

# Brereton CE Primary School



## Maths in Year 1

# Maths at Brereton

## How do we teach Maths at Brereton?

At Brereton, we use Power Maths as a basis of our maths lesson. This is an exciting class mastery approach, which has been recommended by the DfE, that works for every child. It is based upon the concrete, pictorial and abstract approach.

Every lesson is divided into sections that involve plenty of discovery, sharing, collaboration, practice and reflection. Children are encouraged to solve problems each day through the use of concrete resources, pictorial representations and abstract thinking.

At the heart of this programme is the idea that all children can achieve and be successful mathematicians with the right growth mindset.



## What does a Power Maths

**Power Up**

Place digit cards in a 4 x 4 grid to make different 4-digit numbers.

Tell your partner all of the 4-digit numbers that you have made. Read out all the rows, the columns and the diagonals.

Use the numbers you have made to answer these questions:

- Which number is closest to 1,000?
- Which number is larger than 5,000?
- Which number is the smallest odd number?
- Which number is closest to 2,500?
- Which number is closest to 10,000?

I have more than one number that is larger than 5,000.

**Power Up:** Each lesson begins with a Power Up task. This is often something the children have been previously taught and encourages group or partner work. This involves lots of discussion to get children thinking mathematically.

**Discover:** This part of the lesson introduces the learning objective to the class. The children are presented with a problem they must try to solve using problem solving and reasoning.

**Adding two 4-digit numbers 3**

**Discover**

Sports car £4,799  
Motorbike £1,095  
Van £1,905  
Vintage car £775

**Share:** This is an opportunity to look at how the class have decided to tackle the Discover problem. As a class, we will look at different methods that have been used before looking at the most efficient method. At this point, it is encouraged to have learning aids out. This might include place value counters or Base 10. This is so that children can understand the concept behind the teaching.

**Share**

a) This addition has more than one exchange.

Th	H	T	O
4	7	9	9
+	1	0	9
5			
4	8	9	8

4,799 + 1,095 = 5,894  
The total value of the sports car and the motorbike is £5,894.

**Think together:** This part of the lesson allows children to practice the methods they have been shown during the Share part of the lesson. It follows a structure of I do, We do, You do. The teacher models the method before the children try the method with a partner and on their own.

**Think together**

1 How much do the van and the vintage car cost in total?

Th	H	T	O
1	9	0	5
+	1	7	7
5			
1	1	7	2

1,905 +  =   
The van and the vintage car cost £  in total.

I need to think carefully about how to write the addition in columns.

2 The caravan costs £1,775 more than the motorbike. How much does the caravan cost?

Th	H	T	O
1	7	7	5
+	1	7	7
5			
1	1	7	2

The caravan costs £ .

### Adding two 4-digit numbers 3

1 Complete these additions.

Th	H	T	O
1	6	3	5
+	2	1	8
6			
1	8	4	3

Th	H	T	O
2	4	6	5
+	1	6	6
2			
3	1	2	1

2 a) Choose pairs of numbers so that each addition has two exchanges. Then solve each of your calculations.

Th	H	T	O
3	4	0	5
+	1	7	2
7			
4	1	7	7

Th	H	T	O
1	2	8	3
+	1	9	4
4			
2	3	2	7

b) Now think of your own numbers to make up two more additions, each with two exchanges.

Th	H	T	O
+			

**Independent work:** The main part of the lesson consists of independent practice. The questions in the Power Maths workbook allow children the opportunity to work through problems related to the learning objective that become progressively harder.

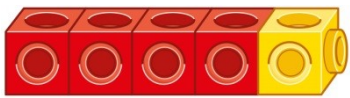
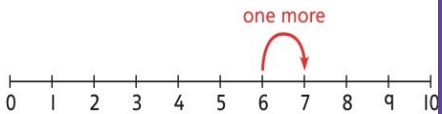
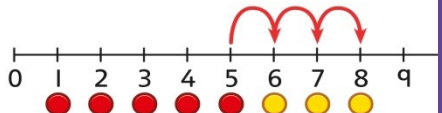

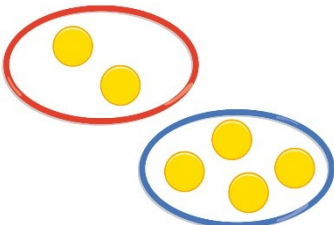
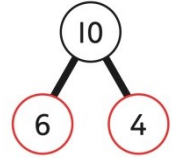


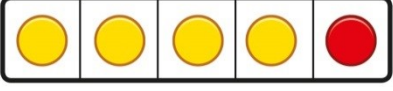
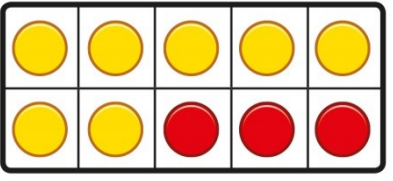
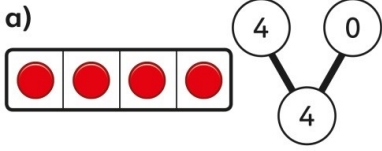
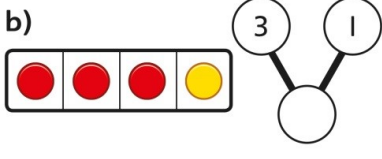
**Reflect:** Each lesson ends with a reflection. This is an opportunity for children to explain what they have learnt during the lesson.


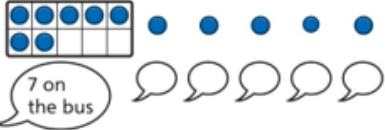


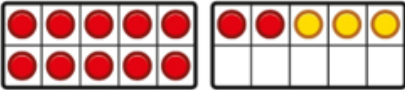

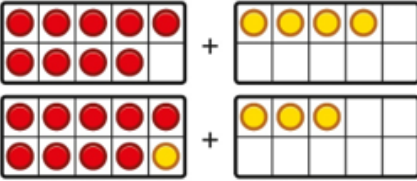
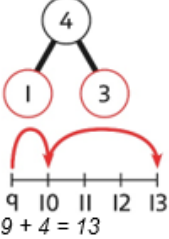
### Reflect

When I add 4-digit numbers, I need to remember to:


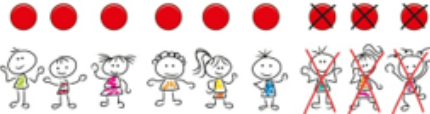

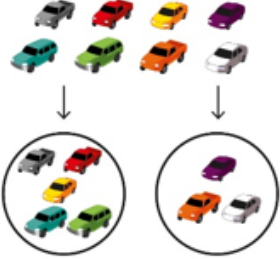
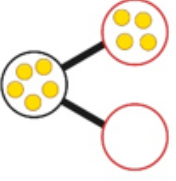
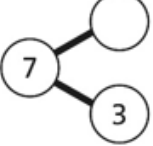

- 1.
- 2.
- 3.


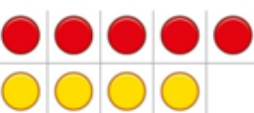



# Addition


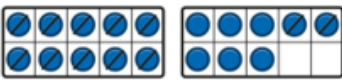
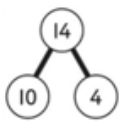

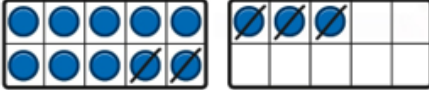
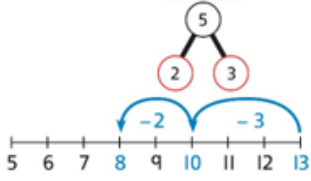
Concrete	Pictorial	Abstract
<p><b>Counting and adding more</b> Children add one more person or object to a group to find one more.</p>	<p><b>Counting and adding more</b> Children add one more cube or counter to a group to represent one more.</p>  <p><i>One more than 4 is 5.</i></p>	<p><b>Counting and adding more</b> Use a number line to understand how to link counting on with finding one more.</p>  <p><i>One more than 6 is 7. 7 is one more than 6.</i></p> <p>Learn to link counting on with adding more than one.</p>  <p><math>5 + 3 = 8</math></p>
<p><b>Understanding part-part-whole relationship</b> Sort people and objects into parts and understand the relationship with the whole.</p>  <p><i>The parts are 2 and 4. The whole is 6.</i></p>	<p><b>Understanding part-part-whole relationship</b> Children draw to represent the parts and understand the relationship with the whole.</p>  <p><i>The parts are 1 and 5. The whole is 6.</i></p>	<p><b>Understanding part-part-whole relationship</b> Use a part-whole model to represent the numbers.</p>  <p><math>6 + 4 = 10</math></p> <p><math>6 + 4 = 10</math></p>
<p><b>Knowing and finding number bonds within 10</b> Break apart a group and put back together to find and form number bonds.</p>  <p><math>3 + 4 = 7</math></p>  <p><math>6 = 2 + 4</math></p>	<p><b>Knowing and finding number bonds within 10</b> Use five and ten frames to represent key number bonds.</p>  <p><math>5 = 4 + 1</math></p>  <p><math>10 = 7 + 3</math></p>	<p><b>Knowing and finding number bonds within 10</b> Use a part-whole model alongside other representations to find number bonds. Make sure to include examples where one of the parts is zero.</p> <p>a)</p>  <p>b)</p>  <p><math>4 + 0 = 4</math> <math>3 + 1 = 4</math></p>

<p><b>Adding by counting on</b> Children use knowledge of counting to 20 to find a total by counting on using people or objects.</p> 	<p><b>Adding by counting on</b> Children use counters to support and represent their counting on strategy.</p> 	<p><b>Adding by counting on</b> Children use number lines or number tracks to support their counting on strategy.</p>  <p><math>7 + 5 = \square</math></p>
<p><b>Adding the 1s</b> Children use bead strings to recognise how to add the 1s to find the total efficiently.</p>  <p><math>2 + 3 = 5</math> <math>12 + 3 = 15</math></p>	<p><b>Adding the 1s</b> Children represent calculations using ten frames to add a teen and 1s.</p>  <p><math>2 + 3 = 5</math> <math>12 + 3 = 15</math></p>	<p><b>Adding the 1s</b> Children recognise that a teen is made from a 10 and some 1s and use their knowledge of addition within 10 to work efficiently.</p> <p><math>3 + 5 = 8</math> So, <math>13 + 5 = 18</math></p>
<p><b>Bridging the 10 using number bonds</b> Children use a bead string to complete a 10 and understand how this relates to the addition.</p>  <p><i>7 add 3 makes 10.</i> <i>So, 7 add 5 is 10 and 2 more.</i></p>	<p><b>Bridging the 10 using number bonds</b> Children use counters to complete a ten frame and understand how they can add using knowledge of number bonds to 10.</p> 	<p><b>Bridging the 10 using number bonds</b> Use a part-whole model and a number line to support the calculation.</p>  <p><math>9 + 4 = 13</math></p>

# Subtraction

<p><b>Counting back and taking away</b> Children arrange objects and remove to find how many are left.</p>  <p>1 less than 6 is 5. 6 subtract 1 is 5.</p>	<p><b>Counting back and taking away</b> Children draw and cross out or use counters to represent objects from a problem.</p>  <p><math>9 - \square = \square</math> There are <input type="text"/> children left.</p>	<p><b>Counting back and taking away</b> Children count back to take away and use a number line or number track to support the method.</p>  <p><math>9 - 3 = 6</math></p>
<p><b>Finding a missing part, given a whole and a part</b> Children separate a whole into parts and understand how one part can be found by subtraction.</p>  <p><math>8 - 5 = ?</math></p>	<p><b>Finding a missing part, given a whole and a part</b> Children represent a whole and a part and understand how to find the missing part by subtraction.</p>  <p><math>5 - 4 = \square</math></p>	<p><b>Finding a missing part, given a whole and a part</b> Children use a part-whole model to support the subtraction to find a missing part.</p>  <p><math>7 - 3 = ?</math></p> <p>Children develop an understanding of the relationship between addition and subtraction facts in a part-whole model.</p>  <p> <math>\square - \square = \square</math>  <math>\square - \square = \square</math>  <math>\square + \square = \square</math>  <math>\square + \square = \square</math> </p>

<p><b>Finding the difference</b> Arrange two groups so that the difference between the groups can be worked out.</p>  <p>8 is 2 more than 6. 6 is 2 less than 8. The difference between 8 and 6 is 2.</p>	<p><b>Finding the difference</b> Represent objects using sketches or counters to support finding the difference.</p>  <p><math>5 - 4 = 1</math> The difference between 5 and 4 is 1.</p>	<p><b>Finding the difference</b> Children understand 'find the difference' as subtraction.</p>  <p><math>10 - 4 = 6</math> The difference between 10 and 6 is 4.</p>
<p><b>Subtraction within 20</b> Understand when and how to subtract 1s efficiently.</p> <p>Use a bead string to subtract 1s efficiently.</p>  <p><math>5 - 3 = 2</math> <math>15 - 3 = 12</math></p>	<p><b>Subtraction within 20</b> Understand when and how to subtract 1s efficiently.</p>  <p><math>5 - 3 = 2</math> <math>15 - 3 = 12</math></p>	<p><b>Subtraction within 20</b> Understand how to use knowledge of bonds within 10 to subtract efficiently.</p> <p><math>5 - 3 = 2</math> <math>15 - 3 = 12</math></p>


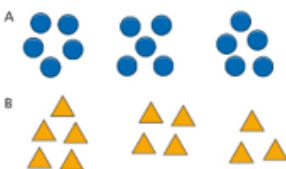

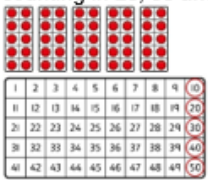
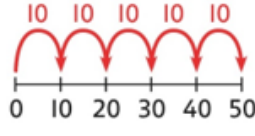
<p><b>Subtracting 10s and 1s</b> For example: <math>18 - 12</math></p> <p>Subtract 12 by first subtracting the 10, then the remaining 2.</p>  <p><i>First subtract the 10, then take away 2.</i></p>	<p><b>Subtracting 10s and 1s</b> For example: <math>18 - 12</math></p> <p>Use ten frames to represent the efficient method of subtracting 12.</p>  <p><i>First subtract the 10, then subtract 2.</i></p>	<p><b>Subtracting 10s and 1s</b> Use a part-whole model to support the calculation.</p>  <p><math>19 - 14</math> <math>19 - 10 = 9</math> <math>9 - 4 = 5</math> So, <math>19 - 14 = 5</math></p>
<p><b>Subtraction bridging 10 using number bonds</b> For example: <math>12 - 7</math></p> <p>Arrange objects into a 10 and some 1s, then decide on how to split the 7 into parts.</p>  <p><i>7 is 2 and 5, so I take away the 2 and then the 5.</i></p>	<p><b>Subtraction bridging 10 using number bonds</b> Represent the use of bonds using ten frames.</p>  <p><i>For <math>13 - 5</math>, I take away 3 to make 10, then take away 2 to make 8.</i></p>	<p><b>Subtraction bridging 10 using number bonds</b> Use a number line and a part-whole model to support the method.</p> <p><math>13 - 5</math></p> 

## Tips for helping at home



- Find time to show an interest in what your child is learning at school
- Encourage your child to work hard and praise when they've made an effort
- Encourage reading for pleasure by reading to your children at night. This will help with all subjects including maths.
- Create a time for learning at home that fits into the daily routine.
- Find a place for your children to learn where there are no distractions.

# Multiplication

<p><b>Recognising and making equal groups</b> Children arrange objects in equal and unequal groups and understand how to recognise whether they are equal.</p> 	<p><b>Recognising and making equal groups</b> Children draw and represent equal and unequal groups.</p> 	<p><b>Describe equal groups using words</b></p> <p>Three equal groups of 4. Four equal groups of 3.</p>
<p><b>Finding the total of equal groups by counting in 2s, 5s and 10s</b></p>  <p>There are 5 pens in each pack ... 5... 10... 15... 20... 25... 30... 35... 40...</p>	<p><b>Finding the total of equal groups by counting in 2s, 5s and 10s</b> 100 squares and ten frames support counting in 2s, 5s and 10s.</p> 	<p><b>Finding the total of equal groups by counting in 2s, 5s and 10s</b> Use a number line to support repeated addition through counting in 2s, 5s and 10s.</p> 



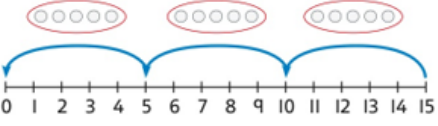
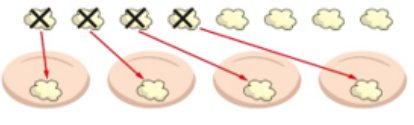

## Helping at Ages 5 & 6

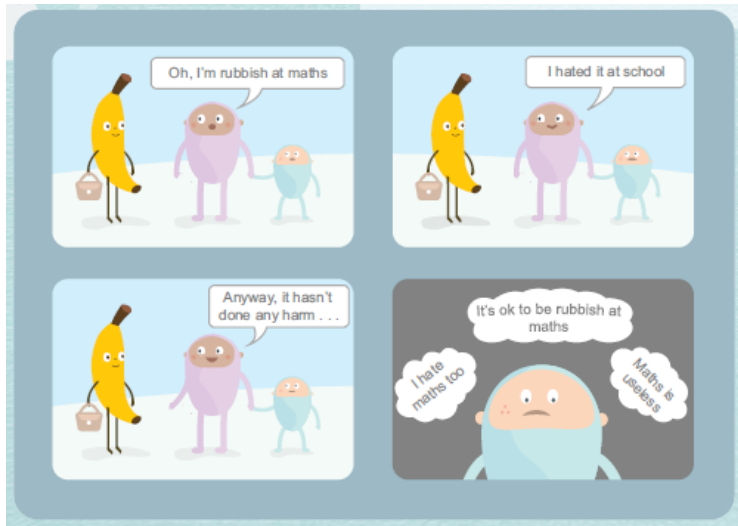
At ages 5 & 6 the focus moves from counting to addition and subtraction.

Things you can do at home:

- Play board games with dice - such as snakes and ladders
- Sort objects (e.g. toy cars, pasta shapes) into equal groups. Ask how many equal groups are there? How many in each group?
- Find opportunities for counting in 2s, 5s and 10s, e.g. counting pairs of socks, sweets in bag, etc.
- Ask children to set the table and let them collect the right number of knives & forks
- Look for opportunities to talk about maths in everyday life, e.g. there are 6 sausages in a pack, how many will we have if I get two packs?
- From a pack of cards (without the tens, Jacks, Queens and Kings) play a game of pairs where you try to turn over two of the same
- As above, but turn over two cards that add up to ten
- Talk about what numbers mean when they appear in everyday situations such as signs, adverts, on a clock face, a flat or a house number. For example, counting out odd and even house numbers
- Talk and ask questions about the common fractions, half, quarter, third whenever you are cutting pizza or sharing objects, e.g. half of 6 strawberries is 3 each.
- Talk about coins and how much they are worth.

# Division

<p><b>Grouping</b> Learn to make equal groups from a whole and find how many equal groups of a certain size can be made.</p> <p>Sort a whole set people and objects into equal groups.</p>  <p><i>There are 10 children altogether. There are 2 in each group. There are 5 groups.</i></p>	<p><b>Grouping</b> Represent a whole and work out how many equal groups.</p>  <p><i>There are 10 in total. There are 5 in each group. There are 2 groups.</i></p>	<p><b>Grouping</b> Children may relate this to counting back in steps of 2, 5 or 10.</p> 
<p><b>Sharing</b> Share a set of objects into equal parts and work out how many are in each part.</p> 	<p><b>Sharing</b> Sketch or draw to represent sharing into equal parts. This may be related to fractions.</p> 	<p><b>Sharing</b> <i>10 shared into 2 equal groups gives 5 in each group.</i></p>



## Attitudes to Maths

Let's face it we've all got different memories of maths at school. It's easy to let your perceptions of maths affect your child – and this can set them off to a bad start.

Many parents find the prospect of helping their children with maths quite daunting - even if they are pretty good at maths. With a little confidence and some "have-a-go attitude" parents can make a big difference.



# Year 1 Expectations:

## Place Value and counting

- Count to and across 100, forwards and backwards from any number.
- Read and write numbers to 20 in numerals and words.
- Read and write numbers to 100 in numerals.
- Say 1 more/1 less to 100.
- Count in multiples of 2, 5 and 10.

## Addition and subtraction

- Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals signs (=)
- Use bonds and subtraction facts to 20.
- Add and subtract 1 digit and 2 digit numbers to 20, including zero.
- Solve one step problems that involve addition and subtraction, and missing number problems such as  $7 = ? - 9$

## Multiplication and Division

- Solve one-step multiplication and division using objects, pictorial representation and arrays.

## Fractions

- Recognise half and quarter of object, shape or quantity.

## Measurement

- Compare, describe and solve problems for lengths and heights; mass/weight; capacity and volume; and time.
- Measure and begin to record length and heights; mass/weight; capacity and volume; and time.
- Recognise and know the value of coins and notes.
- Use language of day, week, month and year.
- Tell time to hour and half past.
- Sequence events in chronological order.

## Geometry

- Recognise and name common 2D and 3D shapes
- Describe position, direction and movement.

Maths is a passport to a world of career opportunities and primary maths is the foundation for this. The goal is developing “Number Sense” - a kind of “maths fluency” which involves applying mental arithmetic accurately and quickly - and intuitively knowing if answers feel right or wrong.

Helping your child with maths at home can be daunting, but most parents are a lot better at maths than they think they are. It’s worth putting on a “have a go” attitude because the extra practice and one-to-one attention can have a big impact. Helping can be as easy as playing a board game or discussing maths with your child.

Encouragement Works

Finally, and most importantly, don’t forget to encourage your child. You don’t always need to understand what your child is learning – showing an interest and encouraging always has a positive effect. Praise works best when it’s for effort and not necessarily for being quick or getting top marks. Praising for effort encourages learners to try harder which promotes a good attitude to learning.