



THURGOLAND

CHURCH OF ENGLAND PRIMARY SCHOOL



LEARNING TOGETHER
IN FAITH & JOY

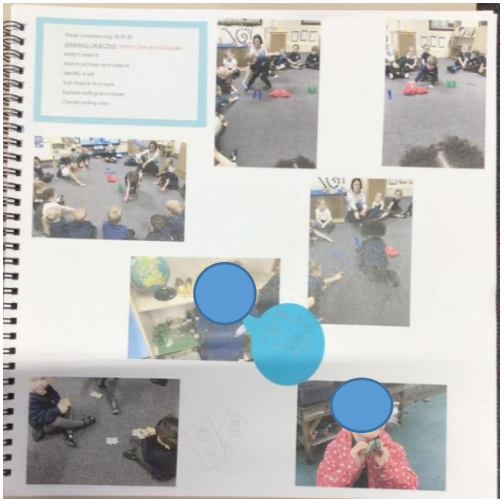
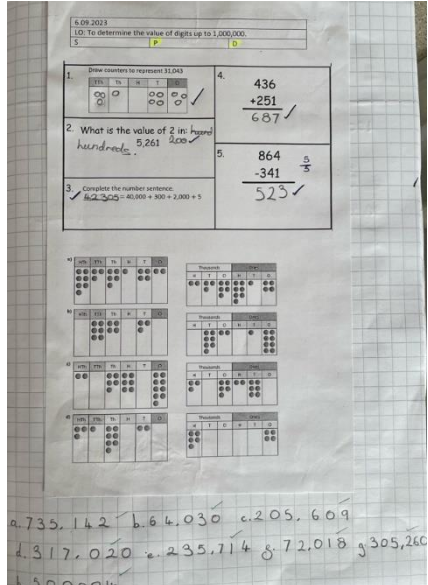
Presentation and Calculations Policy

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Presentation Policy

EYFS	Key Stage 1	Key Stage 2																		
<p>Children in our Reception class, learn the foundations of Maths through our concrete, pictorial and abstract (CPA approach). Children are given the time to explore the range of resources to build up their conceptual knowledge of number and Maths.</p> <p>Children's work will be evidenced with photographs and observations that capture children demonstrating their automatic recall and deep understanding of number through talk. This will be collated in a floor book, with the learning objective and date clearly stated at the top of the page.</p> 	<p>Date, learning objective and S, P, D to be at the top of the page</p> <table border="1" data-bbox="808 344 1368 411"> <tr> <td colspan="3">18.01.2023</td> </tr> <tr> <td colspan="3">LO: I can understand and use the X for multiplication</td> </tr> <tr> <td>S</td> <td>P</td> <td>D</td> </tr> </table> <p>Year 1</p> <ul style="list-style-type: none"> • Questions may be provided by the teacher and stuck into the books under the learning objective. • Photographs to show practical learning may be evidenced in the book • During the Summer term, Year 1 will progress to writing in the squares next to questions. • All children to write in pencil. <p>Year 2</p> <ul style="list-style-type: none"> • Calculations may be written straight onto the page • Questions may be provided by the teacher; these are to be stuck down half a page leaving additional space for children to show calculations and answers using the squares. • All children to write in pencil. 	18.01.2023			LO: I can understand and use the X for multiplication			S	P	D	<p>Date, learning objective and S, P, D to be at the top of the page.</p> <table border="1" data-bbox="1494 344 2054 411"> <tr> <td colspan="3">18.01.2023</td> </tr> <tr> <td colspan="3">LO: I can understand and use the X for multiplication</td> </tr> <tr> <td>S</td> <td>P</td> <td>D</td> </tr> </table> <p>Year 3, Year 4, Year 5 & Year 6</p> <ul style="list-style-type: none"> • Calculations may be written straight onto the page. • Questions may be provided by the teacher; these are to be stuck down half a page leaving additional space for children to show calculations and answers using the squares. • All children to write in pencil. 	18.01.2023			LO: I can understand and use the X for multiplication			S	P	D
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Tuesday 12th September 2023
 LO: I can write numbers to 100 in words.

Fluent in 5!

How many? 23 ✓

50 40 30 20
 10 ✓

17 16 15
 14 ✓

13 + = 20 ✓

Show 43 in base 10
 ✓

60 sixty ✓
 5 five ✓
 88 eighty eight ✓
 97 ninety seven ✓
 89 eighty nine ✓
 44 forty four ✓
 8 eight ✓

- Children may have a QR code in their book to access questions electronically through an Ipad.

Date: 14.09.23 LO: To recognise thousands

S	P	D
Fluent in 5		Varied Fluency and Reasoning and Problem Solving
What is 1 more than 999? ✓ 1000	What is 10 more than 990? ✓ 1000	What is 1 less than 300? ✓ 299
What is 100 less than 750? ✓ 650	What is 100 more than 1? ✓ 101	What is 10 less than 700? ✓ 690

4 Circle 9,000

5 Complete the number tracks.

2,000 3,000 4,000 5,000 6,000 7,000 8,000

9,000 8,000 7,000 6,000 5,000 4,000 ✓

1. 5,000
 There are five thousand sweets.

2. 3,000
 6,800 ✓

3. 7 hundreds
 6,400

4. 80 hundreds
 8,000

5. 5,000
 10,000

6. 3,000

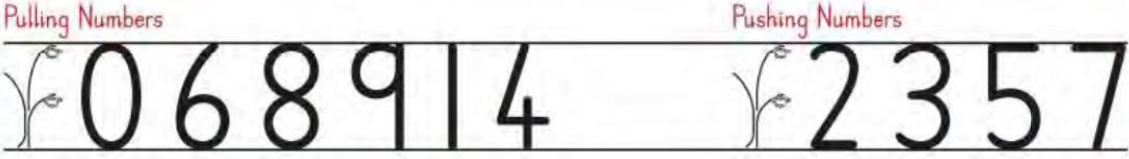
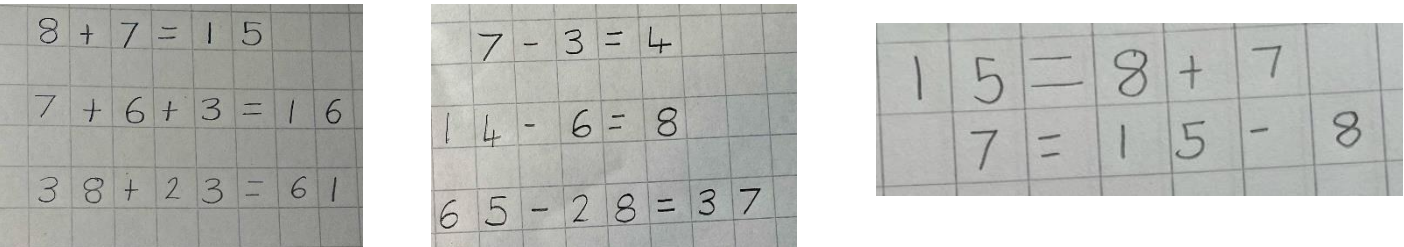
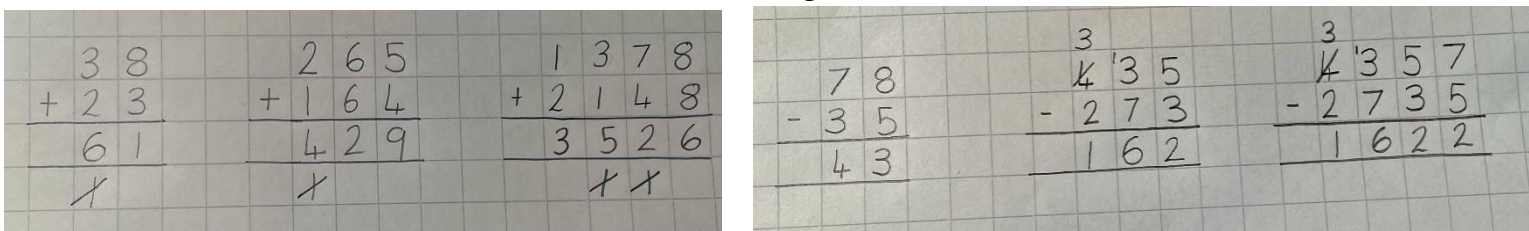
6. 7,000
 1,000

7. 3,000
 2,000

8. Because you can see there are 1,000 in each bar and there are 3 bars so it is 3,000

9. No yes because it tells me it's an even number

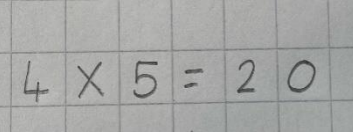
Presenting numbers and calculations

Digit Formation	<ul style="list-style-type: none">• 1 digit to be written per square• Children in EYFS and KS1 will be taught accurate digit formation following Kinetic Letters scheme, during handwriting lessons. Children will apply this in their Maths. <p>Pulling Numbers Pushing Numbers</p> 
Addition/Subtraction Calculations	<p>Year 1 and Year 2</p> <ul style="list-style-type: none">• Calculations to be written 1 digit and 1 symbol per square, as shown below:  <p>Year 3, Year 4, Year 5, Year 6</p> <ul style="list-style-type: none">• Addition and subtraction calculations to be written using the column method, as shown below: 

Multiplication Calculations

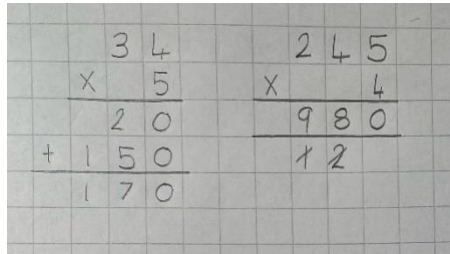
Year 1 and Year 2

- Calculations to be written 1 digit and 1 symbol per square, as shown below:


$$4 \times 5 = 20$$

Year 3, Year 4, Year 5, Year 6

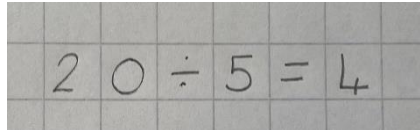
- Multiplication calculations to be written using the column method, as shown below:


$$\begin{array}{r} 34 \\ \times 5 \\ \hline 20 \\ + 150 \\ \hline 170 \end{array} \qquad \begin{array}{r} 245 \\ \times 4 \\ \hline 980 \\ + 1200 \\ \hline 980 \end{array}$$

Division Calculations

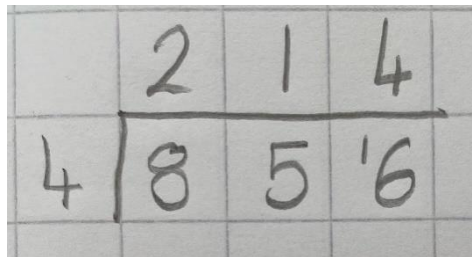
Year 1 and Year 2

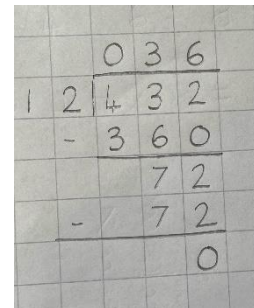
- Calculations to be written 1 digit and 1 symbol per square, as shown below:


$$20 \div 5 = 4$$

Year 3, Year 4, Year 5, Year 6

- Division calculations to be written using the methods, as shown below:

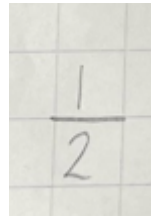

$$\begin{array}{r} 214 \\ 4 \overline{) 856} \\ \underline{4} \\ 4 \\ \underline{4} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

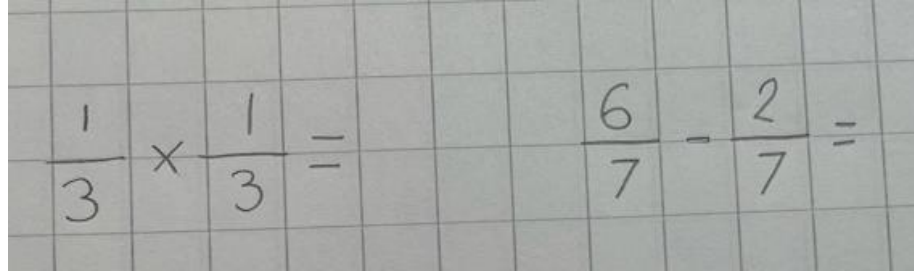

$$\begin{array}{r} 036 \\ 12432 \\ \underline{- 360} \\ 72 \\ \underline{- 72} \\ 0 \end{array}$$

Fractions

Year 1 to Year 6

- Fractions and calculations involving fractions to be written, as shown below:


$$\frac{1}{2}$$


$$\frac{1}{3} \times \frac{1}{3} =$$
$$\frac{6}{7} - \frac{2}{7} =$$

Progression in the teaching of counting in EYFS


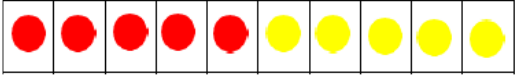

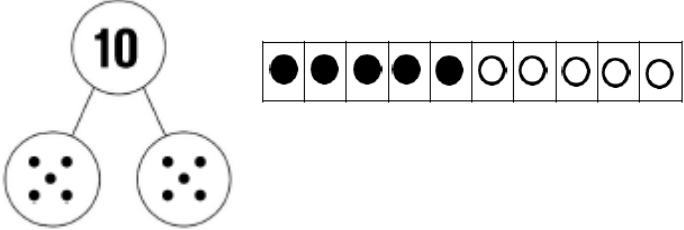
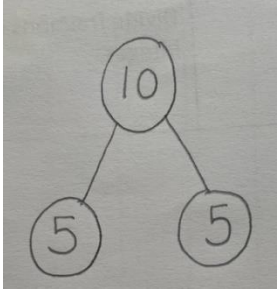
1. Pre-Counting	2. Ordering	3. One to one correspondence	4. Cardinality (Knowing the final number counted is the total number of objects)
<p>The key focus in pre-counting is an understanding of the concepts more, less and the same. Children will have an appreciation for how these are related. Children at this stage develop these concepts by comparison and no counting is involved.</p> <p><i>For example: Sorting groups using language more and less.</i></p>	<p>Count by reciting the number names in order forwards and backwards from any starting point</p> <p><i>For example: Counting orally clapping or drumming to the numbers.</i></p>	<p>One number word has to be matched to each and every object. Lack of coordination is a source of potential error – children to move the objects as they count, use large movements or clap as they count.</p> <p><i>For example: Traditional counting songs such as 5 little ducks, 10 green bottles</i></p>	<p>Count out a number of objects from a larger collection. Knowing the number they stop counting at will give the total number of objects.</p> <p><i>For example: Provide children with objects to move as they count and say the number.</i></p>
5. Subitising	6. Abstraction	7. Conservation of number	8. End of year counting expectations
<p>Children to recognise small amounts without counting them.</p> <p><i>For example: subitising dominoes, dice, tens frames.</i></p>	<p>Children can count anything, visible or hidden objects, imaginary objects, sounds etc. Children find it challenging to count things they cannot move, touch, see, that move around. Children find it difficult to count a mix of objects that are different sizes.</p> <p><i>For example: counting something on a picture, counting objects in a pot blindfolded.</i></p>	<p>Children need to realise that when objects are rearranged the number of them stays the same.</p> <p><i>For example: different pictorial representations of the number 7, in a line or all spread out.</i></p>	<ul style="list-style-type: none"> • Count reliably to 20 • Count reliably up to 10 everyday objects • Estimate a number of objects then check by counting • Use ordinal numbers in context e.g. first, second, third • Count in twos, fives and tens • Order numbers 1-20 • Say 1 more/1 less than a given number to 20



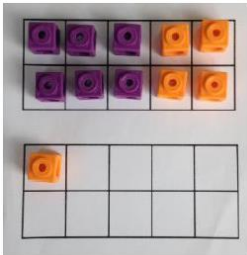
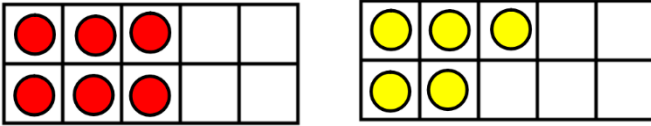
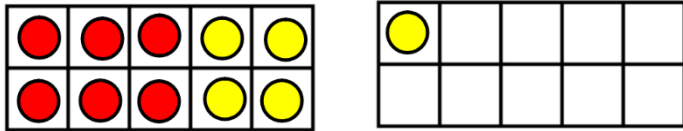
Progression in the teaching of calculations

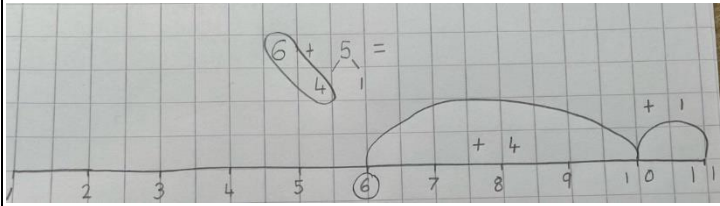
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	<p>Combining two parts to make a whole: part, part whole</p> <p>Starting at the bigger number and counting on: number lines</p>	<p>Combining two parts to make a whole: part, part whole</p> <p>Starting at the bigger number and counting on: number lines</p> <p>Regrouping to make 10</p>	<p>Adding three single digits</p> <p>Adding two 2-digit number and ones.</p> <p>Adding two 2-digit numbers</p> <p>Adding two 2-digit numbers (Exchanging)</p>	<p>Column addition (Up to 3 digits)</p> <p>Column addition – regrouping</p> <p>Adding fractions with same denominator</p>	<p>Column addition (up to 4 digits)</p> <p>Column addition – regrouping</p> <p>Adding fractions with same denominator</p>	<p>Column addition (more than 4 digits)</p> <p>Column addition – regrouping</p> <p>Adding fractions with uncommon denominators including mixed numbers.</p> <p>Adding decimals with the same amounts of decimal places.</p>	<p>Column addition (more than 4 digits)</p> <p>Column addition – regrouping</p> <p>Adding fractions with uncommon denominators including mixed numbers.</p> <p>Adding decimals with the same amounts of decimal places.</p>
Subtraction	<p>Subtracting ones</p>	<p>Subtracting ones</p> <p>Counting back</p> <p>Find the difference</p> <p>Make 10</p>	<p>Counting back</p> <p>Find the difference</p> <p>Make 10</p> <p>Subtracting three single digits</p> <p>Subtracting two 2-digit number and ones.</p> <p>Subtracting two 2-digit numbers</p>	<p>Column Subtraction (Up to 3 digits)</p> <p>Column Subtraction – exchanging</p> <p>Subtracting fractions with the same denominator</p>	<p>Column Subtraction (Up to 4 digits)</p> <p>Column Subtraction – exchanging</p> <p>Subtracting fractions with the same denominator</p>	<p>Column Subtraction (more than 4 digits)</p> <p>Column Subtraction – exchanging</p> <p>Subtracting fractions with uncommon denominators including mixed numbers</p> <p>Subtracting decimals with the</p>	<p>Column Subtraction</p> <p>Column Subtraction – exchanging</p> <p>Subtracting fractions with uncommon denominators including mixed numbers</p> <p>Subtracting decimals with the same amounts of decimal places.</p>

						same amounts of decimal places. Subtracting decimals with different amounts of decimal places.	Subtracting decimals with different amounts of decimal places.
Multiplication	Doubling	Doubling Counting in multiples (1, 10) Repeated addition Arrays	Doubling Counting in multiples (2, 5, 10, 3) Repeated addition Arrays	Doubling Counting in multiples (3, 4, 8) Repeated addition Arrays Grid method multiplication	Column Multiplication (2 or 3 digit multiplied by a 1 digit)	Column Multiplication (Up to 4 digit by a one or two digit number) Multiplying fractions by an integer Multiplying fractions by fractions.	Column Multiplication (multi-digit numbers up to 4 digit by a 2 digit) Multiply 1 digit numbers with up to 2 decimal places by whole numbers. Multiplying fractions by an integer. Multiplying fractions by fractions.
Division	Sharing objects into groups	Sharing objects into groups Division as grouping Division with arrays	Sharing objects into groups Division as grouping Division with arrays	Division with arrays Division with a remainder Short division	Division with a remainder Short division	Short division	Short division Long division Divide fractions by an integer

Addition

Objective and Strategies	Concrete (Building conceptual knowledge of addition)	Pictorial (Applying their understanding to pictorial representations)	Abstract (Most efficient method)
<p>EYFS</p>	<p>EYFS will use a range of mathematical and everyday objects to support their learning through continuous provision and direct teaching.</p> <p>E.g. home corner using plates with objects. Playdoh to imprint tens frames and part part whole. Natural resources and loose parts in indoor and outdoor provision</p>		
<p>EYFS & Year 1 Combining two parts to make a whole: part- whole model</p>	<div data-bbox="524 727 840 959" style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Whole</p> <p>10</p> <hr/> <p>Part Part</p>  </div> <div data-bbox="427 1023 940 1098" style="border: 1px solid black; padding: 5px; text-align: center;">  </div> <div data-bbox="434 1126 931 1201" style="border: 1px solid black; padding: 5px; text-align: center;">  </div> <p>1. Make each number using the resource. 2. Count the parts to find the whole.</p>	<div data-bbox="994 746 1675 976" style="text-align: center;">  </div> <p>1. Draw the first number in a part. 2. Draw the second number in a part. 3. Count to find the whole.</p>	<div data-bbox="1816 724 2092 1015" style="text-align: center;">  </div> <p>1. Write each number in a part. 2. Work out the whole. 3. Write the addition calculations. $5 + 5 = 10$</p>

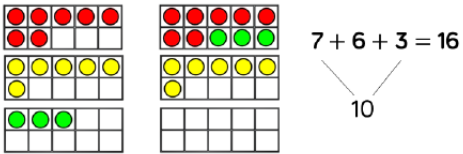
<p>EYFS & Year 1 Starting at the bigger number and counting on</p>	 <ol style="list-style-type: none"> 1. Make the larger number with beads or cubes. 2. Add the smaller number. 3. Count the whole to find the total. 	<p>$4 + 3 =$</p>  <ol style="list-style-type: none"> 1. Start at the largest number in the calculation. 2. Count on in ones to find the answer. <p>*EYFS to use a number line practically, e.g. jumping along a real life number line*</p>	<p>$4 + 3 = 7$</p> <ol style="list-style-type: none"> 1. Place the larger number in their head. 2. Count on the smaller number to find the answer.
<p>Year 1 & 2 Regrouping to make 10</p>	<p>$6 + 5 = 11$</p>  <ol style="list-style-type: none"> 1. Make the larger number on the tens frame. 2. Use the smaller number to make 10. 3. The remaining objects go onto another tens frame. 	<p>$6 + 5 = 11$</p>  <ol style="list-style-type: none"> 1. Represent each number in a tens frame. 2. Identify the large number and its number bond pair to 10. 3. Move the ones needed across to make 10.  <ol style="list-style-type: none"> 4. Subitise 10 and add the remaining ones verbally. 	<p>$6 + 5 = 11$</p> <ol style="list-style-type: none"> 1. Use the largest number as the starting point. 2. Partition the smallest number into 2. The first number will be the number bond pair with the largest number. The second number will be the remaining ones left in the number. 3. Combine the number bonds to make 10. 4. Add the remaining ones to find the answer.



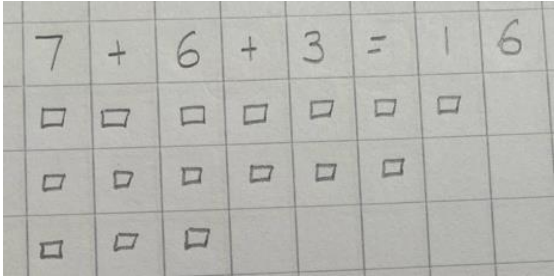
1. Identify the largest number in the calculation.
2. Partition the smallest number into 2 to make a number bond pair with the largest number and the remaining ones.
3. Combine the largest number and it's number bond to make 10.
4. Add the remaining ones.

*Children may either draw out their number lines or use pre-made number line resources.

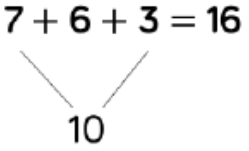
Year 2
Adding three single digits



1. Where possible identify number bonds.
2. Add the remaining ones to the second tens frame

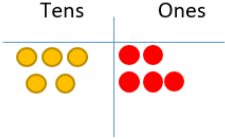
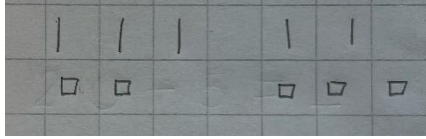
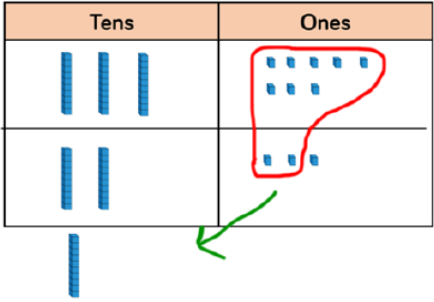
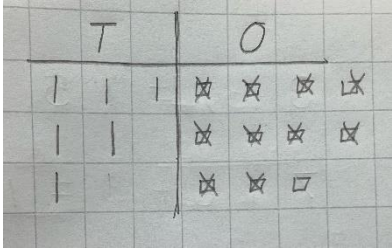


1. Draw the first number in ones
2. Draw the second number using ones
3. Draw the third number using ones
4. Count the whole



1. Identify the two number that make 10.
2. Add the remaining number.

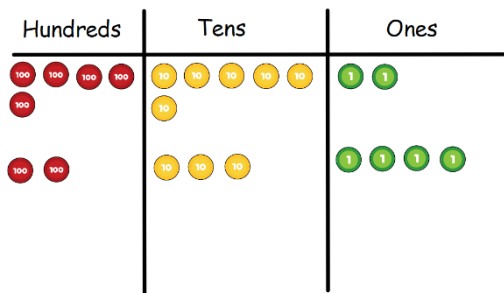
*Where there are no number bonds in the calculation, children to add the ones mentally. Start on the largest number and add the ones.

<p>Year 2 Adding two 2-digit numbers</p>	<p>$32 + 23 =$</p>  <ol style="list-style-type: none"> 1. Use tens and ones counters/base 10 to make the first number in the calculation. 2. Use tens and ones counters/base 10 to make the second number in the calculation. 3. Count the ones. 4. Count the tens. <p>*base 10 and place value counters to be used.</p>	<p>$32 + 23 =$</p>  <ol style="list-style-type: none"> 1. Draw the tens and ones to represent the first number. 2. Draw the tens and ones to represent the second number. 3. Count the total of the ones. 4. Count the total of the tens. 5. Combine for the answer. 	<p>$32 + 23 =$</p> <ol style="list-style-type: none"> 1. $30 + 20 = 50$ 2. $2 + 3 = 4$ 3. $50 + 4 = 54$ <p>*Completed mentally or written if needed.</p>
<p>Year 2 Adding two 2-digit numbers with regrouping (crossing the ten)</p>	<p>$38 + 23 =$</p>  <ol style="list-style-type: none"> 1. Make the first number using base 10 to represent the tens and ones. 2. Make second number using base 10 to represent the tens and ones. 3. If there is more than 10 ones, exchange for 1 ten. 	<p>$38 + 23 =$</p>  <ol style="list-style-type: none"> 1. Draw the first number using tens and ones. 2. Draw the second number using tens and ones. 3. If there is more than 10 ones, exchange for 1 ten. 4. Count the tens and ones. 	<p>$38 + 23 =$</p> <ol style="list-style-type: none"> 1. $30 + 20 = 50$ 2. $8 + 3 = 11$ 3. $50 + 11 = 61$ <p>*Children will either complete this mentally or write down each step.</p>

Year 3 – 6
Column Addition

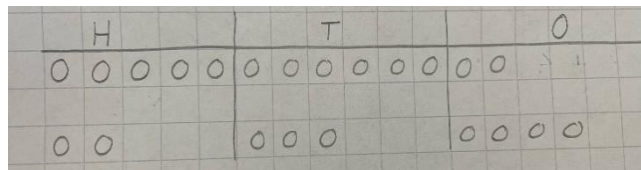
*This method is applied addition of numbers up to and beyond 4 digits.

$562 + 234 =$

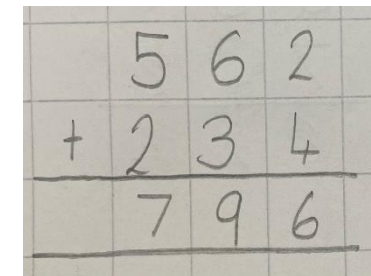


1. Use the place value counters to make the first number in the calculation.
2. Use the place value counters to make the second number in the calculation.
3. Add up the columns in the place value chart.

$562 + 234 =$



1. Represent the first number in the correct columns in the place value chart.
2. Represent the second number in the correct columns in the place value chart.
3. Add up the columns in the place value chart.



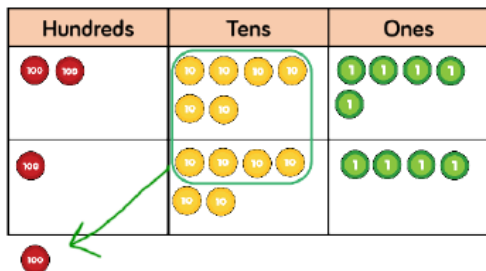
1. Write the calculation in the correct columns for place value
2. Add the ones column
3. Add the tens column
4. Add the hundreds column.

*Children will continue to add the columns up to the appropriate place value.

Year 3 – 6
Column Addition
Regrouping

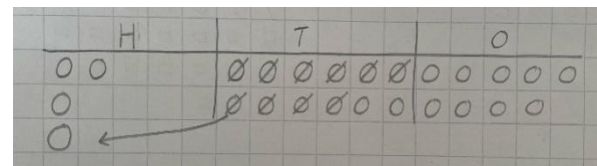
*This method is applied addition of numbers up to and beyond 4 digits.

$265 + 164 =$

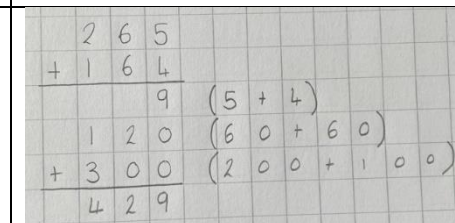


1. Use the place value counters to make the first number in the calculation.
2. Use the place value counters to make the second number in the calculation.

$265 + 164 =$













1. Use the place value counters to make the first number in the calculation.
2. Use the place value counters to make the second number in the calculation.
3. Exchange where needed into the correct place value column.
3. Count the whole.



1. Write the calculation in the correct place value columns.
2. Add the ones column, write answer below.
3. Add the tens column. Write answer below.
4. Add the hundreds column. Write answer below.

3. Exchange where needed into the correct place value column.
3. Count the whole.

*This can also be shown with base 10.

Thousands	Hundreds	Tens	Ones
			
			
			

5. Add the ones column.
6. Add the tens column.
7. Add the hundreds column.

*This leads children to have the understanding to use compact column addition as their most efficient method.

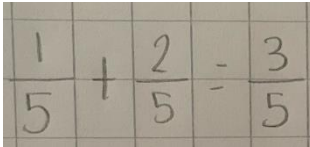
	2	6	5
+	1	6	4
<hr/>			
	4	2	9
<hr/>			
	1		

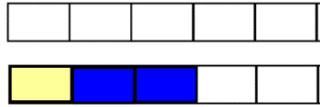
1. Add the ones column
2. Add the tens column
3. Add the hundreds column.

*Where carrying is needed, children will represent this underneath the calculation.

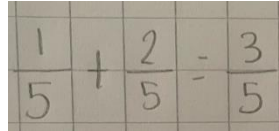
Year 3 – 4

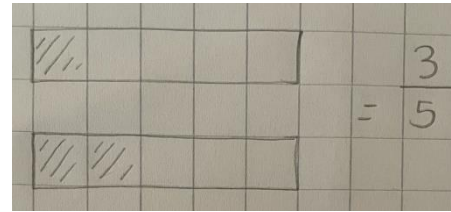
Adding fractions with the same denominator


$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$$



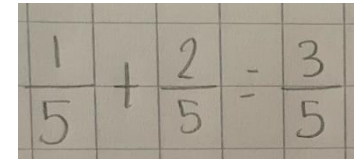
1. Divide the whole into the number on the denominator.
2. Represent the numerator of the first fraction on the whole.
3. Represent the numerator of the second fraction on the whole.
4. Count up the shaded parts out of the whole.


$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$$



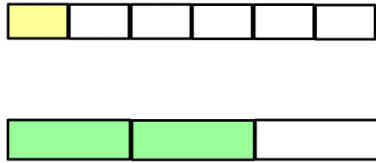
1. Draw out a bar and represent how many parts out of the whole for the first fraction.
2. Draw out a bar and represent how many parts out of the whole for the second fraction.
3. Combine the equal parts out of the whole for the numerator.
4. Count the whole for the denominator.

*The denominator will not change when adding fractions with the same denominator.

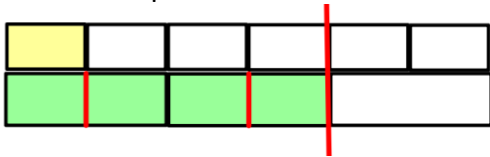

$$\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$$

1. Add the numerators: $1 + 2 = 3$
2. The denominator doesn't change when adding fractions with the same denominator.

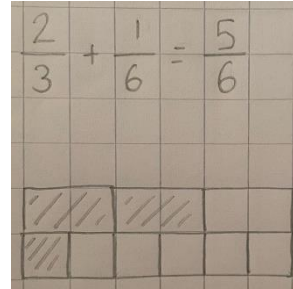
Year 5 – 6
Adding fractions with uncommon denominators including mixed numbers.



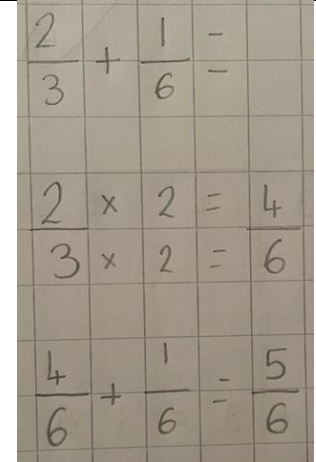
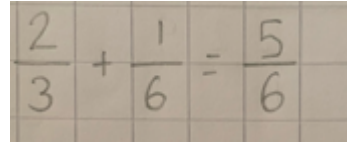
1. Make each fraction using bar model resources.
2. Use the bar models to find the fraction's equivalence.



3. Combine the number of parts



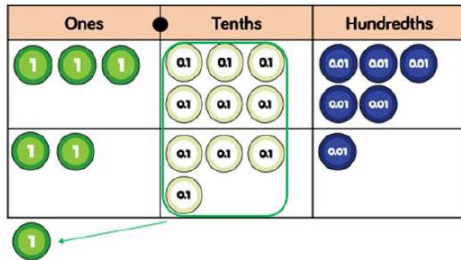
1. Draw a bar model to represent both fractions.
2. Use the bar models to find the fractions equivalence.
3. Add the fractions.



1. Find the lowest common multiple between the denominators.
2. Convert the fractions to have the same denominators.
3. Add the fractions with the same denominator.

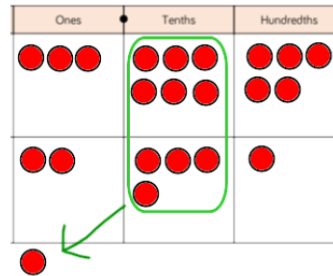
Year 5-6
Adding Decimals

$3.65 + 2.41 =$

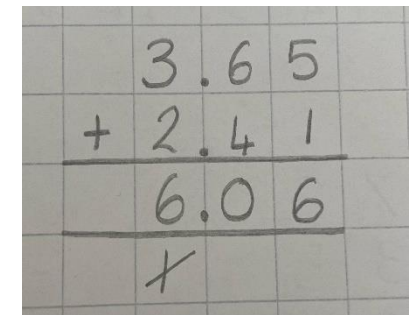


1. Make the first integer using place value counters and add to the chart.
2. Make second integer using place value counters and add to the chart.

$3.65 + 2.41 =$



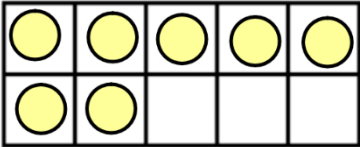
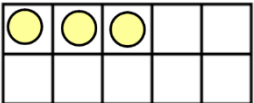

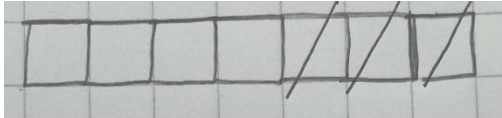

1. Draw the place value chart.
2. Represent each integer with the counters in the correct place value.
3. Where needed, exchange to the correct place value.
4. Write the answer.



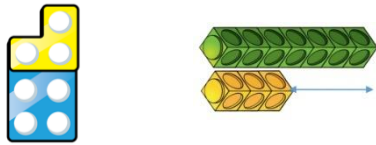
1. Add the hundredths.
2. Add the tenths.
3. Add the ones.

	<p>3. Where needed, exchange to the correct place value. 4. Write the answer.</p>		<p>*Children will exchange and carry below where necessary.</p>
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Subtraction

Objective and Strategies	Concrete (Building conceptual knowledge of addition)	Pictorial (Applying their understanding to pictorial representations)	Abstract (Most efficient method)
EYFS Subtracting ones	EYFS pupils will initially begin understanding subtraction is taking away through the use of concrete resources e.g: Toys in provision (indoor/outdoor) Snack – understand taking segments away leaves a smaller amount of fruit left Playdoh – imprint numicon into playdoh, pushing down to subtract numbers	EYFS children will be taught subtraction through stories. e.g Shopping basket story book taking items away from the health. Handa's surprise the animals taking away the fruit.	
EYFS & Year 1 Subtracting ones: Count the remaining.	 <ol style="list-style-type: none"> 1. Represent the first number in the tens frame. 2. Subtract the second number.   <ol style="list-style-type: none"> 3. Count the remaining 	$7 - 3 = 4$  <ol style="list-style-type: none"> 1. Draw a bar model and divide into the number of parts (first number). 2. Subtract by crossing out the ones (second number). 3. Count the remaining parts of the whole. 	$7 - 3 = 4$  <ol style="list-style-type: none"> 1. Put the largest number in your head. 2. If below 10, hold up the same amount of fingers. 3. Count backwards on your fingers from the starting number. <p>*Some children will be able to count backwards without support of fingers.</p>

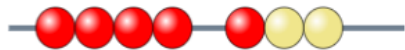
*Children will also explore subtracting ones by using numicon, cubes or other concrete resources.



Year 1 & 2
Subtracting ones:
Counting back

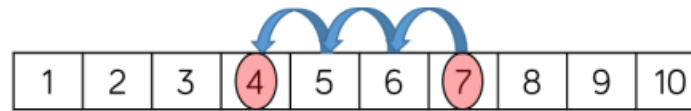
$$7 - 3 = 4$$

1. Make the larger number on the beads.
2. When counting back, push the beads away from the whole.



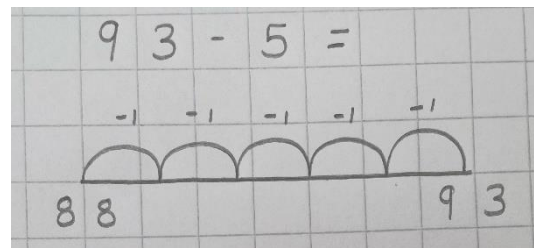
3. Count the remaining beads to find the answer.

$$7 - 3 = 4$$



1. Start at the largest number
2. Jump back in ones
3. The answer is the number finished counting on.

*As children progress from Year 1 to Year 2, they will be able to draw their own number line representations for counting backwards to find the answer for larger 2 digit numbers subtracting ones.



$$7 - 4 =$$

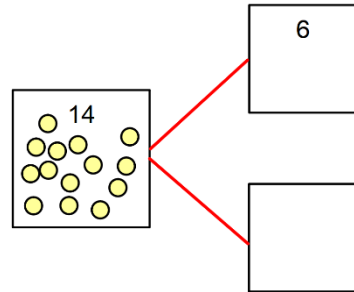
1. Put the largest number in your head.
2. Count back.

*Children may use their fingers to help support when subtracting ones.

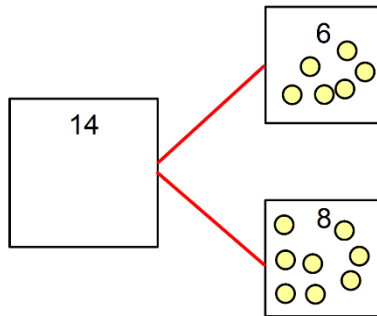
Year 1 & 2
Find the difference

*EYFS concept of finding the difference will be explored with pupils showing greater depth understanding of subtraction. Introduced via concrete resources.

Find the difference between 14 and 6

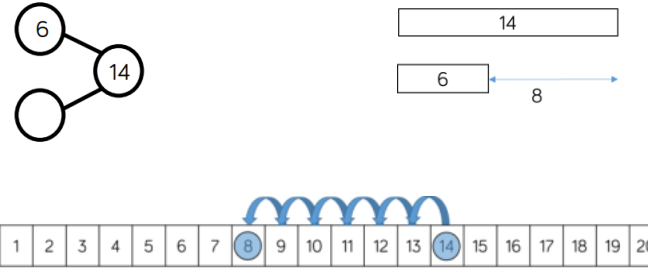
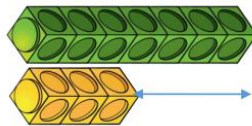


1. Represent the whole using cubes.
2. Move the smaller number into a part.

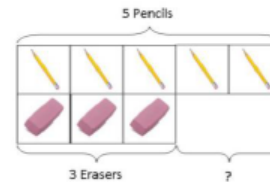


3. Count the remaining of the whole to find the difference.

*EYFS concept

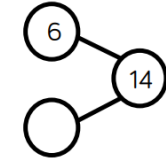


1. Draw or use the number line provided to count back.
2. Start at the whole, count back to the part.
3. The number landed on is the answer.



*Children may also use bar model pictorial representations to identify the difference.

Hannah has 14 sandwiches.
Helen has 6 sandwiches
Find the difference between the number of sandwiches.



1. Draw the part-whole model and add the numbers in.
 2. Start at the smallest number.
 3. Mentally, count up to the largest number.
- *Children may use their fingers for this.

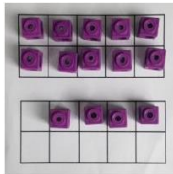
*As children become confident with subtraction in Year 2 they may find the difference using a written/mental method for subtraction.

Year 1 & 2

Subtracting by making 10

$14 - 5 =$

1. Represent the number on the tens frame.

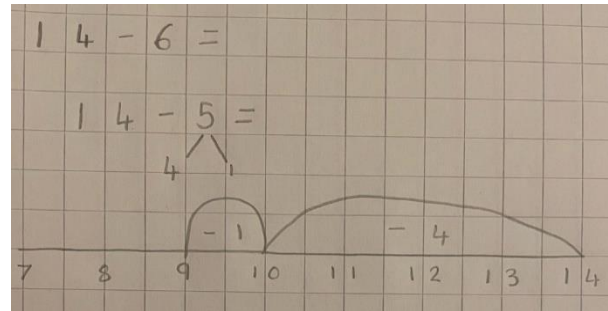


2. Subtract the ones to make 10.



3. Subtract the remaining ones.

4. Count the answer left in the tens frame.

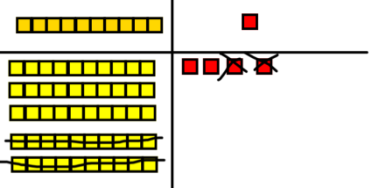
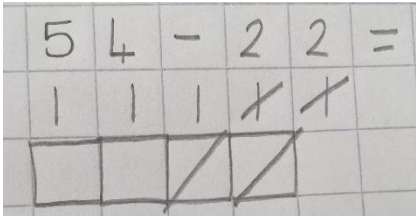
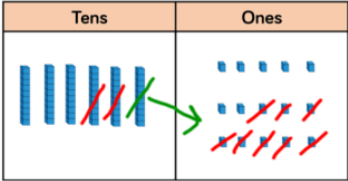
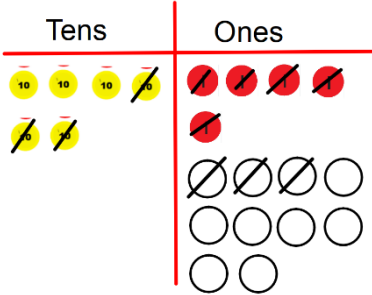
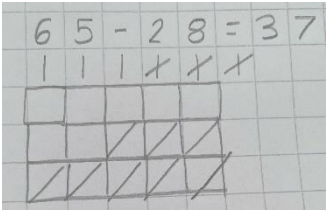


1. Start at largest number of the number line.
2. Partition the smallest number into the number of ones needed to subtract back to the 10 and the remaining ones.
3. Subtract back to the 10.
4. Subtract the remaining ones.
5. Land on the answer.

$14 - 5 =$

Mentally:

1. Using the smallest number, subtract the number of ones needed to subtract back to the 10.
2. Subtract the remaining ones left from the smallest number.

<p>Year 2</p> <p>Subtracting two 2-digit numbers</p>	<p>$54 - 22 =$</p>  <ol style="list-style-type: none"> 1. Make the largest number using tens and ones and add to the place value chart. 2. Identify the tens and ones in the second number. 3. Subtract the ones from the chart. 4. Subtract the tens from the chart. 4. Count the remaining tens and ones to find the answer. 	<p>$54 - 22 =$</p>  <ol style="list-style-type: none"> 1. Represent the largest number using tens and ones. 2. Identify the tens and ones in the second number. 3. Cross out the ones. 3. Cross out the tens. 4. Count the remaining tens and ones for the answer. 	<p>$54 - 22 =$</p> <p>$50 - 20 = 30$ $4 - 2 = 2$ $30 + 2 = 32$</p> <p>*Completed mentally or written if needed.</p>
<p>Year 2</p> <p>Subtracting two 2-digit numbers crossing a 10</p>	<p>$65 - 28 =$</p>  <ol style="list-style-type: none"> 1. Represent the largest number using base 10. 2. Identify a ten needs exchanging for 10 ones and exchange. 2. Subtract your ones. 3. Subtract the tens. 4. Count the remaining tens and ones to find the answer. 	<p>$65 - 28 =$</p>  <ol style="list-style-type: none"> 1. Use the pictorial representation. 2. Identify a ten needs exchanging for 10 ones and exchange. 2. Subtract your ones. 3. Subtract the tens. 4. Count the remaining tens and ones to find the answer. 	<p>$65 - 28 =$</p>  <ol style="list-style-type: none"> 1. Represent the largest number in tens and ones. 2. Identify a ten needs exchanging for 10 ones and exchange. 2. Subtract your ones. 3. Subtract the tens. 4. Count the remaining tens and ones to find the answer.

Year 3, 4, 5 & 6

Column Subtraction

$364 - 123 =$

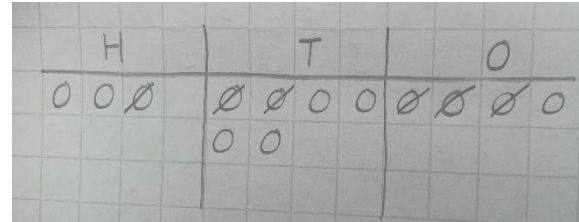


1. Use place value counters to make the integer.
2. Identify the place value of the smallest integer.
3. Subtract the ones.
4. Subtract the tens.
5. Subtract the hundreds.



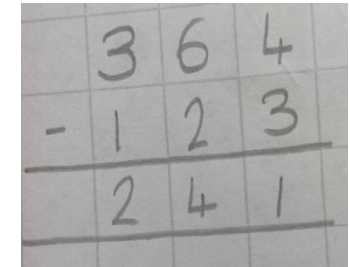
6. Count the remaining.

$364 - 123 =$



1. Use place value counters to make the integer.
2. Identify the place value of the smallest integer.
3. Subtract the ones.
4. Subtract the tens.
5. Subtract the hundreds.
6. Count the remaining.

$364 - 123 =$

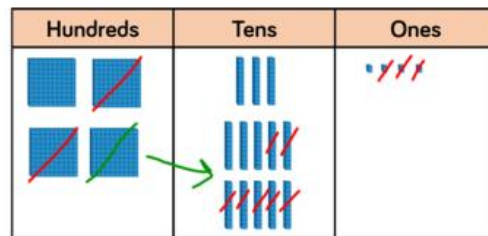


1. Layout the calculation in column subtraction lining up the hundreds, tens and ones.
3. Subtract the ones.
4. Subtract the tens.
5. Subtract the hundreds.

Year 3, 4, 5 & 6

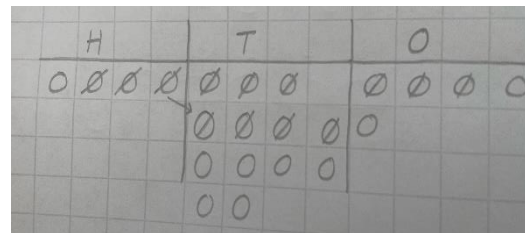
Column Subtraction with exchanging

$435 - 273 =$



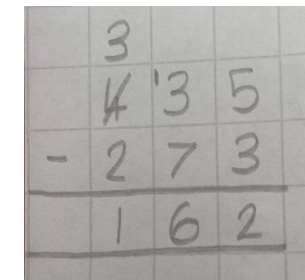
1. Use base 10 to make the largest integer.
2. Identify the place value of the smallest integer.
3. Subtract the ones.
4. Subtract the tens.
5. Subtract the hundreds.

$435 - 273 =$



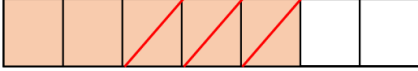
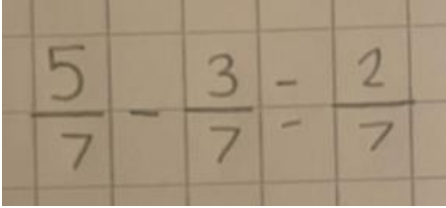


1. Draw the largest integer into the place value chart.
2. Identify the place value of the smallest integer.
3. Subtract the ones.
4. Subtract the tens.
5. Subtract the hundreds.
6. Count the remaining.

$435 - 273 =$



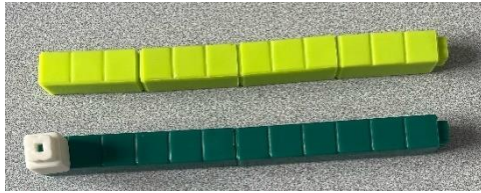
1. Layout the calculation in column subtraction.
2. Subtract the ones.
3. Subtract the tens.
4. Subtract the hundreds.
5. Count the remaining.

	<p>6. Count the remaining.</p> <p>*children will exchange from the next place value column to the right of the integer.</p>	<p>*children will exchange from the next place value column to the right of the integer.</p>	<p>*children will exchange from the next place value column to the right of the integer.</p>
<p>Year 3 & 4</p> <p>Subtracting fractions with the same denominator</p>	$\frac{5}{7} - \frac{3}{7} = \frac{2}{7}$  <ol style="list-style-type: none"> 1. Select the correct bar to represent the whole divided into the equal parts. 2. Add equal parts to show the numerator on top of the whole. 3. Subtract the parts away from the whole.  <ol style="list-style-type: none"> 4. Count the remaining parts out of the whole to form the fraction. 	$\frac{5}{7} - \frac{3}{7} = \frac{2}{7}$  <ol style="list-style-type: none"> 1. Draw a bar model and divide equal parts identified by the denominator. 2. Shade the first fractions numerator onto the whole. 3. Subtract the second fraction's numerator 4. Count the remaining parts out of the whole to form the fraction. 	 <ol style="list-style-type: none"> 1. Subtract the numerators 2. Write the answer over the denominator (this stays the same) 3. Simplify the fraction if needed.

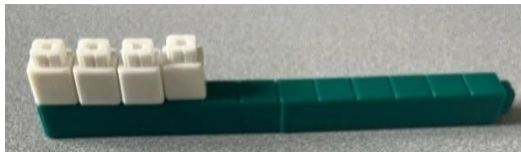
Year 5 & 6

Subtracting fractions with uncommon denominators including mixed numbers

$$\frac{1}{3} - \frac{1}{12} = \frac{3}{12}$$



1. Make the fractions using cuisenaire rods.
2. Find the lowest common denominator between the denominators.
3. Convert the fractions into the same denominator and represent on the whole.



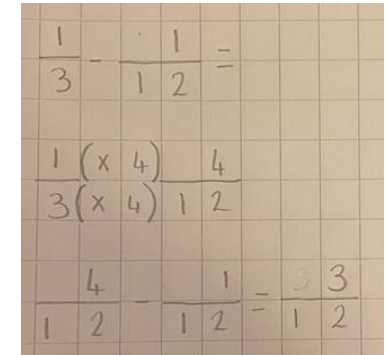
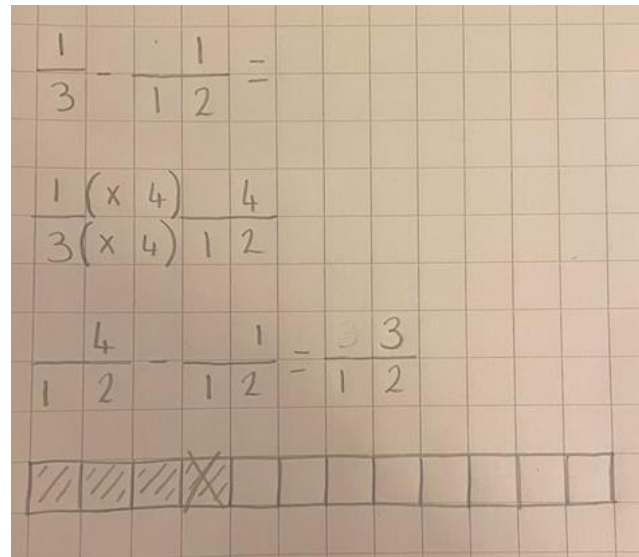
4. Subtract the numerators.



5. Count the remaining parts out of the whole.

$$\frac{1}{3} - \frac{1}{12} = \frac{3}{12}$$

1. Convert the fractions to have the lowest common multiple.
2. Draw a bar model to represent the equal parts of the denominator.
3. Represent the numerators as parts on the bar model by shading.
4. Subtract the smallest numerator from the largest numerator.
5. Count the remaining parts out of the whole for the answer.

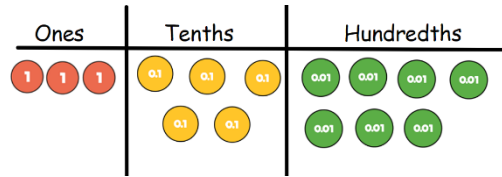


1. Find the lowest common multiple between the fractions.
2. Convert the fractions to have the same denominator.
3. Subtract the lowest numerator from the largest numerator.
4. Write the answer.

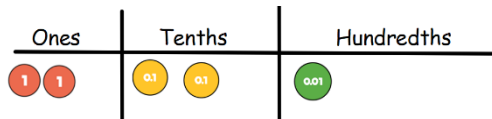
Year 5 & 6

Subtracting decimals with the same amount of decimal places

$3.57 - 1.36 =$



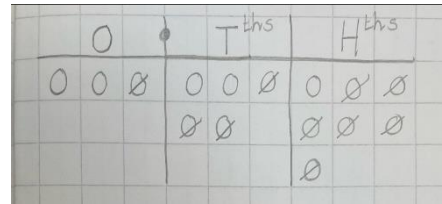
1. Use place value counters to make the integer.
2. Subtract the hundredths.
3. Subtract the tenths.
4. Subtract the ones.



5. Count the remaining for the answer.

*Children will also apply exchanging where needed.

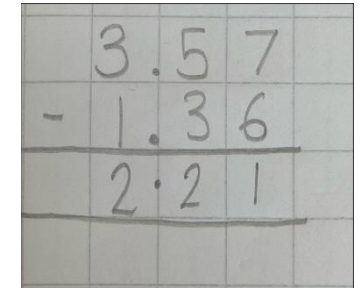
$3.57 - 1.36 =$



1. Draw place value counters on a chart to make the integer.
2. Subtract the hundredths.
3. Subtract the tenths.
4. Subtract the ones.

*Children will also apply exchanging where needed.

$3.57 - 1.36 =$



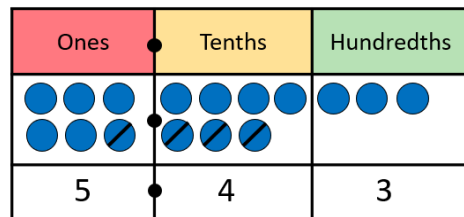
1. Set out the calculation using column subtraction.
2. Subtract the hundredths.
3. Subtract the tenths.
4. Subtract the ones.

*Children will also apply exchanging where needed.

Year 5 & 6

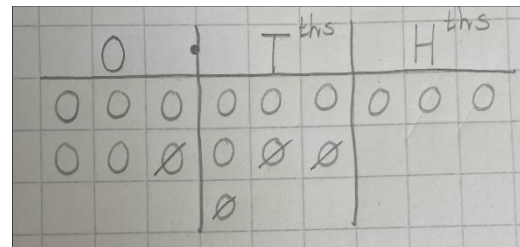
Subtracting decimals with different amount of decimal places

$6.73 - 1.3 =$



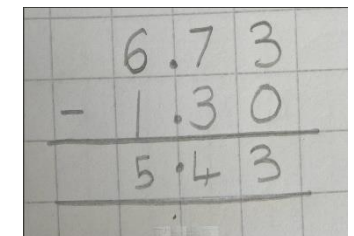
1. Use place value counters to make the integer.
2. Subtract the hundredths.

$6.73 - 1.3 =$



1. Draw place value counters on a chart to make the integer.
2. Subtract the hundredths.

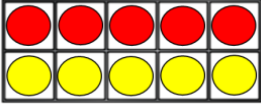
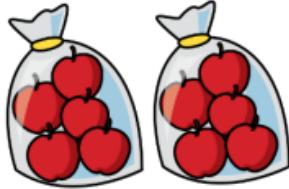
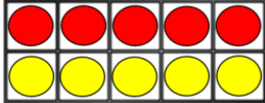
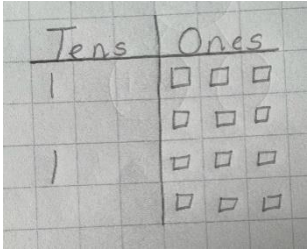
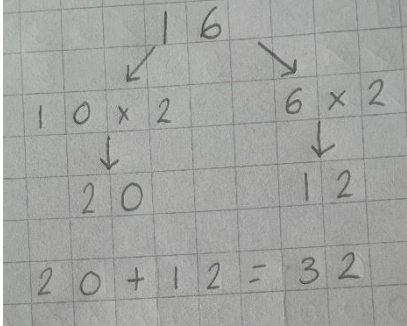
$6.73 - 1.3$

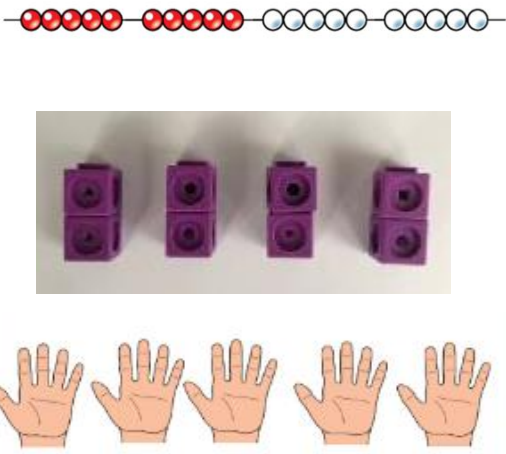
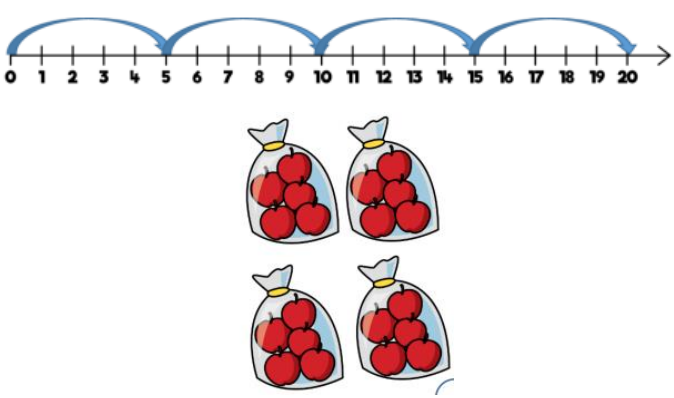
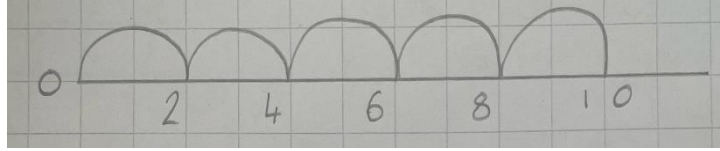
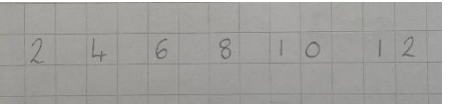
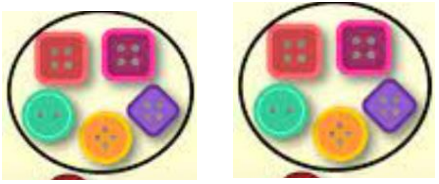
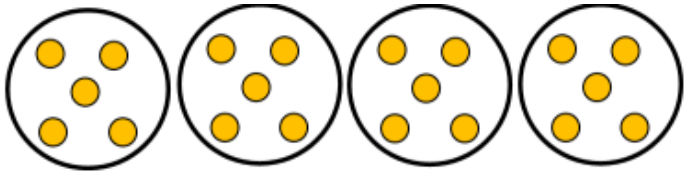
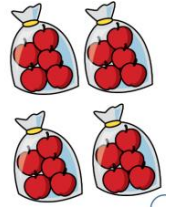


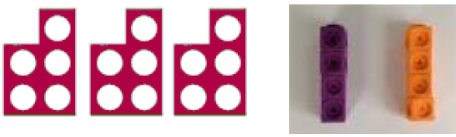
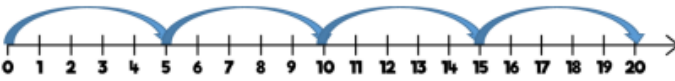
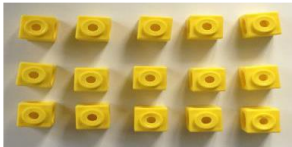
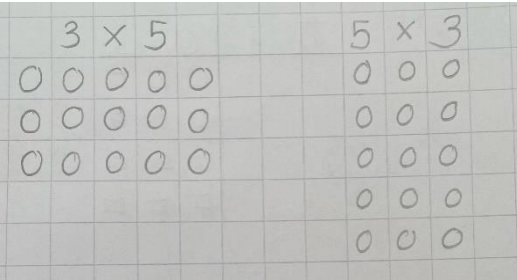
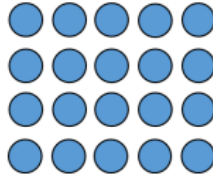
1. Write the calculation in column subtraction.
2. Add in the decimal point.

	<p>3. Subtract the tenths. 4. Subtract the ones.</p> <p>*Children will also apply exchanging where needed.</p>	<p>3. Subtract the tenths. 4. Subtract the ones.</p> <p>*Children will also apply exchanging where needed.</p>	<p>3. Add a 0 to show where there is no integer in the number. 2. Subtract the hundredths. 3. Subtract the tenths. 4. Subtract the ones.</p> <p>*Children will also apply exchanging where needed.</p>
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Multiplication

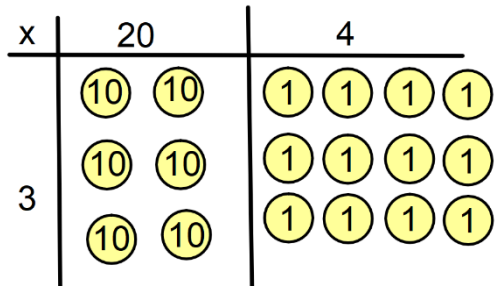
Objective and Strategies	Concrete (Building conceptual knowledge of addition)	Pictorial (Applying their understanding to pictorial representations)	Abstract (Most efficient method)
<p>EYFS, Year 1, 2 & 3 Doubling</p>	<p>Double 5</p>  <ol style="list-style-type: none"> 1. Represent the number twice in chosen resource. 2. Count the total. <p>*Children will also use numicon, tens frames and counters. *In EYFS a range of concrete resources to be used across provision e.g. butterfly wings, lining up shoes, mirror doubling</p>	<p>Double 5</p>  <ol style="list-style-type: none"> 1. Count the total to find the answer.  <ol style="list-style-type: none"> 1. Draw the number in the tens frame/bar model 2. Add the same number again in the tens frame/bar model 5. Count the total. <p>Double 16</p>  <ol style="list-style-type: none"> 1. Draw tens and ones to represent the number. 2. Repeat and draw tens and ones for the same number. 3. Count the total tens and ones. 	<p>Double 16</p>  <ol style="list-style-type: none"> 1. Partition number into tens and ones. 2. Multiply each number by 2. 4. Add both numbers together. <p>“Partition Multiply Re-combine”</p> <p>*Children will be able to progress to partition mentally and complete efficiently using mental arithmetic.</p>

<p>Year 1, 2 & 3 Counting in multiples</p>	<p>Counting in multiples</p>  <p>Children will use concrete resources to count in multiple.</p>	<p>Counting in multiples</p>  <p>Children will use number lines or pictures to support their counting in multiples. They may use the number line provided or draw their own.</p> 	<p>Counting aloud in multiples.</p> <p>2, 4, 6, 8...</p> <p>Write sequences of numbers counting in multiples</p> 
<p>Year 1, 2 & 3 Repeated addition</p>	<p>$5 + 5 =$</p>  <ol style="list-style-type: none"> 1. Create the equal groups with the equal number in each. 2. Verbally say the repeated addition 3. Count the total in ones or in known counting pattern. 	<p>$5 + 5 + 5 + 5$</p>  <ol style="list-style-type: none"> 1. Draw equal groups to show the repeated addition. 	 <ol style="list-style-type: none"> 1. Recognise how many is in each equal group. 2. Recognise how many groups there is.

	<p>*Children will use a range of concrete resources e.g. tens frames, counters, objects, cubes</p> 	 <ol style="list-style-type: none"> 1. Use the number line provided or draw their own to show the repeated addition. 2. One jump of the multiple. 	<ol style="list-style-type: none"> 3. Write the repeated addition sentence 4. Count the total in ones or in known counting pattern.
<p>Year 1, 2 & 3</p> <p>Arrays</p> <p>*To understand commutativity with multiplication</p>	<p>3 x 5 or 5 x 3</p>  <ol style="list-style-type: none"> 1. Say the sentence ___ groups of ___ 2. Arrange into 1 equal group of ___ 3. Add equal groups of ___ to the array until total number of groups made. 4. Children to count in counting pattern to find the total. <p>*Children to understand the array either shows 3x5 or 5x3</p>	<p>3 x 5 or 5 x 3</p>  <ol style="list-style-type: none"> 1. Read the number sentence. 2. ___ groups of _____ 3. Draw the 1st group. 4. Repeat until the correct groups are drawn. 	 <ol style="list-style-type: none"> 1. Identify the groups and number in each equal group. 2. There are ___ groups of _____ 3. Write the repeated addition

Year 3
Grid Method
Multiplication

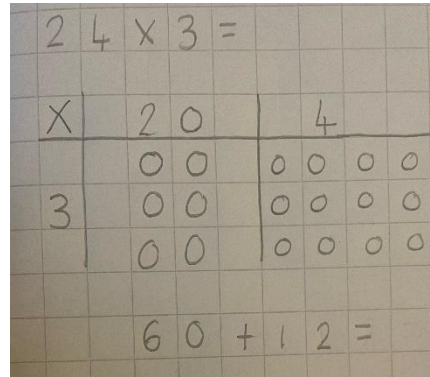
$24 \times 3 =$



1. Partition the largest number into place value.
2. Use counters to create arrays to show the multiplications.
3. Count the total.

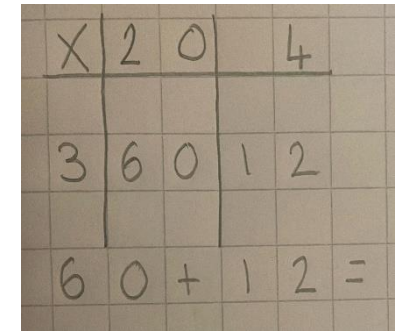
*Children will progress to using base 10 representing tens as 1 stick of ten where needed.

$24 \times 3 =$



1. Draw out the place value chart to partition the largest number.
2. Draw an array to represent the multiplications
3. Add up the columns and add together.

$24 \times 3 =$

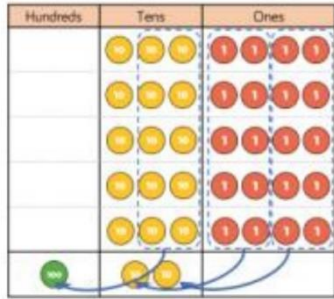


1. Draw the grid partition the largest number.
2. Calculate the multiplications in the grid.
4. Add the answers together.

*As children begin multiplying numbers with more than 2 digit they will represent using the same method, however showing hundreds/tens/ones for example for a 3 digit number.

Year 4, 5 & 6
Column
Multiplication

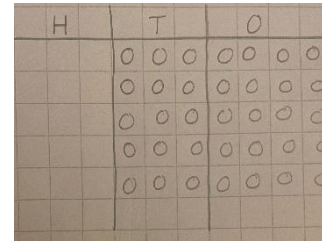
$34 \times 5 =$



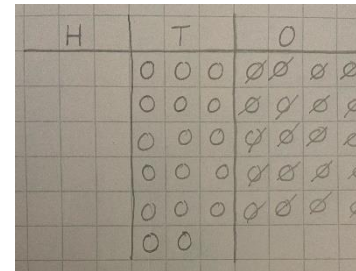
1. Create ____ groups of the largest number in the place value chart.
2. Exchange where needed.
4. Count the total.

$34 \times 5 = 170$

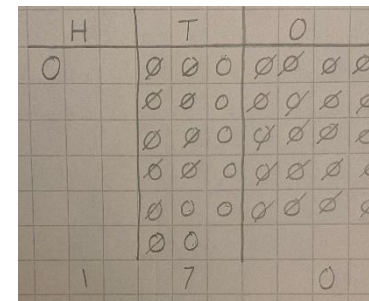
1. Partition the largest number into equal groups of ____.



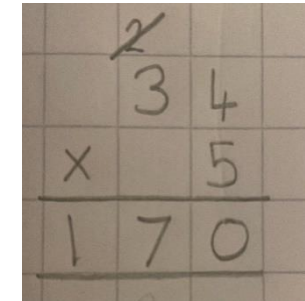
2. Exchange (if needed)



3. Count the columns for the answer.



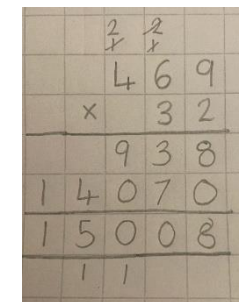
$34 \times 5 =$



1. Set the calculation out in column multiplication.
2. Multiply the ones.
3. Multiply the tens.
4. Underline the answer.

*Children will carry above into the correct column.

*As children progress through multiplication they will multiply numbers with more than 2 digits together. See example below:



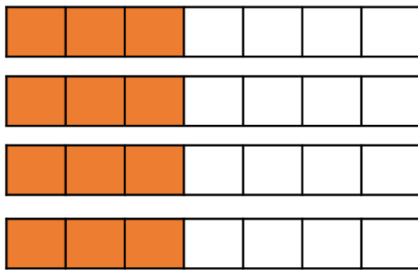
Year 5 & 6

Multiplying Fractions by integer

$$\frac{3}{7} \times 4 =$$



1. Represent the fraction using a bar model.
2. Understand you are multiplying the fraction by the integer – this is how many times it needs to be repeated (link to repeated addition)
3. Create the repeated addition bar models.

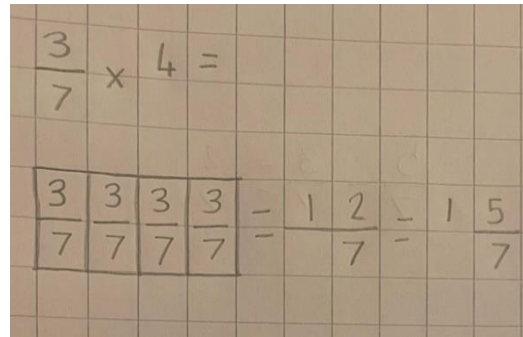


4. Count up the shaded fractions and write the answer.

$$\frac{3}{7} \times 4 = \frac{12}{7} = 1\frac{5}{7}$$

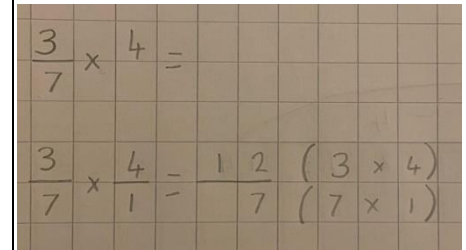
5. Convert to a mixed number or simplyfy.

$$\frac{3}{7} \times 4 =$$



1. Draw a bar model to show how many times the fraction requires to be repeated. (Make links to repeated addition)
2. Write the fraction in each part of the model.
3. Add the numerators together (repeated addition).
4. Multiply the denominator by 1.
5. Write the fraction.

$$\frac{3}{7} \times 4 =$$



1. Make the integer into a fraction with a denominator of 1.
2. Multiply the numerators.
3. Multiply the denominators.
4. Simplify the fraction or convert to a mixed number, when needed.

Year 5 & 6

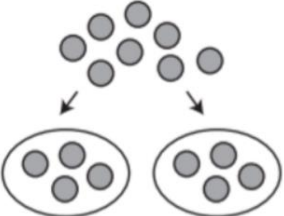
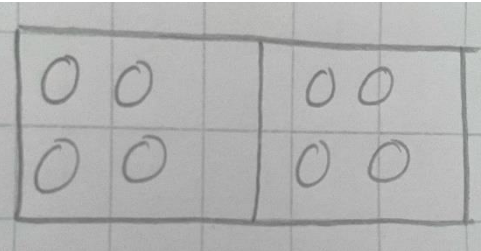
Multiplying fractions
by fractions

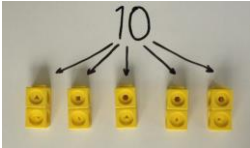
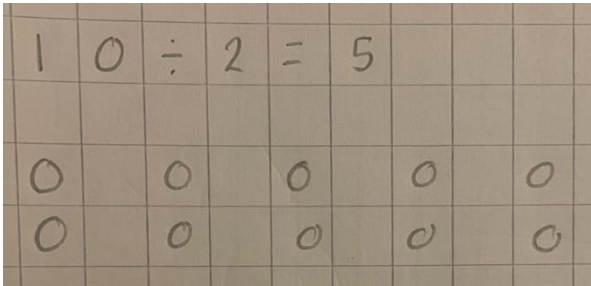
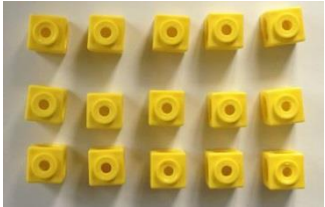
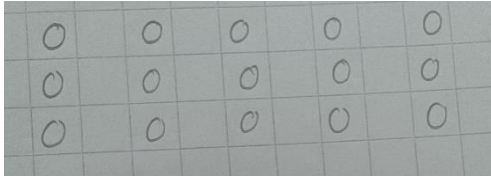
*Children will go
straight to being
taught the most
efficient method.

$$\frac{1}{3} \times \frac{1}{2} =$$
$$\frac{1}{3} \times \frac{1}{2} = \frac{1}{6} \quad \left(\begin{array}{l} 1 \times 1 \\ 3 \times 2 \end{array} \right)$$

1. Multiply the numerators.
2. Multiply the denominators.
3. Simplify, where needed.

Division

Objective and Strategies	Concrete (Building conceptual knowledge of addition)	Pictorial (Applying their understanding to pictorial representations)	Abstract (Most efficient method)
EYFS	<p>EYFS pupils will use concrete resources in maths lessons and continuous provision to understand the concept of sharing equally between a number of groups. Initially only 2 groups.</p> <p>e.g. hoops and beanbags outside, playdoh, natural objects, snack table.</p>	<p>EYFS will learn the concept of sharing through stories which explore sharing. Stretch pupils understanding here to sharing between more than 2 groups.</p> <p>e.g. There's somebody at the door story, sharing the cookies. Adults reenact this for concrete understanding using real cookies.</p>	
<p>Year 1 & 2 Sharing objects into groups</p>	<p>8 shared by 2</p>  <ol style="list-style-type: none"> 1. Count out the whole. 2. Share into equal groups. 3. Count the total of the group. 	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> $8 \div 2 = 4$ </div>  <ol style="list-style-type: none"> 1. Draw a bar model. 2. Divide into equal parts. 3. Share equally. 4. Count the total of the group. 	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> $8 \div 2 = 4$ </div> <p>*Children will be able to use times table recall to answer division.</p>

<p>Year 1 & 2</p> <p>Division as grouping</p>	 <ol style="list-style-type: none"> 1. Count out 10 counters. 2. Group the counters into groups of 2. 3. Count how many groups made. 	 <ol style="list-style-type: none"> 1. Draw a bar model and divide into equal groups. 2. Share the 	<p>$10 \div 2 = 5$</p> <p>*Children will be able to use times table recall to answer division.</p>
<p>Year 1, 2 & 3</p> <p>Division with arrays</p>	<p>$15 \div 3 = 5$</p>  <ol style="list-style-type: none"> 1. Count out the whole. 2. Divide the counters into rows of ____ 3. Count how many equal rows of ____ 	<p>$15 \div 3 = 5$</p>  <p>*Children can either use the pictorial representation given or draw the array.</p> <ol style="list-style-type: none"> 1. Draw 1 group of _____ 2. Repeat by counting in multiple until whole is reached. 3. Count how many equal groups made. 	<p>$15 \div 3 = 5$</p> <p>*Children will be able to use times table recall to answer division.</p>

Year 3 & 4

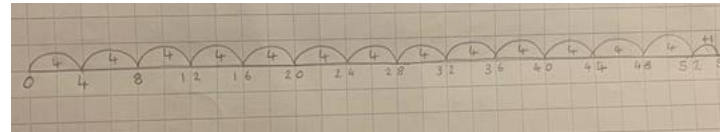
Division with a remainder

$53 \div 4 =$



1. Represent the dividend in place value counters.
2. Exchange if needed, to share equally into each row.
3. Share the place value counters equally into the rows.
4. Leave the remainders out.

$53 \div 4 =$



1. Draw a number line from 0 to the dividend number.
2. Count up in the divisor.
3. Reach the highest multiple closest to the dividend.
4. Add the remaining jumps in ones.
5. Combine the number of jumps in multiples and ones.

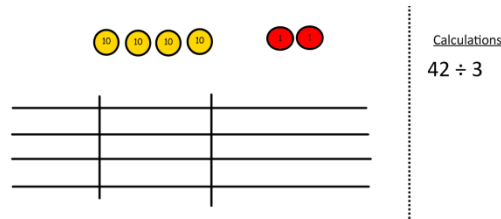
$53 \div 4 = 13 \text{ r}1$

1. Use knowledge of ___ times table to count up to the nearest multiple.
2. Count the remaining to reach the dividend.

Year 3, 4, 5 & 6

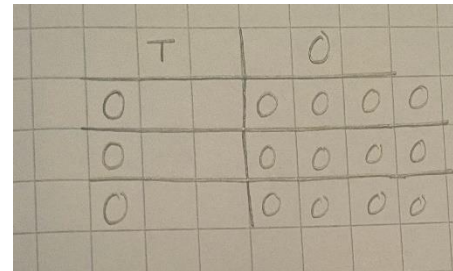
Short Division

$42 \div 3 =$



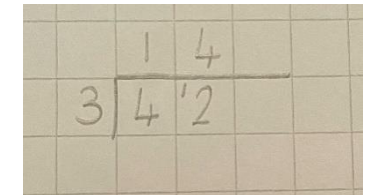
1. Make the dividend out of place value counters on the grid.
2. Divide the grid into the number of rows shown in the dividend.

$42 \div 3 =$



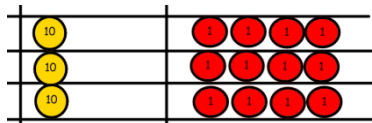
1. Draw out the grid with rows to represent the divided.
2. Divide out the number equally into each row.
3. Exchange where needed.

$42 \div 3 =$



1. Draw the short division grid.
2. Write largest number in the grid.
3. Write divisor to the left
4. Divide each number by the divisor

3. Partition the dividend and add to the place value grid.
4. Exchange if needed.
6. Add the place value counters in 1 row for the answer.



4. Add the place value counters in 1 row for the answer.

Children will exchange if needed.

$$\begin{array}{r} 86 \text{ r } 2 \\ 3 \overline{) 432} \\ \underline{30} \\ 13 \\ \underline{12} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

$$\begin{array}{r} 14.6 \\ 35 \overline{) 511.0} \\ \underline{35} \\ 16 \\ \underline{15} \\ 11 \\ \underline{10} \\ 10 \\ \underline{10} \\ 0 \end{array}$$

*Children will progress to using short division for division with remainders and divisions using decimal places to divide the total accurately.

Year 6

Long Division

John makes a total of £3,813 in January.

For the month of January, on average how much money does he make per day?

John earns £123 per day in January.

The image shows handwritten long division work on a grid background. On the left, the calculation is written as $31 \overline{) 3813}$. The steps are: 31 goes into 38 one time (1), 31 is subtracted from 38 to get 7, bring down 1 to get 71; 31 goes into 71 two times (2), 62 is subtracted from 71 to get 9, bring down 3 to get 93; 31 goes into 93 three times (3), 93 is subtracted from 93 to get 0. On the right, the same calculation is shown as a series of additions: 31, 62, 93, 124, 155, 186, 217, 248. A note 'Add 30 add 1' is written at the top right of this section.

1. List multiples of the divisor (are you going to do repeated addition or partition and add?)
2. Divide
3. Multiply
4. Subtract
5. Bring it down
6. and bring it on back!

<https://youtu.be/y3FOSItM-os>

Year 6

Divide fractions by an integer

*Children will go straight to being taught the most efficient method.

The image shows three rows of handwritten math on a grid background. The first row shows the equation $\frac{1}{2} \div 3 =$. The second row shows the equation $\frac{1}{2} \div \frac{3}{1} =$. The third row shows the equation $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$.

1. **Keep** the first fraction the same. Add a denominator of 1 to the integer to create a fraction.
2. **Change** the division symbol to a multiplication symbol
3. **Flip** the second fraction (swap the numerator and denominator over)