tables, in pairs with concrete objects.

Question 1 a) tackles the key concept and question 1 b) digs a little deeper. Children have time to explore, play and discuss possible strategies.

Understanding divisibility 1

Discover



1 a) Lexi and Zac are using lollipop sticks to make squares.
How many squares can they make?
How many lollipop sticks are left over?

b) How would the answer change if they had 14 lollipop sticks?
What about 15, 16 or 17 lollipop sticks?

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- **Journals:**
 - Children will work through a “Discover” problem with a partner and record their thinking in this book.
 - Develop reasoning skills
 - These will be marked by an adult in school .



Share ⌚ 10 minutes

Teacher-led, this interactive section follows the Discover activity and highlights the variety of methods that can be used to solve a single problem.

TOP TIP
Bring children to the front (or onto the carpet if you have this area) to discuss their methods. Pairs sharing a textbook is a great format for this!

Unit 4: Multiplication and division (1), Lesson 12

Share

a) Four lollipop sticks make one square.

They can make 3 squares with 1 lollipop stick left over.

We call the amount left over the **remainder**.

I will try organising my work in a table.

b)

Number of sticks	Working	Number of squares	Number of sticks left over
14		3	2
15		3	3
16		4	0
17		4	1

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Share

- The class shares their ideas
- Compares different ways to solve the problem, explaining their reasoning with hands-on resources and drawings to make their ideas clear.
- Children are able to develop their understanding of the concept with input from the teacher.





- **Think together** – the next part of the lesson is a journey through the concept, digging deeper and deeper so that each child builds on secure foundations while being challenged to apply their understanding in different ways and with increasing independence.

Think together

10 minutes

Children work in groups on the carpet or at tables, using their textbooks or eBooks.

TOP TIP
Make sure children have mini whiteboards or pads to write on if they are not at their tables.

Think together

1 Lexi and Zac use more lollipop sticks. How would you complete the table?

Number of sticks	Working	Number of squares	Number of sticks left over
18		4	
18			
20			

2 a) Describe the pattern that Lexi can see.

Lexi: I can see a pattern in the number of lollipop sticks left over.

b) Is Zac correct?

Zac: I don't think you can have more than 3 lollipop sticks left over.

Using the Teacher Guide, model question 1 for your class.

Question 2 is less structured. Children will need to think together in their groups, then discuss their methods and solutions as a class.

In questions 3 and 4 children try working out the answer independently. The openness of the challenge question helps to check depth of understanding.

- **Maths Journal**

- These replace the white boards they previously used
- Works as a permanent record of their learning
- Marked by an adult: may be self or peer marked






- **Practice** – now children practice individually or in small groups, rehearsing and developing their skills to build fluency, understanding of the concept and confidence.
- May be self, peer or adult marked


→ Textbook 3A p188 Unit 4: Multiplication and division (1), Lesson 13

Understanding divisibility 1


1 Lexi has 11 lollipop sticks.



She makes squares, like this.



a) Draw the squares that Lexi makes.



b) How many complete squares can Lexi make?
Lexi can make complete squares.

c) What is the remainder?
The remainder is lollipop sticks.

d) What if Lexi makes triangles with the sticks?
How many complete triangles can she make?
What is the remainder?
There are complete triangles and the remainder is .

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- **Reflect** – finally, children are prompted to reflect on and record their learning from each session and show how they have grasped the concept explored in the lesson.

Reflect ⌚ 5 minutes

'Spot the mistake' questions are great for checking misconceptions.

Reflect

Explain why Aki is correct.



When you divide by 5, the greatest remainder is 4.

Aki

• _____

• _____

• _____

• _____

Reflect

How do you multiply a number by 4?

• _____

• _____

• _____

• _____

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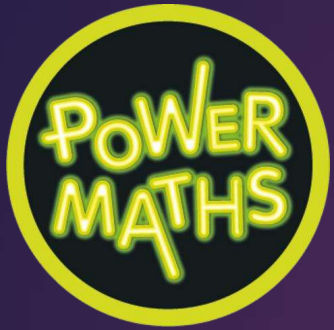


What if my child needs a confidence boost, or wants to be challenged further?

Power Maths is based on a 'small-steps' approach, sometimes called a mastery approach.

- This means that the concepts are broken down so that your child can master one idea without feeling over-whelmed.
- There are a range of fluency, reasoning and problem solving questions in each lesson that are designed to support the different needs and confidence levels within a class, while at the same time fostering a spirit of working and learning together





Each lesson includes a challenge question for those children who can delve deeper into a concept.

CHALLENGE

Challenge questions allow children to delve deeper into a concept.

Think differently questions encourage children to use reasoning as well as their mathematical knowledge to reach a solution.

Ref the chi bef

A small icon of a lit lightbulb with a lightning bolt inside, symbolizing an idea or challenge.

Unit 4: Multiplication and division (1), Lesson 13

3 Max makes square blocks from cubes, like this.

He makes 5 square blocks and has a remainder of 3 cubes.

How many cubes did Max start with?

Max started with cubes.

The diagram shows two arrangements of grey LEGO blocks. The top arrangement consists of five square blocks, each made of four smaller cubes. The bottom arrangement consists of three individual cubes. A 'CHALLENGE' icon is visible on the right side of the card.



Our Vision for Maths at Beech Hill Primary School

We would like our children to:

Maths is a vital part of everyday life: it teaches children how to make sense of the world around them. It develops their ability to calculate but more importantly, to solve problems. Numbers are one way that we communicate between ourselves about our world; therefore, we need to understand what numbers represent, how numbers are used and how to describe the world mathematically.

We provide a maths curriculum to encourage children to enjoy maths, to help them to feel secure to have a go at problem solving and, most importantly, help them to see how this learning is applied to real life situations so they will be able to use the skills they've learned when they grow up.





How can you help?

- PLEASE PLEASE support us with the mindset that EVERYONE CAN achieve in Maths.
- Even if your own experiences of maths were negative and you struggled with the subject, please try and talk positively about it
- Encourage your child to be like the characters they come across in class.....

What would Dexter do ?..... Be determined and not give up
What would Astrid do?.....She would be brave and unafraid of making mistakes.

How can we be more like Flo?.... Try and be flexible and try and come up with more methods/solutions etc.

