Brereton CE Primary School

THIS IS OUR SCHOOL

Maths in Year 2

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: 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.

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.

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.

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.
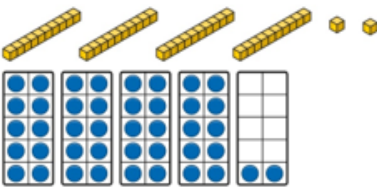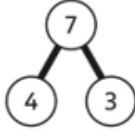
Reflect: Each lesson ends with a reflection. This is an opportunity for children to explain what they have learnt during the lesson.
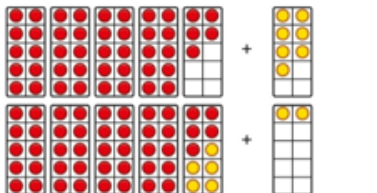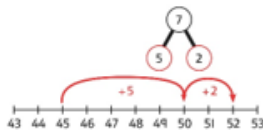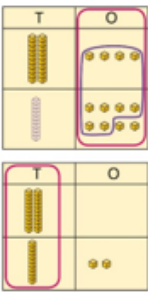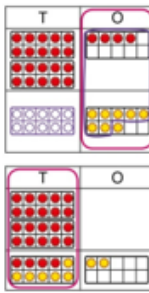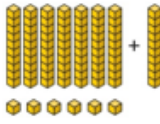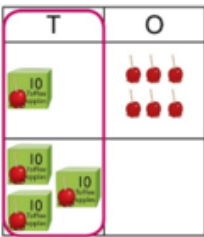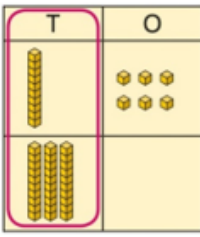
Addition
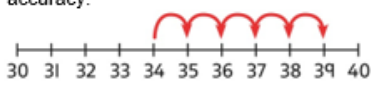
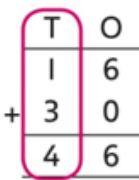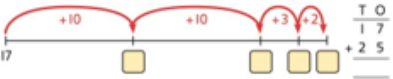| Understanding 10s and 1s	Group objects into 10s and 1s. Bundle straws to understand unitising of 10s.	Understand 10s and 1s equipment, and link with visual representations on ten frames.	Represent numbers on a place value grid, using equipment or numerals. Tens / Ones 3 / 2 Tens / Ones 4 / 3
Adding 10s	Use known bonds and unitising to add 10s. *I know that 4 + 3 = 7.* *So, I know that 4 tens add 3 tens is 7 tens.*	Use known bonds and unitising to add 10s. *I know that 4 + 3 = 7.* *So, I know that 4 tens add 3 tens is 7 tens.*	Use known bonds and unitising to add 10s. 4 + 3 = ☐ 4 + 3 = 7 4 tens + 3 tens = 7 tens 40 + 30 = 70

Adding a 1-digit number to a 2-digit number not bridging a 10	Add the 1s to find the total. Use known bonds within 10. *41 is 4 tens and 1 one.* *41 add 6 ones is 4 tens and 7 ones.* This can also be done in a place value grid. T / O	Add the 1s. *34 is 3 tens and 4 ones.* *4 ones and 5 ones are 9 ones.* *The total is 3 tens and 9 ones.* T / O	Add the 1s. Understand the link between counting on and using known number facts. Children should be encouraged to use known number bonds to improve efficiency and accuracy. 30 31 32 33 34 35 36 37 38 39 40 This can be represented horizontally or vertically. 34 + 5 = 39 or T O 3 4 + 5 9
Adding a 1-digit number to a 2-digit number bridging 10	Complete a 10 using number bonds. *There are 4 tens and 5 ones.* *I need to add 7. I will use 5 to complete a 10, then add 2 more.*	Complete a 10 using number bonds.	Complete a 10 using number bonds. 7 = 5 + 2 5 / 2 +5 +2 43 44 45 46 47 48 49 50 51 52 53 7 = 5 + 2 45 + 5 + 2 = 52

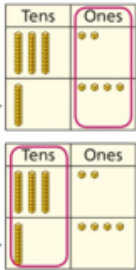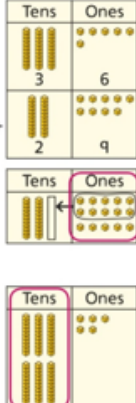|			
Adding a 1-digit number to a 2-digit number using exchange	Exchange 10 ones for 1 ten.	Exchange 10 ones for 1 ten.	Exchange 10 ones for 1 ten.
Adding a multiple of 10 to a 2-digit number	Add the 10s and then recombine. 27 is 2 _tens_ and 7 ones. 50 is 5 tens. There are 7 tens in total and 7 ones. So, 27 + 50 is 7 _tens_ and 7 ones.	Add the 10s and then recombine. 66 is 6 _tens_ and 6 ones. 66 + 10 = 76 A 100 square can support this understanding.	Add the 10s and then recombine. 37 + 20 = _?_ 30 + 20 = 50 50 + 7 = 57 37 + 20 = 57
Adding a multiple of 10 to a 2-digit number using columns	Add the 10s using a place value grid to support. 16 is 1 ten and 6 ones. 30 is 3 tens. There are 4 _tens_ and 6 ones in total.	Add the 10s using a place value grid to support. 16 is 1 ten and 6 ones. 30 is 3 tens. There are 4 _tens_ and 6 ones in total.	Add the 10s represented vertically. Children must understand how the method relates to unitising of 10s and place value. 1 + 3 = 4 1 ten + 3 _tens_ = 4 tens 16 + 30 = 46
Adding two 2-digit numbers	Add the 10s and 1s separately. 5 + 3 = 8 There are 8 ones in total. 3 + 2 = 5 There are 5 tens in total. 35 + 23 = 58	Add the 10s and 1s separately. Use a part-whole model to support. 11 = 10 + 1 32 + 10 = 42 42 + 1 = 43 32 + 11 = 43	Add the 10s and the 1s separately, bridging 10s where required. A number line can support the calculations. 17 + 25

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.

Adding two 2-digit numbers using a place value grid	Add the 1s. Then add the 10s. Tens	Ones (grid diagram) Tens	Ones (grid diagram)		Add the 1s. Then add the 10s. $\begin{array}{r} T\ O \\ 3\ 2 \\ +\ 1\ 4 \\ \hline 6 \end{array}$ $\begin{array}{r} T\ O \\ 3\ 2 \\ +\ 1\ 4 \\ \hline 4\ 6 \end{array}$
Adding two 2-digit numbers with exchange	Add the 1s. Exchange 10 ones for a ten. Then add the 10s. Tens	Ones 3	6 2	9 Tens	Ones (grid diagram) Tens	Ones (grid diagram)		Add the 1s. Exchange 10 ones for a ten. Then add the 10s. $\begin{array}{r} T\ O \\ 3\ 6 \\ +\ 2\ 9 \\ \hline 5 \end{array}$ $\begin{array}{r} T\ O \\ 3\ 6 \\ +\ 2\ 9 \\ \hline 6\ 5 \end{array}$
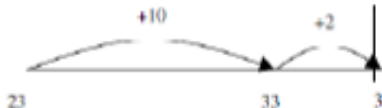
Record mental addition using + and =

Be able to complete number sentences where a missing number is shown by a symbol.

E.g 9 + ___ = 13
     14 + 5 = 10 + ___
     ___ + ___ = 14
     5 + ___ + 4 = 15
     25 = 1 + ___ + 5
     12 + ___ = 14 + 4

Use a hundred square. Start with the larger number in an addition where you must **bridge through the tens barrier** and count on:
e.g. 23 + 12 =

Use a number line/ hundred square to add on multiples of 10. e.g. 23 + 20

Complete addition of two digit numbers:
e.g 43 + 13 by **partitioning** numbers into tens and ones and then recombining:
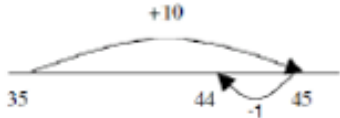
43 + 13 = **T**   40 + 10 = 50
           U   3 + 3 = 6
                   50 + 6
                       = 56

Refine this to partitioning the second number *only to aid mental thinking:*

43 + 13 = 43 + 10 + 3
        = 53 + 3
        = 56

Embed the mental strategy to add 9 or 11 just add 10 and adjust by 1:
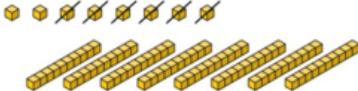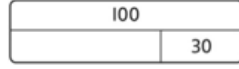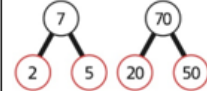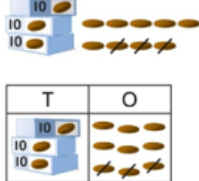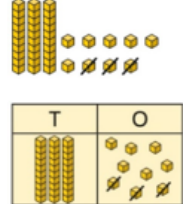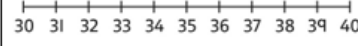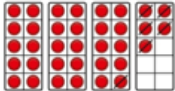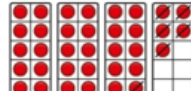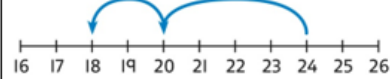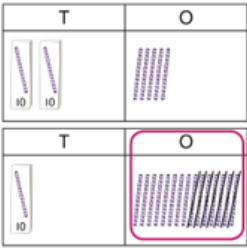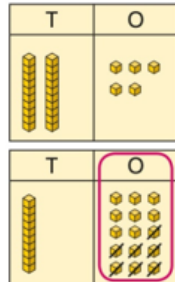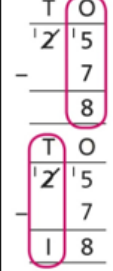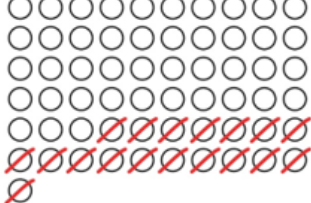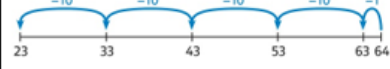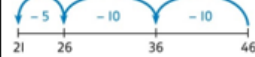
e.g. 35 + 9
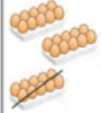
Partition the second number only in addition problems to aid mental thinking:

43 + 13 = 43 + 10 + 3
        = 53 + 3
        = 56

Subtraction

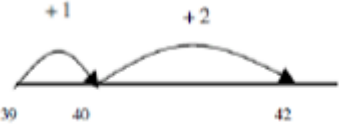| Subtracting multiples of 10 | Use known number bonds and unitising to subtract multiples of 10.

8 subtract 6 is 2.
So, 8 tens subtract 6 tens is 2 tens. | Use known number bonds and unitising to subtract multiples of 10.

| 100 | |
| --- | --- |
| | 30 |

$10 - 3 = 7$
So, 10 tens subtract 3 tens is 7 tens. | Use known number bonds and unitising to subtract multiples of 10.

7 tens subtract 5 tens is 2 tens.
$70 - 50 = 20$ |
| --- | --- | --- | --- |
| Subtracting a single-digit number | Subtract the 1s. This may be done in or out of a place value grid. | Subtract the 1s. This may be done in or out of a place value grid. | Subtract the 1s. Understand the link between counting back and subtracting the 1s using known bonds.

$9 - 3 = 6$
$39 - 3 = 36$ |
| Subtracting a single-digit number bridging 10 | Bridge 10 by using known bonds.

$35 - 6$
I took away 5 counters, then 1 more. | Bridge 10 by using known bonds.

$35 - 6$
First, I will subtract 5, then 1. | Bridge 10 by using known bonds.

$24 - 6 = ?$
$24 - 4 - 2 = ?$ |

Subtracting a single-digit number using exchange	Exchange 1 ten for 10 ones. This may be done in or out of a place value grid.	Exchange 1 ten for 10 ones.	Exchange 1 ten for 10 ones. $25 - 7 = 18$
Subtracting a 2-digit number	Subtract by taking away. $61 - 18$ I took away 1 ten and 8 ones.	Subtract the 10s and the 1s. This can be represented on a 100 square.	Subtract the 10s and the 1s. This can be represented on a number line. $64 - 41 = ?$ $64 - 1 = 63$ $63 - 40 = 23$ $64 - 41 = 23$ $46 - 20 = 26$ $26 - 5 = 21$

Subtracting a 2-digit number using place value and columns	Subtract the 1s. Then subtract the 10s. This may be done in or out of a place value grid.	Subtract the 1s. Then subtract the 10s.	Using column subtraction, subtract the 1s. Then subtract the 10s.
	T O 38 − 16 = 22	Tens Ones	T O 4 5 − 1 2 3 T O 4 5 − 1 2 3 3
Subtracting a 2-digit number with exchange		Exchange 1 ten for 10 ones. Then subtract the 1s. Then subtract the 10s. Tens Ones Tens Ones Tens Ones Tens Ones	Using column subtraction, exchange 1 ten for 10 ones. Then subtract the 1s. Then subtract the 10s. T O 4 5 − 2 7 T O ³4 ¹5 − 2 7 T O ³4 ¹5 − 2 7 8 T O ³4 ¹5 − 2 7 1 8

Record simple mental subtractions using – and =
Be able to complete missing number sentences:
e.g 18 − 4 = 14
   9 + 6 = 20 − __
   14 + 5 = 20 − __
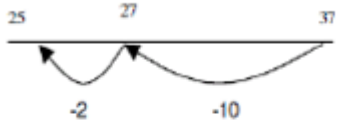
Understand when it is sensible to count back e.g. 18 − 5 and when to count on e.g. 18 − 13.

Use a number line to find a small difference by counting up. E.g. 42 − 39 = 3

+1   +2
39   40   42
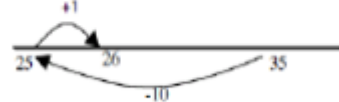
Use a number line or a hundred square to bridge through a multiple of 10
e.g. 22 − 5 = 17

This leads to children partitioning *second number only* to subtract:
E.g. 37 − 12 = 25

   25   27   37

   -2   -10

37 − 12 = **T**   37 − 10 = 27
        U   27 − 2 = 25

Subtract 9 or 11 by taking away 10 and adjusting by 1 (using hundred square
E.g. 35 − 9 = 26

+1
25   26   35
      -10
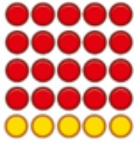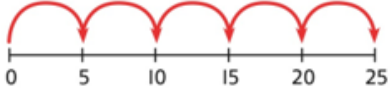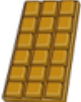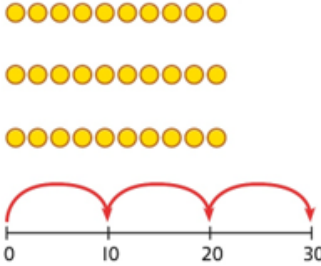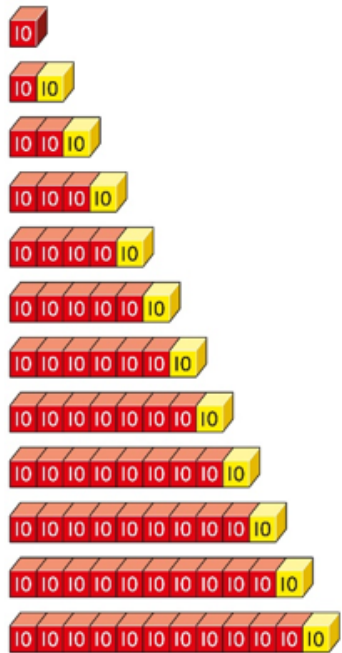
More able
Lead into using standard written method without decomposition.
e.g.   48
      − 16
        32
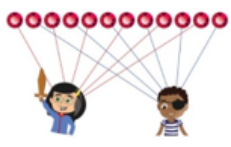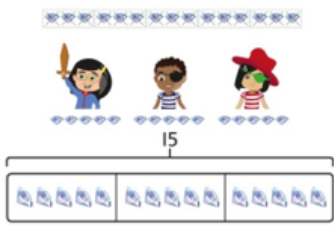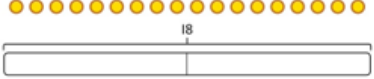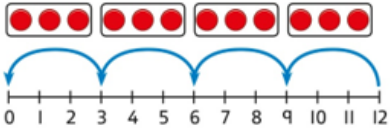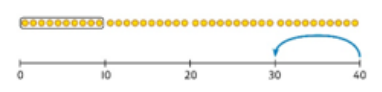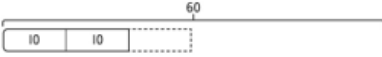
Multiplication

Equal groups and repeated addition	Recognise equal groups and write as repeated addition and as multiplication. *3 groups of 5 chairs* *15 chairs altogether*	Recognise equal groups using standard objects such as counters and write as repeated addition and multiplication. *3 groups of 5* *15 in total*	Use a number line and write as repeated addition and as multiplication. *5 + 5 + 5 = 15* *3 × 5 = 15*
Using arrays to represent multiplication and support understanding	Understand the relationship between arrays, multiplication and repeated addition. *4 groups of 5*	Understand the relationship between arrays, multiplication and repeated addition. *4 groups of 5 … 5 groups of 5*	Understand the relationship between arrays, multiplication and repeated addition. *5 × 5 = 25*
Understanding commutativity	Use arrays to visualise commutativity. *I can see 6 groups of 3.* *I can see 3 groups of 6.*	Form arrays using counters to visualise commutativity. Rotate the array to show that orientation does not change the multiplication. *This is 2 groups of 6 and also 6 groups of 2.*	Use arrays to visualise commutativity. *4 + 4 + 4 + 4 + 4 = 20* *5 + 5 + 5 + 5 = 20* *4 × 5 = 20 and 5 × 4 = 20*

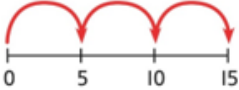|			
Learning ×2, ×5 and ×10 table facts	Develop an understanding of how to unitise groups of 2, 5 and 10 and learn corresponding times-table facts. *3 groups of 10 … 10, 20, 30* *3 × 10 = 30*	Understand how to relate counting in unitised groups and repeated addition with knowing key times-table facts. *10 + 10 + 10 = 30* *3 × 10 = 30*	Understand how the times-tables increase and contain patterns. *5 × 10 = 50* *6 × 10 = 60*

Division

Sharing equally	Start with a whole and share into equal parts, one at a time. 12 shared equally between 2. They get 6 each. Start to understand how this also relates to grouping. To share equally between 3 people, take a group of 3 and give 1 to each person. Keep going until all the objects have been shared They get 5 💎 each. 15 shared equally between 3. They get 5 each.	Represent the objects shared into equal parts using a bar model. 20 shared into 5 equal parts. There are 4 in each part.	Use a bar model to support understanding of the division. 18 $18 \div 2 = 9$

Grouping equally	Understand how to make equal groups from a whole. 8 divided into 4 equal groups. There are 2 in each group.	Understand the relationship between grouping and the division statements. $12 \div 3 = 4$ $12 \div 4 = 3$ $12 \div 6 = 2$ $12 \div 2 = 6$	Understand how to relate division by grouping to repeated subtraction. There are 4 groups now. 12 divided into groups of 3. $12 \div 3 = 4$ There are 4 groups.
Using known times-tables to solve divisions	Understand the relationship between multiplication facts and division. 4 groups of 5 cars is 20 cars in total. 20 divided by 4 is 5.	Link equal grouping with repeated subtraction and known times-table facts to support division. 40 divided by 4 is 10. Use a bar model to support understanding of the link between times-table knowledge and division. 60	Relate times-table knowledge directly to division. $1 \times 10 = 10$ $2 \times 10 = 20$ $3 \times 10 = 30$ $4 \times 10 = 40$ $5 \times 10 = 50$ $6 \times 10 = 60$ $7 \times 10 = 70$ $8 \times 10 = 80$ I used the 10 times-table to help me. $3 \times 10 = 30$. I know that 3 groups of 10 makes 30, so I know that 30 divided by 10 is 3. $3 \times 10 = 30$ so $30 \div 10 = 3$

Year 2 Expectations:

- Compare and order numbers up to 100 and use < > =.
- Read and write all numbers to 100 in digits and words.
- Say 10 more/less than any number to 100.
- Count in steps of 2, 3 and 5 from zero and in 10s from any number (forwards and backwards).
- Recall and use multiplication & division facts for 2, 5 and 10 tables.
- Recall and use +/- facts to 20.
- Derive and use related facts to 100.
- Recognise place value of any 2-digit number.
- Add & subtract:
- 2-digit nos & ones
- 2-digit nos & tens
- Two 2-digit nos
- Three 1-digit nos
- Recognise and use inverse (+/-).
- Calculate and write multiplication and division calculations using multiplication tables.
- Recognise, find, name and write 1/3; 1/4; 2/4; 3/4.
- Write and recognise equivalence of simple fractions.
- Tell time to five minutes, including quarter past/to.

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.