

Calculation Policy

Wombwell Park Street Primary School



Every Child Matters Academy Trust
Children at the heart

June 2021

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Calculation Policy



Wombwell Park Street Primary School – Whole School Calculation Policy

Background to the policy

This policy outlines the key pencil and paper procedures that will be taught within our school. It is written to ensure there is a consistent approach to teaching and learning and that the progression of our children is achieved by developing small steps in understanding calculation skills.

This policy reflects our whole school agreement. At Wombwell Park Street Primary School, we believe that it is essential to link skills and tasks, ensuring they are contextual and part of real life situations, resulting in learning being engaging, interesting and meaningful. The use of a mastery approach to teaching is vital in ensuring that basic key skills are embedded within learning and are used in reasoning and problem solving, further extending the knowledge of our children and helping to raise progress and attainment. We believe that children should have the opportunity to reason and ‘see the learning’, whilst also having the key skills outlined in this policy to support their ability to do this.

To support with the CPA approach, the school has bought a subscription for ‘Braining Camp’. In addition to this, each classroom has a set of mastery boxes to enable pupils to mirror the teaching input.

What is Calculation?

Calculation can be defined as the process of using information you already have and adding, subtracting, multiplying or dividing numbers to find or estimate the number or amount of something.

This policy will highlight the key method that will be used, in each year group, throughout school.

Developing fluency

To embed rapid recall of number facts, all children will be given access to ‘Numbots’ and/or ‘Times Tables Rockstars’ depending on what is appropriate to their level of need.



EYFS - ADDITION	EYFS - SUBTRACTION
<p>Explanation Throughout the year, children in EYFS will learn the following for addition:</p> <ul style="list-style-type: none">• Find one more using resources• Say one more than a given number• Split objects in different ways knowing that the total is the same.• Count on to find the total	<p>Explanation Throughout the year, children in EYFS will learn the following for addition:</p> <ul style="list-style-type: none">• Find one less using resources.• Say one less than a given number.• Take away and find out how many are left by counting.• Count back to find out how many are left.
Key Vocab Add, more, greater, altogether, plus	Key Vocab Less, take, smaller, the same as
EYFS - MULTIPLICATION	EYFS - DIVISION



Explanation

Throughout the year, children in EYFS will learn the following for addition:

- Double amounts to 5.
- Solve one step multiplications (such as 3 children have 2 sweets each, how many sweets altogether) using objects

Explanation

Throughout the year, children in EYFS will learn the following for addition:

- Halving (relate to doubles)
- Share objects between children to find out if they have equal amounts.
- Solve problems with links to sharing objects.

Key Vocab

group

Key Vocab

share

YEAR 1 - ADDITION

Explanation

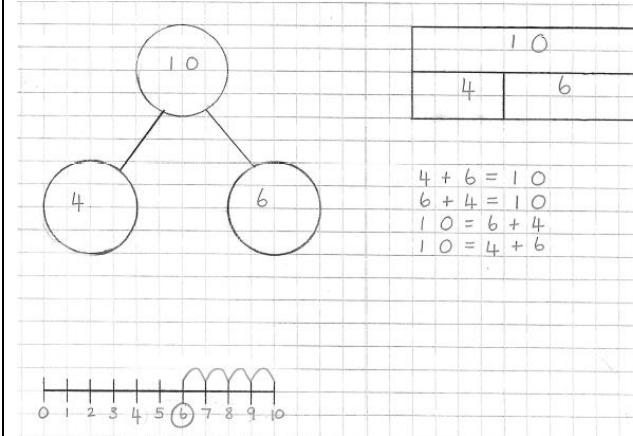
Combining two parts to make a whole number. This will be done through the process of using a part whole model. The part whole model will be represented in a variety of ways, including bar models.

Children will be taught to start from the bigger number and move on.

Children should be taught number bonds to enable them to see bonds to complete addition calculations quicker.

Calculations should be set out in a horizontal line and children should understand that the two parts could be written in different orders. Some children should begin to understand that the whole number (answer) can start an addition calculation.

Presentation in a book

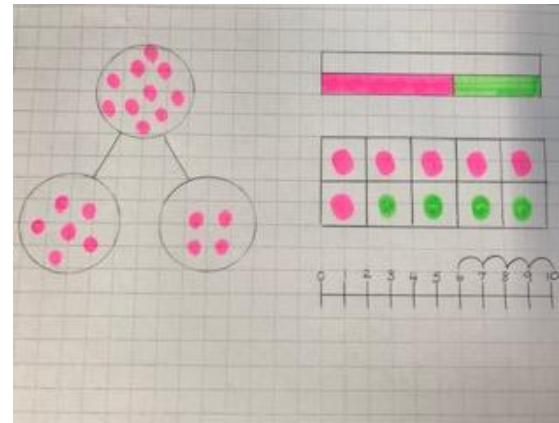




Concrete



Pictorial



Abstract

$$\begin{array}{r} 4 + 6 = 10 \\ 6 + 4 = 10 \\ 10 = 6 + 4 \\ 10 = 4 + 6 \end{array}$$

4 is a part.
6 is a part.
10 is the whole.

Key Vocab

Add, addition, plus, more, greater, sum, equals, altogether, is the same as, part, whole, total



YEAR 2 – ADDITION

Explanation

Children will be able to effectively use different forms of part whole models and use different representations, including bar models. Children will be able to further partition the one of the two parts.

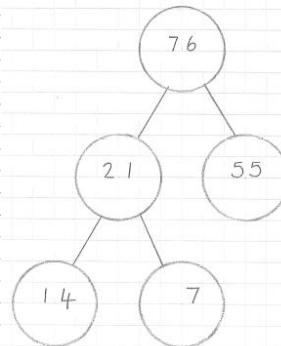
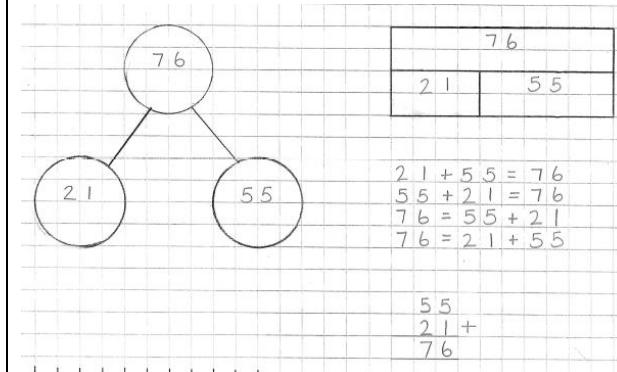
Children will be taught how to add three 1 digit numbers together.

Children will be able to effectively use the methods taught throughout Year 1 but with expectations that are more complex and the use of 2 digit numbers to create a whole that is up to and including 100.

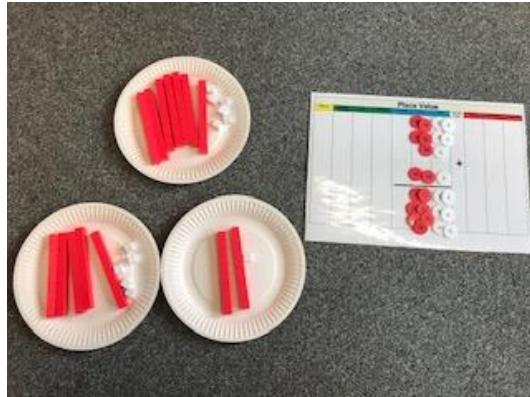
Calculations should initially be set out in a horizontal format. The calculation should be understood in a way where the two parts can change positions and also where the whole number can begin the calculation.

By the end of Year 2, children will be introduced to column addition with numbers that DO NOT bridge ten. The largest number must be the number in the top position and the addition symbol must be placed to the right hand side.

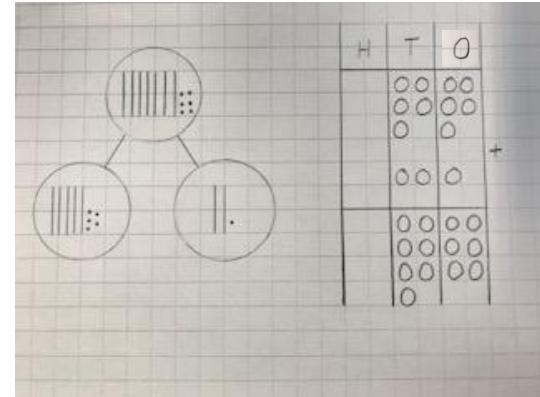
Presentation in a book



Concrete



Pictorial



Abstract

$$21 + 55 = 76$$

$$55 + 21 = 76$$

$$76 = 55 + 21$$

$$76 = 21 + 55$$

$$55$$

$$21 +$$

$$76$$

Key Vocab

Add, addition, plus, more, greater, sum, equals, altogether, is the same as, part, whole, total



YEAR 3 – ADDITION

Explanation

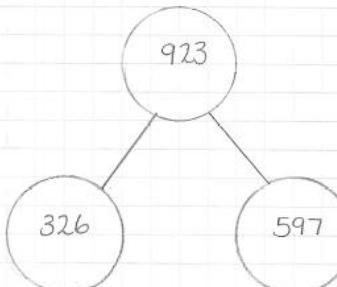
Children will be able to effectively use different forms of part whole models and use different representations, including bar models.

Children will be taught how to effectively use column addition and bridge ten by initially adding a 1 digit number to a 2 digit number. Throughout the year this will be built up so that children can successfully use column addition with two 3 digit numbers that create a whole number up to and including 1000

When using column addition, the largest number must be the number in the top position and the addition symbol must be placed to the right hand side. Any digits, which have been carried, must be placed underneath the answer row.

Calculations should be understood in a way where the two parts can change positions and also where the whole number can begin the calculation.

Presentation in a book

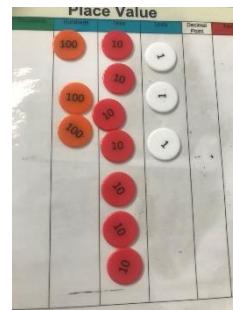
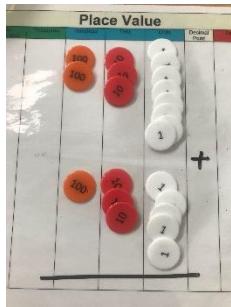


923	
326	597

$$\begin{array}{r} 326 + 597 = 923 \\ 597 + 326 = 923 \\ 923 = 597 + 326 \\ 923 = 326 + 597 \end{array}$$

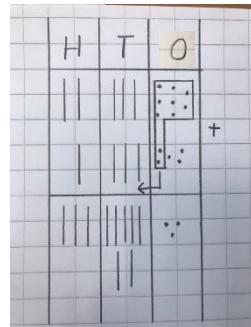
$$\begin{array}{r} 597 \\ 326 \\ \hline 923 \\ \hline 11 \end{array}$$

Concrete



With values up to 1000.

Pictorial



With values up to 1000.

Abstract

$$\begin{array}{r} 326 + 597 = 923 \\ 597 + 326 = 923 \\ 923 = 597 + 326 \\ 923 = 326 + 597 \end{array}$$

$$\begin{array}{r} 597 \\ 326 \\ \hline 923 \\ \hline 11 \end{array}$$

Key Vocab

Add, addition, plus, more, greater, sum, equals, altogether, is the same as, part, whole, total



YEAR 4 – ADDITION

Explanation

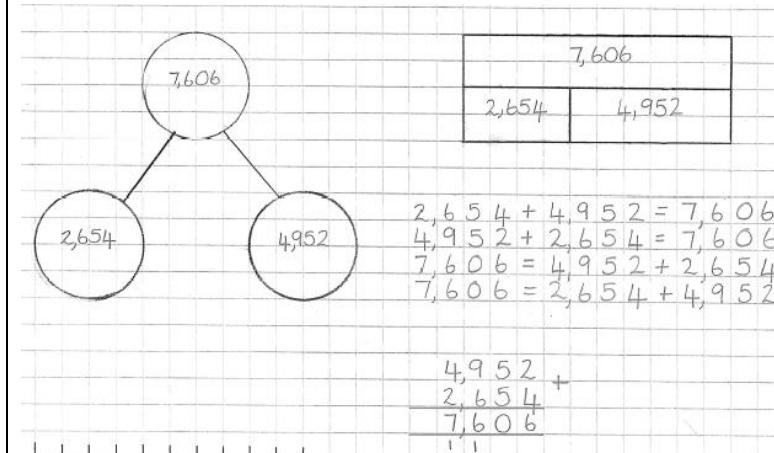
Children will be able to effectively use different forms of part whole models and use different representations, including bar models.

Children will be taught how to effectively use column addition and bridge ten. Throughout the year this will be built up so that children can successfully use column addition with two 4 digit numbers that create a whole number up to and including 10,000. Children will also be taught how to effectively add two numbers that contain a decimals (up to 2 digits)

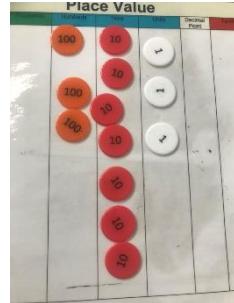
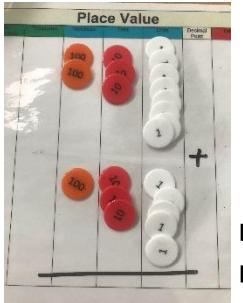
When using column addition, the largest number must be the number in the top position and the addition symbol must be placed to the right hand side. Any digits, which have been carried, must be placed underneath the answer row.

Calculations should be understood in a way where the two parts can change positions and also where the whole number can begin the calculation.

Presentation in a book

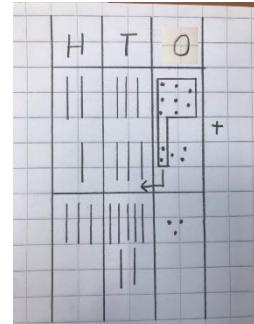


Concrete



With values up to 10,000.

Pictorial



With values up to 10,000.

Abstract

$$\begin{array}{r} 2,654 + 4,952 = 7,606 \\ 4,952 + 2,654 = 7,606 \\ 7,606 = 4,952 + 2,654 \\ 7,606 = 2,654 + 4,952 \end{array}$$

$$\begin{array}{r} 4,952 \\ 2,654 \\ \hline 7,606 \end{array}$$

Key Vocab

Add, addition, plus, more, greater, sum, equals, altogether, is the same as, part, whole, total



YEAR 5 - ADDITION

Explanation

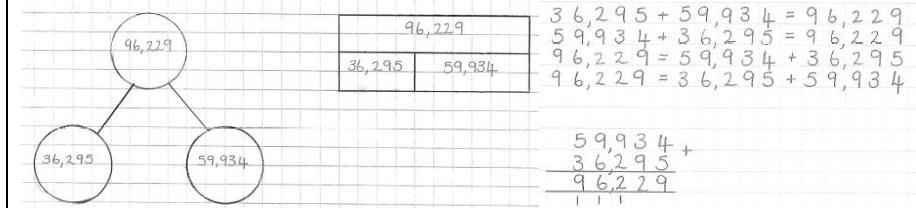
Children will be able to effectively use different forms of part whole models and use different representations, including bar models.

Children will be taught how to effectively use column addition and bridge ten. Throughout the year this will be built up so that children can successfully use column addition with two 5 digit numbers that create a whole number up to and including 100,000. Children will also be taught how to effectively add two numbers that contain a decimals (up to 2 digits)

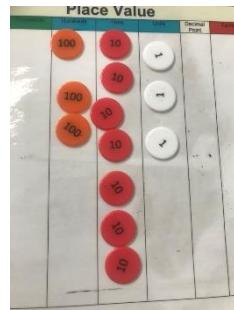
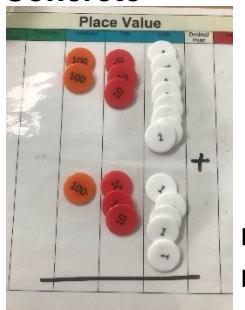
When using column addition, the largest number must be the number in the top position and the addition symbol must be placed to the right hand side. Any digits, which have been carried, must be placed underneath the answer row.

Calculations should be understood in a way where the two parts can change positions and also where the whole number can begin the calculation.

Presentation in a book

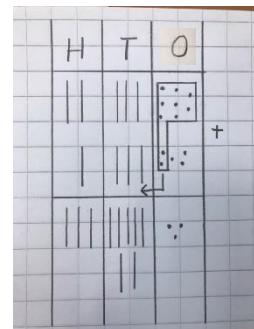


Concrete



With values up to 100,000.

Pictorial



With values up to 100,000.

Abstract

$$\begin{array}{r}
 36,295 + 59,934 = 96,229 \\
 59,934 + 36,295 = 96,229 \\
 96,229 = 59,934 + 36,295 \\
 96,229 = 36,295 + 59,934
 \end{array}$$

$$\begin{array}{r}
 59,934 + \\
 36,295 \\
 \hline
 96,229
 \end{array}$$

Key Vocab

Add, addition, plus, more, greater, sum, equals, altogether, is the same as, part, whole, total



YEAR 6 - ADDITION

Explanation

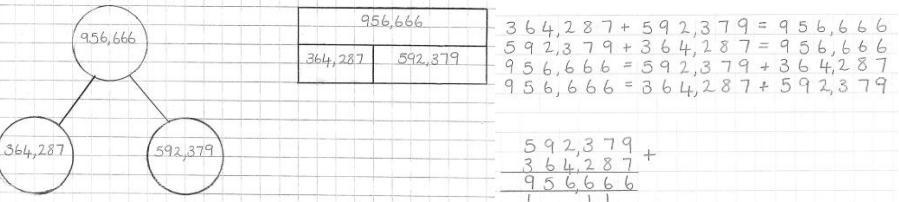
Children will be able to effectively use different forms of part whole models and use different representations, including bar models.

Children will be taught how to effectively use column addition and bridge ten. Throughout the year this will be built up so that children can successfully use column addition with two 6 digit numbers that create a whole number up to and including 1,000,000. Children will also be taught how to effectively add two numbers that contain a decimals (up to 2 digits)

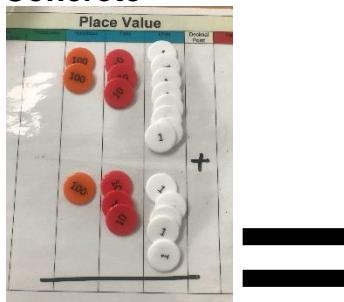
When using column addition, the largest number must be the number in the top position and the addition symbol must be placed to the right hand side. Any digits, which have been carried, must be placed underneath the answer row.

Calculations should be understood in a way where the two parts can change positions and also where the whole number can begin the calculation.

Presentation in a book

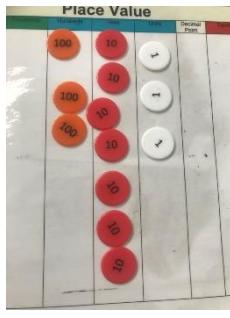


Concrete



With values up to 1,000,000.

Pictorial



With values up to 1,000,000.

Abstract

$$\begin{array}{r}
 364,287 + 592,379 = 956,666 \\
 592,379 + 364,287 = 956,666 \\
 956,666 = 592,379 + 364,287 \\
 956,666 = 364,287 + 592,379
 \end{array}$$

$$\begin{array}{r}
 592,379 + \\
 364,287 + \\
 956,666
 \end{array}$$

Key Vocab

Add, addition, plus, more, greater, sum, equals, altogether, is the same as, part, whole, total



YEAR 1 – SUBTRACTION

Explanation

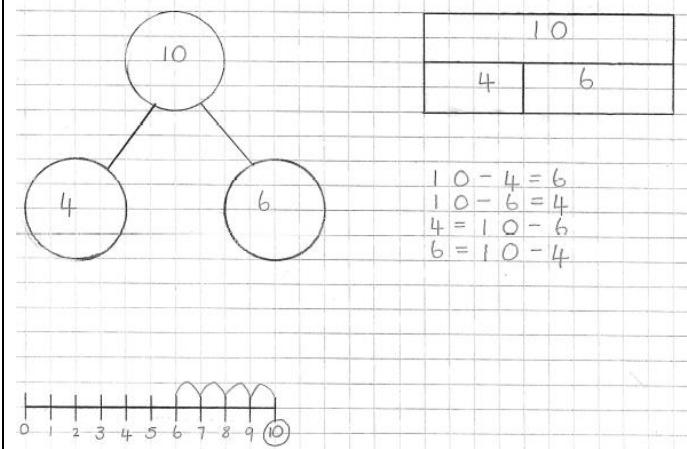
Subtraction will be taught by understanding that a part is taken from a whole to give another part. This will be done through the process of using a part whole model. The part whole model will be represented in a variety of ways, including bar models.

Children will be taught to subtract the part from the whole number.

Children should be taught number bonds to enable them to see bonds to complete subtraction calculations quicker.

Calculations should be set out in a horizontal line and children should understand that whole must always be the number that is subtracted from. Children should also understand that both parts can alternate to show a different way of subtracting. Some children should begin to understand that one 'part' (the answer) could start a subtraction calculation.

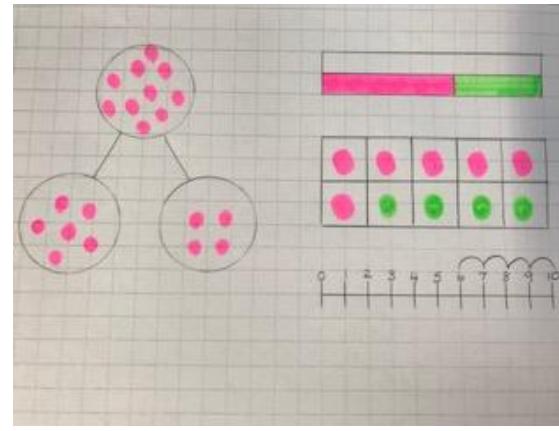
Presentation in a book



Concrete



Pictorial



Abstract

$$\begin{array}{r} 10 \\ - 4 \\ \hline 6 \end{array}$$
$$\begin{array}{r} 10 \\ - 6 \\ \hline 4 \end{array}$$
$$4 = 10 - 6$$
$$6 = 10 - 4$$

**10 is the whole.
4 is a part.
6 is a part.**

Key Vocab Take away, subtract, minus, less than, smaller, decrease, difference between, left, part, whole, total, equals, calculation



YEAR 2 – SUBTRACTION

Explanation

Subtraction will be taught by understanding that a part is taken from a whole to give another part. This will be done through the process of using a part whole model. The part whole model will be represented in a variety of ways, including bar models.

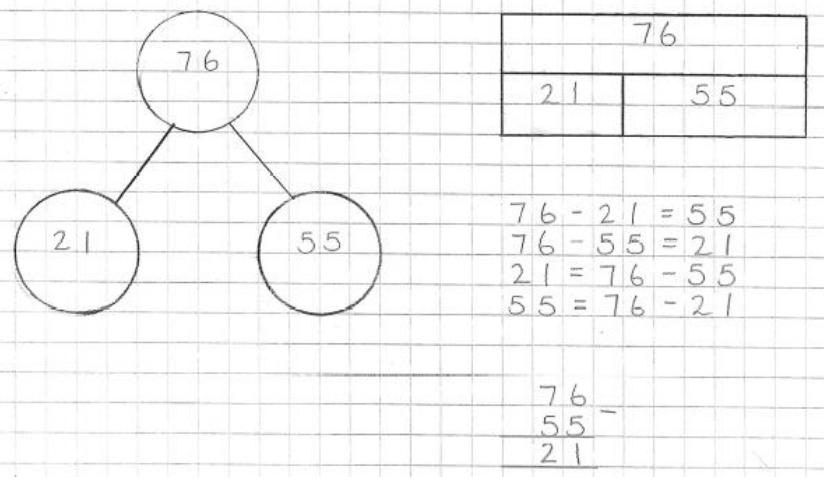
Children will be taught to subtract the part from the whole number.

Children will be able to effectively use the methods taught throughout Year 1 but with expectations that are more complex and the use of 2 digit numbers to subtract from a whole that is up to and including 100.

Calculations should initially be set out in a horizontal line and children should understand that whole must always be the number that is subtracted from. Children should also understand that both parts can alternate to show a different way of subtracting. Some children should begin to understand that one 'part' (the answer) could start a subtraction calculation.

By the end of Year 2, children will be introduced to column subtraction with numbers that DO NOT require the exchange method to be used.. The largest number must be the number in the top position and the subtraction symbol must be placed to the right hand side.

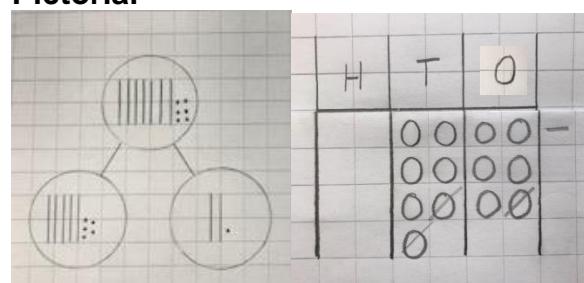
Presentation in a book



Concrete



Pictorial



Abstract

$$\begin{array}{r}
 76 - 21 = 55 \\
 76 - 55 = 21 \\
 21 = 76 - 55 \\
 55 = 76 - 21
 \end{array}$$

$$\begin{array}{r}
 76 \\
 - 55 \\
 \hline
 21
 \end{array}$$

Key Vocab Take away, subtract, minus, less than, smaller, decrease, difference between, left, part, whole, total, equals, calculation



YEAR 3 – SUBTRACTION

Explanation

Subtraction will be taught by understanding that a part is taken from a whole to give another part. This will be done through the process of using a part whole model. The part whole model will be represented in a variety of ways, including bar models.

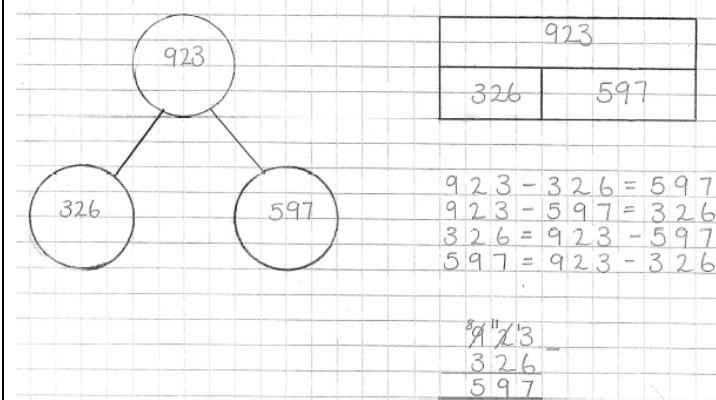
Children will be taught to subtract the part from the whole number.

Children will be taught how to effectively use the column subtraction method, including the use of the exchange method. Throughout the year, children will be taught how to subtract a 3 digit number from a 3 digit number.

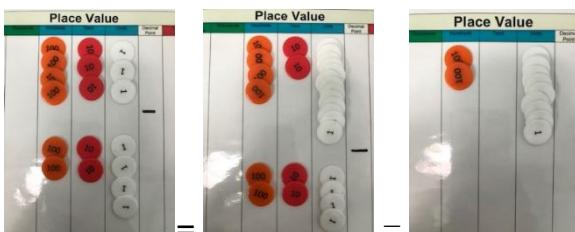
Children should understand that whole must always be the number that is subtracted from. Children should also understand that both parts can alternate to show a different way of subtracting. All children should understand that one 'part' (the answer) could start a subtraction calculation.

When using column subtraction, the largest number must be the number in the top position and the subtraction symbol must be placed to the right hand side.

Presentation in a book

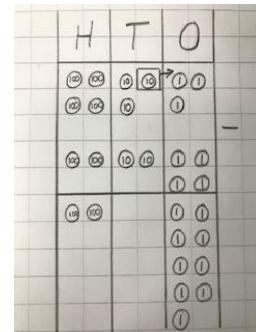


Concrete



Subtract a 3 digit number from a 3 digit number.

Pictorial



Subtract a 3 digit number from a 3 digit number.

Abstract

Abstract subtraction calculations and a vertical column. The calculations are:
 $923 - 326 = 597$
 $923 - 597 = 326$
 $326 = 923 - 597$
 $597 = 923 - 326$
 Below these, a vertical column subtraction is shown:
 923
 - 326
 $923 - 326 = 597$

Key Vocab Take away, subtract, minus, less than, smaller, decrease, difference between, left, part, whole, total, equals, calculation



YEAR 4 - SUBTRACTION

Explanation

Subtraction will be taught by understanding that a part is taken from a whole to give another part. This will be done through the process of using a part whole model. The part whole model will be represented in a variety of ways, including bar models.

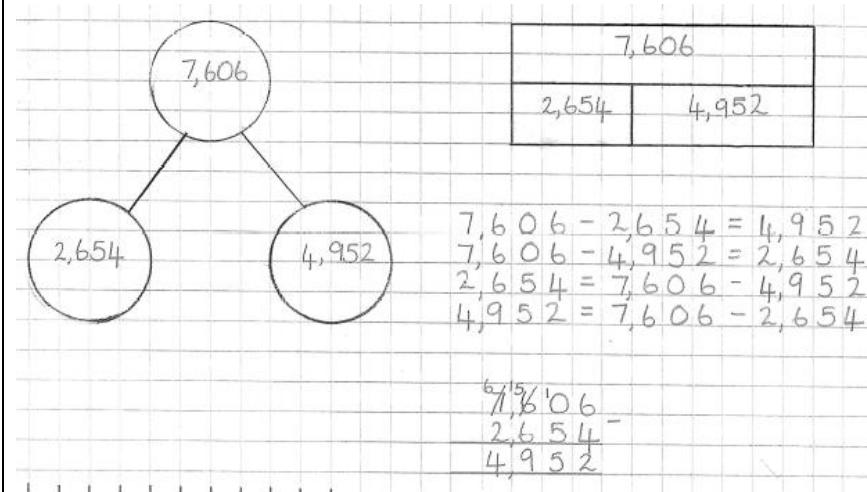
Children will be taught to subtract the part from the whole number.

Children will be taught how to effectively use the column subtraction method, including the use of the exchange method. Throughout the year, children will be taught how to subtract a 4 digit number from a 4 digit number. Children will also be taught how to effectively subtract two numbers that contain decimals (up to 2 digits)

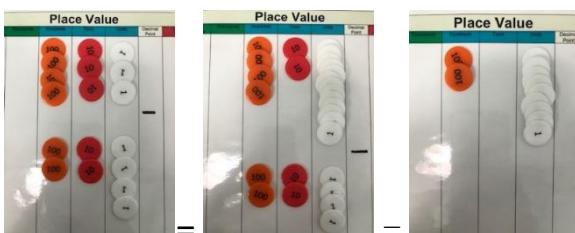
Children should understand that whole must always be the number that is subtracted from. Children should also understand that both parts can alternate to show a different way of subtracting. All children should understand that one 'part' (the answer) could start a subtraction calculation.

When using column subtraction, the largest number must be the number in the top position and the subtraction symbol must be placed to the right hand side.

Presentation in a book



Concrete



Subtract a 4 digit number from a 4 digit number.

Pictorial

H	T	O
6	6	0
6	5	4
-	-	-
1	0	2
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0

Subtract a 4 digit number from a 4 digit number.

Abstract

$$\begin{array}{r} 7,606 \\ - 2,654 \\ \hline 4,952 \end{array}$$

$$\begin{array}{r} 7,606 \\ - 4,952 \\ \hline 2,654 \end{array}$$

Key Vocab Take away, subtract, minus, less than, smaller, decrease, difference between, left, part, whole, total, equals, calculation



YEAR 5 - SUBTRACTION

Explanation

Subtraction will be taught by understanding that a part is taken from a whole to give another part. This will be done through the process of using a part whole model. The part whole model will be represented in a variety of ways, including bar models.

Children will be taught to subtract the part from the whole number.

Children will be taught how to effectively use the column subtraction method, including the use of the exchange method. Throughout the year, children will be taught how to subtract a 5 digit number from a 5 digit number. Children will also be taught how to effectively subtract two numbers that contain decimals (up to 2 digits). Children will also be taught how to subtract across zeros.

Children should understand that whole must always be the number that is subtracted from. Children should also understand that both parts can alternate to show a different way of subtracting. All children should understand that one 'part' (the answer) could start a subtraction calculation.

When using column subtraction, the largest number must be the number in the top position and the subtraction symbol must be placed to the right hand side.

Presentation in a book

$$96,229 - 36,295 = 59,934$$

$$96,229 - 59,934 = 36,295$$

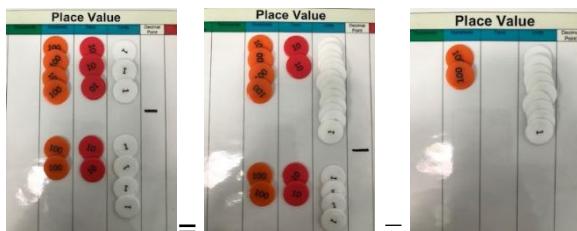
$$59,934 = 96,229 - 36,295$$

$$36,295 = 96,229 - 59,934$$

$$\begin{array}{r} 96,229 \\ - 36,295 \\ \hline 59,934 \end{array}$$

$$\begin{array}{r} 96,229 \\ - 59,934 \\ \hline 36,295 \end{array}$$

Concrete



Subtract a 5 digit number from a 5 digit number.

Pictorial

H	T	O
9	6	2 2 9
3	6	2 9 5
-	-	-
5	9	9 3 4

Subtract a 5 digit number from a 5 digit number.

Abstract

$$96,229 - 59,934 = 36,295$$

$$96,229 - 36,295 = 59,934$$

$$59,934 = 96,229 - 36,295$$

$$36,295 = 96,229 - 59,934$$

$$\begin{array}{r} 96,229 \\ - 36,295 \\ \hline 59,934 \end{array}$$

$$\begin{array}{r} 96,229 \\ - 59,934 \\ \hline 36,295 \end{array}$$

Key Vocab Take away, subtract, minus, less than, smaller, decrease, difference between, left, part, whole, total, equals, calculation



YEAR 6 - SUBTRACTION

Explanation

Subtraction will be taught by understanding that a part is taken from a whole to give another part. This will be done through the process of using a part whole model. The part whole model will be represented in a variety of ways, including bar models.

Children will be taught to subtract the part from the whole number.

Children will be taught how to effectively use the column subtraction method, including the use of the exchange method. Throughout the year, children will be taught how to subtract a 6 digit number from a 6 digit number. Children will also be taught how to effectively subtract two numbers that contain decimals (up to 2 digits). Children will also be taught how to subtract across zeros.

Children should understand that whole must always be the number that is subtracted from. Children should also understand that both parts can alternate to show a different way of subtracting. All children should understand that one 'part' (the answer) could start a subtraction calculation.

When using column subtraction, the largest number must be the number in the top position and the subtraction symbol must be placed to the right hand side.

Presentation in a book

$$956,666 - 592,379 = 364,287$$

$$956,666 - 364,287 = 592,379$$

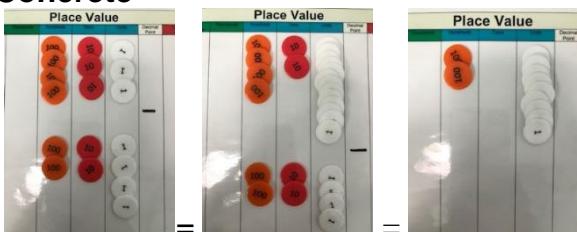
$$592,379 = 956,666 - 364,287$$

$$364,287 = 956,666 - 592,379$$

$$\begin{array}{r} 895 \overset{5}{\cancel{6}}, \overset{15}{\cancel{6}} \overset{16}{\cancel{6}} \\ - 364,287 \\ \hline 531,379 \end{array}$$

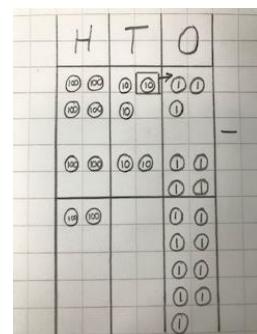
$$\begin{array}{r} 1,000,000 \\ - 292,846 \\ \hline 707,154 \end{array}$$

Concrete



Subtract a 6 digit number from a 6 digit number.

Pictorial



Subtract a 6 digit number from a 6 digit number.

Abstract

$$956,666 - 592,379 = 364,287$$

$$956,666 - 364,287 = 592,379$$

$$592,379 = 956,666 - 364,287$$

$$364,287 = 956,666 - 592,379$$

$$\begin{array}{r} 895 \overset{5}{\cancel{6}}, \overset{15}{\cancel{6}} \overset{16}{\cancel{6}} \\ - 364,287 \\ \hline 531,379 \end{array}$$

$$\begin{array}{r} 1,000,000 \\ - 292,846 \\ \hline 707,154 \end{array}$$

Key Vocab Take away, subtract, minus, less than, smaller, decrease, difference between, left, part, whole, total, equals, calculation



YEAR 1 - Multiplication

Explanation

Children will be taught to count in multiples of 2's, 5's and 10's.

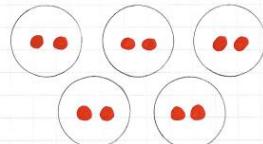
Children must be taught how to group objects to allow them to count in multiples. Children will represent multiplication through the method of arrays and will initially be taught repeated addition. Once the children have grasped the concept of repeated addition, they will be introduced to using the multiplication symbol using the language of 'lots of'. Children will be introduced to setting out a multiplication calculation in a linear line.

Children *may* be introduced to commutative calculations (2×5 and 5×2) if they are ready for this.

Presentation in a book

$$2 + 2 + 2 + 2 + 2 = 10$$

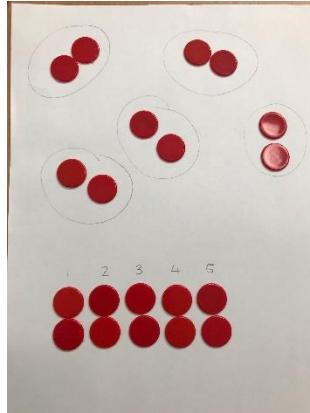
$$5 \times 2 = 10$$



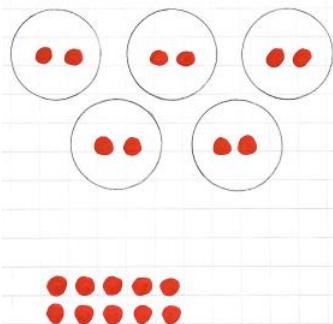
$$5 \times 2 = 10$$

$$2 \times 5 = 10$$

Concrete



Pictorial



Abstract

$$2 + 2 + 2 + 2 + 2 = 10$$

$$5 \times 2 = 10$$

$$5 \times 2 = 10$$

$$2 \times 5 = 10$$

Key Vocab

More, multiply, times, lots of, groups, product, multiplied by, multiple of, repeated addition, array



YEAR 2 – Multiplication

Explanation

Children will be taught to count in multiples of 2's, 3's, 5's and 10's.

Children must increase their understanding of grouping and repeated addition.

Children will be able to recall the 2, 3, 5 and 10 times tables.

Children will be able to use the language of 'lots of' and times and apply this to writing a linear calculation.

Children will show multiplication by using grouping and arrays

Children *should* be introduced to commutative calculations (2×5 and 5×2) if they are ready for this.

Presentation in a book

$$3 + 3 + 3 + 3 = 12$$

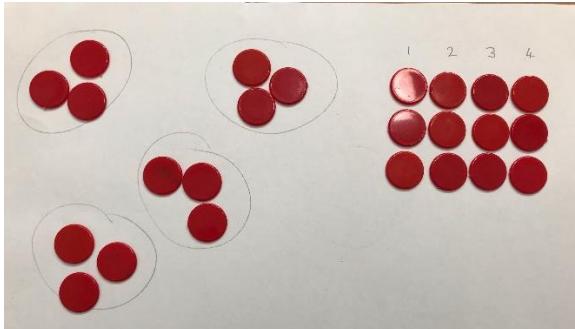
$$4 \times 3 = 12$$



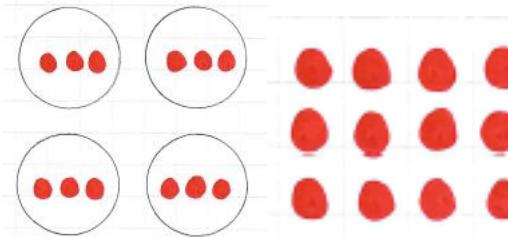
$$4 \times 3 = 12$$

$$3 \times 4 = 12$$

Concrete



Pictorial



Abstract

$$3 + 3 + 3 + 3 = 12$$

$$4 \times 3 = 12$$

$$4 \times 3 = 12$$

$$3 \times 4 = 12$$

Key Vocab

More, multiply, times, lots of, groups, product, multiplied by, multiple of, repeated addition, array



YEAR 3 - Multiplication

Explanation

Children will be taught to count in multiples of 2's, 3's, 4's, 5's, 8's and 10's. Multiplications taught in previous years **MUST** be consolidated and revisited consistently.

Children will use arrays to consolidate their understanding of multiplication.

Children must be introduced to commutative calculations (4x8 and 8x4).

Children are taught how to multiply a two digit number by a one digit number. Multiplication will be set out in the form of column multiplication. This will be set out with the multiplication symbol on the right hand side and the carried digits will be placed underneath where the following digit is going to be placed.

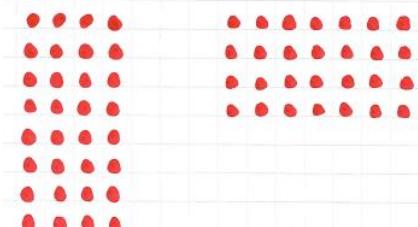
Children will also be taught how to use place value to multiply by 10 and 100.

All children will complete a daily tables races for the first three weeks of the school year. For this a table's race will be set in the classroom and one will be given for homework daily. After this, a minimum of one table's race **must** be set each week within class.

Presentation in a book

$$\begin{array}{r} 4 \times 8 = 32 \\ 8 \times 4 = 32 \end{array}$$

$\times 10$ and 100



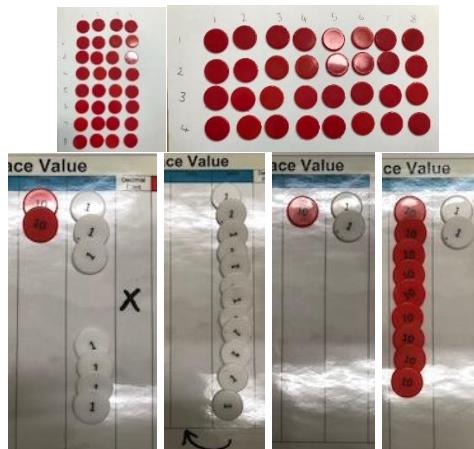
$$\begin{array}{r} \text{H} \text{T} \text{U} \\ | \quad | \quad | \\ 3 \quad 4 \\ \times 10 \end{array}$$

$$\begin{array}{r} 4 \ 8 \\ \times \\ 3 \\ \hline 1 \ 4 \ 4 \end{array}$$

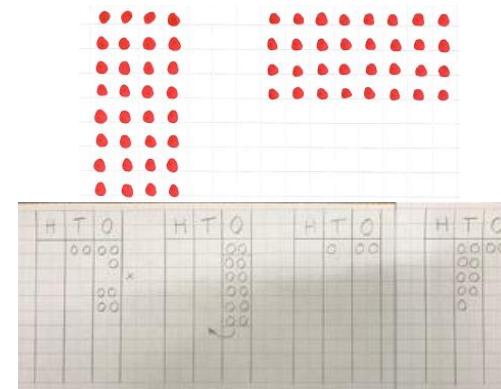
$$\begin{array}{r} \text{Th} \text{H} \text{T} \text{U} \\ | \quad | \quad | \quad | \\ 3 \quad 4 \\ \times 100 \end{array}$$



Concrete



Pictorial



Abstract

$$\begin{array}{r} 4 \times 8 = 32 \\ 8 \times 4 = 32 \end{array} \quad \begin{array}{r} 32 = 4 \times 8 \\ 32 = 8 \times 4 \end{array}$$

$$\begin{array}{r} 4 \ 8 \\ \times \\ 3 \\ \hline 1 \ 4 \ 4 \end{array}$$

Key Vocab

More, multiply, times, lots of, groups, product, multiplied by, multiple of, repeated addition, array



YEAR 4 - Multiplication

Explanation

Children will be taught to count in multiples of 2's, 3's, 4's, 5's, 6's, 7's, 8's, 9's, 10's, 11's and 12's.

Multiplications taught in previous years **MUST** be consolidated and revisited consistently.

Children will use arrays to consolidate their understanding of multiplication.

Children must be introduced to commutative calculations (7×6 and 6×7).

Children are taught how to multiply a three digit number by a one digit number.

Multiplication will be set out in the form of column multiplication. This will be set out with the multiplication symbol on the right hand side and the carried digits will be placed underneath where the following digit is going to be placed.

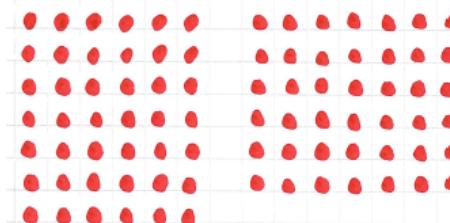
Children will also be taught how to use place value to multiply by 10, 100 and 1000.

All children will complete a daily tables races for the first three weeks of the school year. For this a table's race will be set in the classroom and one will be given for homework daily. After this, a minimum of one table's race **must** be set each week within class.

Presentation in a book

$$6 \times 7 = 42 \quad 42 = 6 \times 7 \quad \times 10, 100 \text{ and } 1000$$

$$7 \times 6 = 42 \quad 42 = 7 \times 6$$



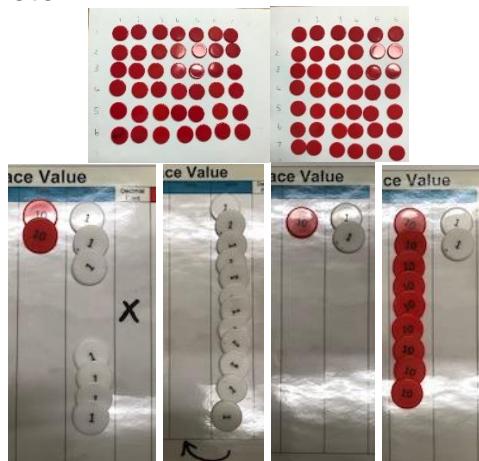
$$\begin{array}{r} 10 \\ 10 \\ \hline \end{array} \begin{array}{r} 10 \\ 10 \\ \hline \end{array} \begin{array}{r} H \\ T \\ U \\ \hline \end{array} \begin{array}{r} 3 \\ 4 \\ \hline \end{array} \times 10$$

$$\begin{array}{r} 10 \\ 10 \\ \hline \end{array} \begin{array}{r} 10 \\ 10 \\ \hline \end{array} \begin{array}{r} H \\ T \\ U \\ \hline \end{array} \begin{array}{r} 3 \\ 4 \\ \hline \end{array} \times 100$$

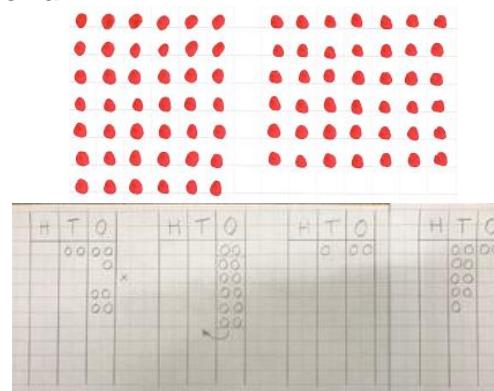
$$\begin{array}{r} 10 \\ 10 \\ \hline \end{array} \begin{array}{r} 10 \\ 10 \\ \hline \end{array} \begin{array}{r} H \\ T \\ U \\ \hline \end{array} \begin{array}{r} 3 \\ 4 \\ \hline \end{array} \times 1000$$

$$\begin{array}{r} 7 & 6 & 9 \\ \times & & 8 \\ \hline 6 & 1 & 5 & 2 \\ 8 & 8 & 7 \end{array}$$

Concrete



Pictorial



Abstract

$$6 \times 7 = 42 \quad 42 = 6 \times 7$$

$$7 \times 6 = 42 \quad 42 = 7 \times 6$$

$$\begin{array}{r} 7 & 6 & 9 \\ \times & & 8 \\ \hline 6 & 1 & 5 & 2 \\ 8 & 8 & 7 \end{array}$$

Key Vocab

More, multiply, times, lots of, groups, product, multiplied by, multiple of, repeated addition, array



YEAR 5 - Multiplication

Explanation

Children will consolidate multiples of 2's, 3's, 4's, 5's, 6's, 7's, 8's, 9's, 10's, 11's and 12's. Multiplications taught in previous years **MUST** be consolidated and revisited consistently.

Children will use arrays to consolidate their understanding of multiplication.

Children must be introduced to commutative calculations (6x8 and 8x6).

Children are taught how to multiply a four digit number by a one digit number and a three or four digit number by a two digit number. Multiplication will be set out in the form of column multiplication. This will be set out with the multiplication symbol on the right hand side and the carried digits will be placed underneath where the following digit is going to be placed.

Children will also be taught how to use place value to multiply by 10, 100 and 1000.

All children will complete a daily tables races for the first three weeks of the school year. For this a table's race will be set in the classroom and one will be given for homework daily. After this, a minimum of one table's race **must** be set each week within class.

Presentation in a book

$$8 \times 7 = 56 \quad 56 = 8 \times 7 \quad \times 10, 100 \text{ and } 1000$$

$$7 \times 8 = 56 \quad 56 = 7 \times 8$$

$$\begin{array}{r} 6472 \\ \times 8 \\ \hline 51776 \end{array}$$

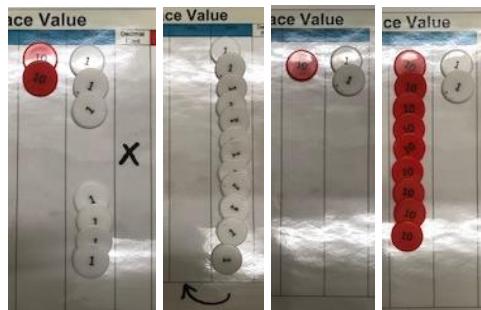
$$\begin{array}{r} 6472 \\ \times 58 \\ \hline 51776 \\ + 323600 \\ \hline 375376 \end{array}$$

$$\begin{array}{r} H T U \frac{1}{10} \\ 34 \\ \times 10 \end{array}$$

$$\begin{array}{r} H T U \frac{1}{10} \\ 34 \\ \times 100 \end{array}$$

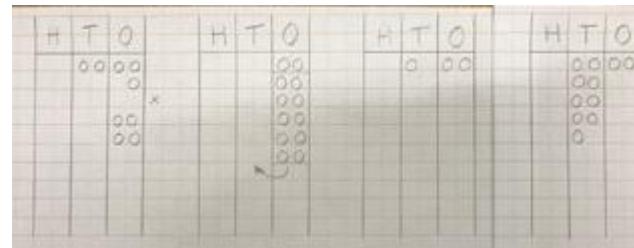
$$\begin{array}{r} Th H T U \frac{1}{10} \\ 34 \\ \times 1000 \end{array}$$

Concrete



Multiplication includes multiplying a 4x2 digit number.

Pictorial



Abstract

$$8 \times 7 = 56 \quad 56 = 8 \times 7$$

$$7 \times 8 = 56 \quad 56 = 7 \times 8$$

$$\begin{array}{r} 6472 \\ \times 8 \\ \hline 51776 \end{array}$$

$$\begin{array}{r} 6472 \\ \times 58 \\ \hline 51776 \\ + 323600 \\ \hline 375376 \end{array}$$

Key Vocab

More, multiply, times, lots of, groups, product, multiplied by, multiple of, repeated addition, array



YEAR 6 - Multiplication

Explanation

Children will consolidate multiples of 2's, 3's, 4's, 5's, 6's, 7's, 8's, 9's, 10's, 11's and 12's.

Multiplications taught in previous years **MUST** be consolidated and revisited consistently.

Children will use arrays to consolidate their understanding of multiplication.

Children must be introduced to commutative calculations (6x8 and 8x6).

Children are taught how to multiply a four digit number by a one digit number and a three or four digit number by a two digit number. They will also be taught how to multiply by a decimal. Multiplication will be set out in the form of column multiplication. This will be set out with the multiplication symbol on the right hand side and the carried digits will be placed underneath where the following digit is going to be placed.

Children will also be taught how to use place value to multiply by 10, 100 and 1000.

All children will complete a daily tables races for the first three weeks of the school year. For this a table's race will be set in the classroom and one will be given for homework daily. After this, a minimum of one table's race **must** be set each week within class.

Presentation in a book

$$\begin{array}{r} 11 \times 12 = 132 \\ 12 \times 11 = 132 \end{array}$$

$$2938 \times 9$$

$$\begin{array}{r} 26442 \\ \times 2 \\ \hline 894 \end{array}$$

$$\begin{array}{r} 2938 \times 39 \\ 26442 + 88140 \\ \hline 114582 \end{array}$$

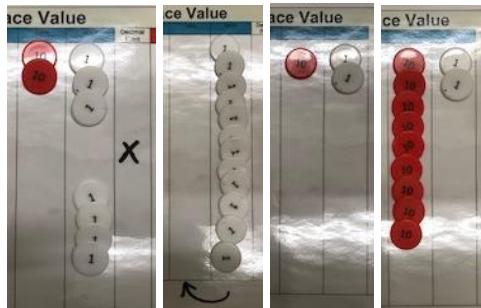
x 10, 100 and 1000

$$\begin{array}{r} 034 \\ \times 10 \\ \hline 0340 \end{array}$$

$$\begin{array}{r} 034 \\ \times 100 \\ \hline 03400 \end{array}$$

$$\begin{array}{r} 034 \\ \times 1000 \\ \hline 034000 \end{array}$$

Concrete



Multiplication includes multiplying a 4x2 digit number.

Pictorial



Abstract

$$\begin{array}{r} 11 \times 12 = 132 \\ 12 \times 11 = 132 \end{array}$$

$$2938 \times 9$$

$$\begin{array}{r} 26442 \\ \times 2 \\ \hline 894 \end{array}$$

$$\begin{array}{r} 2938 \times 39 \\ 26442 + 88140 \\ \hline 114582 \end{array}$$

Key Vocab

More, multiply, times, lots of, groups, product, multiplied by, multiple of, repeated addition, array



YEAR 1 - Division

Explanation

Children will use multiplication facts that have been taught (2's, 5's and 10's) to support division.

Children will be taught how to divide by making equal groups.

Children will be taught how to find $\frac{1}{2}$ and $\frac{1}{4}$ of different shapes. Once this is understood, children will find $\frac{1}{2}$ and $\frac{1}{4}$ of numbers.

Children will set calculations out in a liner line.

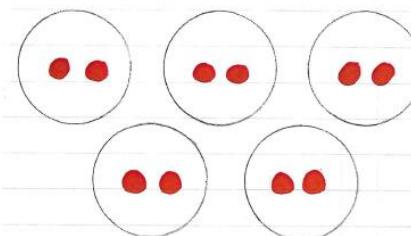
It should be made clear to the children that division is the inverse of multiplications.

Children *may* be introduced to commutative calculations ($10 \div 2$ and $10 \div 5$).

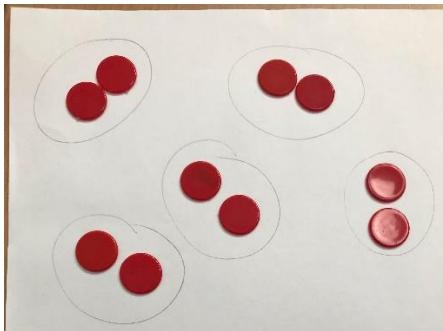
Presentation in a book

$$10 \div 5 = 2$$

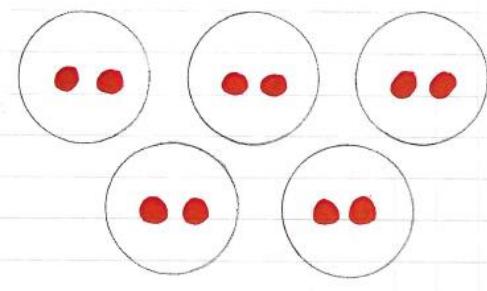
$$10 \div 2 = 5$$



Concrete



Pictorial



Abstract

$$\begin{array}{r} 10 \\ \div 5 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 10 \\ \div 2 \\ \hline 5 \end{array}$$

Key Vocab

Divide, share, equal groups, array, into, divide by, shared by, remainder



YEAR 2 - Division

Explanation

Children will use multiplication facts that have been taught (2's, 3's, 5's and 10's) to support division.

Children will be taught how to divide by making equal groups. This will also be represented in the format of an array.

Children will consolidate their understanding of how to find $\frac{1}{2}$ and $\frac{1}{4}$ of different shapes. Once this is understood, children will find $\frac{1}{2}$ and $\frac{1}{4}$ of numbers.

Children will set calculations out in a liner line.

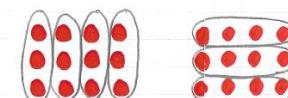
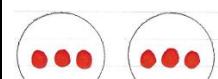
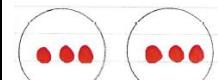
It should be made clear to the children that division is the inverse of multiplications.

Children *should* be introduced to commutative calculations (12 \div 3 and 12 \div 4).

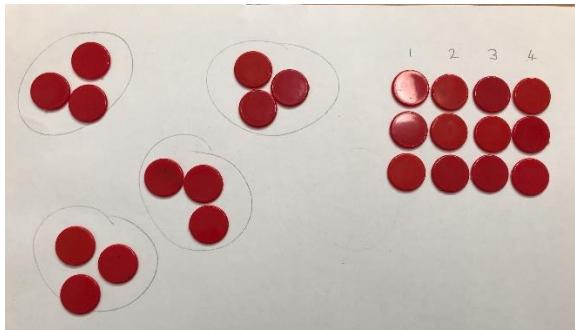
Presentation in a book

$$12 \div 4 = 3$$

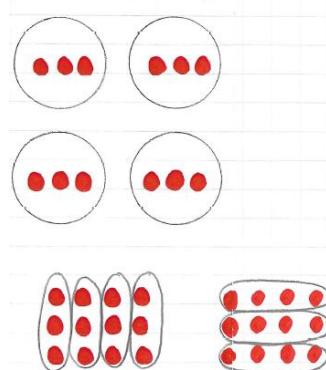
$$12 \div 3 = 4$$



Concrete



Pictorial



Abstract

$$12 \div 4 = 3$$

$$12 \div 3 = 4$$

Key Vocab

Divide, share, equal groups, array, into, divide by, shared by, remainder



YEAR 3 - Division

Explanation

Children will use multiplication facts that have been taught (2's, 3's, 4's, 5's, 8's and 10's) to support division.

Children will be taught how divide a two digit number by a one digit number. Children will be taught how to divide by using the bus stop method. Initially this will be taught with no remainders but remainders must be introduced at a later point.

Children will be taught how to divide by 10 and 100. Children will also be taught how to convert fractions into decimals. This will be used to support finding fractions of an amount.

It must be made clear to the children that division is the inverse of multiplications.

Children must be introduced to commutative calculations ($24 \div 3$ and $24 \div 8$).

Presentation in a book

$$32 \div 4 = 8 \quad 8 = 32 \div 4 \quad \div 10 \text{ and } 100$$

$$32 \div 8 = 4 \quad 4 = 32 \div 8$$

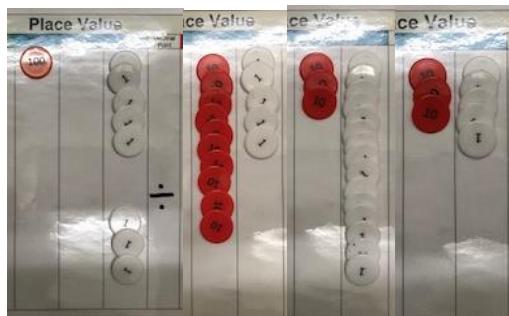
$$\begin{array}{r} 24 \\ 2 \longdiv{48} \end{array}$$

$$\begin{array}{r} 242 \text{ r1} \\ 2 \longdiv{485} \end{array}$$

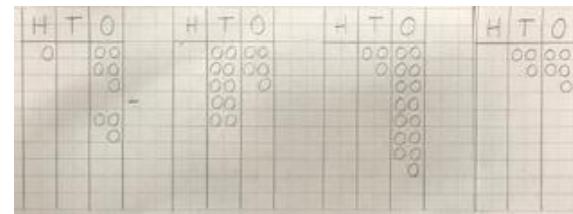
$$\begin{array}{r} 3400 \\ \swarrow \quad \uparrow \quad \downarrow \quad \uparrow \\ 3400 \end{array} \quad \div 10$$

$$\begin{array}{r} 3400 \\ \swarrow \quad \uparrow \quad \downarrow \quad \uparrow \\ 3400 \end{array} \quad \div 100$$

Concrete



Pictorial



Abstract

$$32 \div 4 = 8 \quad 8 = 32 \div 4$$

$$32 \div 8 = 4 \quad 4 = 32 \div 8$$

$$\begin{array}{r} 24 \\ 2 \longdiv{48} \end{array}$$

$$\begin{array}{r} 242 \text{ r1} \\ 2 \longdiv{485} \end{array}$$

Key Vocab

Divide, share, equal groups, array, into, divide by, shared by, remainder



YEAR 4 - Division

Explanation

Children will use multiplication facts that have been taught (2's, 3's, 4's, 5's, 6's, 7's 8's, 9's, 10's, 11's and 12's) to support division.

Children will be taught how divide a three digit number by a one digit number. Children will be taught how to divide by using the bus stop method. Children will be taught remainders.

Children will be taught how to divide by 10, 100 and 1000. Children will also be taught how to convert fractions into decimals. This will be used to support finding fractions of an amount.

It must be made clear to the children that division is the inverse of multiplications.

Children must be introduced to commutative calculations (24÷3 and 24÷8).

Presentation in a book

$$56 \div 8 = 7 \quad 7 = 56 \div 8 \quad \div 10, 100 \text{ and } 1000$$

$$56 \div 7 = 8 \quad 8 = 56 \div 7$$

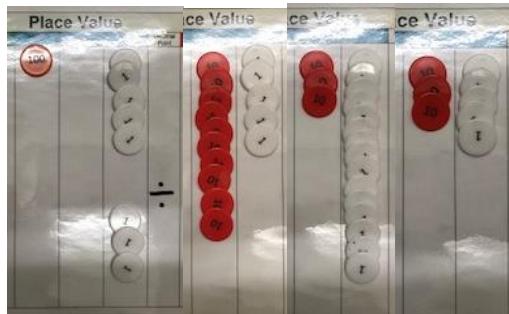
$$\begin{array}{r} 241 \text{ r}1 \\ 3 \overline{)724} \end{array}$$

$$\begin{array}{r} 100 \\ \text{Th} \quad \text{Th} \quad \text{H} \quad \text{T} \quad \text{U} \\ \hline 340000 \\ 340000 \end{array} \div 10$$

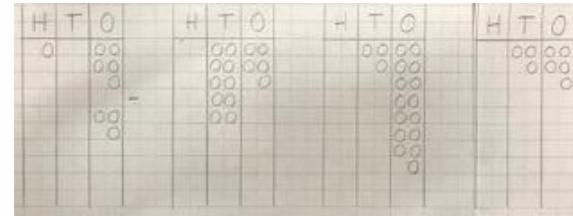
$$\begin{array}{r} 100 \\ \text{Th} \quad \text{Th} \quad \text{H} \quad \text{T} \quad \text{U} \\ \hline 340000 \\ 340000 \end{array} \div 100$$

$$\begin{array}{r} 100 \\ \text{Th} \quad \text{Th} \quad \text{H} \quad \text{T} \quad \text{U} \\ \hline 340000 \\ 340000 \end{array} \div 1000$$

Concrete



Pictorial



Abstract

$$56 \div 8 = 7 \quad 7 = 56 \div 8$$

$$56 \div 7 = 8 \quad 8 = 56 \div 7$$

$$\begin{array}{r} 241 \text{ r}1 \\ 3 \overline{)724} \end{array}$$

Key Vocab

Divide, share, equal groups, array, into, divide by, shared by, remainder



YEAR 5 - Division

Explanation

Children will use multiplication facts that have been taught (2's, 3's, 4's, 5's, 6's, 7's 8's, 9's, 10's, 11's and 12's) to support division.

Children will be taught how divide a four digit number by a one digit number. Children will be taught how to divide by using the bus stop method. Children will be taught how to divide using decimal places.

Children will be taught how to divide by 10, 100 and 1000. Children will also be taught how to convert fractions into decimals. This will be used to support finding fractions of an amount.

It must be made clear to the children that division is the inverse of multiplications.

Children must be introduced to commutative calculations (24÷3 and 24÷8).

Presentation in a book

$$72 \div 8 = 9 \quad 9 = 72 \div 8 \quad \div 10, 100 \text{ and } 1000$$

$$72 \div 9 = 8 \quad 8 = 72 \div 9$$

$$\begin{array}{r} 0.7258 \\ \hline 5 \overline{)3629.00} \end{array}$$

Th	H	T	U	.	%	10	%	100
3	4	0						

$$\div 10$$

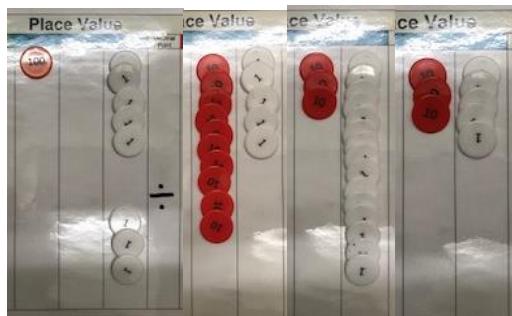
Th	H	T	U	.	%	10	%	100
3	4	0						

$$\div 100$$

Th	H	T	U	.	%	10	%	100
3	4	0						

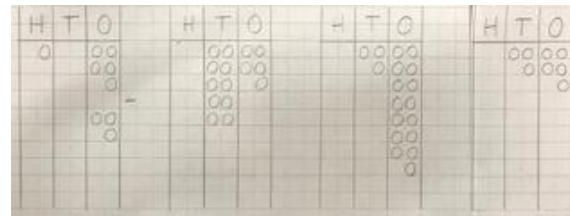
$$\div 1000$$

Concrete



Division includes dividing a 4 digit number by a 1 digit number (including decimals).

Pictorial



Abstract

$$72 \div 8 = 9 \quad 9 = 72 \div 8$$

$$72 \div 9 = 8 \quad 8 = 72 \div 9$$

$$\begin{array}{r} 0.7258 \\ \hline 5 \overline{)3629.00} \end{array}$$

Key Vocab Divide, share, equal groups, array, into, divide by, shared by, remainder



YEAR 6 - Division

Explanation

Children will use multiplication facts that have been taught (2's, 3's, 4's, 5's, 6's, 7's 8's, 9's, 10's, 11's and 12's) to support division.

Children will be taught how divide a four digit number by a one digit number and a two digit number. Children will be taught how to divide by using the bus stop method. Children will be taught how to divide using decimal places.

Children will be taught how to divide by 10, 100 and 1000. Children will also be taught how to convert fractions into decimals. This will be used to support finding fractions of an amount.

It must be made clear to the children that division is the inverse of multiplications.

Children must be introduced to commutative calculations (24÷3 and 24÷8).

Presentation in a book

$$132 \div 11 = 12 \quad 12 = 132 \div 11$$

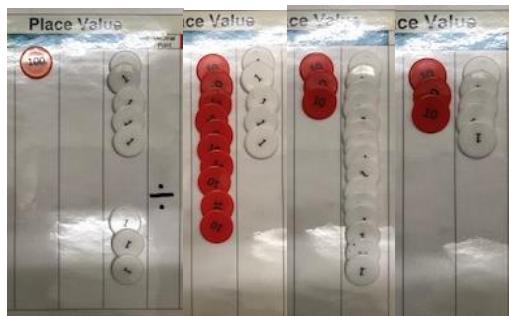
$$132 \div 12 = 11 \quad 11 = 132 \div 12$$

$$\begin{array}{r} 0.535\overline{75} \\ 8 \overline{)4286.00} \\ \underline{-40} \\ 28 \\ \underline{-24} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

$$\begin{array}{r} 0.36 \\ 12 \overline{)432} \\ \underline{-36} \\ 72 \\ \underline{-72} \\ 0 \end{array}$$

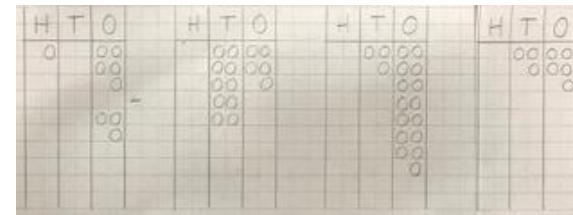
$$\begin{array}{r} 0236 \\ 12 \overline{)2832} \\ \underline{-24} \\ 43 \\ \underline{-48} \\ 13 \\ \underline{-12} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$

Concrete



Division includes dividing a 4 digit number by a 1 digit number (including decimals).

Pictorial



Abstract

$$132 \div 11 = 12 \quad 12 = 132 \div 11$$

$$132 \div 12 = 11 \quad 11 = 132 \div 12$$

$$\begin{array}{r} 0.535\overline{75} \\ 8 \overline{)4286.00} \\ \underline{-40} \\ 28 \\ \underline{-24} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

$$\begin{array}{r} 0236 \\ 12 \overline{)2832} \\ \underline{-24} \\ 43 \\ \underline{-48} \\ 13 \\ \underline{-12} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$

Key Vocab Divide, share, equal groups, array, into, divide by, shared by, remainder