



# CALCULATION POLICY

2021-23

**Purford Green Primary**

Part of the Passmores Co-operative Learning Community



Purford Green Primary

Calculation Policy 2021

This calculation policy is intended to bring consistency, continuity and progression as methods build upon each other from the early years foundation stage (YR), to year 6.

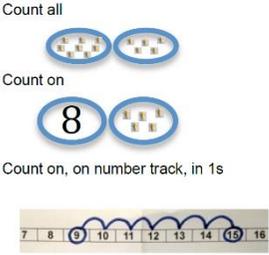
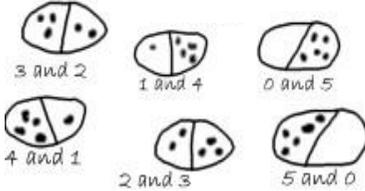
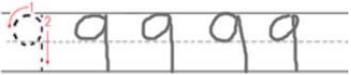
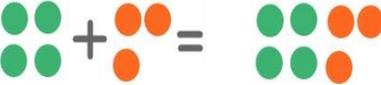
It is essential that rapid recall of key number facts is embedded prior to written calculations being taught. This is necessary as the written calculations outlined in this policy rely on mental strategies to process numbers efficiently and with confidence. Therefore, mental strategies are included within this policy. This is particularly relevant now that in Year 4 the children will take the National Multiplication Tables check, which will be introduced from June 2020.

The links between subtraction, addition, division and multiplication are constantly reinforced throughout all year groups. These are particularly relevant when looking at the number facts. The concept of the inverse operation will really help the children develop the ability to complete mental calculations and the term will be introduced to Year 2. Children will also be encouraged to use this to check their workings out.

Children's understanding of place value is central to all of these calculation processes. Developing an understanding of numeracy, quantity and the number system is of intrinsic importance to the ability to be successful in calculation. Therefore, structured place value apparatus (e.g. base 10) are on the tables when children are working through a new calculation method to help them see this relationship and to develop their understanding of the processes they are working through. This will provide visual images and models of the numbers and allow children to develop a strong sense of numeracy.

As part of every lesson, emphasis will be made on mathematical vocabulary and children should have access to written vocabulary at all times to ensure they can recognise and spell them as well as use it in their explanations. There will also be a particular focus on children explaining their methods, including written explanations and evidence of reasoning.

If you are unsure of any terminology or processes in this document, then do not hesitate to contact the Maths Lead or your child's class teacher.

Year	Addition & Subtraction	
YR	<p>Children count fluently in 1's from 1 to 20. [Forwards and backwards]</p> <p>Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They can use this image again to calculate '1 more' [then '1 less'] and find '1 more/less' on a marked number line.</p>  <p>They begin to count on/back from any number using '1 more/less' knowledge.</p>  <p>They should experience practical calculation opportunities using a wide variety of equipment, e.g. small world play, role play, counters, cubes etc.</p> <p>They develop ways of recording calculations using pictures, etc.</p>   <p>Children will recognise and use + = - signs and understand addition as combining 2 groups and subtraction as taking away from a group.</p>	<p>They learn to write numbers carefully.</p>  <p>Children understand the = sign means is the same as, not makes, and that children see calculations where the equals sign is in a different position, e.g. <math>9 - 5 = 4</math> and <math>4 = 9 - 5</math></p>  <p>Children <b>who are ready</b> may record this as:</p>  <p><math>4 + 3 = 7</math>  <math>3 + 4 = 7</math>  <math>7 - 3 = 4</math>  <math>7 - 4 = 3</math></p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>"If 7 is the whole, 3 is a part and 4 is a part."</p> </div> 

**By the end of EYFS most children will:**

- say numbers in familiar contexts such as number rhymes or in role play
- recognise, count and order numbers up to 20
- use the vocabulary involved in addition and subtraction
- recognise differences in quantity of everyday objects and to find one more or one less
- understand the vocabulary of addition and subtraction in practical activities and in solving practical problems
- know the +, = and - signs
- know number bonds to 10

**Vocabulary**

Numbers, one ... twenty, count, order, add, and, plus, take away, subtract, minus more, less, equal, same as, Part-part whole

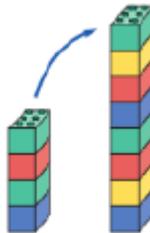
**Year**

**Multiplication and Division**

YR

Children are able to solve simple problems involving doubling. [In context]

Double 4 is 8



double 4 is 8  
 $4 \times 2 = 8$

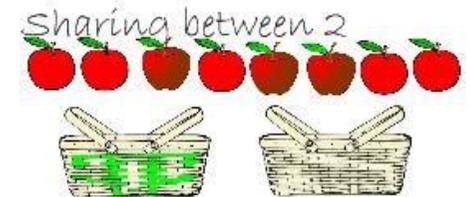
'4 and 4 equals 8'

'4 + 4 = 8'

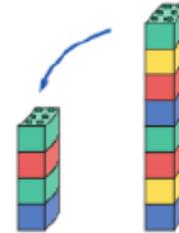


Children are able to solve simple problems involving halving and sharing. [In context]

"Sharing equally between."



Half of 8 is 4



**By the end of EYFS most children will:**

- recall all doubles to 5
- know that halving is the same as sharing between 2 and using this to solve simple problems
- know what is half of all even numbers to 20

**Vocabulary**

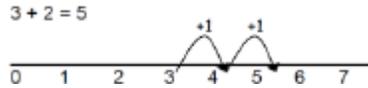
equal, same as, double, half, share equally between

Year	Addition	Subtraction
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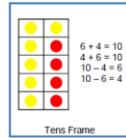
Y1

**Mental Methods**

Record addition by showing jumps on marked number lines



Or moving onto higher numbers with the hundred square:

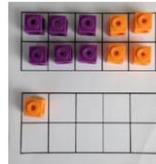


They will memorise number facts to 10 (then 20) in several forms establishing addition and subtraction as related operations. They will record simple mental addition using + and =

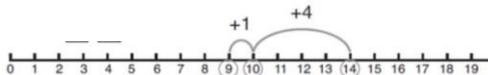
**Written Methods**

Children will be encouraged to count on using practical resources e.g. fingers, cubes... to combine groups of objects to find the totals.

E.g.  $6 + 5 = 11$ , start with 6 and use part of the second number to fill the ten-frame, then add on 1 more.



Use a number line to 'bridge' through 10. e.g. '9 add 5'.



They will move on to the use of number lines and Base 10 equipment to support their developing understanding of addition [adding 1, or 10]



**MASTERY - The Big Ideas (NCETM)**

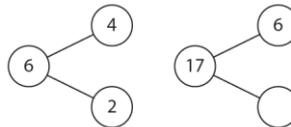
Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. For example, given  $8 + 7$ , thinking of 7 as 2 + 5 and adding the 2 to 8 to make 10 and then the 5 to total 15.

Thinking of part whole relationships is helpful in linking addition and subtraction. For example, where the whole is 6, and 4 and 2 are parts. This means that 4 and 2 together form the whole, which is 6 and 6 subtract 4 leaves the 2 and 6 subtract 2 leaves the 4.



Can you see these number sentences in the picture

- $3 + 2 = 5$
- $2 + 3 = 5$
- $5 - 3 = 2$
- $5 - 2 = 3$



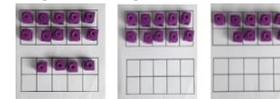
**Subtraction**

**Mental Methods**

Children understand subtraction as 'take away'. They use practical equipment. e.g. Alex has 12p. I take away 4p from him. How much does he have left?

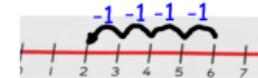


Bridging through ten. E.g.  $14 - 5 = 9$



Make 14 on the ten frame. Take away the four first to make 10 and then takeaway one more so you have taken away 5. You are left with the answer of 9.

Use a marked number line to count back: e.g.  $6 - 4 = ?$



In preparation for understanding how to find the difference by comparing two amounts, children should be shown that finding the difference is linked to subtraction and an appropriate strategy to use when the numbers are close together. e.g.  $13 - 9$  "The difference between 13 and 9 is..."

To find the difference, children need to compare the amounts. Ask "How many more?" [or less]



The next stage is to make the smaller amount the same size as the larger amount by counting on:  $9 + ? = 13$  "If 13 is the whole, 9 is a part and ? is a part."

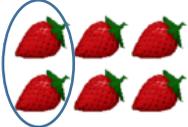
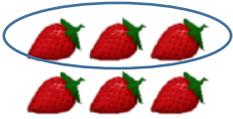
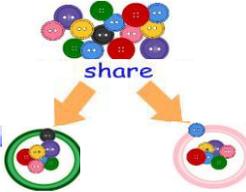
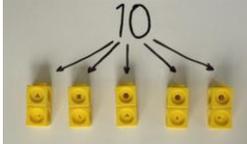
**Written Methods**

Record simple mental subtractions using - and =

**Vocabulary**

add, more, plus, and, make, altogether, total, sum, equals, equals to, double, most, count on, number line equal to, take, take away, less, minus, subtract, leaves, difference between (distance between), how many more, how many fewer, less than, most, least, count back, how many left, how much less is...?

- Number bonds/ number facts
- Addition facts/ subtraction facts
- Fact family

Year	Multiplication	Division
Y1	<p><b>Mental Methods</b> Recall doubles of all the numbers to at least 10 and recall the corresponding halves. Count on or back in 1's, 2's, 5's and 10's in contexts: dropping coins of different values into a box, counting fingers on hands...</p>  <p>Multiply with concrete, pictorial representations and arrays: There are 2 sweets in one bag. How many sweets are there in 5 bags?</p>  <p><b>Written methods</b></p>  <p>Looking at columns <math>2+2+2</math> 3 groups of 2</p>  <p>Looking at rows <math>3+3</math> 2 groups of 3</p> <p><b>Language and model must match – show by indicating one group</b> [e.g. using loops or build/make groups]</p> 	<p><b>Mental Methods</b></p> <p><b>Sharing:</b> Share a group of objects <b>equally between 2 groups</b> e.g. sharing objects between 2 plates: Share 14 buttons between 2 dishes.</p>  <p><b>Grouping:</b> In context</p> <p>How many pairs of socks?</p>  <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>2 + 2 + 2 + 2 = 8</math> There are 4 pairs of two.     </div> <p>Divide quantities into equal groups. <b>How many 2's</b> are there in 10?</p> 
	<p>MASTERY - The Big Ideas (NCETM)</p> <p>Counting in steps of equal sizes is based on the big idea of 'unitising' ; treating a group of, say, five objects as one unit of five. Working with arrays helps pupils to become aware of the commutative property of multiplication, that <math>2 \times 5</math> is equivalent to <math>5 \times 2</math>.</p> <p><i>Ask pupils to use concrete objects to answer questions such as:</i></p> <ul style="list-style-type: none"> <li>■ What is double 4?</li> <li>■ What is half of 6?</li> </ul> <p>Anna is counting in fives: 5, 10, <input type="text"/>, 20, <input type="text"/>, <input type="text"/>, ...</p> <p>Fill in the missing numbers.</p> <p><i>Show pupils pictures or groups of objects like the examples below. Ask questions such as 'How many biscuits are there altogether?'</i> <i>'How many cherries are there altogether?'</i> <i>Observe how pupils count the objects. Do they count in twos, fives etc. or do they count in ones?</i></p> 	
	<p style="text-align: right;"><b>Vocabulary</b></p> <p>groups of, lots of, times, array, altogether, multiply, count share, share equally, one each, two each..., group, groups of, lots of, array Odd, Even Multiply, Multiplication, Times, Product Repeated addition Array Divide, Division Groups, Grouping, Sharing</p>	

Year	Addition	Subtraction
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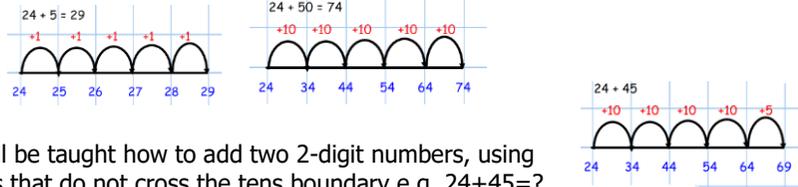
Y2

**Mental Methods**

Pupils will add with 2-digit numbers developing mental methods with greater fluency [including bonds to 100 with multiples of 10 e.g.  $30 + 70 = 100$ ].

**Written Methods**

(i) Pupils will add 2-digit numbers and 1-digit numbers and add 10s to 2-digit numbers



Pupils will be taught how to add two 2-digit numbers, using examples that do not cross the tens boundary e.g.  $24 + 45 = ?$

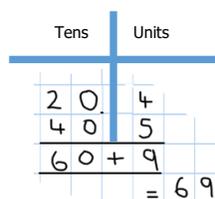
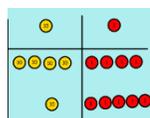
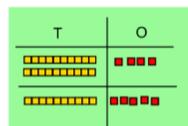
(ii) Partition both numbers then add together the ones first then add the tens.

Use the Base 10 blocks first before moving onto place value counters (or coins) again using examples that do not cross the tens boundary...

$24 + 15 =$

$44 + 15 =$

$24 + 45 =$



**MASTERY - The Big Ideas (NCETM)**

Understanding that addition of two or more numbers can be done in any order supports children's fluency. When adding two numbers it can be more efficient to put the larger number first. E.g.  $3 + 8$  it is easier to calculate  $8 + 3$ . When adding three or more numbers it is helpful to look for pairs of numbers that are easy to add. E.g. given  $5 + 8 + 2$ .

Understanding the importance of the equals sign meaning 'equivalent to'. Empty box problems can develop this key idea.

Correct use of the equals sign should be reinforced at all times. Altering where the equals sign is placed develops fluency and flexibility further.

Fill in the missing numbers and explain what you notice.

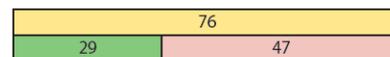
$23 + \square = 30$

$33 - \square = 30$

$43 + \square = 50$

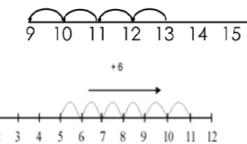
$53 - 3 = \square$

*Pupils use a bar model to explore addition and subtraction facts and the relationship between them.*



**Mental Methods**

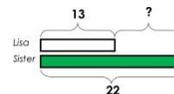
Pupils should subtract on a marked number line by counting back.



They will be taught to recognise that when numbers are close together, it is more efficient to count on to find the difference.

**Comparison Bar Models**

Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them.

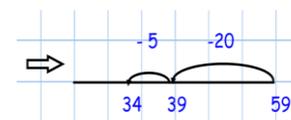
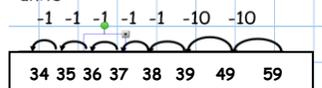


Understanding the relationship between addition and subtraction needs to be continually reinforced.

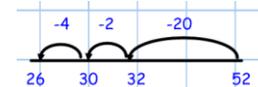
**Written Methods**

Pupils will use a number line to subtract one and two digit numbers from a two digit number.

$59 - 25 = 34$  Partition the second number and subtract it in tens and units:

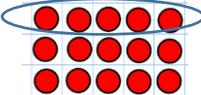
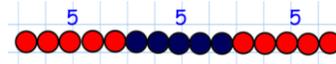
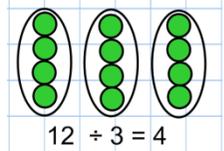
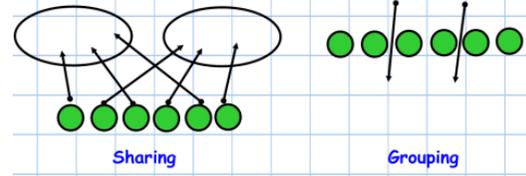
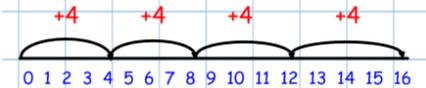


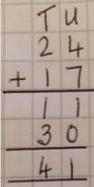
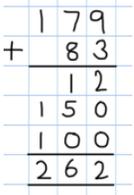
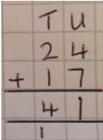
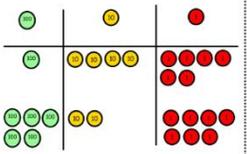
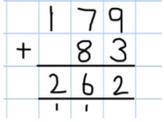
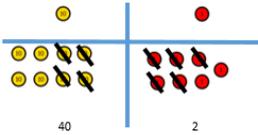
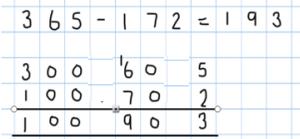
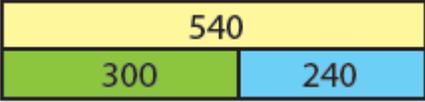
Pupils will be taught to bridge through 10:

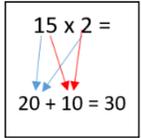
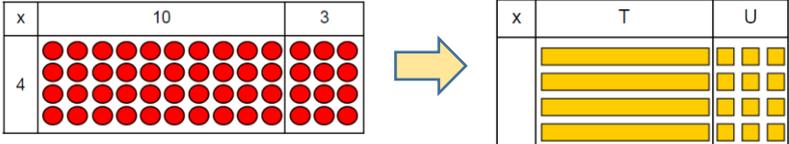
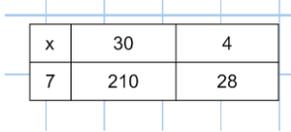
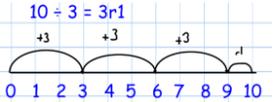
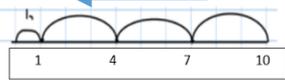
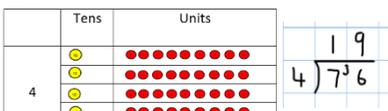


**Vocabulary**

- sum, tens, units, partition, addition, column, tens boundary
- difference, strategy, partition, tens, units
- Add, subtract
- Count on, count back
- More, less
- Plus, minus, total, sum
- Difference between
- Partition, Bridge, Round, adjust
- Inverse
- Number line
- Number facts
- Multiple of ten, tens boundary

Year	Multiplication	Division
Y2	<p><b>Mental Methods</b> Children should begin to recall multiplication facts for 2x to 10x tables.</p> <p><b>Written Methods</b> Children should be taught to multiply using arrays and <b>repeated addition</b>.</p> <p>i. To use arrays to visualise patterns...  </p> <p>ii. To use practical apparatus e.g. beads to count on in repeated blocks.  </p> <p>iii. To use an empty number line to count on.  </p> <p>...and <b>make links</b> between all three representations.</p> <p><b>Scaling</b> (Note: this image can introduce multiplication as <b>scaling</b>. "Start with a length of 5 and make it 3 times longer."  </p>	<p><b>Mental Methods</b> To begin to understand that division is the inverse of multiplication.</p> <p><b>Written Methods</b> Children should be taught to group or share using <math>\div</math> and <math>=</math> signs. They can use hoops and objects to illustrate the idea of sharing.</p> <p></p> <p>They should know and understand <b>sharing and grouping</b>. e.g. <math>6 \div 2 =</math></p> <p><b>Sharing</b> – 2 indicates the <b>number of groups</b> to share equally between. <b>Grouping</b> – 2 indicates the <b>size of each group</b>.</p> <p></p> <p>They should begin to <b>group</b> using a number line. This should be modelled so pupils can develop the skill of 'chunking' in KS2.  </p>
<p>MASTERY - The Big Ideas (NCETM)</p> <p>It is important that pupils both commit multiplication facts to memory and also develop an understanding of conceptual relationships. This will aid them in using known facts to work out unknown facts and in solving problems. Pupils should look for and recognise patterns within tables and connections between them (e.g. <math>5 \times</math> is half of <math>10 \times</math>). Pupils should recognise multiplication and division as inverse operations and use this knowledge to solve problems. They should also recognise division as both grouping and sharing. The recognition of pattern in multiplication helps pupils commit facts to memory, for example doubling twice is the same as multiplying by four, or halving a multiple of ten gives you the related multiple of five.</p> <p>Two friends share 12 sweets equally between them. How many do they each get? Write this as a division number sentence.</p> <p>Make up two more sharing stories like this one.</p> <p>Chocolate biscuits come in packs (groups) of 5. Sally wants to buy 20 biscuits in total. How many packs will she need to buy? Write this as a division number sentence.</p> <p>Make up two more grouping stories like this one.</p>		<p><b>Vocabulary</b></p> <p>multiplied by, repeated, addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times</p> <p>divide, divided by, divided into, division, grouping, number line, left, left over</p> <p>Multiplication table, Times table</p> <p>Odd, Even</p> <p>Multiply, Multiplication, Times, Product</p> <p>Repeated addition, Array</p> <p>Divide, Division</p> <p>Inverse</p> <p>Operation</p> <p>Notation: <math>\times</math>, <math>\div</math> and <math>=</math> signs</p>

Year	Addition	Subtraction															
Y3	<p><b>Mental Methods</b></p> <p>Children should have a good understanding of place value.</p> <p>Add a 3-digit number and ones mentally</p> <p>Add a 3-digit number and tens mentally</p> <p>Add a 3-digit numbers and hundreds mentally</p>  <p>e.g. start with the number 146... "What is 10 more?.. 100 more?"</p> <p><b>Written Methods</b></p> <p><b>Add numbers with up to 3-digits</b></p>  <p>They should partition the numbers and then add the units first, then the tens and hundreds etc before adding together to make the total.</p>  <p>Children need to understand place value and what they are adding in each column e.g. the 7 and 8 are 7 tens add 8 tens.</p> <p><b>Move to the compact column addition method, with 'exchanging':</b></p>   <p>146 + 527</p> 	<p><b>Mental Methods</b></p> <p>Subtract mentally a 3-digit number and ones</p> <p>Subtract mentally a 3-digit number and tens</p> <p>Subtract mentally a 3-digit numbers and hundreds</p> <p><b>Written Methods</b></p> <p><b>Subtracting with 2 and 3 digit numbers</b> (introduce partitioned column subtraction method)</p> <p>87 - 45 = 42</p>   <p>80 7 - 40 5 --- 40 + 2</p> <p>Move on to exchanging tens, using apparatus to model, to develop children's understanding. Next step – moving on to hundreds, tens and units.</p>  <p>83 - 45 = 38</p> <p>70 80 + 3 40 + 5 --- 30 + 8 = 38</p>															
	<p><b>MASTERY - The Big Ideas (NCETM)</b></p> <p>Relating numbers to 5 and 10 helps develop knowledge of the number bonds within 20. E.g. 8 + 7, thinking of 7 as 2 + 5, and adding the 2 and 8 to make 10, then the 5 to 15. This should then be applied when calculating with larger numbers. Subtraction bonds can be thought of in terms of addition: for example, in answering 15 – 8, thinking what needs to be added to 8 to make 15. Counting on for subtraction is a useful strategy that can also be applied to larger numbers.</p> <p><b>What do you notice?</b></p> <p><b>Is there a relationship between the calculations?</b></p> <table border="1" data-bbox="197 1212 698 1369"> <tbody> <tr> <td>500 + 400 =</td> <td>523 + 400 =</td> <td>523 + 28 =</td> </tr> <tr> <td>400 + 500 =</td> <td>423 + 500 =</td> <td>423 + 28 =</td> </tr> <tr> <td>300 + 600 =</td> <td>323 + 600 =</td> <td>323 + 28 =</td> </tr> <tr> <td>200 + 700 =</td> <td>223 + 700 =</td> <td>223 + 28 =</td> </tr> <tr> <td>100 + 800 =</td> <td>123 + 800 =</td> <td>123 + 48 =</td> </tr> </tbody> </table>  <p><b>Write the four number facts that this bar model shows.</b></p> <p><b>Vocabulary</b></p> <p>hundreds, boundary, increase, vertical, , expanded, compact</p> <p>exchange, 'carry', decrease, hundreds, value, digits</p> <p>partition, Calculation, Calculate Addition, Subtraction, Sum, Total Difference, Minus, Less</p> <p>Column addition, Column subtraction</p> <p>Operation</p> <p>Estimate</p> <p>Inverse</p> <p>Operation</p>		500 + 400 =	523 + 400 =	523 + 28 =	400 + 500 =	423 + 500 =	423 + 28 =	300 + 600 =	323 + 600 =	323 + 28 =	200 + 700 =	223 + 700 =	223 + 28 =	100 + 800 =	123 + 800 =	123 + 48 =
500 + 400 =	523 + 400 =	523 + 28 =															
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Year	Multiplication	Division
Y3	<p><b>Mental Methods</b> Recall and use multiplication facts for the 2, 3, 4, 5, 8 and 10 times tables, and multiply multiples of 10. e.g. <math>4 \times 8 =</math></p> <ul style="list-style-type: none"> <li>Either start with 4 <math>\rightarrow</math> double it (8), double it(16), double it(32)</li> <li>Or start with 8 <math>\rightarrow</math> double it(16), double it(32)</li> </ul> <p>Develop fluency in mental strategies using the commutative law e.g. <math>3 \times 11 \times 5 = 5 \times 11 \times 3 = 55 \times 3</math></p> <p>and the distributive law e.g. <math>15 \times 2 = 10 \times 2 + 5 \times 2</math></p> <p>Develop fluent mental methods to solve a range of problems</p>  <p><b>Written Methods</b></p> <p>i. <b>Multiply 2-digits by a single digit number</b> develop understanding of use of arrays</p>  <p>ii. <b>Introduce the grid method for multiplying 2-digit by single – digits: e.g. <math>34 \times 7</math></b></p> <p>Children should be confident in partitioning as well as multiplication knowledge.</p>  <p>Note: They may make errors with the multiplying aspect, although be fine adding the amounts together, which is easily shown using this method. <math>210 + 28 = 238</math> (Children to use an appropriate method for the addition)</p>	<p><b>Mental Methods</b> Recall and use multiplication and division facts for the 2, 3, 4, 5, 8 and 10 times tables, (through halving connect the 2, 4 and 8 tables) e.g. <math>32 \div 4 =</math> Start with 32 <math>\rightarrow</math> halve it(16), halve it(8)</p> <p>Develop efficient mental methods e.g. using multiplication and division facts to derive related facts</p> <p><b>Written Methods</b></p> <p>Divide 2-digit numbers by a single digit – where there is no remainder in the final answer, then with remainders.</p>  <p>Model <b>grouping</b> on a number line:</p> <p>i. As repeated addition [counting on]</p> <p>ii. As repeated subtraction [counting back]</p>  <p>This can also be done vertically – beginning 'chunking'</p> $\begin{array}{r} 10 \\ - 3 \\ \hline 7 \\ - 3 \\ \hline 4 \\ - 3 \\ \hline 1 \end{array}$ <p><b>Short Division</b></p> <p>When introducing - limit numbers to no exchanges... then with exchanges.</p> <p><math>84 \div 4 =</math></p>  <p><math>76 \div 4 =</math></p> 

**MASTERY - The Big Ideas (NCETM)**

It is important for children not just to be able to chant their multiplication tables but also to understand what the facts in them mean, to be able to use these facts to figure out others and to use in problems. It is also important for children to be able to link facts within the tables (e.g.  $5 \times$  is half of  $10 \times$ ). They understand what multiplication means, see division as both grouping and sharing, and see division as the inverse of multiplication.

What do you notice about the following calculations?

- $3 \times 4$        $3 \times 8$
- $4 \times 4$        $4 \times 8$
- $3 \times 5$        $3 \times 10$

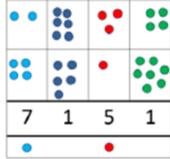
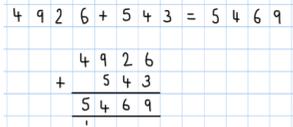
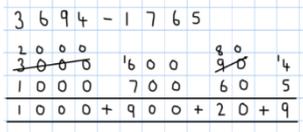
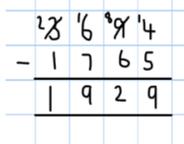
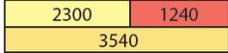
What is  $3 \times 4$ ?

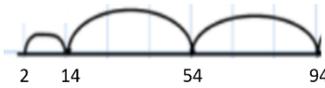
What is  $13 \times 4$ ?

*Asking 'How did you get that?' can help you decide whether children are working efficiently with questions like  $13 \times 4$  by, for example, calculating  $10 \times 4$  and adding  $3 \times 4$ , and that  $3 \times 4$  is not obtained by counting in 1s.*

**Vocabulary**

exchange, decrease, hundreds, value, digits  
partition, grid method, multiple, product, tens, units, value  
inverse, short division, 'carry', remainder, multiples  
Multiplication table, Times table  
Multiply, Multiplication, Times, Product  
Divide, Division  
Inverse  
Operation, Estimate

Year	Addition	Subtraction
Y4	<p><b>Mental Methods</b></p> <p>Continue to practise a wide range of mental addition strategies e.g. number bonds, adding to the nearest multiple of 10, 100, 1000 using near doubles, adjusting and partitioning and recombining.</p> <p>Estimate and check solutions using mental strategies. e.g. <math>4926 + 543 =</math></p> <p>Calculations should be presented as horizontal number sentences (to promote mental strategies).</p> <p><b>Written Methods</b></p> <p>Add numbers with up to 4 digits.</p> <p>When setting out in the vertical format, digits/ columns should be correctly aligned.</p> <p>Children should move from the expanded addition method to the compact column method, adding units first and 'carrying' [exchanging] numbers underneath the calculation.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>Make sure children have a clear understanding of place value and understand the importance of this.</p> <p>Pupils should be taught to solve sums including money and measures contexts and add units first, 'carry' [exchanging] numbers underneath the bottom line and reinforce correct place value by reminding them of the actual value of the 'carry'.</p>	<p><b>Mental Methods</b></p> <p>Find a 1000 less than a given number.</p> <p>Count backwards through 0, including negative numbers</p> <p>Estimate and check solutions using mental strategies.</p> <p><b>Written Methods</b></p> <p>Subtract with up to 4-digit numbers</p> <p><b>Begin with the partitioned method with decomposition.</b></p> <p>Knowledge of place value is very important. Children should understand decomposition before moving to the compact method.</p> <div style="text-align: right; margin-right: 100px;">  </div> <p><b>Move on to compact column subtraction</b></p> <p>When setting out in the vertical format, digits/ columns should be correctly aligned.</p> <div style="text-align: right; margin-right: 100px;">  </div>
	<p><b>MASTERY - The Big Ideas (NCETM)</b></p> <p>It helps to round numbers before carrying out a calculation to get a sense of the size of the answer. For example, <math>4786 - 2135</math> is close to <math>5000 - 2000</math>, so the answer will be around 3000. Looking at the numbers in a calculation and their relationship to each other can help make calculating easier. For example, <math>3012 - 2996</math>. Noticing that the numbers are close to each other might mean this is more easily calculated by thinking about subtraction as difference.</p> <p>Write down the four relationships you can see in the bar model. <span style="margin-left: 100px;">Fill in the missing numbers.</span></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;">  </div> <div style="width: 30%;"> <math>352 + \square = 480</math>  <math>70 + 99 + \square = 270</math>  <math>\square - 55 = 84</math>  <math>\square - 3000 = 600</math> </div> <div style="width: 30%;"> <p>Fill in the empty boxes to make the equations correct.</p> <math>7 \square 1 + \square 3 \square = 999</math>  <math>7 \square 1 + \square 3 \square = 1000</math> </div> </div>	
	<p><b>Vocabulary</b></p> <p>thousands, hundreds, digits, inverse</p> <p>Addition, Subtraction</p> <p>Sum, Total</p> <p>Difference, Minus, Less</p> <p>Column addition, Column subtraction</p> <p>Exchange</p> <p>Operation</p> <p>Estimate</p>	

Year	Multiplication	Division																				
Y4	<p><b>Mental Methods</b> Count on in multiples of 6,7,9, 25 and 1000 Recall multiplication facts for all multiplication tables up to 12 x 12 Use place value, known facts and derived facts to multiply mentally fluently Approximate before they calculate and make this a regular part of their calculating.</p> <p><b>Written Methods</b> Multiply 2 and 3-digits by a single digit, using all multiplication tables up to 12x12</p> <p><b>Developing the grid method</b></p> <p>i. <b>TU x U =</b></p> <table border="1" data-bbox="459 454 705 550"> <tr><td>x</td><td>30</td><td>4</td></tr> <tr><td>7</td><td>210</td><td>28</td></tr> </table> <p style="text-align: right;">210 + 28 ----- 238</p> <p>ii. <b>HTU x U =</b></p> <table border="1" data-bbox="291 654 638 734"> <tr><td>x</td><td>100</td><td>40</td><td>7</td></tr> <tr><td>6</td><td>600</td><td>240</td><td>420</td></tr> </table> <p style="text-align: right;">600 200 +420 ----- 1220</p> <p>[Note: This method shows clearly where errors may occur. The procedure may be correct, but their multiplication or addition skills may be a problem, if the answer is incorrect.]</p> <p style="color: blue;">Pupils could be asked to work out a given calculation using the grid, and then compare it to the teacher's column method. Discuss what the similarities and differences are. Go through the steps and use as success criteria.</p>	x	30	4	7	210	28	x	100	40	7	6	600	240	420	<p><b>Mental Methods</b> Count back in multiples of 6, 7, 9, 25 and 1000 [from any given number]. Recall multiplication and division facts for all multiplication tables up to 12 x 12 Use known facts to support new facts... e.g. 7 x 8 can be calculated by adding 5 x and 2 x</p> <p style="text-align: center;"><math>7 \times 8 = 5 \times 8 + 2 \times 8</math></p> <p><b>Written Methods</b> Divide up to 3-digit numbers by a single digit (without exchanges to begin with)</p> <p>'Chunking' can be used to model alongside efficient methods.</p>  <p>Continue to develop <b>short division</b></p> <p>Make sure children are confident with this method before moving on to larger numbers.</p> <div style="display: flex; justify-content: space-around;"> <table border="1" data-bbox="1288 694 1433 790"> <tr><td>19</td></tr> <tr><td>4)736</td></tr> </table> <table border="1" data-bbox="1500 694 1668 790"> <tr><td>247</td></tr> <tr><td>3)741</td></tr> </table> <table border="1" data-bbox="1736 694 1904 790"> <tr><td>093</td></tr> <tr><td>8)744</td></tr> </table> </div> <p>Children should be taught that a 0 is used to keep place value, if the number is not divisible.</p> <p><b>Children to be encouraged to fluently use repeated addition to create a list of solutions for 1 x → 10x of the divisor</b> [to be used as a 'ready reckoner' of x facts].</p> <p>e.g. <math>744 \div 8 =</math> ...writing '8, 16, 24, 32, 40, 48, 56, 64, 72, 80'</p> <div style="float: right; text-align: right;"> <p>94 ÷ 4 =</p> <p>94</p> <p>(10x) -40</p> <p>54</p> <p>(10x) -40</p> <p>14</p> <p>(3x) -12</p> <p>2</p> <p>Answer 23 r 2</p> </div>	19	4)736	247	3)741	093	8)744
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**MASTERY - The Big Ideas (NCETM)**

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It is also important for children to be able to link facts within the tables (e.g. 5x is half of 10x). They understand what multiplication means and see division as both grouping and sharing, and to see division as the inverse of multiplication.

The distributive law can be used to partition numbers in different ways to create equivalent calculations. For example,  $4 \times 27 = 4 \times (25 + 2) = (4 \times 25) + (4 \times 2) = 108$ .

Looking for equivalent calculations can make calculating easier. For example,  $98 \times 5$  is equivalent to  $98 \times 10 \div 2$  or to  $(100 \times 5) - (2 \times 5)$ . The array model can help show equivalences.

**Use your knowledge of multiplication tables to complete these calculations.**

$7 \times 6 =$
$7 \times 2 \times 3 =$
$8 \times 7 =$
$2 \times 4 \times 7 =$
$2 \times 2 \times 2 \times 7 =$

$12 \times 6 =$
$13 \times 6 =$
$12 \times 12 =$
$12 \times 13 =$
$12 \times 0 =$

Which calculations have the same answer? Can you explain why?

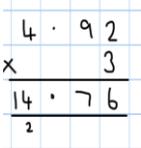
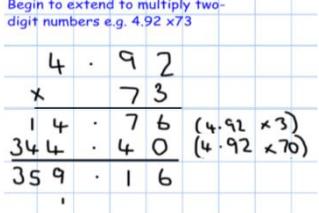
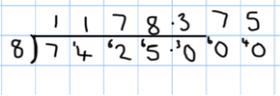
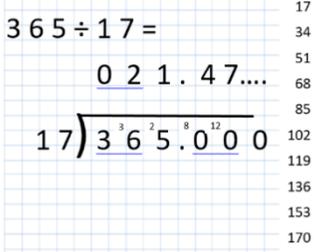
**Vocabulary**

digits, inverse exchange  
inverse, divisible by, factor  
Place value  
Multiply, Multiplication,  
Times, Product  
Divide, Division  
Tenth, hundredth,  
Factor pairs  
Short multiplication  
Operation  
Estimate

Year	Addition	Subtraction																																																																																																																				
Y5	<p><b>Mental Methods</b></p> <p>Add numbers mentally with increasingly larger numbers, using and practising a range of mental strategies i.e. add the nearest multiple of 10, 100, 100 and adjust; use near doubles, inverse, partitioning and re-combining; using number bonds [practise for increased fluency].</p> <p>Estimate and check solutions using mental strategies.</p> <p>All strategies lead to increased fluency.</p> <p><b>Written Methods</b></p> <p>Add numbers with more than 4 digits (including money, measures and decimals with different numbers of decimal places)</p> <div style="display: flex; align-items: center;"> <table border="1" style="margin-right: 10px;"> <tr><td>£</td><td>4</td><td>3</td><td>.</td><td>3</td><td>2</td></tr> <tr><td>£</td><td>9</td><td>.</td><td>1</td><td>9</td><td></td></tr> <tr><td colspan="6"><hr/></td></tr> <tr><td></td><td>5</td><td>2</td><td>.</td><td>5</td><td>1</td></tr> </table> <div style="font-size: small; color: blue;"> <p>The decimal point should be aligned in the same way as the other place value columns, and must be in the same column for the answer.</p> </div> </div> <div style="margin-top: 10px;"> <table border="1"> <tr><td>1</td><td>4</td><td>5</td><td>2</td><td>3</td></tr> <tr><td>+</td><td>9</td><td>4</td><td>7</td><td>5</td></tr> <tr><td colspan="5"><hr/></td></tr> <tr><td></td><td>2</td><td>3</td><td>9</td><td>8</td></tr> </table> </div> <p>Numbers should exceed 4 digits Moving on to add more than two values</p> <div style="margin-top: 10px;"> <table border="1"> <tr><td>1</td><td>7</td><td>.</td><td>0</td><td>3</td></tr> <tr><td></td><td>5</td><td>.</td><td>6</td><td>7</td></tr> <tr><td colspan="5"><hr/></td></tr> <tr><td></td><td>0</td><td>.</td><td>7</td><td>0</td></tr> <tr><td colspan="5"><hr/></td></tr> <tr><td></td><td>2</td><td>3</td><td>.</td><td>4</td><td>0</td></tr> </table> </div> <p><b>Pupils should:</b></p> <p>Understand the place value of tenths and hundredths and use this to align numbers with different numbers of decimal places.</p> <p>[Example: adding '0' as a place holder]</p>	£	4	3	.	3	2	£	9	.	1	9		<hr/>							5	2	.	5	1	1	4	5	2	3	+	9	4	7	5	<hr/>						2	3	9	8	1	7	.	0	3		5	.	6	7	<hr/>						0	.	7	0	<hr/>						2	3	.	4	0	<p><b>Mental Methods</b></p> <p>Subtract numbers mentally with increasingly larger numbers</p> <p><b>Written Methods</b></p> <p>Subtract with at least 4-digit numbers</p> <div style="text-align: center;"> <table border="1"> <tr><td>4</td><td>5</td><td>9</td><td>2</td><td>1</td></tr> <tr><td>-</td><td>3</td><td>4</td><td>6</td><td>9</td></tr> <tr><td colspan="5"><hr/></td></tr> <tr><td></td><td>4</td><td>2</td><td>4</td><td>5</td><td>2</td></tr> </table> </div> <p>Children to use compact column subtraction once confident with the partitioned column method.</p> <p>Children to begin subtracting with larger integers before moving on to decimals.</p> <div style="text-align: center;"> <table border="1"> <tr><td>2</td><td>4</td><td>7</td><td>.</td><td>0</td></tr> <tr><td>-</td><td>5</td><td>6</td><td>.</td><td>5</td></tr> <tr><td colspan="5"><hr/></td></tr> <tr><td></td><td>1</td><td>9</td><td>.</td><td>5</td></tr> </table> </div> <p>Zero can be added to empty decimal places (up to 2 dp) to aid understanding of what to subtract in that column.</p> <p><b>Pupils should:</b></p> <p>Be confident in solving subtraction calculations in a range of contexts, including money and measures.</p>	4	5	9	2	1	-	3	4	6	9	<hr/>						4	2	4	5	2	2	4	7	.	0	-	5	6	.	5	<hr/>						1	9	.	5
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<p><b>MASTERY - The Big Ideas (NCETM)</b></p> <p>Before starting any calculation is it helpful to think about whether or not you are confident that you can do it mentally. For example, <math>3689 + 4998</math> may be done mentally, but <math>3689 + 4756</math> may require paper and pencil. Carrying out an equivalent calculation might be easier than carrying out the given calculation. For example <math>3682 - 2996</math> is equivalent to <math>3686 - 3000</math> (constant difference).</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Set out and solve these calculations using a column method.</p> <p><math>3254 + \square = 7999</math></p> <p><math>2431 = \square - 3456</math></p> <p><math>6373 - \square = 3581</math></p> <p><math>6719 = \square - 4562</math></p> </div> <div style="width: 45%;"> <p>Write four number facts that this bar diagram shows.</p> <table border="1" style="margin: 0 auto;"> <tr><td colspan="2" style="text-align: center;">9.5</td></tr> <tr><td style="text-align: center;">3.8</td><td style="text-align: center;">5.7</td></tr> </table> </div> </div> <div style="margin-top: 20px; display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Captain Conjecture says, 'When working with whole numbers, if you add two 2-digit numbers together the answer cannot be a 4-digit number.'</p> <p>Do you agree? Explain your reasoning.</p> </div> <div style="width: 10%; text-align: center;">  </div> <div style="width: 40%;"> <p><b>Vocabulary</b></p> <p>Addition, Subtraction Sum, Total Difference, Minus, Less Column addition, Column subtraction Exchange Operation Estimate</p> <p>decimal places, decimal points, tenths, hundredths and thousandths</p> </div> </div>			9.5		3.8	5.7																																																																																																																
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Year	Multiplication	Division																																																																													
Y5	<p><b>Mental Methods</b> Identify multiples, factors, square, cube and prime numbers, using knowledge of multiplication tables to 12 x 12 Use place value understanding to derive new facts e.g. <math>4 \times 6 = 24</math> <math>40 \times 6 = 240</math>   <math>400 \times 6 = 2400</math>   <math>4000 \times 6 = 24000</math>   <math>40 \times 60 = 2400</math>   <math>400 \times 60 = 24000</math></p> <p><b>Written Methods</b> Multiply up to 4-digits by 1 or 2 digits Short multiplication for multiplying by a single digit</p> <table border="1" data-bbox="309 451 568 536"> <tr><td>x</td><td>400</td><td>30</td><td>5</td></tr> <tr><td>6</td><td>2400</td><td>180</td><td>30</td></tr> </table>  <table border="1" data-bbox="842 411 1010 587"> <tr><td></td><td>4</td><td>3</td><td>5</td></tr> <tr><td>x</td><td></td><td></td><td>6</td></tr> <tr><td></td><td>2</td><td>1</td><td>0</td></tr> <tr><td></td><td>2</td><td>3</td><td></td></tr> </table> <p>Explaining multiplying by multiples of 10 and 100 above:</p> <p><b>"6 x '4 hundreds' = 24 hundreds"   AND/ OR   "6 x 4 x 100 = 2400"</b> <b>"6 x 3 tens = 18 tens"   "6 x 3 x 10 = 180"</b></p> <p>Introduce long multiplication for multiplying by 2 digits</p> <table border="1" data-bbox="282 815 546 930"> <tr><td>x</td><td>10</td><td>7</td></tr> <tr><td>10</td><td>100</td><td>70</td></tr> <tr><td>4</td><td>40</td><td>28</td></tr> </table>  <table border="1" data-bbox="696 799 797 951"> <tr><td></td><td>1</td><td>7</td></tr> <tr><td>x</td><td>1</td><td>4</td></tr> <tr><td></td><td>6</td><td>8</td></tr> <tr><td></td><td>1</td><td>7</td></tr> <tr><td></td><td>2</td><td>3</td></tr> <tr><td></td><td>8</td><td></td></tr> </table> <p>Part solutions could be shown</p> <table data-bbox="936 791 1115 975"> <tr><td>32</td><td></td></tr> <tr><td>x 24</td><td></td></tr> <tr><td>8</td><td>(4 x 2)</td></tr> <tr><td>120</td><td>(4 x 30)</td></tr> <tr><td>40</td><td>(20 x 2)</td></tr> <tr><td>600</td><td>(20 x 30)</td></tr> <tr><td>768</td><td></td></tr> </table> <p>...moving on to more complex numbers up to 4-digit x 2-digit.</p> <p>MASTERY - The Big Ideas (NCETM)</p> <p>Pupils have a firm understanding of what multiplication and division mean and have a range of strategies for dealing with large numbers, including both mental and standard written methods. They see the idea of factors, multiples and prime numbers as connected and not separate ideas to learn. They recognise how to use their skills of multiplying and dividing in new problem solving situations. Fractions and division are connected ideas: <math>36 \div 18 = 36/18 = 2</math>; <math>18/36 = 1/2</math> Factors and multiples are connected ideas: 48 is a multiple of 6 and 6 is a factor of 48.</p> <p>Fill in the missing numbers: <math>8 \div 2 = \square \div 4 = 32 \div \square = 64 \div \square</math></p>	x	400	30	5	6	2400	180	30		4	3	5	x			6		2	1	0		2	3		x	10	7	10	100	70	4	40	28		1	7	x	1	4		6	8		1	7		2	3		8		32		x 24		8	(4 x 2)	120	(4 x 30)	40	(20 x 2)	600	(20 x 30)	768		<p><b>Mental Methods</b> Recall multiplication and division facts for all numbers to 12 x 12 Divide numbers mentally, using known facts</p> <p><b>Written Methods</b> Divide up to 3 digits by a single digit, without remainders initially</p> <p><b>[As Year 4, create 'ready reckoner' for divisor: 7, 14, 21, 28, 35, 42, 49, 56, 63, 70]</b></p> <table border="1" data-bbox="1234 456 1608 584"> <tr><td></td><td>0</td><td>6</td><td>5</td><td>3</td><td>r2</td></tr> <tr><td>7</td><td>)</td><td>4</td><td>5</td><td>9</td><td>3</td></tr> </table> <div data-bbox="1294 616 1552 823" style="border: 1px solid black; border-radius: 15px; padding: 5px;"> <p>The answer to <math>4593 \div 7</math> could be expressed as 653 and two sevenths or 653 r2, as a decimal or rounded as appropriate to the problem involved.</p> </div> <p>Short division with remainders: Where there is a remainder pupils should then work on real life problem solving context questions, so they understand what the remainder relates to.</p> <p>Then once understood children can move on to expressing the remainder as a fraction, decimal or as a rounded number.</p> <p>Chunking methods from previous year groups can be still be used to support children's progression to more efficient methods.</p>		0	6	5	3	r2	7	)	4	5	9	3
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Y6	<p><b>Mental Methods</b></p> <p>Perform mental calculations, including mixed operations and large numbers, using and practising a range of mental strategies.</p> <p>Estimate and check solutions using mental strategies.</p> <p>All strategies leading to increased fluency.</p> <p><b>Written Methods</b></p> <p><b>Add several numbers of increasing complexity</b></p> <table border="1" data-bbox="197 443 371 592"> <tr><td>1</td><td>4</td><td>7</td><td>2</td><td>1</td></tr> <tr><td></td><td>6</td><td>5</td><td>9</td><td>4</td></tr> <tr><td>1</td><td>2</td><td>7</td><td>2</td><td>2</td></tr> <tr><td>+</td><td></td><td>1</td><td>6</td><td>4</td></tr> <tr><td></td><td>3</td><td>4</td><td>6</td><td>7</td></tr> <tr><td></td><td>1</td><td>2</td><td></td><td></td></tr> </table> <p>Add several numbers with different numbers of decimal places. Tenths, Hundredths and thousandths should be correctly aligned, with the decimal point lined up vertically including in the answer. Children can place zeros in empty decimal places, to show 'no value' to add and to aid them with keeping place value of numbers correct.</p> <table border="1" data-bbox="831 616 1043 783"> <tr><td>1</td><td>4</td><td>.</td><td>2</td><td>1</td><td>9</td></tr> <tr><td></td><td>7</td><td>.</td><td>3</td><td>6</td><td>0</td></tr> <tr><td>2</td><td>8</td><td>.</td><td>7</td><td>4</td><td>2</td></tr> <tr><td>+</td><td>1</td><td>.</td><td>5</td><td>0</td><td>0</td></tr> <tr><td></td><td>5</td><td>.</td><td>8</td><td>2</td><td>1</td></tr> <tr><td></td><td>2</td><td>.</td><td>1</td><td></td><td></td></tr> </table> <p><b>Pupils should:</b></p> <p>Calculate in context, to include money and measures.</p>	1	4	7	2	1		6	5	9	4	1	2	7	2	2	+		1	6	4		3	4	6	7		1	2			1	4	.	2	1	9		7	.	3	6	0	2	8	.	7	4	2	+	1	.	5	0	0		5	.	8	2	1		2	.	1			<p><b>Mental Methods</b></p> <p>Perform mental calculations, including mixed operations and large numbers, using and practising a range of mental strategies.</p> <p>Estimate and check solutions using mental strategies.</p> <p><b>Written Methods</b></p> <p>Subtracting with increasingly larger and more complex numbers including decimal values up to 3dp.</p> <table border="1" data-bbox="1671 376 1861 480"> <tr><td>9</td><td>5</td><td>7</td><td>.</td><td>2</td><td>1</td><td>9</td><td>kg</td></tr> <tr><td>-</td><td>5</td><td>8</td><td>.</td><td>0</td><td>8</td><td>0</td><td>kg</td></tr> <tr><td></td><td>4</td><td>9</td><td>.</td><td>1</td><td>3</td><td>9</td><td>kg</td></tr> </table> <p><b>Pupils should:</b></p> <p>Use the compact column method to subtract more complex integers. Using this method to subtract money and measures as well, including decimals with different numbers of decimal places. Empty decimal places can be filled with zero to show the place value in each column. Pupils should be able to apply their knowledge to select the most appropriate method to work out subtraction problems.</p> <table border="1" data-bbox="1939 647 2130 751"> <tr><td>9</td><td>6</td><td>8</td><td>.</td><td>2</td><td>9</td><td>9</td></tr> <tr><td>-</td><td>7</td><td>3</td><td>.</td><td>4</td><td>6</td><td>9</td></tr> <tr><td></td><td>9</td><td>5</td><td>.</td><td>8</td><td>3</td><td>0</td></tr> </table> <p>Choose digits to go in the empty boxes to make these number sentences true.</p> <p><math>14781 - 6 \square 53 = 8528</math></p> <p><math>23 \cdot 12 + 22 \cdot \square = 45 \cdot 23</math></p>	9	5	7	.	2	1	9	kg	-	5	8	.	0	8	0	kg		4	9	.	1	3	9	kg	9	6	8	.	2	9	9	-	7	3	.	4	6	9		9	5	.	8	3	0
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	<p><b>MASTERY - The Big Ideas (NCETM)</b></p> <p>Deciding which calculation method to use is supported by being able to take apart and combine numbers in many ways. E.g. <math>8 \cdot 78 + 5 \cdot 26</math> might involve calculating <math>8 \cdot 75 + 5 \cdot 25</math> and then adjusting the answer.</p> <p>The associative rule helps when adding three or more numbers: <math>367 + 275 + 525</math> is probably best thought of as <math>367 + (275 + 525)</math> rather than <math>(367 + 275) + 525</math>.</p> <p>Calculate <math>36 \cdot 2 + 19 \cdot 8</math></p> <ul style="list-style-type: none"> <li>with a formal written column method</li> <li>with a mental method, explaining your reasoning.</li> </ul> <p>Two numbers have a difference of 2.38. The smaller number is 3.12. What is the bigger number?</p> <p>Two numbers have a difference of 2.3. They are both less than 10. What could the numbers be?</p> <p><b>Vocabulary</b></p> <p>Addition, Subtraction Sum, Total Difference, Minus, Less Column addition Column subtraction Operation Approximate (noun and verb) Estimate (noun and verb) Round Decimal place Check Solution, Answer Order of magnitude Accurate, Accuracy</p>																																																																																																																

Year	Multiplication	Division	
Y6	<p><b>Mental Methods</b> Recall multiplication facts for all times tables up to 12 x 12. Derive new facts appropriate to for the given calculation.</p> <p style="text-align: right;">E.g. Example below  <math>0.02 \times 3 = 0.06</math> using <math>2 \times 3 = 6</math>  <math>0.9 \times 3 = 2.7</math> using <math>9 \times 3 = 27</math></p> <p><b>Written Methods</b> Short and long multiplication as in Y5, and multiply decimals with up to 2 decimal places by a single digit. When recording, decimal points should be aligned.</p> <p><b>Estimate first</b> <math>5 \times 3 = 15\dots</math></p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">  </div> <div style="margin-right: 20px;">Alternately:</div> <div style="margin-right: 20px;"> <math display="block">\begin{array}{r} 4.92 \\ \times 3 \\ \hline 14.76 \end{array}</math> </div> <div style="margin-right: 20px;"> <math display="block">\begin{array}{r} 4.92 \\ \times 100 \\ \hline 492 \end{array}</math> </div> <div style="margin-right: 20px;"> <math display="block">\begin{array}{r} 492 \\ \div 100 \\ \hline 4.92 \end{array}</math> </div> <div> <p style="font-size: small; color: blue;">Begin to extend to multiply two-digit numbers e.g. <math>4.92 \times 73</math></p>  </div> </div> <p><b>Children should be able to:</b> Use rounding and place value to estimate answers before calculating and use to check their answers.</p>	<p><b>Mental Methods</b> Recall division facts for all times tables up to 12 x 12.</p> <p><b>Written Methods</b> Divide at least 4 digits by both single-digit and two-digit numbers (including decimals up to 2dps and quantities)</p> <p>Short division, for dividing by a single digit:</p> <p><b>'Ready Reckoner': 8, 16, 24, 32, 40, 48, 56, 64, 72, 80</b></p>  <p>Short division, for dividing by a 2-digit number:</p>  <p><b>Refine accuracy of solutions:</b> Any 'remainders' should be shown as fractions, and extended to decimals</p>	<p style="text-align: center;"><b>Vocabulary</b></p> <p>extending multiplication with tenths, hundredths and decimals Common factor Divide, Division, Divisible Divisor, Dividend, Quotient, Remainder Factor</p>
<p>MASTERY - The Big Ideas (NCETM)</p> <p>Standard written algorithms use the conceptual structures of the mathematics to produce efficient methods of calculation. Standard written multiplication method involves a number of partial products. For example, <math>36 \times 24</math> is made up of four partial products <math>30 \times 20</math>, <math>30 \times 4</math>, <math>6 \times 20</math>, <math>6 \times 4</math>. There are connections between factors, multiples and prime numbers and between fractions, division and ratios.</p> <div style="display: flex;"> <div style="flex: 1;"> <p><b>It is correct that <math>273 \times 32 = 8736</math>. Use this fact to work out:</b></p> <ul style="list-style-type: none"> <li>■ <math>27.3 \times 3.2</math></li> <li>■ <math>2.73 \times 32000</math></li> <li>■ <math>873.6 \div 0.32</math></li> </ul> </div> <div style="flex: 1;"> <ul style="list-style-type: none"> <li>■ <math>87.36 \div 27.3</math></li> <li>■ <math>8736 \div 16</math></li> <li>■ <math>4368 \div 1.6</math></li> </ul> </div> <div style="flex: 1;"> <p>All the pupils in a school were asked to choose between an adventure park and the seaside for a school trip.</p> <p>They voted, and the result was a ratio of 5:3 in favour of the adventure park.</p> <p>125 children voted in favour of going to the adventure park.</p> <p>How many children voted in favour of going to the seaside?</p> </div> </div>			

**Appendix C**

**Pace Planners**

**Year 1 Autumn Term (not including problem solving day) - Use NCETM and White rose for examples of outcomes.**

	Oral / Mental Objectives			
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
<b>Week 1</b>	EYFS - Given a number identify 1 more or 1 less. Given a number double it/halve it. (1 – 10)	Count to 100 forwards and backwards from any given number including 0	Days of the week Months of year (Reciting & written)	Count, read and write numbers from 1 – 10/20 in numerals and words Order objects and numbers Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
<b>Week 2</b>	Count to 20 forwards and backwards from any given number including 0	Ordinal numbers to 20 & then ongoing (lining up) Pairs to 5 Pairs to 6	Days of the week Months of year (Reciting & written)	Count, read and write numbers from 1 – 10/20 in numerals and words Order objects and numbers Identify and represent numbers using objects and pictorial representations using the number line
<b>Week 3</b>	Pairs to 5 Pairs to 6 Given a number identify 1 more or 1 less (1 – 10)	Count in 10s and 5s Pairs to 7 Pairs to 8	Revisit: Name & recognise 2d and 3 d shapes	Compare objects/numbers/pictorial representations and use $<$ $>$ $=$ (although this is a Year 2 objective can be done modelled by teacher and in practical situations) from 1 – 10/20
<b>Week 4</b>	Pairs to 5, 6, 7, 8 Count in 10s and 5s	Count to 100 forwards and backwards from any given number including 0 Pairs to 9 & 10	O' clock Half past (Practically, prior to recorded work)	Addition symbol. Find Number families (emphasising that addition is commutative) for all pairs completed
<b>Week 5</b>	Count, read and write numbers from 1 – 20 in numerals and words	Systematic number bonds to 10/20 (Kings & Queens) IWB games	Revisit: Name & recognise 2d and 3 d shapes	Addition symbol. Find Number families (emphasising that addition is commutative) for all pairs completed and number bonds to 10 (Do they recognise number bonds when given in a calculation and realise they do not need to work it out?)
<b>Week 6</b>	Number bonds Given a number double it/halve it. (1 – 10)	Count in 2s, 5s, 10s (Patterns on 100 square)	O' clock Half past	How many left? Introduce subtraction as the inverse of addition. Practically done in Kings/Queens Introducing the subtraction symbol: Introduce related vocab

<b>Week 7</b>	Number bonds	Add and subtract one digit numbers to 10, including zero	Days of the week Months of year – simple word	Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems. $7 = ? - 9$ Add and subtract one digit and two digit numbers to 10/ 20, including 0
<b>Week 8</b>	Number bonds	Count to and across 100, forwards and backwards from any given number	problems: I go on holiday in the 6 <sup>th</sup> month of the year- which month do I go? I go on holiday on Monday. I am away for 4 days. When do I return?	Represent and use number bonds and related subtraction facts within 10/20 Find fact families with all numbers to 10 (addition and subtraction) Find related facts (7+3 so 17+3) Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.
<b>Week 9</b>	Count, read and write numbers to 20 in numerals and words.	Count to and across 100, forwards and backwards from any given number	O' clock Half past – simple word problems	Numbers from 11 to 20 Tens and ones Count one more and one less Compare groups of objects Compare numbers Order groups of objects Order numbers Given a number, identify one more or one less. Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.
<b>Week 10</b>	Count, read and write numbers to 20 in numerals and words.	Count to and across 100, forwards and backwards from any given number	Revisit: Name & recognise 2d and 3 d shapes	2d/3d shapes and properties
<b>WEEK 11: CONSOLIDATION: REVISIT ANY AREAS OF CONCERN. ENSURE THEY ENTER SPRING TERM WITH MAJORITY OF CHILDREN FLUENTLY USING NUMBER BONDS TO 10 (SOME 20), WITH EFFECTIVE STRATEGIES FOR ADDING AND SUBTRACTING, BEING ABLE TO SAY WHICH NUMBER IS ONE MORE/LESS, PRONOUNCING TEEN NUMBER CORRECTLY WHEN COUNTING, TELLING O'CLOCK TIME.</b>				

Once introduced ordinal numbers to be taught daily (lining up/normal classroom routines)

O'clock and Half past to be taught daily/'real life' after initial Oral & Mental starters

**Autumn Oral and Mental** – Once introduced the following will be included in daily revisit: Count to 20 forwards and backwards from any

Given number including 0 or 1, Count, read and write numbers to 20 in numerals and words Given a number identify 1 more or 1 less (1 – 10)/

20, Count in 2s and 5s, Number bonds

**Year 1 Spring Term (not including problem solving day)**

	Oral / Mental Objectives			Main Teaching (remember to include reasoning and empty boxes)
	Revisit	New	Time / Shape	
<b>Week 1</b>	Pairs to 5, 6, 7, 8 Number bonds Count to and across 100, forwards and backwards from any given number	Count in 10s and 5s Count in 2s to 20 Look at number grid to reinforce patterns	Days of the week Months of year (Reciting & written) 2d/3d shapes and properties	<b>Addition</b> -Add by counting on - adding to what they already have. Find and make number bonds -using their knowledge of number bonds to 10 to find number bonds to 20, understanding that the ones will stay the same but one number will also have one ten. Addition problem solving within 20
<b>Week 2</b>	Number bonds to 10/20 Add by counting on	Count in 10s and 5s Count in 2s to 20 Look at number grid to reinforce patterns	Days of the week Months of year (Reciting & written) O' clock Half past	<b>Subtraction</b> - Children build on the language of subtraction, recognising and using the subtraction symbol within 20 The use of zero is important so children know that when nothing is taken away the start number remains the same. Use the part whole model counting back and 'crossing out' methods of subtraction.
<b>Week 3 &amp; 4</b>	Add and subtract one-digit and two-digit numbers to 20, including zero	Count in 10s and 5s Pairs to 7 Pairs to 8	Days of the week Months of year (Reciting & written) O' clock Half past	<b>Compare number sentences/Addition and subtraction problem solving</b> -Compare number sentences within 20 using inequality symbols. Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Solve one step problems that involve addition and subtraction, using concrete objects, pictorial representations, and missing number
<b>Week 5</b>	Count in 10s 2s 5s Number bonds to 10/20	Children build on previous learning of counting in twos/fives and go beyond 20 up to 50	Days of the week Months of year (Reciting & written) O' clock Half past	<b>Numbers to 50</b> - Count forwards and backwards within 50 using a number track to support understanding of this. <b>Tens and ones</b> Look at how many groups of tens and ones there are in a number. They will use a range of concrete materials to do this.
<b>Week 6</b>	Number bonds to 10/20 Add by counting on Count in 10s 2s 5s	Children build on previous learning of counting in twos/fives and go beyond 20 up to 50	Simple word problems involving time	<b>Represent numbers to 50</b> - Using a variety of concrete materials. Children should be able to state how a number is made up. <b>One more, one less</b> Compare numbers finding one more and one less than given numbers up to 50, building numbers concretely before using number tracks and 1–50 grids.
<b>Week 7</b>	Add and subtract one-digit and two-digit numbers to 20, including zero Count in 10s 2s 5s Number bonds to 10/20	Children build on previous learning of counting in twos/fives and go beyond 20 up to 50	Games (true/false) involving time, shape and multiples of 10s 2s 5s	<b>Compare numbers within 50</b> Compare two numbers using the inequality symbols. Use the language 'more than', 'less than' and 'equal to' alongside the correct symbols to compare numbers. <b>Order numbers within 50</b> - Order numbers using the language, 'largest', 'smallest', 'biggest', 'greatest', 'least', 'most' and 'equal to'.

		Simple word problems involving counting in 2s, 5s and 10s		Order numbers in ascending and descending order.
<b>Week 8</b>	Count to and across 100, forwards and backwards from any given number Tens and ones	Describe position, direction and movement, including whole, half, quarter and three quarter turns – do practically linked to clock and prior to fraction work  Simple word problems involving time Games (true/false) Involving time, shape and multiples of 10s 2s 5s		<b>Compare lengths and heights</b> - Use and understand the language of length such as long, short, longer, shorter, tall, small, taller, smaller, equal to understanding that height is a type of length. <b>Measure length</b> - Use non-standard units to measure length and height, understanding that non-standard units should be exactly in line with the object to get an accurate measurement. Build on prior knowledge to understand that objects can vary in length and size, so a standard unit of measurement is required. Introduce a ruler Know to measure from 0 cm.
<b>Week 9</b>	Count to and across 100, forwards and backwards from any given number Number bonds to 10/20	Practical problem solving involving counting in 2s, 5s and 10s	Simple word problems involving time	<b>Weight and mass- Use</b> of balance scales is to form an understanding of comparing mass, picking up and feeling the mass of objects before putting them on the scales and seeing what happens. <b>Measure mass</b> - Use non-standard units to weigh and compare the mass of an object and recognise this stays the same to weigh the mass of an object and make the scales balance <b>Compare mass</b> - Comparing the mass of two objects. Use balance scales to compare two objects and use the language of 'heavier', 'lighter' and 'equal'. Use < and > to compare mass.
<b>Week 10</b>	Count to and across 100, forwards and backwards from any given number Number bonds to 10/20	Simple word problems consolidating number bonds 10/20, counting to and across 100, plus length, weight capacity	O' clock Half past – simple word problems	<b>Capacity-</b> Explore the concept in a practical way, using a variety of containers. Compare the volume in a container by describing whether it is full or empty and use 'greater than' and 'less than' to further describe the volume. <i>Children understand that when a container is full, the capacity is equal to the volume but when the container is empty the capacity is the same but the volume is zero.</i> <b>Measure capacity</b> - Capacity of different containers using non standard units of measure, understanding to measure the capacity of a container the unit of measure must stay the same, for example the same cup <b>Compare capacity-</b> Children use 'more', 'less' and 'equal' to compare volume and can use the symbols <, > and =
<b>Week 11</b>	Add and subtract one-digit and two-digit numbers to 20, including zero Count in 10s 2s 5s	Recognising coins	2d/3d shapes	<b>Counting in coins</b> – consolidating all addition subtraction, counting in 2s, 5s and 10s <b>Comparing amounts of money</b> – addressing misconception more coins equals greater value.

<b>Week 12</b>	<b>Consolidation week</b>
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Agreements: Ordinal numbers to be taught daily (lining up/normal classroom routines) O'clock and Half past to be taught daily/'real life'

**Year 1 Summer Term (not including problem solving day)**

	Oral / Mental Objectives			Main Teaching (remember to include reasoning and empty boxes)
	Revisit	New	Time / Shape	
<b>Week 1 (3 days)</b>	Describe position, direction and movement, including whole, half, quarter and three quarter turns – do practically moving clockwise, linked to clock and prior to fraction work	Children to use vocab - left, right, up, down, top, below, middle, above. Play games using objects	O' clock Half past GD – quarter to and past	Geometry – Position and direction (PE LESSON LINK) OR ICT link – use bot to plan a route reinforcing language Reinforce prior learning: Place the circle on top of the cube etc Train them in stem sentences: The pyramid is ----- the triangle Make a pattern with counters/cubes: Place a yellow counter on top of the table, place a green one behind it, a blue one to the right of the green etc. Could be directed by teacher or for GD they can explain. Does your pattern match mine? Why/why not?
Please note: The majority of children may have this language (EYFS and normal classroom routine work). If so consolidate some addition and subtraction. When doing turns, I get children to put arms out in front, hands together (they're the minute hand). As they're moving I draw on whiteboard so they link to shape and time. Helps later when link to angles.				
<b>Week 2</b>	Count in 10s and 5s Count in 2s Look at number grid to reinforce patterns: If I count in 10s the last digit will??? Will I say 22 when I count in 5s? Convince me	Give children an A4 piece of paper and ask to fold in half: What do you notice? Focus on how many equal parts. Most children will fold it like a card. Fold yours differently to address misconceptions they may have, concerning what it should look like  Revisit names of 2D & 3d shapes: Shirley sharp eyes		Fractions – Children understand $\frac{1}{2}$ means one of 2 equal parts Divide objects using sorting hoops. Children find $\frac{1}{2}$ of an object or shape and then $\frac{1}{2}$ of a quantity. Concentrate on children seeing difference between equal and non equal – Is this $\frac{1}{2}$ of this shape? Convince me. Give stem sentences. I know that 5 is half of 10 because --- (there are 2 equal groups of 5). I cannot halve 13 objects because I cannot share them into 2 equal groups. I know that is not $\frac{1}{2}$ a circle because (one side is bigger than the other/ they are not equal)
<b>Week 3 (4 days)</b>	Half of numbers. Introduce/ Reinforce doubling /halving inverse operations. Show on fingers	Give children an A4 piece of paper and ask to fold in half: What do you know? Hopefully they can articulate learning from last week Now fold again. What do you notice? Focus on how many equal parts now		Fractions - Children understand $\frac{1}{4}$ means one of 4 equal parts Divide objects using sorting hoops. Children find $\frac{1}{4}$ of an object or shape and then $\frac{1}{4}$ quantity. Concentrate on children seeing difference between equal and non equal – Is this $\frac{1}{4}$ of this shape? Convince me. Give stem sentences. I know that 1 is a quarter of 4 because --- (there are 4 equal groups of 1)
Children should now be confident in counting in 2s, 5s and 10s and understand the concept of equal groups which will make multiplication and division easier				

<b>Week 4</b>	Play number bonds Kings & Queens Play doubling/halving Kings & Queens	Simple word problems involving time. I go away for all of Summer. Which months am I away? etc	<b>Multiplication</b> and Division Children concentrate on counting equal groups of 2s, 5s and 10s. They do this pictorially and write number sentences Children begin making arrays building equal groups into columns and rows and explore arrays built incorrectly They record using stem sentences (refer to powerpoint)
<b>Week 5</b>	Play number bonds Kings & Queens Play doubling/halving Kings & Queens	O' clock Half past GD – quarter to and past	Multiplication and <b>Division</b> Children start with a given amount and share equally. They do practically and then record pictorially and in number sentences Give examples of numbers that do not share equally
<b>Week 6</b>	Add and subtract one-digit and two-digit numbers to 20, including zero Count in 10s 2s 5s Number bonds to 10/20	Introduce coins prior to money work: Reinforce coins. Link to counting in 2s/5s & 10s. I have 3 10ps. How many do I have altogether?	Revisit names of 2D & 3d shapes: Shirly sharp eyes
<b>Week 7</b>	Number bonds to 10/20 Place value: Clap stamp game: What number?	REFER TO ORAL & MENTAL STARTER SHEET	<b>Represent/ compare and order numbers to 100</b> - Children should be able to state how a number is made up. Compare numbers using the inequality symbols. Use the language 'more than', 'less than' and 'equal to' alongside the correct symbols to compare numbers. Put in ascending/descending order. Look at how many groups of tens and ones there are in a number. Revisit addition /subtraction using diennes/pictorial representations
Children should now be confident in counting in 2s, 5s and 10s plus doubling and halving which should make money easier.			
<b>Week 8</b>	Number bonds to 10/20 Place value: Clap stamp game: What number?	REFER TO ORAL & MENTAL STARTER SHEET	Money problems/reasoning – use this to reinforce 4 operations and doubling, halving plus missing boxes (boxes in different positions)
<b>Week 9 (Assess)</b>	Count to and across 100, forwards and backwards from any given number Number bonds to 10/20	REFER TO ORAL & MENTAL STARTER SHEET	Time - Majority of children should now be able to tell the o'clock and half past time. GD should to quarter to and past. They should also know days of week/months of year As well as assessment information use this week to evidence recording clock times/word problems and reasoning
<b>Week 10</b>	REFER TO ORAL & MENTAL STARTER SHEET		Use this week to do a revision of bold KPIs & extended Oral & mentals.
<b>Week 11</b>	Transition into new class		

Agreements: Ordinal numbers to be taught daily (lining up/normal classroom routines) O'clock and Half past (quarter past/to GD) to be taught daily/'real life'

Year 2 Autumn Term (not including problem solving day)

Use NCETM and White rose for examples of outcomes.

	Oral / Mental Objectives			
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
Week 1	Recognise numbers to 100 Count objects to 100, read and write numbers in numeral and words	Count in 2's and 5's Count in 10's from any number Count in 3's from any number	O' clock Half past	Count objects to 100, read and write numbers in numeral and words Recognise numbers to 100 Order objects and numbers Estimate a quantity (10, 20, 50, 100)
Week 2	Pairs to 6 Pairs to 7 Pairs to 8 Pairs to 10	Find 1 more / 1less, find 10 more / 10 less	O' clock Half past	Compare objects and use < > = Compare numbers and use < > = Recognise place value for each digit in a two digit number (37 = 30 + 7)
Week 3	Count in 2's 5's 10's Add / Subtract 10 to any number Add / Subtract 1	Pairs to 20	2 d shapes and properties	Find fact families with all numbers to 20 (addition and subtraction) Find related facts (7+3 so 70 +30, 17 + 4 = 21 so 170+ 40 = 210)
Week 4	< > or = Count in 2's and 5's Count in 10's from any number Count in 3's from any number	Odd / even numbers Doubles / halves	2d shapes and properties	Find 10 more, find 10 less from any given number Find number bonds to 100 using related facts / multiples of 10
Week 5	Odd / even numbers Doubles / halves Pairs to 20	Add 11 Add 12 Add 21	Name 2d and 3 d shapes	Add two 2 digit numbers not crossing tens boundary (add ones, add tens) Add a 2 digit and 1 digit number crossing ten Add two 2 digit numbers crossing tens (add ones, add tens)
Week 6	Related facts and fact families Add 11 Add 12 Add 21	Recognise coins Add single digit coin values	3d shapes and properties	Subtract 1 digit from a 2 digit number crossing tens (counting up) Subtract 2 digit from a 2 digit number not crossing ten Subtract two 2 digit number from 2 digit number crossing ten (counting up) Check with the inverse <b>(do not use tens and ones for subtraction)</b>

<b>Week 7</b>	<b>Add 11 (+ 10, +1) Add 12 (+10, +2) Add 21 (+10, +10, +2)</b>	<b>Add / take away 9 from any given number</b>	<b>Quarter to Half past</b>	<b>Add / subtract two 2 digit numbers involving money, choosing which operation is needed (23 + 7 = 30) (56 - 23 = 33), Recognise calculations can be done in any order and use the inverse to check Solve one and two step problems using addition or subtraction</b>
<b>Week 8</b>	<b>Related facts and fact families Sub 11 (- 10, -1) Sub 12 (-10, -2) Sub 21 (-10, -10, -2)</b>	<b>Multiples of 10, 2 and 5 Timetables</b>	<b>3d shapes and properties</b>	<b>Recognise the value of coins and notes Add the value to 2 coins Add the value of notes and coins not crossing boundary or using decimal (£5 + 40p)</b>
<b>Week 9</b>	<b>Multiples of 10, 2 and 5 Timetables</b>	<b>Add / subtract 10, 11, 20 with money</b>	<b>Quarter to Half past</b>	<b>Use pairs to find next 10 (23 + ? = 30) Find change from 20p, 30p, 50p Investigate amounts of money that can be made</b>
<b>Week 10</b>	<b>Odd / even numbers Doubles / halves</b>	<b>Related multiplication facts</b>	<b>Quarter to Half past</b>	<b>Recognise multiples of 2/5/10 and name divisibility rules Record multiplication facts in different ways (arrays, groups, sets, repeated addition) Recognise multiplication can be done in any order</b>
<b>Week 11</b>	<b>Odd / even numbers Doubles / halves</b>	<b>Related multiplication facts</b>	<b>2d shapes and properties</b>	<b>Use equal groups to find division facts Use arrays to find related multiplication and division facts</b>

**Year 2 Spring Term (not including problem solving day)**

**TT Rockstars should be started this term**

	<b>Oral / Mental Objectives</b>			
	<b>Revisit</b>	<b>New</b>	<b>Time / Shape</b>	<b>Main Teaching (remember to include reasoning and empty boxes)</b>
<b>Week 1</b>	<b>Partition 2 digit numbers Round numbers to nearest 10</b>	<b>Vertices / side of shape</b>	<b>Read clock – ¼ to and ¼ past</b>	<b>Round 2 digit numbers to nearest 10 Compare numbers using &lt; = &gt; Mark 2 digit numbers on a number line (10's, 2's, 5's, 1's)</b>
<b>Week 2</b>	<b>Add 3 coins</b>	<b>Half and double numbers</b>	<b>Read clock – ¼ to and ¼ past</b>	<b>Recognise and name 2d shapes – regular and irregular Recognise the properties of 2d shapes – vertices, sides Identify lines of symmetry Compare and sort 2d shapes (using venn diagrams)</b>
<b>Week 3</b>	<b>Count 2/5/10/3/4</b>	<b>Find missing number with number line</b>	<b>Read clock to 5 mins or ¼ to and ¼ past</b>	<b>Recognise / name properties of 3d shapes – vertices, face Recognise / name and sort 3d shapes Create repeating and equivalent patterns with 2d shapes</b>

Week 4	Double multiples of 5 Double multiples of 10	Find missing number with number line	Order different amounts of time	Recognise $\frac{1}{2}$ , $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{2}{4}$ , $\frac{3}{4}$ of shapes Recognise $\frac{1}{2} = \frac{2}{4}$ Recognise that all parts of fractions are equal
Week 5	Multiplication and division facts 2/5/10/3/4	Find missing number with number line	How many second in 1 min, 2 minutes How many mins in 1 hour?	Recognise $\frac{1}{2}$ , $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{2}{4}$ , $\frac{3}{4}$ of set of objects Find $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{2}{4}$ of amounts Tell time $\frac{1}{4}$ to and $\frac{1}{4}$ past
Week 6	Fact families (2 digit and 1 digit) (addition and subtraction)	Mark 2 digit number on number line	Order different amounts of time	Find $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{2}{4}$ of amounts of money and length Find / Recognise odd and even numbers, describing patterns
Week 7	Add 11 Add 12 Add 13	Use known facts ( $2 \times 5 = 10$ so $20 \times 5 = 100$ )	Recognise how many secs in min, days in week etc	Recognise multiples of 2/5/10 Describe patterns and investigate statements Show repeated addition and multiplication ( $2+2+ 2 = 3 \times 2$ ) in arrays and number sentences
Week 8	Use known facts ( $2 \times 5 = 10$ so $20 \times 5 = 100$ )	Find given amounts of money using correct coins	Positional vocab Clockwise / anti clockwise	Multiply and divide using arrays Understand that multiplication and division are the inverse Create and solve words problems involving multiplication and division
Week 9	Find fractions of amounts	Find given amounts of money using correct coins	Positional Vocab $\frac{1}{4}$ turn $\frac{1}{2}$ turn $\frac{3}{4}$ turn	Measure to the nearest CM Measure to the nearest M Order and compare lengths and weights Solve work problems involving length and weight
Week 10	Pairs that make 10 Pairs that make 100	Read scales – thermometer, scales, ruler, jugs	Revise positional vocab	Add 3/4/5 numbers using known facts Add / subtract two 2 digit numbers Recognise and reason with number bonds to 20 (if $14 + 3 = 17$ , then $3 + 14 = 17$ and $10 + 3 = 4 = 17$ ) Add pairs of numbers
Week 11	Count forward and back in 2/5/10	Read scales – thermometer, scales, ruler, jugs	Read clock to 5 mins or $\frac{1}{4}$ to and $\frac{1}{4}$ past	Decide if problems require addition or subtraction Add two 2 digit numbers (crossing tens and including coins, length, height) Subtract two 2 digit numbers (crossing tens and including coins, length, height)
Week 12	Recognise multiples of 2/5/10	Read scales – thermometer, scales, ruler, jugs	2d / 3d properties of shape	Find change from 50p Find the difference by counting up Compare different lengths / heights using $<$ , $>$ , $=$ ( $6\text{cm} + 7\text{cm} > 4\text{cm} + 3\text{cm}$ )

Year 2 Summer Term (not including problem solving day)

TT Rockstars should be started this term

With two step problems – At first write them out so they see each step of the problem and calculate as they go (I spend 55p and 25p, how much do I spend? How much change do I have from £1? Once they can do this move to all in one go (I spend 55p and 25p, how much change will I get from £1?)

	Oral / Mental Objectives			The focus each lesson must be on reasoning – reasoning will need to be modelled each day to all groups
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
<b>Week 1</b>	<b>Find number patterns</b> 2, 4, 6, _, _, 12 _, 15, 10, _ Predict - What will be the 6 <sup>th</sup> Number?	<b>Reading different scales</b>	<b>Symmetry</b> Where is the line of symmetry? How many lines of symmetry does a rectangle have?	<b>Add / subtract 2 two digit numbers</b> <b>Recognise associated number facts</b> (2 + 7 = 9 so 12 + 7 = 19 because and 12 + 17 = 29 because) <b>Reason about number bonds</b> – I know that 17 + 13 = 30 because I know that 7 and 3 make 10, 10 and 10 make 20 then I recombine. <b>For GD</b> – explain how 29 + 17 = 15 + 4 + ??
<b>Week 2</b>	<b>Multiplication and division facts with arrays</b> From arrays know that  3x5 5x3, 15/3, 15/5 <b>GD</b> how many ways can you make use 15, 3, 5 to make sentence?	<b>Reading different scales</b> Include predicting number where you have only give first and last numbers on the scale	<b>Tell the time to 5mins</b> Also ask what will be the time in 5mins, 10mins, 15 mins?	<b>Read variety scales with divisions of 1, 2, 5, 10 (thermometer, ruler, scales) GD</b> – make predictions to 6 <sup>th</sup> number etc, estimate on blank scale and reason why <b>Read scales and estimate missing numbers</b> <b>Problems</b> – Tom has the amount of water shown of the scales, Jane has ??? more, how much does jane have? <b>GD</b> - How much do they have altogether?
<b>Week 3</b>	<b>Count 2/5/10/3/4 – forward and backwards</b> (miss some number out – they can only say the even numbers when counting in 5's etc)	<b>Find missing number with number line</b> (link to scales work)	<b>Order different amounts of time</b> Include mixing hours and minutes, days and weeks etc	<b>Tell the time to the nearest ½ past, ¼ past, ¼ to</b> <b>GD</b> – Tell the time to the nearest 5 minutes <b>Problems with time</b> – Its 1pm, how long to I get home at 3.00pm / 3.30pm/3.45pm? If my program starts at 5.45pm and lasts 1hr/30 minutes when does it finish? Its 4.45, if my swimming lesson lasts 2hrs/1hr and half when will it finish? If I go to bed in one hour what time will it be? What if I'm 15 minutes late?
<b>Week 4</b>	<b>Find fractions of amounts</b> GD – ½ 6 = 1/3 of ? because??	<b>Read graphs and charts (show examples from SATs paper)</b>	<b>Verbally reason about shape</b>	<b>Solve one and two step problems with money and different measures (length, weight) – include some reading of data</b>

			<i>I know this is a cube because .....</i>	
<b>Week 5 SATs week</b>	<b>Multiplication and division facts 2/5/10/3/4</b>		<b>How many second in 1 min, 2 minutes How many mins in 1 hour?</b>	<b>Recognise <math>\frac{1}{2}</math>, <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math>, <math>\frac{3}{4}</math> of set of objects Find <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> of amounts, money and length Tell time <math>\frac{1}{4}</math> to and <math>\frac{1}{4}</math> past</b>

Year 3 Autumn Term

Oral / Mental Objectives				
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
Week 1	<ul style="list-style-type: none"> <li>Counting in 2, 5, 10, 3</li> <li>Identify 1 or 10 more or less than a number to 100</li> <li>Counting in steps of 50 and 100</li> </ul>	<ul style="list-style-type: none"> <li>Read and write numbers to 1000 in numerals and words</li> <li>Recognise the value of each digit in a 3 digit number</li> </ul>	<ul style="list-style-type: none"> <li>Half past</li> <li>Name 2D shapes: circle/square/ rectangle/triangle/ rhombus/ trapezoid/ heptagon/pentagon/ hexagon/ octagon/ parallelogram</li> </ul>	<ul style="list-style-type: none"> <li>Count in steps of 100/50</li> <li>Recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</li> <li>Compare numbers to 1000</li> </ul>
Week 2	<ul style="list-style-type: none"> <li>Count in steps of 100/50</li> <li>Read and write numbers to 1000.</li> <li>Recall 3x table facts</li> <li>Identify 1 or 10 more or less than a number to 1000</li> </ul>	<ul style="list-style-type: none"> <li>Estimate place on a number line</li> <li>Identify 10/100 more and less than a given number</li> </ul>	<ul style="list-style-type: none"> <li>Half past/ o'clock</li> <li>Recognise the value of each digit in a 3 digit number</li> </ul>	<ul style="list-style-type: none"> <li>Recognise numbers to 1000 on a number line</li> <li>Compare objects to 1000 using &lt; &gt; =</li> <li>Compare numbers to 1000</li> <li>Order numbers to 1000</li> <li>Problem solving</li> </ul>
Week 3	<ul style="list-style-type: none"> <li>Compare numbers to 1000 using &lt; &gt; =</li> <li>Odd / even numbers</li> <li>Doubles / halves</li> <li>Use number facts to solve problems e.g. I know that 40 + 50 is 90 because 4 + 5 =9</li> <li>Recall 3x table facts</li> </ul>	<ul style="list-style-type: none"> <li>Counting in 50s and 100s.</li> <li>Counting in 4s.</li> </ul>	<ul style="list-style-type: none"> <li>O'clock/ half past/ quarter to and past</li> <li>Name 3D shapes Cone/ sphere/ tetrahedron/ cuboid/ cylinder/ cube/ triangular prism/ square-based pyramid</li> </ul>	<ul style="list-style-type: none"> <li>Solve missing number problems with 1 and 2 digits</li> <li>Solve one-step addition and subtraction problems with: <ul style="list-style-type: none"> <li>a two digit number and ones</li> <li>a two digit number and tens</li> <li>two two-digit numbers</li> </ul> </li> <li>Solve addition and subtraction adding three one-digit numbers</li> </ul>
Week 4	<ul style="list-style-type: none"> <li>Addition and subtraction facts to 20 and 100.</li> </ul>	<ul style="list-style-type: none"> <li>Add and subtract multiples of 10/100</li> <li>Counting in 4s</li> </ul>	<ul style="list-style-type: none"> <li>O'clock/ half past/ quarter to and past</li> </ul>	Use expanded formal method to: <ul style="list-style-type: none"> <li>Add a 2-digit and 3-digit number – not crossing 10 or 100</li> <li>Add a 2-digit and 3-digit number – crossing 10 or 100</li> </ul>

	<ul style="list-style-type: none"> <li>Add and subtract 2-digit numbers and 1s, 2-digit numbers and 10s.</li> <li>Add three 2-digit numbers</li> <li>Odd/even numbers</li> <li>Number bonds to 20/100</li> </ul>		<ul style="list-style-type: none"> <li>Identify 3D shapes from properties</li> </ul>	<ul style="list-style-type: none"> <li>Add two 3-digit numbers – not crossing 10 or 100</li> <li>Add two 3-digit numbers – crossing 10 or 100</li> <li>Problem solve with addition</li> </ul>
Week 5	<ul style="list-style-type: none"> <li>Add 3-digit and 1-digit numbers – crossing 10</li> <li>Subtract a 1-digit number from a 3-digit number – crossing 10</li> <li>Number bonds to 20/100</li> </ul>	<ul style="list-style-type: none"> <li>Estimate answers to a calculation.</li> <li>Use the inverse.</li> <li>Recall 4x table facts</li> <li>Missing number problems.</li> </ul>	<ul style="list-style-type: none"> <li>Tell the time to the nearest 5mins</li> <li>Recognise 2D shapes from different orientations</li> </ul>	<p>Use expanded formal method to:</p> <ul style="list-style-type: none"> <li>Subtract a 2-digit and 3-digit number – not crossing 10 or 100</li> <li>Subtract a 2-digit and 3-digit number – crossing 10 or 100</li> <li>Subtract two 3-digit numbers – not crossing 10 or 100</li> <li>Subtract two 3-digit numbers – crossing 10 or 100</li> <li>Problem solve with subtraction</li> </ul>
Week 6	<ul style="list-style-type: none"> <li>Related facts and fact families</li> <li>Add 11</li> <li>Add 12</li> <li>Add 21</li> <li>Add 9</li> </ul>	<ul style="list-style-type: none"> <li>Add and subtract 100s</li> <li>Add and subtract crossing 100</li> <li>Recall 4x table facts</li> </ul>	<ul style="list-style-type: none"> <li>Tell the time to the nearest 5mins</li> <li>Recognise 3D shapes from different orientations</li> </ul>	<ul style="list-style-type: none"> <li>Missing number problems with addition and subtraction using part-whole model</li> <li>Missing number problems with addition and subtraction e.g. <math>340 - ?? = 300</math>, <math>535 = 235 + ???</math>, <math>??? + 140 = 540</math></li> <li>Use the inverse to solve problems</li> <li>Estimate answers to addition questions- check with the inverse</li> <li>Estimate answers to subtraction questions- check with the inverse</li> </ul>
Week 7	<ul style="list-style-type: none"> <li>Add 11 (+ 10, +1)</li> <li>Add 12 (+10, +2)</li> <li>Add 21 (+10, +10, +2)</li> <li>Add / take away 9 from any given number</li> </ul>	<ul style="list-style-type: none"> <li>Estimate answers to addition calculations</li> <li>Add two 3 digit numbers crossing and not crossing 10/100</li> <li>Counting in 8s</li> </ul>	<ul style="list-style-type: none"> <li>Tell the time to the nearest 5mins</li> <li>Recognise 2D shapes from different orientations</li> </ul>	<ul style="list-style-type: none"> <li>Representing 3 times tables</li> <li>Multiplying by 3</li> <li>Dividing by 3</li> <li>The 3 times-table</li> <li>Problem solving</li> </ul>
Week 8	<ul style="list-style-type: none"> <li>Add two 3 digit numbers crossing and not crossing 10/100</li> <li>Number bonds to 20/100/1000</li> </ul>	<ul style="list-style-type: none"> <li>Subtract two 3 digit numbers crossing and not crossing 10/100</li> <li>Counting in 8s</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Properties of 2D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Representing 4 times tables</li> <li>Multiplying by 4</li> <li>Dividing by 4</li> <li>The 4 times-table</li> <li>Problem solving</li> </ul>

Week 9	<ul style="list-style-type: none"> <li>Missing numbers addition and subtraction</li> <li>Number bonds to 20/100/1000</li> </ul>	<ul style="list-style-type: none"> <li>Addition and subtraction crossing 10/100</li> <li>Counting in 8s</li> <li>Recall 8 times tables facts</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Properties of 3D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Representing 8 times tables</li> <li>Multiplying by 8</li> <li>Dividing by 8</li> <li>The 8 times-table</li> <li>Problem solving</li> </ul>
Week 10	<ul style="list-style-type: none"> <li>Recognise the value of different coins and notes</li> </ul>	<ul style="list-style-type: none"> <li>Recall 8 times table facts</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Use language relating to dates- days, weeks, months, year</li> </ul>	<ul style="list-style-type: none"> <li>Recognise, find and name <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math> of a shape or length</li> <li>Recognise, find and name <math>\frac{2}{4}</math>, <math>\frac{3}{4}</math> of a shape or length</li> <li>Recognise, find and name <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math> of a set of objects or quantity</li> <li>Recognise, find and name <math>\frac{2}{4}</math>, <math>\frac{3}{4}</math> of a set of objects or quantity</li> <li>Problem solve with fractions</li> </ul>
Week 11	<ul style="list-style-type: none"> <li>recognise the value of different coins and notes</li> <li>Use language relating to dates- days, weeks, months, year</li> </ul>	<ul style="list-style-type: none"> <li>Recall 3, 4, 8 times table facts</li> <li>Use the inverse.</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Use language relating to dates- days, weeks, months, year</li> </ul>	<ul style="list-style-type: none"> <li>Vocab lesson: compare, describe and solve practical problems for: <ul style="list-style-type: none"> <li>lengths and heights: long/short, longer/shorter, tall/short, double/half</li> <li>mass and weight: heavy/light, heavier than/lighter than</li> <li>capacity and volume: full/empty, more than/less than, half, half full, quarter full</li> <li>time: quicker, slower, earlier, later</li> </ul> </li> <li>Problem solve with units of measure</li> </ul>
Week 12	<ul style="list-style-type: none"> <li>Add coins to find total</li> <li>Use language relating to dates- days, weeks, months, year</li> </ul>	<ul style="list-style-type: none"> <li>Recall 3, 4, 8 times table facts</li> <li>Use the inverse.</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Use language relating to dates- days, weeks, months, year</li> </ul>	<ul style="list-style-type: none"> <li>Choose the correct unit of measure and problem solve <ul style="list-style-type: none"> <li>lengths and heights- m/cm/mm</li> <li>mass- kg/g</li> <li>temperature (<math>^{\circ}</math>C)</li> <li>capacity- L/ml</li> </ul> </li> <li>Problem solve with a variety of different units</li> </ul>
Week 13	<ul style="list-style-type: none"> <li>Add coins and notes to find total</li> <li>Use language relating to dates- days, weeks, months, year</li> </ul>	<ul style="list-style-type: none"> <li>Recall 3,4,8 times table facts</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Use language relating to dates- days, weeks, months, year</li> </ul>	<ul style="list-style-type: none"> <li>Tell and write the time to o'clock, half-past, quarter to and past</li> <li>Tell and write time to nearest minute</li> <li>Order and arrange combinations of mathematical objects in patterns</li> <li>Order and arrange combinations of mathematical objects in sequences</li> <li>Problem solve with time</li> </ul>
Week 14	Consolidation	Consolidation	Consolidation	Consolidation or data work: <ul style="list-style-type: none"> <li>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables</li> <li>Ask and answer questions about totalling and comparing categorical data</li> <li>Address gaps that were identified through assessments</li> </ul>

Year 3 Spring Term

Oral / Mental Objectives				
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
Week 1	<ul style="list-style-type: none"> <li>Identify 1 more or less than a given number</li> <li>Read and write 1-100 in numerals and words</li> <li>Count in steps of 2, 3, 5 and 10 forwards and backwards from any given number</li> <li>Compare and order numbers to 100 using <math>&lt;</math>, <math>&gt;</math>, <math>=</math></li> </ul>	<ul style="list-style-type: none"> <li>Find 10 or 100 more or less than a given number</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>True and False statements- properties of 2D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Vocab lesson: Use objects, pictorial representations and number lines to use language of – <i>equal to, more than, less than, fewer, most and least.</i></li> <li>Solve one-step addition and subtraction problems including missing number problems <i>including finding the difference.</i></li> <li>Add and subtract numbers using objects and representations-                             <ul style="list-style-type: none"> <li>A two digit number and ones</li> <li>A two digit number and tens</li> <li>Adding three one digit numbers</li> </ul> </li> </ul>
Week 2	<ul style="list-style-type: none"> <li>Count in steps of 50, 100 forwards and backwards from any given number</li> <li>+/- numbers to 20</li> <li>Find 10 or 100 more or less than a given number</li> <li>3 x tables x and <math>\div</math></li> </ul>	<ul style="list-style-type: none"> <li>Missing number problems to 20</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>True and False statements- properties of 2D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Add three digit numbers using formal methods not exchanging</li> <li>Add three digit numbers using formal methods exchanging</li> <li>Subtract three digit numbers using formal methods not exchanging</li> <li>Subtract three digit numbers using formal methods exchanging</li> <li>Problem solve with addition and subtraction using a variety of contexts</li> </ul>
Week 3	<ul style="list-style-type: none"> <li>Count in steps of 50, 100 forwards and backwards from any given number</li> <li>+/- numbers to 100</li> <li>Find 10 or 100 more or less than a given number</li> <li>3, 4 x tables x and <math>\div</math></li> <li>Missing number problems using hundreds</li> </ul>		<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>True and False statements- properties of 2D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Solve multiplication problems with calculations within the multiplication tables</li> <li>Solve multiplication problems using                             <ul style="list-style-type: none"> <li>Materials</li> <li>Arrays</li> <li>Repeated addition</li> </ul> </li> </ul> Problems in a variety of contexts
Week 4	<ul style="list-style-type: none"> <li>Count in steps of 50, 100 forwards and backwards from any given number</li> <li>+/- numbers to 100</li> </ul>		<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>True and False statements-</li> </ul>	<ul style="list-style-type: none"> <li>Comparing multiplication statements using <math>&lt;</math> <math>&gt;</math> <math>=</math> and correct vocabulary: <i>less than, greater than, equal to</i></li> <li>Related multiplication calculations</li> <li>Intro to formal layout- multiply 2 digits by 1 digit</li> <li>Multiply 2 digits by 1 digit- correspondence problems</li> </ul>

	<ul style="list-style-type: none"> <li>Find 10 or 100 more or less than a given number</li> <li>3, 4 x tables x and ÷ missing number problems</li> <li>Missing number problems using hundreds</li> </ul>		properties of 2D shapes	<ul style="list-style-type: none"> <li>Multiply 2 digits by 1 digit- integer scaling</li> </ul>
Week 5	<ul style="list-style-type: none"> <li>Count in steps of 50, 100 forwards and backwards from any given number</li> <li>+/- numbers to 100</li> <li>Find 10 or 100 more or less than a given number</li> <li>3, 4, 8 x tables x and ÷ missing number recall</li> <li>Missing number problems using hundreds</li> </ul>		<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Identify <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math> of a shape</li> </ul>	<ul style="list-style-type: none"> <li>Comparing division statements using &lt; &gt; = and correct vocabulary: <i>less than, greater than, equal to</i></li> <li>Related multiplication calculations</li> <li>Intro to formal layout- Divide 2 digits by 1 digit</li> <li>Divide 2 digits by 1 digit – with exchanging</li> <li>Divide 2 digits by 1 digit - problem solving</li> </ul>
Week 6	<ul style="list-style-type: none"> <li>Count in steps of 2, 3, 5 and 10 forwards and backwards from any given number</li> <li>3, 4, 8 x tables x and ÷</li> <li></li> </ul>		<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Identify <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math> of a shape</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Find <math>\frac{1}{2}</math>, <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, object or quantity</li> <li>Recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math></li> <li>Recognise unit fractions and non-unit fractions</li> <li>Count up and down in tenths, recognise that tenths arise when objects/amounts are divided by 10</li> <li>Problem solve using tenths</li> </ul>
Week 7	<ul style="list-style-type: none"> <li>Identify value of groups of coins</li> <li>3, 4, 8 x tables x and ÷</li> </ul>	<ul style="list-style-type: none"> <li>Compare unit fractions</li> <li>Count up and down in tenths</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Identify tenths</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Compare and order unit fractions and fractions with the same denominators</li> <li>Recognise, find and write fractions of a discrete set of objects- fractions with small denominators- practical</li> <li>Recognise, find and write fractions of a discrete set of objects- fractions with small denominators- pictorial</li> <li>Problem solve with fractions with small denominators</li> <li>Recognise and show equivalent fractions with the small denominators</li> </ul>
Week 8	<ul style="list-style-type: none"> <li>Identify value of groups of coins</li> <li>3, 4, 8 x tables x and ÷</li> </ul>	<ul style="list-style-type: none"> <li>Compare unit fractions</li> <li>Count up and down in tenths</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Identify tenths of a shape</li> </ul>	<ul style="list-style-type: none"> <li>Add fractions with the same denominator within one whole</li> <li>Subtract fractions with the same denominator within one whole</li> <li>Problem solve with adding and subtracting fractions with small denominators</li> <li>Practical: combine amounts to make a particular value</li> <li>Add coins using £ and p in practical settings</li> </ul>
Week 9	<ul style="list-style-type: none"> <li>Count in steps of 2, 3, 5 and 10 forwards and</li> </ul>	<ul style="list-style-type: none"> <li>Count up and down in tenths</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> </ul>	<ul style="list-style-type: none"> <li>Subtract coins using £ and p in practical settings</li> <li>Add and subtract in a practical setting giving change</li> </ul>

	<p>backwards from any given number</p> <ul style="list-style-type: none"> <li>Identify value of groups of coins</li> <li>Describe positions and movement incl. turns</li> <li>3, 4, 8 x tables x and ÷</li> </ul>	<ul style="list-style-type: none"> <li>Compare values e.g. 127 __ £1.16</li> </ul>	<ul style="list-style-type: none"> <li>Describe position, directions and movement e.g. half, quarter and three-quarter turns</li> </ul>	<ul style="list-style-type: none"> <li>Compare and order length using &lt; &gt; = (incl. problem solving)</li> <li>Compare and order mass using &lt; &gt; = (incl. problem solving)</li> <li>Compare and order capacity using &lt; &gt; = (incl. problem solving)</li> </ul>
Week 10	<ul style="list-style-type: none"> <li>Count in steps of 2, 3, 5 and 10 forwards and backwards from any given number</li> <li>Identify value of groups of coins</li> <li>3, 4, 8 x tables x and ÷</li> <li>Compare lengths</li> </ul>	<ul style="list-style-type: none"> <li>Compare values e.g. 127 __ £1.16</li> <li>Compare lengths, mass, capacity</li> <li>Identify correct tool to measure e.g. what should I use to measure a door? A pencil? The playing field?</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Describe position, directions and movement e.g. half, quarter and three-quarter turns</li> </ul>	<ul style="list-style-type: none"> <li>Measure lengths accurately in m</li> <li>Measure lengths accurately in cm</li> <li>Measure lengths accurately in mm</li> <li>Problem solving with measure</li> <li>Problem solve with the properties of 2D and 3D shapes</li> </ul>
Week 11	<ul style="list-style-type: none"> <li>Identify value of groups of coins</li> <li>3, 4, 8 x tables x and ÷</li> </ul>	<ul style="list-style-type: none"> <li>Compare values e.g. 127 __ £1.16</li> <li>Compare lengths, mass, capacity</li> <li>Identify correct tool to measure e.g. what should I use to measure a door? A pencil? The playing field?</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> </ul>	<ul style="list-style-type: none"> <li>Introduce perimeter using 2D shapes</li> <li>Calculate perimeter</li> <li>Calculate perimeter</li> <li>Problem solve with perimeter</li> </ul>
Week 12				<p>Consolidation, addressing gaps from assessments, statistics</p> <ul style="list-style-type: none"> <li>Interpret and present data using bar charts, pictograms and tables (if not covered in science, geography, history or other topic work)</li> </ul>

Year 3 Summer Term

Oral / Mental Objectives			
	Number	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
Week 1	<ul style="list-style-type: none"> <li>Identify 1 more or less than a given number</li> <li>Read and write 1-100 in numerals and words</li> <li>Count in steps of 2, 3, 5 and 10 forwards and backwards from any given number</li> <li>Compare and order numbers to 100 using <math>&lt;</math>, <math>&gt;</math>, <math>=</math></li> <li>Find 10 or 100 more or less than a given number</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>True and False statements- properties of 2D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Identify, represent and estimate numbers using different representations.</li> <li>Estimate numbers on a number line.</li> <li>Use place value and number facts to solve problems</li> <li>Compare and order numbers to 1000</li> <li>Read and write numbers to 1000 in numerals and words</li> </ul>
Week 2	<ul style="list-style-type: none"> <li>Count in steps of 50, 100 forwards and backwards from any given number</li> <li>+/- numbers to 20</li> <li>Find 10 or 100 more or less than a given number</li> <li>2, 5, 10x tables <math>\times</math> and <math>\div</math></li> <li>Missing number problems to 20</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>True and False statements- properties of 3D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Add three digit numbers using formal methods not exchanging</li> <li>Add three digit numbers using formal methods exchanging</li> <li>Subtract three digit numbers using formal methods not exchanging</li> <li>Subtract three digit numbers using formal methods exchanging</li> <li>Problem solve with addition and subtraction using a variety of contexts including missing number problems</li> </ul>
Week 3	<ul style="list-style-type: none"> <li>Count in steps of 50, 100 forwards and backwards from any given number</li> <li>+/- numbers to 100</li> <li>Find 10 or 100 more or less than a given number</li> <li>3, 4 x tables <math>\times</math> and <math>\div</math></li> <li>Missing number problems using hundreds</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>True and False statements- properties of 2D and 3D shapes</li> </ul>	<ul style="list-style-type: none"> <li>Comparing multiplication statements using <math>&lt;</math> <math>&gt;</math> <math>=</math> and correct vocabulary: <i>less than, greater than, equal to</i></li> <li>Multiplication with formal method (three lessons) with reasoning</li> <li>Problem solving with multiplication- 2 step problems in a variety of contexts</li> </ul>
Week 4	<ul style="list-style-type: none"> <li>Count in steps of 3, 4 and 8 forwards and backwards from any given number</li> <li>+/- numbers to 100</li> <li>Find 10 or 100 more or less than a given number</li> <li>3, 4, 8 x tables <math>\times</math> and <math>\div</math> missing number problems</li> <li>Missing number problems using hundreds</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Identify <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math> of a shape</li> </ul>	<ul style="list-style-type: none"> <li>Comparing division statements using <math>&lt;</math> <math>&gt;</math> <math>=</math> and correct vocabulary: <i>less than, greater than, equal to</i></li> <li>Division with formal methods (three lessons) with reasoning</li> <li>Problem solving with division- 2 step problems in a variety of contexts</li> </ul>
Week 5	<ul style="list-style-type: none"> <li>Count in steps of 3, 4 and 8 forwards and backwards from any given number</li> <li>+/- numbers to 100</li> <li>Find 10 or 100 more or less than a given number</li> <li>3, 4, 8 x tables <math>\times</math> and <math>\div</math> missing number recall</li> <li>Missing number problems using hundreds</li> </ul>	<ul style="list-style-type: none"> <li>Tell time to the nearest minute</li> <li>Identify <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math> of an amount</li> </ul>	<ul style="list-style-type: none"> <li>Recognise equivalent fractions</li> <li>Problem solve using fractions</li> <li>Compare and order unit fractions and fractions with the same denominators</li> <li>Recognise, find and write fractions of a discrete set of objects- fractions with small denominators- pictorial</li> <li>Problem solve with fractions with small denominators</li> </ul>

Week 6	<ul style="list-style-type: none"> <li>• 2, 5, 10 times tables</li> <li>• 3, 4, 8 x tables x and ÷</li> <li>• Add and subtract numbers to 100</li> </ul>	<ul style="list-style-type: none"> <li>• Tell time to the nearest minute</li> <li>• Add fractions with the same denominator</li> </ul>	<ul style="list-style-type: none"> <li>• Add fractions with the same denominator within one whole</li> <li>• Subtract fractions with the same denominator within one whole</li> <li>• Problem solve with adding and subtracting fractions with small denominators</li> <li>• Practical: combine amounts to make a particular value</li> <li>• Add coins using £ and p in practical settings</li> </ul>
Week 7	<ul style="list-style-type: none"> <li>• Identify value of groups of coins</li> <li>• 3, 4, 8 x tables x and ÷</li> <li>• Compare unit fractions</li> <li>• Count up and down in tenths</li> </ul>	<ul style="list-style-type: none"> <li>• Tell time to the nearest minute</li> <li>• Subtract fractions with the same denominator</li> <li>• Identify tenths</li> </ul>	<ul style="list-style-type: none"> <li>• To estimate, compare and order length using &lt; &gt; = (incl. problem solving, addition and subtraction)</li> <li>• To estimate, compare and order mass using &lt; &gt; = (incl. problem solving, addition and subtraction)</li> <li>• To estimate, compare and order capacity using &lt; &gt; = (incl. problem solving, addition and subtraction)</li> <li>• Problem solving using different units of measure</li> <li>• Problem solve with the properties of 2D and 3D shapes</li> </ul>
Week 8	<ul style="list-style-type: none"> <li>• Identify value of groups of coins</li> <li>• 3, 4, 8 x tables x and ÷</li> <li>• Compare unit fractions</li> <li>• Count up and down in tenths</li> </ul>	<ul style="list-style-type: none"> <li>• Convert analogue and digital time- 12hr</li> <li>• Add and subtract fractions with the same denominator</li> <li>• Identify tenths of a shape</li> </ul>	<ul style="list-style-type: none"> <li>• Know the number of seconds in a minute, days in a month, year and leap year</li> <li>• Tell and write the time from an analogue clock- 12hr</li> <li>• Tell and write the time from an analogue clock 24hr</li> <li>• Compare durations of events e.g. calculate the time taken to complete a particular event or task.</li> <li>• Problem solve with time</li> </ul>
Week 9	<ul style="list-style-type: none"> <li>• Count in steps of 2, 3, 5 and 10 forwards and backwards from any given number</li> <li>• Identify value of groups of coins</li> <li>• Describe positions and movement incl. turns</li> <li>• 3, 4, 8 x tables x and ÷</li> <li>• Count up and down in tenths</li> <li>• Compare values e.g. 127 __ £1.16</li> </ul>	<ul style="list-style-type: none"> <li>• Convert analogue and digital time- 24hr</li> <li>• Describe position, directions and movement e.g. half, quarter and three-quarter turns</li> </ul>	<ul style="list-style-type: none"> <li>• Identify angles, recognize that two right angles make a half turn, three make three quarters of a turn and four complete a turn</li> <li>• Identify if an angle is greater than or less than a right angle</li> <li>• Reasoning with angles</li> <li>• Use mathematical vocab to describe position, direction and movement, incl movement in a straight line and distinguishing between rotation as a turn in terms of right angles for quarter, half and three quarter turns- clockwise and anti-clockwise</li> <li>• Map work using directions</li> </ul>
Week 10	<ul style="list-style-type: none"> <li>• Count in steps of 2, 3, 5 and 10 forwards and backwards from any given number</li> <li>• Identify value of groups of coins</li> <li>• 3, 4, 8 x tables x and ÷</li> <li>• Compare lengths</li> </ul>	<ul style="list-style-type: none"> <li>• Convert analogue and digital time- 24hr</li> <li>• Describe position, directions and movement e.g. half, quarter and three-quarter turns</li> </ul>	<p>Consolidation, addressing gaps from assessments, statistics</p> <ul style="list-style-type: none"> <li>• Interpret and present data using bar charts, pictograms and tables</li> <li>• Solve one-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') using information presented in scaled bar charts, pictograms and tables (if not covered in science, geography, history or other topic work)</li> </ul>

**Year 4 Aut Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)**

	Oral / Mental Objectives			
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
Week 1	Read write numbers 0 -1000	Counting back to include negative numbers	2d names – square, rectangle, triangle, circle, polygon, quadrilateral, trapezium, parallelogram, kite, octagon, hexagon	Use <, >, = to compare number to 1000 Compare numbers beyond 1000 Represent each digit – start 2 digit, move to 3 digit Find 1000 more or less than a given number Count backwards through zero to include negative numbers
Week 2	2,5,10, 3 timetables	Rounding numbers	2d properties – sides, vertices, lines of symmetry, parallel sides, right angles	
Week 3	2,5,10, 3 timetables	Rapid recall of number facts	Tell time revisit $\frac{1}{4}$ to and $\frac{1}{4}$ past	Round numbers to nearest 10, 100 or 1000 – include money e.g round £46 or £654 Read roman numerals (1 day)
Week 4	Place number on blank number line	Rapid recall of facts linked to known facts (7 +3 = 10 so 27+3=30)	Clock in roman numerals	I can add two 2-digit numbers using informal /formal method I can add two 3-digit numbers using informal / formal method I can add 4-digit numbers using a formal method I can estimate before adding (using rounding from previous wk) ( see calculation policy for informal and formal methods for Yr 4)
Week 5	Count in 4s	Recognise coins and notes	Clock in roman numerals	I can subtract two 2-digit numbers using informal /formal method I can subtract two 3-digit numbers using informal / formal method I can subtract 4-digit numbers using a formal method I can estimate before I subtract (using rounding from previous wk) (see calculation policy for informal and formal methods for Yr 4)
Week 6	Count in 50s Count in 100s	Multiply 2- and 3-digit numbers by 10	Names of 3d shapes – cube, cuboid, sphere, triangular based pyramid, square based pyramid, triangular prism, prism, cone, cylinder	I can add / subtract 4-digit numbers using money including giving change (not decimals) I can choose the appropriate operation when calculating
Week 7	Count in 4s link to 8s	Find factor families	Properties of 3d shapes – vertices, face, edge, cross section, prism	I can multiply and divide by 10 and 100, explaining the effect on each digit I can divide amounts of money by 10 and 100
Week 8	Multiply by 10, 100, 1000	Find $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{2}{4}$ , $\frac{3}{4}$ of a shape	Tell time to nearest 5 mins	I can find fractions of amounts /quantities – $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{2}{4}$ , $\frac{3}{4}$ , $\frac{1}{3}$ , $\frac{1}{5}$ , $\frac{2}{5}$ etc I can solve problems involving fractions, using the bar model to help
Week 9	Divide by 10, 100, 1000	Add / subtract 3 numbers	Tell time to nearest 5 mins	I can convert between km to m I can convert between £ and pence I can add and subtract with length and money (m, cm, mm),

<b>Week 10</b>	<b>Times tables 3s</b>	<b>Negative numbers forward and backwards</b>	<b>2d names – square, rectangle, triangle, circle, polygon, quadrilateral, trapezium, parallelogram, kite, octagon, hexagon</b>	<b>I can calculate the perimeter of squares and rectangles by counting squares I can calculate the area of squares and rectangles by counting squares</b>
<b>Week 11</b>	<b>Times tables 3s and 6s</b>	<b>Rapid recall of number facts to 100</b>	<b>Names of 3d shapes – cube, cuboid, sphere, triangular based pyramid, square based pyramid, triangular prism, prism, cone, cylinder</b>	<b>I can identify 2d shapes and their properties including number of sides, number of vertices, number of right angles, pairs of parallel sides, I can compare 2d shapes explaining similarities and differences</b>
<b>Week 12</b>	<b>Fractions of amounts</b>	<b>Number patterns</b>	<b>Tell time to nearest 5 mins</b>	<b>I can identify 3 d shapes and their properties including shape of and number of faces, vertices, cross section, I can compare 3d shapes explaining similarities and differences</b>
<b>Week 13</b>	<b>Conversions km to m and m to km</b>	<b>Find difference between two different times</b>	<b>Conversion of days to weeks, months to years</b>	<b>I can tell the time to the nearest 5 minutes I can convert between minutes and hours.</b>
<b>Week 14</b>	<b>Rapid recall of number facts to 100</b>	<b>Add to a time (what is 90 mins later than?)</b>	<b>Conversion of weeks per year, days per week etc</b>	<b>I can interpret data and answer 1 or 2 step questions from bar charts, pictograms and tables I can present data in bar charts, pictograms and tables</b>

**Year 4 Spring Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)**

	<b>Oral / Mental Objectives</b>			
	<b>Revisit</b>	<b>New</b>	<b>Time / Shape</b>	<b>Main Teaching (remember to include reasoning and empty boxes)</b>
<b>Week 1</b>	<b>Find <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{3}</math>, <math>\frac{2}{4}</math> of shape and amount</b>	<b>Counting forward and back in decimals (hundredths and tenths)</b>	<b>Names of 2d and 3d shapes</b>	<b>Multiply by 10 &amp; 100 (including decimals) Divide by 10 &amp; 100 (including decimals)</b>
<b>Week 2</b>	<b>Multiples of 25/100</b>	<b>Compare and order decimals using <math>&lt; = &gt;</math></b>	<b>Properties of 2D shapes</b>	<b>Convert CM to M and M to CM Convert Gr to Kg and Kg to Gr</b>
<b>Week 3</b>	<b>Times tables and division facts</b>	<b>Round decimals to nearest whole Find fraction families</b>	<b>Properties of 3D shapes</b>	<b>Find equivalent Fractions and compare fractions – using diagrams and then calculations (<math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>, <math>\frac{2}{4}</math>, <math>\frac{1}{3}</math>) Find equivalent fractions to decimals</b>

<b>Week 4</b>	<b>Times tables and division facts</b>	<b>Compare numbers to same decimal place Convert fractions to decimals</b>	<b>Tell time to 5 mins analogue and digital</b>	<b>Simplify fractions Find equivalent fractions to decimals</b>
<b>Week 5</b>	<b>Times tables and division facts</b>	<b>Remainders Multiply 3 numbers</b>	<b>Tell time to 5 mins analogue and digital</b>	<b>Find fractions of amounts, including length, weight and money to 2 decimal places</b>
<b>Week 6</b>	<b>Round to nearest 10/100/1000</b>	<b>Recognise coins and notes</b>	<b>Read 24-hour clock</b>	<b>Multiply 2- and 3-digit numbers by 1 digit using the grid and column methods of multiplication Understand and use distributive law to multiply 2 digits by 1 digit</b>
<b>Week 7</b>	<b>Order and compare fractions and decimals</b>	<b>Add / subtract 2 or 3 coins</b>	<b>Read 24-hour clock</b>	<b>Find division with remainders by counting up Find division with remainders by using the short method</b>
<b>Week 8</b>	<b>Times tables and division facts</b>	<b>Find factor families</b>	<b>Identify different triangles and quadrilaterals</b>	<b>Add 3 or 4 different amounts of money, including pounds and pence Solve 1 and 2 step addition problems involving money</b>
<b>Week 9</b>	<b>Multiply by 10/100</b>	<b>Multiply and divide by 0 and 1</b>	<b>Identify acute / obtuse angles</b>	<b>Solve 3 digit subtract 2-digit calculations (incl crossing the boundary) Find change up to £10 Solve 1 and 2 step subtraction problems involving money</b>
<b>Week 10</b>	<b>Divide by 10/100</b>	<b>Use inverse to calculate multiplication and division</b>	<b>Read 24-hour clock</b>	<b>Read 24-hour clock, read analogue clock Solve problems converting hours in day, mins in hour, seconds in mins, months in years, days in week</b>
<b>Week 11</b>	<b>Times tables and division facts</b>	<b>Rapid recall addition and subtraction</b>	<b>Position and direction – up/down/left/right <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math> turns</b>	<b>Identify lines of symmetry of 2d shapes in different orientations</b>
<b>Week 12</b>	<b>Revisit Roman numerals</b>	<b>Equivalent fractions and decimals</b>	<b>Read coordinates</b>	<b>Plot coordinates of given polygon, describe position of polygon in first quadrant Find missing coordinates of given polygon Translate shapes and describe new position using up/down/left/right</b>

Year 4 Summer Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)

	Oral / Mental Objectives			Main Teaching (remember to include reasoning and empty boxes)
	Revisit	New	Time / Shape	
Week 1	Times tables	Counting in negative numbers	Read analogue clock	<p>Count backwards through zero to include negative numbers (<i>e.g find difference between two numbers on a number line</i>)</p> <p>Solve comparison, sum and difference problems using information presented in bar charts / pictograms/ tables and other graphs (complete on Thurs / Fri using negative numbers as well)</p>
Week 2	Times tables	Count in multiples of 25	Revisit names of 2d shapes and properties	<p>Add / subtract 2 4- digit numbers (for GD miss digits in calculations, for Exp present calculations in different ways, as seen in Arithmetic paper)</p> <p>Solve addition and subtraction two step problems. Decide which operation and methods to use</p>
Week 3	Rounding to 1 decimal place and whole number	Count in multiples of 1000	Revisit quadrilateral, polygons etc	<p>Identify acute and obtuse angles</p> <p>Compare and order angles up to two right angles by size</p> <p>Complete a simple symmetric figure with respect to a specific line of symmetry</p>
Week 4	Timetables	Count in multiples of 9 – can they see a pattern in the digits to help to help?	Revisit triangles and angles from previous week	<p>Compare and classify geometric shapes, including triangles and quadrilaterals based on properties and size. (Use a Venn diagram and Carol Diagrams for this. For GD make criteria more complex or children choose own criteria, for Exp give criteria)</p> <p>Plot specified points and draw sides to complete given polygon (E.g see Yr 6 SATs questions)</p>
Week 5	Factor pairs	Count in multiples of 3 – can they see how to identify a multiple of 3 (e.g 114 is a multiple of 3 because ...)	Read analogue clock	<p>Find common equivalent fractions</p> <p>Find fractions of quantities (<i>e.g <math>\frac{3}{4}</math> of 120m or <math>\frac{1}{4}</math> of £80</i>) (Have the need to convert first <i>e.g <math>\frac{1}{2}</math> of 0.8m or <math>\frac{3}{4}</math> of 1.2kg – this will need modelling</i>)</p> <p>Find decimal equivalence – <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math> (link this with finding fractions of quantities <i>e.g what is 0.25 of £32?</i>)</p> <p>Solve simple measures and money problems involving and decimals to 2 decimal places.</p>
Half Term				

Week 6	Fractions – equivalence	Count in multiples of 6 – can they see how to identify linked to multiple of 3?	Convert analogue to 12hr clock	<p><b>Recognise and use factor pairs and commutativity</b> (e.g <math>4 + 2 \times 3</math>)</p> <p><b>Multiply 2 digit and 3-digit numbers by 1 digit</b> (For GD remove digits from a completed calculation and reason why)</p> <p><b>Divide 4 digit by 1-digit number using formal written method</b> (For GD remove digits from a completed calculation and reason why)</p> <p><b>Solve 2 step problems involving multiplication or division</b> (include reasoning with multiplication and division in questions modelled and given)</p>
Week 7	Fractions – find fractions of amounts	Round decimals	Convert analogue clock to 24hr	<p><b>Convert time from analogue clock to 12- and 24-hour clock</b></p> <p><b>Convert hours to minutes</b></p> <p><b>Convert minutes to seconds</b></p> <p><b>Convert years to months etc</b> (Complete these in problem solving context, not just as standalone conversions)</p>
Week 8	Timetables	Round decimals	Convert analogue clock to 24hr	<p><b>Solve simple measure and money problems – revisit all four operations, fractions and decimals within this.</b></p> <p><b>Interpret and present discrete and continuous data using appropriate methods charts / graphs</b></p>
Week 9	Timetables	<p><b>Complete online Year 4 Multiplication Test</b></p> <p><b>Revision misconceptions from previous two terms prior to assessment</b></p> <p><b>Revisit anything from Autumn Term not visited in Spring or Summer</b></p>		
Week 10	Multiply and divide by 10, 100 and 1000	Conversions	Days, weeks, years, months, hour, second conversions	<p><b>Interpret and present discrete and continuous data using appropriate methods charts / graphs</b></p> <p><b>Solve comparison, sum and difference problems using information presented in bar charts / pictograms/ tables and other graphs</b></p>
Week 11	<p><b>Transition to new classes</b></p>			

**Year 5 Aut Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)**

	Oral / Mental Objectives			
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
Week 1	Read write numbers 0 -1000	Counting forward and back in steps of power of 10	2d names – square, rectangle, different triangles, circle, polygon, quadrilateral, trapezium, parallelogram, kite, octagon, hexagon	Using =, <, > Read, write and compare numbers to 1,000,000 in numerals and words Read roman numerals to 1,000 (M) and Recognise years written in Roman Numerals Recognise the value of each digit up to 1,000,000
Week 2	Fond 10 / 100 / 1000 more or less than given number	Rounding numbers to 100, 1000, 10,000	2d properties – sides, vertices, lines of symmetry, parallel sides, right angles	
Week 3	Timetables rapid recall to 12 x 12	Count forward and back with positive and negative number	Revisit telling time to nearest minute on analogue clock	Round numbers up to 1,000,000 to nearest 10, 100 or 1000, 10,000 and 100,00 – include money e.g. round £46, 544 or £654, 232
Week 4	Place number incl negative numbers on blank number line	Add and subtract 3 digit and ones and 10's	Revisit telling time to nearest minute on analogue clock	I can add whole numbers with more than 4 digits using a formal method I can estimate before adding (using rounding from previous wk) (see calculation policy for informal and formal methods for Yr 5) I can solve problems including missing numbers
Week 5	Counting forward and back in steps of power of 10	Add and subtract 3 digit and 10's and 100s	Convert times to digital, 24hr and analogue	I can subtract whole numbers with more than 4 digits using a formal method I can estimate before I subtract (using rounding from previous wk) (see calculation policy for informal and formal methods for Yr 4) I can solve problems including missing numbers
Week 6	Timetables rapid recall to 12 x 12	I can Recognise square numbers	Names of 3d shapes – cube, cuboid, sphere, triangular based pyramid, square based pyramid, triangular prism, prism, cone, cylinder	I can add / subtract 4-digit numbers using money including giving change (not decimals) I can choose the appropriate operation when calculating I can solve problems including missing numbers
Week 7	I can Recognise square numbers	Multiply by 10, 100, 1000	Properties of 3d shapes – vertices, face, edge, cross section, prism	I can multiply and divide by 10, 100 and 1000 explaining the effect on each digit I can multiply and divide amounts of money by 10, 100 and 1000
Week 8	Timetables rapid recall to 12 x 12	Add and subtract fractions with the same denominator	Convert times to digital, 24hr and analogue	I can find fractions of amounts /quantities I can solve problems involving fractions
Week 9	Count forward and back with positive and negative number	Add / subtract numbers mentally	Conversion between days / hours / mins	I can add and subtract with length and weight I can add and subtract with money (m, cm, mm), giving change where appropriate

<b>Week 10</b>	<b>Fractions of amounts</b>	<b>I can Recognise cubed numbers</b>	<b>2d names – square, rectangle, triangle, circle, polygon, quadrilateral, trapezium, parallelogram, kite, octagon, hexagon</b>	<b>I can calculate the perimeter of shapes in CM and M I can calculate the area of shapes in CM and M I can estimate the area of irregular shapes</b>
<b>Week 11</b>	<b>Timetables rapid recall to 12 x 12</b>	<b>Making turns <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{3}{4}</math></b>	<b>Names of 3d shapes – cube, cuboid, sphere, triangular based pyramid, square based pyramid, triangular prism, prism, cone, cylinder</b>	<b>I can compare and classify geometric shapes based on their properties including different quadrilaterals and triangles</b>
<b>Week 12</b>	<b>I can Recognise cubed numbers</b>	<b>Number patterns</b>	<b>Conversion between days / weeks/months /years</b>	<b>I can identify right angles, recognise right angles make a <math>\frac{1}{2}</math> turn, three make <math>\frac{3}{4}</math> turn and 4 make complete turn I can say if an angle is greater or less than a right angle</b>
<b>Week 13</b>	<b>Calculate area of squares and rectangles</b>	<b>Find difference between two different times</b>	<b>Revisit telling time to nearest minute on analogue clock</b>	<b>Plot specific points and draw sides to complete a given polygon using coordinates Predict missing coordinates using known facts</b>
<b>Week 14</b>	<b>Rapid recall of number facts</b>	<b>Add / subtract numbers mentally</b>	<b>Conversion between days / weeks/months /years</b>	<b>I can interpret and present discrete and continuous data including time graphs I can solve comparison, sum and difference problems using information in bar charts, tables and other graphs</b>

**Year 5 Spring Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)**

	<b>Oral / Mental Objectives</b>			
	<b>Revisit</b>	<b>New</b>	<b>Time / Shape</b>	<b>Main Teaching (remember to include reasoning and empty boxes)</b>
<b>Week 1</b>	<b>Multiply whole numbers by 10, 100, 1000</b>	<b>Find all factor pairs of a number</b>	<b>Read analogue clocks to the nearest minute.</b>	<b>Place value – rounding to the nearest 10, 100, 1000, 10,000 and 100,000 Read negative numbers, count forward and back between negative and positive numbers including through 0</b>
<b>Week 2</b>	<b>Divide numbers by 10, 100, 1000</b>	<b>Identify multiples of a given number</b>	<b>Read analogue clocks to the nearest minute.</b>	<b>Multiplying 4-digit numbers by a 1- or 2-digit number using a formal method including money.</b>
<b>Week 3</b>	<b>Counting forward and back in negative numbers</b>	<b>Convert between cm / m, ml / l</b>	<b>Read analogue clocks to the nearest minute.</b>	<b>Divide 4-digit number by 1 digit number using a formal method of short division calculating the remainder (remainders as decimal/ fraction)</b>
<b>Week 4</b>	<b>Revisit up to 12 x 12</b>	<b>Identify prime numbers to 100</b>	<b>Convert 24 hour to analogue clock times.</b>	<b>Convert between different units of metric measure</b>

Week 5	Add and subtract fractions with the same denominator	Add numbers mentally e.g. $12,462 + 2,300 = 14,762$	Convert 24 hour to analogue clock times.	Solve problems involving converting between units of time.
Week 6	Revisit up to $12 \times 12$	Subtract numbers mentally $12,462 - 2,300$	Revisit properties of 2D shapes	Data – read and interpret information in tables and line graphs to solve comparison, sum and difference
Week 7	Find all factor pairs of a number Identify multiples of a given number	Read and order numbers to 3 decimal places.	Revisit properties of 3D shapes	Compare and order fractions whose denominators are all multiples of the same number Recognize mixed numbers and improper fractions and convert from one to another e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$
Week 8	Identify prime numbers to 100	Know decimal, fraction & percentage equivalence	Recognize acute, obtuse and reflex angles	Read and write decimal numbers as a fraction e.g. $0.71 = \frac{71}{100}$
Week 9	Counting forward and back in negative numbers		Recognize acute, obtuse and reflex angles	Solve problems that require knowing decimals and percentage equivalence
Week 10	Add numbers mentally e.g. $12,462 + 2,300 = 14,762$	Recognize years written in Roman numerals	Convert between days, months & years	Draw angles and measure them in degrees to the nearest degree. Compare acute, obtuse and reflex angles
Week 11	Subtract numbers mentally $12,462 - 2,300$		Convert between days, months & years	Use the properties of rectangles to deduce related facts and missing lengths and angles.
Week 12	Revisit fractions			Calculate the area of regular shapes, estimate the areas of irregular shapes

Year 5 Summer Term (not including problem solving day, TT Rock stars, Mathletics and fortnightly timed Arithmetic test)

	Oral / Mental Objectives			
	Revisit	New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
Week 1	Multiply & Divide numbers by 10, 100, 1000	Find all factor pairs of a number	Read analogue clocks to the nearest minute.	Solve number problems & practical problems involving place value, negative numbers, rounding and estimating.
Week 2	Squared and cubed numbers	Identify prime & composite numbers to 100	Read analogue clocks to the nearest minute.	Estimate before adding and subtracting whole numbers. Add and subtract whole numbers with more than 4 digits – including use of formal written methods and missing numbers.
Week 3	Counting forward and back in negative numbers	Adding fractions with the same denominator.	Read analogue clocks to the nearest minute.	Solve problems involving addition and subtraction, multiplication and division, and a combination of these. Solve problems involving multiplication and division using knowledge of factors and multiples, squares and cubes.
Week 4	Revisit up to $12 \times 12$	Converting improper to mixed fractions	Convert 24 hour to analogue clock times.	Add and subtract fractions with the same denominator and denominators that are multiples of the same number.
Week 5	Add and subtract fractions with the same denominator	Know decimal, fraction & percentage equivalence	Convert 24 hour to analogue clock times.	Multiply proper fractions and mixed numbers by whole numbers supports by materials and diagrams.
Week 6	Revisit up to $12 \times 12$	Subtract numbers mentally $12,462 - 2,300$	Convert between days, months & years	Read, write, order and compare numbers with up to three decimal places. Round decimals with two decimal places to the nearest whole number and to one decimal place. Solve problems involving number up to three decimal places
Week 7	Identify multiples of a given number	Add numbers mentally e.g. $12,462 + 2,300 = 14,762$	Convert between days, months & years	Recognise the per cent % symbol and understand that per cent relates to 'number of parts per hundred' Write percentages as a fraction with denominator 100 and as a decimal.
Week 8	Identify prime numbers to 100	Convert between cm / m, ml / l	Names of 2D and 3D shapes	Understand and use appropriate equivalences between metric units and common imperial units such as inches, pounds and pints.
Week 9	Counting forward and back in negative numbers	Areas to be revisited.	Symmetry of 2D shapes	Estimate volume (for example, using 1 cm <sup>3</sup> blocks to build cuboids (including cubes)) and capacity (for example using water)

<b>Week 10</b>	<b>Add numbers mentally e.g. 12,462 + 2,300 =14,762</b>	<b>Recognize years written in Roman numerals</b>	<b>Recognize acute, obtuse and reflex angles</b>	<b>Review and recap the properties of 2D and 3D shapes</b>
<b>Week 11</b>	<b>Subtract numbers mentally 12,462 – 2,300</b>	<b>Areas to be revisited.</b>	<b>Recognize acute, obtuse and reflex angles</b>	<b>Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</b>
<b>Week 12</b>	<b>Revisit fractions</b>			<b>Review angles – recognizing, naming and drawing using a protractor.</b>

**Year 6 Aut Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)**

<b>Oral / Mental Objectives</b>				
	<b>Revisit / New</b>		<b>Time / Shape</b>	<b>Main Teaching (remember to include reasoning and empty boxes)</b>
<b>Week 1</b>	<b>Multiply and divide numbers mentally drawing upon known facts.</b>	<b>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</b>	<b>Read, write and convert time between analogue and digital 12- and 24-hour clocks.</b>	<b>Round any whole number to a required degree of accuracy. Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. Identify the value of each digit in numbers given to three decimal places. Identify common factors, common multiples and prime numbers.</b>
<b>Week 2</b>	<b>Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</b>	<b>Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</b>	<b>Read, write and convert time between analogue and digital 12- and 24-hour clocks.</b>	
<b>Week 3</b>	<b>multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</b>	<b>Use negative numbers in context and calculate intervals across zero.</b>	<b>Read, write and convert time between analogue and digital 12- and 24-hour clocks.</b>	
				<b>Use negative numbers in context and calculate intervals across zero. Convert between different units of metric measure (for example, km/ m; cm/m; cm/ mm; g/kg; l/ml). Solve number and practical problems that involve negative numbers and conversions of measure</b>

<b>Week 4</b>	<b>Use negative numbers in context and calculate intervals across zero.</b>	<b>Round any whole number to a required degree of accuracy.</b>	<b>Read, write and convert time between analogue and digital 12- and 24-hour clocks.</b>	<p><b>Add whole numbers with more than 4 digits.</b></p> <p><b>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</b></p>
<b>Week 5</b>	<b>Multiply and divide numbers mentally drawing upon known facts.</b>	<b>Recognise equivalent fractions</b>	<b>Know and describe properties 2D shape</b>	<p><b>Subtract whole numbers with more than 4 digits.</b></p> <p><b>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</b></p>
<b>Week 6</b>	<b>Multiply and divide numbers mentally drawing upon known facts</b>	<b>Recognise equivalent fractions</b>	<b>Know and describe properties 2D shape</b>	<p><b>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</b></p> <p><b>Solve problems involving converting between units of time.</b></p> <p><b>Interpret pie charts and line graphs and use these to solve problems.</b></p> <p><b>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</b></p>
<b>Week 7</b>	<b>Multiply and divide numbers mentally drawing upon known facts.</b>	<b>Generate and describe linear number sequences.</b>	<b>Know and describe and compare properties of a circle and know the diameter is doubles the radius</b>	<p><b>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</b></p> <p><b>Multiply one-digit numbers with up to two decimal places by whole numbers.</b></p> <p><b>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</b></p>
<b>Week 8</b>	<b>Multiply and divide numbers mentally drawing upon known facts.</b>	<b>Generate and describe linear number sequences.</b>	<b>Know, describe and compare properties of triangles</b>	<p><b>Divide numbers up to 4 digits by a two-digit number and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</b></p> <p><b>Use written division methods up to 2 decimals places</b></p> <p><b>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</b></p>
<b>Week 9</b>	<b>Compare and order fractions whose denominators are all multiples of the same number</b>	<b>Generate and describe linear number sequences.</b>	<b>Calculate missing angles of triangle</b>	<p><b>Solve problems involving multiplication and division</b></p> <p><b>Solve problems which require answers to be rounded to specified degrees of accuracy.</b></p> <p><b>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</b></p> <p><b>Calculate and interpret the mean as an average.</b></p>

<b>Week 10</b>	<b>Add and subtract fractions with the same denominator.</b>	<b>Generate and describe linear number sequences.</b>	<b>Calculate missing angles of triangle</b>	<b>Compare and order fractions, including fractions &gt; 1. Use common factors to simplify fractions; use common multiples to express fractions in the same denomination</b>
<b>Week 11</b>	<b>Add and subtract fractions with the same denominator.</b>	<b>Identify common factors, common multiples and prime numbers.</b>	<b>Know, describe and compare properties 3D shape and their nets</b>	<b>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.  Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</b>
<b>Week 12</b>	<b>Identify common factors and multiples</b>	<b>Recall and use equivalences between simple fractions, decimals and percentages,</b>	<b>Know, describe and compare properties 3D shape and their nets</b>	<b>Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>  Divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>].</b>
<b>Week 13</b>	<b>Identify common factors and multiples</b>	<b>Multiply one-digit numbers with up to two decimal places by whole numbers.</b>	<b>Know, describe, and compare properties 3D shape and their nets</b>	<b>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.  Solve problems which require answers to be rounded to specified degrees of accuracy.</b>
<b>Week 14</b>	<b>Identify common factors and multiples</b>	<b>Use written division methods up to 2 decimal places</b>	<b>Calculate area of compound shapes</b>	<b>Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math>].</b>

**Year 6 Spring Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)**

	<b>Oral / Mental Objectives</b>			
	<b>Revisit</b>	<b>New</b>	<b>Time / Shape</b>	<b>Main Teaching (remember to include reasoning and empty boxes)</b>
<b>Week 1</b>	<b>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</b>	<b>Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</b>	<b>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</b>	<b>Use negative numbers in context, and calculate intervals across zero  Describe positions on the full coordinate grid (all four quadrants).</b>

<b>Week 2</b>	<b>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</b>	<b>Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</b>	<b>Use the properties of rectangles to deduce related facts and find missing lengths and angles.</b>	<b>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</b>  <b>Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.</b>  <b>Use of percentages for comparison.</b> <b>Interpret pie charts and line graphs and use these to solve problems. Construct pie charts and line graphs</b>
<b>Week 3</b>	<b>Describe positions on the full coordinate grid (all four quadrants).</b>	<b>Write percentages as a fraction with denominator 100, and as a decimal</b>	<b>Use the properties of rectangles to deduce related facts and find missing lengths and angles.</b>	<b>Enumerate possibilities of combinations of two variables</b>  <b>Solve problems involving similar shapes where the scale factor is known or can be found.</b>  <b>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</b>
<b>Week 4</b>	<b>Add and Subtract fractions with different denominators</b>	<b>Recognise equivalent fractions</b>	<b>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles</b>	<b>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</b>  <b>Draw nets of 3D shapes</b>
<b>Week 5</b>	<b>Multiply pairs of fractions</b>	<b>Recognise equivalent fractions</b>	<b>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles</b>	<b>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</b>  <b>Draw 2D shapes using given dimensions and angles</b>  <b>Draw given angles and measure them in degrees (0).</b>
<b>Week 6</b>	<b>Divide fractions with whole numbers</b>	<b>Calculate perimeters of shapes</b>	<b>Know and describe and compare properties of a circle and know the diameter is double the radius</b>	<b>Describe positions on the full coordinate grid (all four quadrants).</b>  <b>Draw and translate simple shapes on the coordinate plane and reflect them in the axes.</b>
<b>Week 7</b>	<b>Calculate and interpret the mean as an average.</b>	<b>Calculate Area of shapes</b>	<b>Recognise Nets of 3d shapes</b>	<b>Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</b> <b>Solve problems which require answers to be rounded to specified degrees of accuracy.</b> <b>Use simple formulae.</b> <b>Express missing number problems algebraically.</b>

<b>Week 8</b>	<b>Calculate and interpret the mean as an average.</b>	<b>Calculate Area of shapes</b>	<b>Recognise Nets of 3d shapes</b>	<b>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates</b> <b>Solve problems which require answers to be rounded to specified degrees of accuracy.</b> <b>Use simple formulae.</b> <b>Express missing number problems algebraically.</b>
<b>Week 9</b>	<b>Multiply and divide numbers mentally drawing upon known facts</b>	<b>Convert between miles and kilometres</b>	<b>Convert units of time</b>	<b>. Interpret pie charts and line graphs and use these to solve problems.</b> <b>Solve comparison, sum and difference problems using information in a line graph.</b> <b>Calculate and interpret the mean as an average</b>
<b>Week 10</b>	<b>Multiply and divide numbers mentally drawing upon known facts</b>	<b>Convert between miles and kilometres</b>	<b>Convert units of time</b>	<b>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</b> <b>Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.</b>  <b>Solve problems involving converting between units of time.</b>  <b>Convert between miles and kilometres</b>
<b>Week 11</b>	<b>Use negative numbers in context, and calculate intervals across zero</b>	<b>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</b>	<b>Solve problems but converting units of time – e.g. timetables</b>	<b>Recognise that shapes with the same areas can have different perimeters and vice versa.</b>  <b>Recognise when it is possible to use formulae for area and volume of shapes.</b> <b>Calculate the area of parallelograms and triangles</b>
<b>Week 12</b>	<b>Use negative numbers in context, and calculate intervals across zero</b>	<b>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</b>	<b>Solve problems but converting units of time – e.g. timetables</b>	<b>Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>].</b>

**Year 6 Summer Term (not including problem solving day, TT Rock stars and fortnightly timed Arithmetic test)**

	Oral / Mental Objectives		
	Revisit/ New	Time / Shape	Main Teaching (remember to include reasoning and empty boxes)
<b>Week 1</b>	<p>Interpret pie charts and line graphs and use these to solve problems.</p> <p>Use simple formulae.</p> <p>Use negative numbers in context and calculate intervals across zero.</p>	<p>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</p>	<p>Solve problems involving addition, subtraction, multiplication and division with written reasoning about answers</p> <p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>
<b>Week 2</b>	<p>Convert between different units of metric measure (for example, km/ m; cm/m; cm/ mm; g/kg; l/ml).</p> <p>Calculate and interpret the mean as an average.</p>	<p>Calculate area / perimeter/ volume</p> <p>Translate / reflect shapes in the axis</p>	<p>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</p> <p>Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling</p>
<b>Week 3</b>	<p>Identify common factors, common multiples and prime numbers.</p> <p>Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places</p>	<p>Convert units of time.</p>	<p>Compare and order fractions, including fractions <math>&gt; 1</math>.</p> <p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</p> <p>Multiply simple pairs of proper fractions</p> <p>Divide proper fractions by whole numbers</p>
<b>Week 4</b>	<p>Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.</p>	<p>Identify common factors, common multiples and prime numbers</p>	<p>Find missing angles.</p> <p>Draw 2-D shapes using given dimensions and angles.</p> <p>Recognise, describe and build simple 3-D shapes, including making nets.</p> <p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p>

Week 5	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.	Identify common factors, common multiples and prime numbers.	Find missing angles.	Recognise when it is possible to use formulae for area and volume of shapes.  Recognise that shapes with the same areas can have different perimeters and vice versa.  Calculate the area of parallelograms and triangles.
Week 6	Round any whole number to a required degree of accuracy	Convert between different units of measure	Describe positions on the full coordinate grid (all four quadrants)	Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm <sup>3</sup> ) and cubic metres (m <sup>3</sup> ), and extending to other units [for example, mm <sup>3</sup> and km <sup>3</sup> ].
Week 7	Perform mental calculations, including with mixed operations and large numbers	Use simple formulae.	Describe positions on the full coordinate grid (all four quadrants)	Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
Week 8	Perform mental calculations, including with mixed operations and large numbers	Use simple formulae.	Convert units of time	Express missing number problems algebraically.  Find pairs of numbers that satisfy an equation with two unknowns.
Week 9	Compare and order fractions, including fractions > 1	Multiply one-digit numbers with up to two decimal places by whole numbers.	Convert units of time	Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.
Week 10	Calculate and interpret the mean as an average.	Convert between different units of measure	Translate simple shapes on the coordinate plane and reflect them in the axes.	Interpret pie charts and line graphs and use these to solve problems. Use simple formulae.  Use negative numbers in context and calculate intervals across zero.
Week 11		Convert between different units of measure	Translate simple shapes on the coordinate plane and reflect them in the axes.	Solve number and practical problems involving decimals, fractions, numbers to 10,000, 000 and negative numbers
Week 12 / 13	Transition Units with Passmores			

## Year 1 Number and Place Value

	<b>Number and Place Value</b>	<b>Addition and Subtraction</b>	<b>Multiplication and Division</b>	<b>Fractions</b>
<b>Working Towards</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count to and across 20, forwards and backwards, beginning with 0 or 1, or from any given number.</li> <li><input type="checkbox"/> Count, read and write numbers to 10 in numerals.</li> <li><input type="checkbox"/> Given a number, identify 1 more and 1 less.</li> <li><input type="checkbox"/> Identify and represent numbers using objects and pictorial representations.</li> <li><input type="checkbox"/> Use the language of: more than, less than (fewer), most, least</li> <li><input type="checkbox"/> Read and write numbers from 1 to 10 in numerals and words.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Find the total of two groups by combining.</li> <li><input type="checkbox"/> Calculate subtractions through taking away.</li> <li><input type="checkbox"/> Represent addition and subtraction calculations using objects and pictorial representations.</li> <li><input type="checkbox"/> Know and use addition and subtraction number facts to 5 and some facts to 10.</li> <li><input type="checkbox"/> Add and subtract one-digit numbers.</li> <li><input type="checkbox"/> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Begin to recall doubles and halves of numbers to 5.</li> <li><input type="checkbox"/> Count in multiples of 2 and 10.</li> <li><input type="checkbox"/> Solve simple problems involving grouping and sharing with pictorial representations and arrays with the support of the teacher.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity.</li> </ul>

## Year 1 Number and Place Value

	<b>Number and Place Value</b>	<b>Addition and Subtraction</b>	<b>Multiplication and Division</b>	<b>Fractions</b>
<b>Expected</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.</li> <li><input type="checkbox"/> Count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s.</li> <li><input type="checkbox"/> Given a number, identify 1 more and 1 less.</li> <li><input type="checkbox"/> Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.</li> <li><input type="checkbox"/> Read and write numbers from 1 to 20 in numerals and words.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs.</li> <li><input type="checkbox"/> Represent and use number bonds and related subtraction facts within 20.</li> <li><input type="checkbox"/> Add and subtract one-digit and two-digit numbers to 20, including 0.</li> <li><input type="checkbox"/> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = ? - 9</math>.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity.</li> <li><input type="checkbox"/> Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.</li> </ul>

## Year 1 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Greater Depth</b>	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate fluency when counting to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number and when counting in multiples of 2s, 5s and 10s.</li> <li><input type="checkbox"/> Consistently identify 1 more and 1 less from a given number and use in solving problems.</li> <li><input type="checkbox"/> Identify and represent numbers using increasingly complex representations including the number line.</li> <li><input type="checkbox"/> Consistently use the language of: equal to, more than, less than (fewer), most, least accurately when comparing numbers and expressions.</li> </ul>	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</li> <li><input type="checkbox"/> Recall and use number facts to 20 fluently and use these to derive new unknown facts.</li> <li><input type="checkbox"/> Add and subtract one-digit and two-digit numbers to 20 mentally.</li> <li><input type="checkbox"/> Solve two-step problems that involve addition and subtraction, using concrete objects and pictorial representations.</li> <li><input type="checkbox"/> Solve missing number problems using a wider range of numbers.</li> </ul>	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count in 2s, 5s, and 10 from 0 to answer questions involving x facts.</li> <li><input type="checkbox"/> Begin to understand division as the inverse of multiplication and use facts in problem solving.</li> <li><input type="checkbox"/> Recall doubles and halves of numbers to 20.</li> <li><input type="checkbox"/> Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays.</li> </ul>	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find and name a half and quarter of a length, shape, set of objects or quantity.</li> </ul>

## Year 1 Geometry and Measures

	<b>Measures</b>	<b>Geometry – Properties of Shapes</b>	<b>Geometry – Position and Movement</b>
<b>Working Towards</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use the language of measures to make direct comparisons between 2/3 objects.</li> <li><input type="checkbox"/> Solve simple measure problems (length, mass/weight, capacity and volume and time) in a practical context using direct comparison and non-standard units.</li> <li><input type="checkbox"/> Recognise and sort coins to £1.</li> <li><input type="checkbox"/> Use language related to time e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening.</li> <li><input type="checkbox"/> Tell the time to the nearest hour.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise and name some common 2-D and 3-D shapes, including:               <ul style="list-style-type: none"> <li>➤ 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>➤ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</li> </ul> </li> <li><input type="checkbox"/> Sort shapes based on simple properties.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe position, direction and movement, including whole, half -turns.</li> </ul>

## Year 1 Geometry and Measures

	<b>Measures</b>	<b>Geometry – Properties of Shapes</b>	<b>Geometry – Position and Movement</b>
<b>Expected</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare, describe and solve practical problems for:               <ul style="list-style-type: none"> <li>➤ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</li> <li>➤ mass/weight [for example, heavy/light, heavier than, lighter than]</li> <li>➤ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</li> <li>➤ time [for example, quicker, slower, earlier, later]</li> </ul> </li> <li><input type="checkbox"/> Measure and begin to record the following:               <ul style="list-style-type: none"> <li>➤ lengths and heights</li> <li>➤ mass/weight</li> <li>➤ capacity and volume</li> <li>➤ time (hours, minutes, seconds)</li> <li>➤ recognise and know the value of different denominations of coins and notes</li> <li>➤ sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] .</li> </ul> </li> <li><input type="checkbox"/> Recognise and use language relating to dates, including days of the week, weeks, months and years.</li> <li><input type="checkbox"/> Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise and name common 2-D and 3-D shapes, including:               <ul style="list-style-type: none"> <li>➤ 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>➤ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</li> </ul> </li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe position, direction and movement, including whole, half, quarter and three-quarter turns.</li> </ul>

## Year 1 Geometry and Measures

	<b>Measures</b>	<b>Geometry – Properties of Shapes</b>	<b>Geometry – Position and Movement</b>
<b>Greater Depth</b>	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use knowledge of measures in solving problems of increasingly complexity.</li> <li><input type="checkbox"/> Solve more complex problems involving money and other measures including time.</li> <li><input type="checkbox"/> Be able to apply knowledge of measures to other curriculum areas in practical activities.</li> </ul>	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and sort shapes using 1 criterion.</li> <li><input type="checkbox"/> Recognise and name common 2-D and 3-D shapes, describing their properties using increasingly sophisticated mathematical vocabulary.</li> <li><input type="checkbox"/> Reason about and solve more complex problems relating to shapes and their properties.</li> </ul>	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of position to problem solving across the curriculum.</li> <li><input type="checkbox"/> Solve more complex problems involving position and movement.</li> </ul>

## Year 2 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Working Towards</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count to and across 100, forwards or backwards, beginning with 0 or 1, or from any given number.</li> <li><input type="checkbox"/> Count in multiples of 2s, 5s and 10s.</li> <li><input type="checkbox"/> Count in steps of 10 within 100, starting from any number.</li> <li><input type="checkbox"/> Read and write numbers from 1 to 100 in numerals, and up to 20 in words (not necessarily spelled correctly).</li> <li><input type="checkbox"/> Use the place value of each digit to order numbers to 100.</li> <li><input type="checkbox"/> Know the number that is 1 more and 1 less than any number up to 100.</li> <li><input type="checkbox"/> Use the language of least.</li> <li><input type="checkbox"/> Identify and represent numbers using objects, structured apparatus and number lines.</li> <li><input type="checkbox"/> Use place value and number facts to solve simple problems.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall and use addition and subtraction facts for all numbers up to 10.</li> <li><input type="checkbox"/> Add and subtract numbers mentally, including: 2 single-digit numbers, a number up to 20 and 1s.</li> <li><input type="checkbox"/> Add and subtract numbers using concrete objects, pictorial representations and the written columnar method including: a two-digit number and 1, adding 3 single-digit numbers with a total up to 20.</li> <li><input type="checkbox"/> Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=).</li> <li><input type="checkbox"/> Solve missing number addition problems involving single-digit numbers.</li> <li><input type="checkbox"/> Solve simple 1 or 2 step problems with addition and subtraction.</li> <li><input type="checkbox"/> Show that addition can be done in any order (commutative).</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall multiplication facts for the 10 multiplication table and use them to derive division facts, and count in steps of 10 to answer questions.</li> <li><input type="checkbox"/> Recall and use doubling and halving facts for numbers up to double 10 and other significant doubles.</li> <li><input type="checkbox"/> Recognise odd and even numbers to 20.</li> <li><input type="checkbox"/> Solve simple problems involving grouping and sharing, using objects, pictorial representations and arrays.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.</li> <li><input type="checkbox"/> Begin to solve simple problems involving fractions.</li> </ul>

## Year 2 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Expected</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a two-digit number (tens, ones).</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations, including the number line.</li> <li><input type="checkbox"/> Compare and order numbers from 0 up to 100; use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs.</li> <li><input type="checkbox"/> Read and write numbers to at least 100 in numerals and in words.</li> <li><input type="checkbox"/> Use place value and number facts to solve problems.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve problems with addition and subtraction:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods.</li> </ul> </li> <li><input type="checkbox"/> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.</li> <li><input type="checkbox"/> Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers.</li> <li><input type="checkbox"/> Add three one-digit numbers.</li> <li><input type="checkbox"/> Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.</li> <li><input type="checkbox"/> Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</li> <li><input type="checkbox"/> Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (<math>=</math>) signs.</li> <li><input type="checkbox"/> Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.</li> <li><input type="checkbox"/> Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find, name and write fractions <math>\frac{1}{2}</math>, <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math>, <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity.</li> <li><input type="checkbox"/> Write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</li> </ul>

## Year 2 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Greater Depth</b>	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate fluency and reasoning in counting forwards and backwards in steps of 2, 5 and 10 including from different starting points and using numbers beyond 100.</li> <li><input type="checkbox"/> Consistently use less than (&lt;), equals (=) and greater than (&gt;) signs correctly when comparing numbers and expressions.</li> <li><input type="checkbox"/> Identify and represent numbers using different representations including more complex number lines.</li> <li><input type="checkbox"/> Demonstrate reasoning about place value and number facts to solve more complex problems.</li> </ul>	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall and use addition and subtraction facts to 20 fluently; derive and use related facts to 100 and beyond.</li> <li><input type="checkbox"/> Add and subtract numbers mentally using appropriate strategies, including: 2 2-digit numbers, adding /subtracting several single-digit numbers.</li> <li><input type="checkbox"/> Add and subtract numbers using objects, pictorial representations and the written columnar method including adding several 2-digit numbers, subtracting 2-digit numbers, adding a 2-digit number to a 3-digit number, adding 3-digit numbers.</li> <li><input type="checkbox"/> Solve missing number problems involving a wider range of numbers.</li> <li><input type="checkbox"/> Use addition and subtraction facts to solve more complex problems, such as 3 step problems.</li> </ul>	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Rapidly recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables and write mathematical statements using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs.</li> <li><input type="checkbox"/> Count in 3s to solve multiplication and division problems for the 3-multiplication table.</li> <li><input type="checkbox"/> Solve more complex problems involving multiplication and division in a range of contexts including measures.</li> <li><input type="checkbox"/> Make connections between place value and multiplication/division by 10 and use known multiplication and division facts to derive others.</li> </ul>	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Express more complex problems using fraction notation and solve them.</li> </ul>

## Year 2 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Working Towards</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Measure and begin to record the following:               <ul style="list-style-type: none"> <li>➤ lengths and heights</li> <li>➤ mass/weight</li> <li>➤ volume/capacity</li> <li>➤ time.</li> </ul> </li> <li><input type="checkbox"/> Recognise and know the value of different denominations of coins and notes.</li> <li><input type="checkbox"/> Begin to recognise and use the symbols for pounds (£) and pence (p).</li> <li><input type="checkbox"/> Combine amounts to make small values.</li> <li><input type="checkbox"/> Sequence the events of several days in chronological order using appropriate language.</li> <li><input type="checkbox"/> Tell the time to half past the hour; turn the hands of a geared clock to show these times; draw hands on a clock face to show o'clock times.</li> <li><input type="checkbox"/> Recognise and use language relating to dates, including days of the week, weeks, months and years.</li> <li><input type="checkbox"/> Know there are 7 days in a week.</li> <li><input type="checkbox"/> Know the name of the day before or after a given day.</li> <li><input type="checkbox"/> Solve simple measure problems in a practical context using standardised units.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, name and describe the properties of common 2-D shapes including pentagons and hexagons.</li> <li><input type="checkbox"/> Recognise, name and describe the properties of common 3-D shapes including cones and spheres.</li> <li><input type="checkbox"/> Solve simple problems involving shapes.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe position, directions and movement, including whole, half, quarter and three-quarter turns.</li> <li><input type="checkbox"/> Solve simple problems involving position and direction.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct simple pictograms where the picture is worth 1 unit.</li> <li><input type="checkbox"/> Interpret simple tally charts and block diagrams.</li> <li><input type="checkbox"/> Ask and answer questions that require counting the number of objects in each category.</li> </ul>

## Year 2 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Expected</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.</li> <li><input type="checkbox"/> Compare and order lengths, mass, volume/capacity and record the results using &gt;, &lt; and =.</li> <li><input type="checkbox"/> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li><input type="checkbox"/> Find different combinations of coins that equal the same amounts of money.</li> <li><input type="checkbox"/> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</li> <li><input type="checkbox"/> Compare and sequence intervals of time.</li> <li><input type="checkbox"/> Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.</li> <li><input type="checkbox"/> Know the number of minutes in an hour and the number of hours in a day.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</li> <li><input type="checkbox"/> Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.</li> <li><input type="checkbox"/> Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].</li> <li><input type="checkbox"/> Compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Order and arrange combinations of mathematical objects in patterns and sequences.</li> <li><input type="checkbox"/> Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</li> <li><input type="checkbox"/> Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</li> <li><input type="checkbox"/> Ask and answer questions about totalling and comparing categorical data.</li> </ul>

## Year 2 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Greater Depth</b>	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Find all possible combinations of coins to equal a given amount or how to pay a given amount using the fewest possible number of coins.</li> <li><input type="checkbox"/> Know that there are 60 minutes in an hour and 24 hours in a day and use these facts to solve problems.</li> <li><input type="checkbox"/> Tell and write the time to 5 minutes and draw hands on a clock face to show these times.</li> <li><input type="checkbox"/> Solve more complex problems involving, money and other measures, including time.</li> <li><input type="checkbox"/> Reason about multiplicative relationships between specific measured quantities, drawing on knowledge of 2, 5 and 10 tables and knowledge of fractions.</li> </ul>	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and sort common 2-D and 3-D shapes and common objects, using more than 1 criterion, identifying and describing their properties.</li> <li><input type="checkbox"/> Reason about and solve more complex problems involving shapes and their properties.</li> </ul>	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Order and arrange combinations of mathematical objects in more complex patterns and sequences.</li> <li><input type="checkbox"/> Solve more complex problems involving position and direction.</li> </ul>	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct pictograms (where the symbols show many to one correspondence), block diagrams (where the scale is divided into 2s or 5s) and more complex tables</li> <li><input type="checkbox"/> Use more complex charts to ask and answer questions by reading from the chart the number of objects in each category, sorting the categories by quantity, totalling and comparing categorical data.</li> </ul>

## Year 3 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Working Towards</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a two-digit number (tens, ones).</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations, including the number line.</li> <li><input type="checkbox"/> Compare and order numbers from 0 up to 100; use and = signs.</li> <li><input type="checkbox"/> Read and write numbers to at least 100 in numerals and in words.</li> <li><input type="checkbox"/> Use place value and number facts to solve problems.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods.</li> <li><input type="checkbox"/> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.</li> <li><input type="checkbox"/> Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and ten, two two-digit numbers, adding three one-digit numbers show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.</li> <li><input type="checkbox"/> Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</li> <li><input type="checkbox"/> Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (=) signs.</li> <li><input type="checkbox"/> Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.</li> <li><input type="checkbox"/> Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise, find, name and write fractions <math>\frac{1}{2}</math>, <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity.</li> <li><input type="checkbox"/> Write simple fractions for example, <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</li> </ul>

## Year 3 Number and Place Value

	<b>Number and Place Value</b>	<b>Addition and Subtraction</b>	<b>Multiplication and Division</b>	<b>Fractions</b>
<b>Expected</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).</li> <li><input type="checkbox"/> Compare and order numbers up to 1000.</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations.</li> <li><input type="checkbox"/> Read and write numbers up to 1000 in numerals and in words.</li> <li><input type="checkbox"/> Solve number problems and practical problems involving these ideas.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.</li> <li><input type="checkbox"/> Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.</li> <li><input type="checkbox"/> Estimate the answer to a calculation and use inverse operations to check answers.</li> <li><input type="checkbox"/> Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</li> <li><input type="checkbox"/> Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</li> <li><input type="checkbox"/> Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.</li> <li><input type="checkbox"/> Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</li> <li><input type="checkbox"/> Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.</li> <li><input type="checkbox"/> Recognise and show, using diagrams, equivalent fractions with small denominator.</li> <li><input type="checkbox"/> Add and subtract fractions with the same denominator within one whole [for example, <math>5/7 + 1/7 = 6/7</math>].</li> <li><input type="checkbox"/> Compare and order unit fractions, and fractions with the same denominators.</li> <li><input type="checkbox"/> Solve problems that involve all of the above.</li> </ul>

## Year 3 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Greater Depth</b>	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Show fluency in the use of number facts and are able to make generalisations based on these to find unknown facts.</li> <li><input type="checkbox"/> Demonstrate a secure understanding of place value and have fluency when working with numbers up to and above 1000.</li> <li><input type="checkbox"/> Apply place value and number facts knowledge to solving problems involving number and place value in a range of familiar and unfamiliar contexts.</li> </ul>	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts which they can use to generate new unknown facts.</li> <li><input type="checkbox"/> Use rapid recall of number facts to support their repertoire of calculation strategies, both mental and written.</li> <li><input type="checkbox"/> Use a range of efficient written and mental calculation strategies to use in calculation.</li> <li><input type="checkbox"/> Draw on their repertoire of calculation strategies in problem solving, explaining their choices and communicating their reasoning.</li> <li><input type="checkbox"/> Communicate their ideas as well as following a reasoned argument.</li> </ul>	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of multiplication and division facts and the ability to use these to derive related facts to solve problems.</li> <li><input type="checkbox"/> Show a repertoire of written and mental calculation methods to solve problems that involve multiplication and division. They are able to communicate their reasoning and explain their thinking.</li> <li><input type="checkbox"/> Apply their understanding of multiplication and division to a wider range of problem solving contexts such as shape and measures.</li> </ul>	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of fractions to solving problems of increasingly complexity.</li> <li><input type="checkbox"/> Show understanding of the connections between areas of learning in fractions such as the ability to recognise equivalency and links to decimal place value.</li> <li><input type="checkbox"/> Use fractions in problem solving, explaining reasoning in problems involving measures shape and statistics.</li> </ul>

## Year 3 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Working Towards</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.</li> <li><input type="checkbox"/> Compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math>.</li> <li><input type="checkbox"/> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</li> <li><input type="checkbox"/> Find different combinations of coins that equal the same amounts of money.</li> <li><input type="checkbox"/> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</li> <li><input type="checkbox"/> Compare and sequence intervals of time and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times know the number of minutes in an hour and the number of hours in a day.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</li> <li><input type="checkbox"/> Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.</li> <li><input type="checkbox"/> Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].</li> <li><input type="checkbox"/> Compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Order and arrange combinations of mathematical objects in patterns and sequences.</li> <li><input type="checkbox"/> Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</li> <li><input type="checkbox"/> Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</li> <li><input type="checkbox"/> Ask and answer questions about totalling and comparing categorical data.</li> </ul>

**Year 3 Geometry and Measures**

	<b>Measures</b>	<b>Geometry – Properties of Shapes</b>	<b>Geometry – Position and Movement</b>	<b>Statistics</b>
<b>Expected</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</li> <li><input type="checkbox"/> Measure the perimeter of simple 2-D shapes.</li> <li><input type="checkbox"/> Add and subtract amounts of money to give change, using both £ and p in practical contexts.</li> <li><input type="checkbox"/> Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.</li> <li><input type="checkbox"/> Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.</li> <li><input type="checkbox"/> Know the number of seconds in a minute and the number of days in each month, year and leap year.</li> <li><input type="checkbox"/> Compare durations of events [for example to calculate the time taken by particular events or tasks].</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.</li> <li><input type="checkbox"/> Recognise angles as a property of shape or a description of a turn.</li> <li><input type="checkbox"/> Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.</li> <li><input type="checkbox"/> Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'].</li> <li><input type="checkbox"/> Use information presented in scaled bar charts and pictograms and tables.</li> </ul>

## Year 3 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Greater Depth</b>	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use a wide range of tools when working with measures and can move more fluently between different units.</li> <li><input type="checkbox"/> Use understanding of other areas of the curriculum to solve problems and calculations involving measures e.g. multiplication.</li> <li><input type="checkbox"/> Apply their understanding to solve problems of increasing complexity and can reason about their choices.</li> </ul>	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge and understanding of the properties of shapes to a wider range of regular and irregular 2D and 3D shapes.</li> <li><input type="checkbox"/> Work with an increasing level of accuracy describing the properties of shapes.</li> <li><input type="checkbox"/> Apply their knowledge and understanding to solving problems of increasing complexity as well as communicating their reasoning.</li> </ul>	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of position and movement to solving problems.</li> <li><input type="checkbox"/> Be able to use mathematical vocabulary to describe the position and movement of a given unit.</li> </ul>	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret data to answer questions related to problems across the curriculum.</li> <li><input type="checkbox"/> Interpret data and read scales with increased accuracy with different divisions using knowledge of number.</li> <li><input type="checkbox"/> Pose their own questions and formulate hypothesis and make decisions about how to collect data to solve problems.</li> <li><input type="checkbox"/> Reason and explain their decisions.</li> </ul>

## Year 4 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Working Towards</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).</li> <li><input type="checkbox"/> Compare and order numbers up to 1000.</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations.</li> <li><input type="checkbox"/> Read and write numbers up to 1000 in numerals and in words.</li> <li><input type="checkbox"/> Solve number problems and practical problems involving these ideas.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds.</li> <li><input type="checkbox"/> Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.</li> <li><input type="checkbox"/> Estimate the answer to a calculation and use inverse operations to check answers.</li> <li><input type="checkbox"/> Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</li> <li><input type="checkbox"/> Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.</li> <li><input type="checkbox"/> Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.</li> <li><input type="checkbox"/> Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.</li> <li><input type="checkbox"/> Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.</li> <li><input type="checkbox"/> Recognise and show, using diagrams, equivalent fractions with small denominator.</li> <li><input type="checkbox"/> Add and subtract fractions with the same denominator within one whole [for example, <math>\frac{5}{7} + \frac{1}{7} = \frac{6}{7}</math> ].</li> <li><input type="checkbox"/> Compare and order unit fractions, and fractions with the same denominators.</li> <li><input type="checkbox"/> Solve problems that involve all of the above.</li> </ul>

## Year 4 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Expected</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number.</li> <li><input type="checkbox"/> Count backwards through zero to include negative numbers.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).</li> <li><input type="checkbox"/> Order and compare numbers beyond 1000.</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations.</li> <li><input type="checkbox"/> Round any number to the nearest 10, 100 or 1000.</li> <li><input type="checkbox"/> Solve number and practical problems that involve all of the above and with increasingly large positive numbers.</li> <li><input type="checkbox"/> Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</li> <li><input type="checkbox"/> Estimate and use inverse operations to check answers to a calculation.</li> <li><input type="checkbox"/> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</li> <li><input type="checkbox"/> Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.</li> <li><input type="checkbox"/> Recognise and use factor pairs and commutativity in mental calculations.</li> <li><input type="checkbox"/> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</li> <li><input type="checkbox"/> Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</li> <li><input type="checkbox"/> Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.</li> <li><input type="checkbox"/> Add and subtract fractions with the same denominator.</li> <li><input type="checkbox"/> Recognise and write decimal equivalents of any number of tenths or hundredths.</li> <li><input type="checkbox"/> Recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>.</li> <li><input type="checkbox"/> Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.</li> <li><input type="checkbox"/> Round decimals with one decimal place to the nearest whole number.</li> <li><input type="checkbox"/> Compare numbers with the same number of decimal places up to two decimal places.</li> <li><input type="checkbox"/> Solve simple measure and money problems involving fractions and decimals to two decimal places.</li> </ul>

## Year 4 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Greater Depth</b>	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate very good understanding of place value and is able to apply this to working with larger numbers/decimals.</li> <li><input type="checkbox"/> Demonstrate confidence to use knowledge of place value in solving problems.</li> <li><input type="checkbox"/> Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking.</li> </ul>	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts.</li> <li><input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning.</li> <li><input type="checkbox"/> Solve problems of increasing complexity using a range of strategies and is able to communicate their reasoning.</li> </ul>	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts.</li> <li><input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and the related vocabulary.</li> <li><input type="checkbox"/> Demonstrate a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Solve problems of increasing complexity using a range of strategies and is able to communicate their reasoning.</li> </ul>	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of fractions to problems involving measures and shapes.</li> <li><input type="checkbox"/> Apply links with division to solving increasingly complex problems.</li> <li><input type="checkbox"/> Show a good understanding of the connections between fractions and decimals and is able to use their knowledge to translate between the two.</li> <li><input type="checkbox"/> Apply their knowledge of fractions to problems of increasing complexity and to explain their reasoning and thinking.</li> </ul>

## Year 4 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Working Towards</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</li> <li><input type="checkbox"/> Measure the perimeter of simple 2-D shapes.</li> <li><input type="checkbox"/> Add and subtract amounts of money to give change, using both £ and p in practical contexts.</li> <li><input type="checkbox"/> Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.</li> <li><input type="checkbox"/> Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.</li> <li><input type="checkbox"/> Know the number of seconds in a minute and the number of days in each month, year and leap year.</li> <li><input type="checkbox"/> Compare durations of events [for example to calculate the time taken by particular events or tasks].</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.</li> <li><input type="checkbox"/> Recognise angles as a property of shape or a description of a turn.</li> <li><input type="checkbox"/> Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle.</li> <li><input type="checkbox"/> Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</li> </ul>

## Year 4 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Expected</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Convert between different units of measure [for example, kilometre to metre; hour to minute].</li> <li><input type="checkbox"/> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</li> <li><input type="checkbox"/> Find the area of rectilinear shapes by counting squares.</li> <li><input type="checkbox"/> Estimate, compare and calculate different measures, including money in pounds and pence.</li> <li><input type="checkbox"/> Read, write and convert time between analogue and digital 12- and 24-hour clocks.</li> <li><input type="checkbox"/> Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</li> <li><input type="checkbox"/> Identify acute and obtuse angles and compare and order angles up to two right angles by size.</li> <li><input type="checkbox"/> Identify lines of symmetry in 2-D shapes presented in different orientations.</li> <li><input type="checkbox"/> Complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe positions on a 2-D grid as coordinates in the first quadrant.</li> <li><input type="checkbox"/> Describe movements between positions as translations of a given unit to the left/right and up/down.</li> <li><input type="checkbox"/> Plot specified points and draw sides to complete a given polygon.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li> <li><input type="checkbox"/> Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li> </ul>

## Year 4 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Greater Depth</b>	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures.</li> <li><input type="checkbox"/> Use their understanding of the concepts related to measures to solve increasingly complex problems.</li> <li><input type="checkbox"/> Make connections to other areas of mathematics such as fractions, decimals and use this to solve problems.</li> <li><input type="checkbox"/> Communicate reasoning and talk about mathematics using appropriate language.</li> <li><input type="checkbox"/> Apply knowledge of measures to other areas of the curriculum such as science.</li> </ul>	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Sort and classify shapes using a range of criterion using mathematically appropriate vocabulary.</li> <li><input type="checkbox"/> Apply knowledge of shapes to solving problems with increasing complexity explaining reasoning.</li> <li><input type="checkbox"/> Make links and connections with other areas of the curriculum.</li> </ul>	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve increasingly complex problems involving position and movement.</li> <li><input type="checkbox"/> Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science.</li> </ul>	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data.</li> <li><input type="checkbox"/> Draw conclusions based on data and be able to justify reasoning.</li> </ul>

## Year 5 Number and Place Value

	<b>Number and Place Value</b>	<b>Addition and Subtraction</b>	<b>Multiplication and Division</b>	<b>Fractions</b>
<b>Working Towards</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Count in multiples of 6, 7, 9, 25 and 1000.</li> <li><input type="checkbox"/> Find 1000 more or less than a given number.</li> <li><input type="checkbox"/> Count backwards through zero to include negative numbers.</li> <li><input type="checkbox"/> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).</li> <li><input type="checkbox"/> Order and compare numbers beyond 1000.</li> <li><input type="checkbox"/> Identify, represent and estimate numbers using different representations.</li> <li><input type="checkbox"/> Round any number to the nearest 10, 100 or 1000.</li> <li><input type="checkbox"/> Solve number and practical problems that involve all of the above and with increasingly large positive numbers.</li> <li><input type="checkbox"/> Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</li> <li><input type="checkbox"/> Estimate and use inverse operations to check answers to a calculation.</li> <li><input type="checkbox"/> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math>.</li> <li><input type="checkbox"/> Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers.</li> <li><input type="checkbox"/> Recognise and use factor pairs and commutativity in mental calculations.</li> <li><input type="checkbox"/> Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</li> <li><input type="checkbox"/> Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as <math>n</math> objects are connected to <math>m</math> objects.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise and show, using diagrams, families of common equivalent fractions.</li> <li><input type="checkbox"/> Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</li> <li><input type="checkbox"/> Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.</li> <li><input type="checkbox"/> Add and subtract fractions with the same denominator.</li> <li><input type="checkbox"/> Recognise and write decimal equivalents of any number of tenths or hundredths.</li> <li><input type="checkbox"/> Recognise and write decimal equivalents to <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math>.</li> <li><input type="checkbox"/> Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.</li> <li><input type="checkbox"/> Round decimals with one decimal place to the nearest whole number.</li> <li><input type="checkbox"/> Compare numbers with the same number of decimal places up to two decimal places.</li> <li><input type="checkbox"/> Solve simple measure and money problems involving fractions and decimals to two decimal places.</li> </ul>

## Year 5 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Expected</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</li> <li><input type="checkbox"/> Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</li> <li><input type="checkbox"/> Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</li> <li><input type="checkbox"/> Solve number problems and practical problems that involve all of the above.</li> <li><input type="checkbox"/> Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</li> <li><input type="checkbox"/> Add and subtract numbers mentally with increasingly large numbers.</li> <li><input type="checkbox"/> Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</li> <li><input type="checkbox"/> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</li> <li><input type="checkbox"/> Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers.</li> <li><input type="checkbox"/> Establish whether a number up to 100 is prime &amp; recall prime numbers up to 19.</li> <li><input type="checkbox"/> Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</li> <li><input type="checkbox"/> Multiply and divide numbers mentally drawing upon known facts.</li> <li><input type="checkbox"/> Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context</li> <li><input type="checkbox"/> Multiply and divide whole numbers and those involving decimals by 10, 100 &amp; 1000.</li> <li><input type="checkbox"/> Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</li> <li><input type="checkbox"/> Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.</li> <li><input type="checkbox"/> Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</li> <li><input type="checkbox"/> Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and order fractions whose denominators are all multiples of the same number.</li> <li><input type="checkbox"/> Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</li> <li><input type="checkbox"/> Recognise mixed numbers and improper fractions and convert from one form to the other &amp; write mathematical statements <math>&gt; 1</math> as a mixed number [<math>2/5 + 4/5 = 6/5 = 1 \frac{1}{5}</math>].</li> <li><input type="checkbox"/> Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</li> <li><input type="checkbox"/> Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</li> <li><input type="checkbox"/> Read and write decimal numbers as fractions [for example, <math>0.71 = 71/100</math>].</li> <li><input type="checkbox"/> Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</li> <li><input type="checkbox"/> Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li><input type="checkbox"/> Read, write, order &amp; compare numbers with up to three decimal places.</li> <li><input type="checkbox"/> Solve problems involving number up to three decimal places.</li> <li><input type="checkbox"/> Recognise the percent symbol (%) and understand that percent relates to 'number of parts per hundred', write percentages as a fraction with denominator 100, &amp; as a decimal.</li> <li><input type="checkbox"/> Solve problems which require knowing percent &amp; decimal equivalents of <math>1/2</math>, <math>1/4</math>, <math>1/5</math>, <math>2/5</math>, <math>4/5</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul>

## Year 5 Number and Place Value

	Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<b>Greater Depth</b>	<p>All aspects of number and place value at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts using place value.</li> <li><input type="checkbox"/> Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems.</li> <li><input type="checkbox"/> Apply their understanding to solve increasingly complex problems and is able to reason and explain their thinking.</li> </ul>	<p>All aspects of addition and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts.</li> <li><input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning.</li> <li><input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning.</li> <li><input type="checkbox"/> Explain why different methods give the same result.</li> <li><input type="checkbox"/> Demonstrate creative thinking when problem solving and is able to justify and prove.</li> </ul>	<p>All aspects of multiplication and subtraction at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts and when working with larger numbers.</li> <li><input type="checkbox"/> Apply knowledge of factors, multiples, prime number, squares and commutativity to solving mental calculations of more complex problems.</li> <li><input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and the related vocabulary and is able to apply this to solving increasingly complex problems.</li> <li><input type="checkbox"/> Apply knowledge of the inverse operation and the links between division and multiplication to solving problems.</li> <li><input type="checkbox"/> Demonstrate a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Solve problems of increasingly complexity using a range of strategies and is able to communicate their reasoning.</li> </ul>	<p>All aspects of fractions at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of fractions to problems involving measures and shapes.</li> <li><input type="checkbox"/> Use their knowledge of decimals in problem involving measure to work with increased accuracy.</li> <li><input type="checkbox"/> Show a very good understanding of the connections between fractions decimals and percentages and is able to use their knowledge to translate between the three.</li> <li><input type="checkbox"/> Apply their knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain their reasoning and thinking.</li> <li><input type="checkbox"/> Apply links with division to solving increasingly complex problems.</li> </ul>

## Year 5 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Working Towards</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Convert between different units of measure [for example, kilometre to metre; hour to minute].</li> <li><input type="checkbox"/> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</li> <li><input type="checkbox"/> Find the area of rectilinear shapes by counting square.</li> <li><input type="checkbox"/> Estimate, compare and calculate different measures, including money in pounds and pence.</li> <li><input type="checkbox"/> Read, write and convert time between analogue and digital 12- and 24-hour clocks.</li> <li><input type="checkbox"/> Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</li> <li><input type="checkbox"/> Identify acute and obtuse angles and compare and order angles up to two right angles by size.</li> <li><input type="checkbox"/> Identify lines of symmetry in 2-D shapes presented in different orientations.</li> <li><input type="checkbox"/> Complete a simple symmetric figure with respect to a specific line of symmetry.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe positions on a 2-D grid as coordinates in the first quadrant</li> <li><input type="checkbox"/> Describe movements between positions as translations of a given unit to the left/right and up/down.</li> <li><input type="checkbox"/> Plot specified points and draw sides to complete a given polygon.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</li> <li><input type="checkbox"/> Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</li> </ul>

## Year 5 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Expected</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre &amp; millilitre).</li> <li><input type="checkbox"/> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</li> <li><input type="checkbox"/> Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</li> <li><input type="checkbox"/> Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</li> <li><input type="checkbox"/> Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water].</li> <li><input type="checkbox"/> Solve problems involving converting between units of time.</li> <li><input type="checkbox"/> Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</li> <li><input type="checkbox"/> Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</li> <li><input type="checkbox"/> Draw given angles and measure them in degrees (°).</li> <li><input type="checkbox"/> Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line &amp; 1/2 a turn (total 180°) and other multiples of 90°.</li> <li><input type="checkbox"/> Use the properties of rectangles to deduce related facts and find missing lengths and angles distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve comparison, sum and difference problems using information presented in a line graph.</li> <li><input type="checkbox"/> Complete, read and interpret information in tables, including timetables.</li> </ul>

## Year 5 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Greater Depth</b>	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of other areas of the curriculum to their understanding of and problem solving with measures. E.g. squares, cubes, fractions, multiplication decimals.</li> <li><input type="checkbox"/> Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures.</li> <li><input type="checkbox"/> Use their understanding of the concepts related to measures to solve increasingly complex problems.</li> <li><input type="checkbox"/> Communicate reasoning and talk about mathematics using sophisticated mathematical language.</li> <li><input type="checkbox"/> Apply knowledge of measures to other areas of the curriculum such as science.</li> </ul>	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Sort and classify shapes using a wide range of criterion using increasingly sophisticated mathematically appropriate vocabulary.</li> <li><input type="checkbox"/> Creatively apply knowledge of shapes to solving problems with increasing complexity and be able to justify reasoning and communicate their thinking.</li> <li><input type="checkbox"/> Make links and connections with other areas of the curriculum and be able to generalise their understanding.</li> </ul>	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve increasingly complex problems involving position and movement.</li> <li><input type="checkbox"/> Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science.</li> </ul>	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data.</li> <li><input type="checkbox"/> Draw conclusions based on data and be able to communicate reasoning. Be able to look for alternative explanations and hypothesis.</li> <li><input type="checkbox"/> Use understanding of statistics in other curriculum areas.</li> </ul>

## Year 6 Number and Place Value

	Number and Place Value	Addition, Subtraction, Multiplication and Division	Fractions	Ratio and Proportion	Algebra
<b>Working Towards</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit.</li> <li><input type="checkbox"/> Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</li> <li><input type="checkbox"/> Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</li> <li><input type="checkbox"/> Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</li> <li><input type="checkbox"/> Solve number problems and practical problems that involve all of the above.</li> <li><input type="checkbox"/> Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</li> <li><input type="checkbox"/> Add and subtract numbers mentally with increasingly large number.</li> <li><input type="checkbox"/> Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.</li> <li><input type="checkbox"/> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> <li><input type="checkbox"/> Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</li> <li><input type="checkbox"/> Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers.</li> <li><input type="checkbox"/> Establish whether a number up to 100 is prime, recall prime numbers up to 19.</li> <li><input type="checkbox"/> Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.</li> <li><input type="checkbox"/> Multiply and divide numbers mentally drawing upon known facts.</li> <li><input type="checkbox"/> Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.</li> <li><input type="checkbox"/> Multiply and divide whole numbers and those involving decimals by 10, 100 &amp; 1000.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Compare and order fractions whose denominators are all multiples of the same number.</li> <li><input type="checkbox"/> Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number [e.g.: <math>2/5 + 4/5 = 6/5 = 1 \frac{1}{5}</math>].</li> <li><input type="checkbox"/> Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</li> <li><input type="checkbox"/> Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</li> <li><input type="checkbox"/> Read and write decimal numbers as fractions [for example, <math>0.71 = 71/100</math>].</li> <li><input type="checkbox"/> Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</li> <li><input type="checkbox"/> Round decimals with two decimal places to the nearest whole number and to one decimal place.</li> <li><input type="checkbox"/> Read, write, order and compare numbers with up to three decimal places.</li> <li><input type="checkbox"/> Solve problems involving number up to three decimal places.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.</li> <li><input type="checkbox"/> Solve problems which require knowing percentage and decimal equivalents of <math>1/2</math>, <math>1/4</math>, <math>1/5</math>, <math>2/5</math>, <math>4/5</math> and those fractions with a denominator of a multiple of 10 or 25.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use simple formula to represent calculations such as perimeter and area of different shapes.</li> <li><input type="checkbox"/> Use sequencing when working on shape, measures and pattern activities.</li> <li><input type="checkbox"/> Solve problems including missing number problems using addition, subtraction, multiplication and division facts.</li> <li><input type="checkbox"/> Demonstrate a secure understanding of the inverse relationship when applied to calculations involving two variables.</li> </ul>

## Year 6 Number and Place Value

	Number and Place Value	Addition, Subtraction, Multiplication and Division	Fractions	Ratio and Proportion	Algebra
<b>Expected</b>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li>❑ Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.</li> <li>❑ Round any whole number to a required degree of accuracy.</li> <li>❑ Use negative numbers in context and calculate intervals across zero.</li> <li>❑ Solve number and practical problems that involve all of the above.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li>❑ Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</li> <li>❑ Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</li> <li>❑ Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.</li> <li>❑ Perform mental calculations, including with mixed operations and large numbers.</li> <li>❑ Identify common factors, common multiples and prime numbers.</li> <li>❑ Use their knowledge of the order of operations to carry out calculations involving the four operations.</li> <li>❑ Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li>❑ Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</li> <li>❑ Compare and order fractions, including fractions <math>&gt; 1</math>.</li> <li>❑ Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.</li> <li>❑ Multiply simple pairs of proper fractions, writing the answer in its simplest form. [For example, <math>1/2 \times 1/2 = 1/8</math>].</li> <li>❑ Divide proper fractions by whole numbers. <math>1/3 \div 2 = 1/6</math></li> <li>❑ Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [e.g. <math>3/8</math>].</li> <li>❑ Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</li> <li>❑ Multiply one-digit numbers with up to two decimal places by whole numbers.</li> <li>❑ Use written division methods in cases where the answer has up to two decimal places.</li> <li>❑ Solve problems which require answers to be rounded to specified degrees of accuracy.</li> <li>❑ Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li>❑ Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</li> <li>❑ Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.</li> <li>❑ Solve problems involving similar shapes where the scale factor is known or can be found.</li> <li>❑ Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> </ul>	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li>❑ Use simple formulae.</li> <li>❑ Generate and describe linear number sequences.</li> <li>❑ Express missing number problems algebraically.</li> <li>❑ Find pairs of numbers that satisfy an equation with two unknowns.</li> <li>❑ Enumerate possibilities of combinations of two variables.</li> </ul>

## Year 6 Number and Place Value

	Number and Place Value	Addition, Subtraction, Multiplication and Division	Fractions	Ratio and Proportion	Algebra
<b>Greater Depth</b>	<p>All aspects of number and place value at the national standard are embedded.</p> <p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts using place value.</li> <li><input type="checkbox"/> Show very good understanding of place value and is able to apply this to working with larger numbers/decimals and in solving problems.</li> <li><input type="checkbox"/> Apply their understanding to solving increasingly complex problems, is able to reason and explain their thinking.</li> </ul>	<p>All aspects of addition, subtraction, multiplication and division at the national standard are embedded.</p> <p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate rapid recall of number facts and is able to use these fluently to generalise to obtain new facts.</li> <li><input type="checkbox"/> Show a wide repertoire of reliable and efficient of calculation strategies, both written and mental, that they are able to apply when solving problems.</li> <li><input type="checkbox"/> Make choices regarding choice of strategies and explain reasoning.</li> <li><input type="checkbox"/> Solve problems of increasing complexity using a range of strategies and is able to communicate their reasoning.</li> <li><input type="checkbox"/> Explain why different methods give the same result</li> <li><input type="checkbox"/> Think creatively when problem solving and is able to justify &amp; prove.</li> <li><input type="checkbox"/> Show rapid and fluent recall of all x facts to 12 x 12 and is able to use their knowledge to generate new facts and when working with larger numbers.</li> <li><input type="checkbox"/> Apply knowledge of factors, multiples, prime number, squares and commutativity to solving mental calculations of more complex problems.</li> <li><input type="checkbox"/> Show a clear understanding of the different structures of multiplication and division and related vocabulary and is able to apply this to solving increasingly complex problems.</li> <li><input type="checkbox"/> Apply the knowledge of the inverse operation and the links between division and multiplication to solving problems.</li> </ul>	<p>All aspects of fractions at the national standard are embedded.</p> <p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of fractions to problems involving measures and shapes.</li> <li><input type="checkbox"/> Use their knowledge of decimals in problem involving measure to work with increased accuracy.</li> <li><input type="checkbox"/> Demonstrate a very good understanding of the connections between fractions decimals and percentages and is able to use their knowledge to translate between the three.</li> <li><input type="checkbox"/> Apply their knowledge of fractions, decimals and percentages to problems of increasing complexity and to explain their reasoning and thinking.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Demonstrate a very good understanding of the connections between fractions, decimals and percentages, ratio and proportion and is able to use their knowledge to translate between the three.</li> <li><input type="checkbox"/> Apply their knowledge of ratio and proportion to problems of increasing complexity and to explain their reasoning and thinking.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use algebraic representation to illustrate relationships and patterns.</li> <li><input type="checkbox"/> Apply understanding of equivalence in calculation to solve problems with unknowns and more than one possibility.</li> <li><input type="checkbox"/> Use algebra to prove relationships and patterns.</li> <li><input type="checkbox"/> Explain the meaning of the mathematical notation.</li> </ul>

## Year 6 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Working Towards</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).</li> <li><input type="checkbox"/> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</li> <li><input type="checkbox"/> Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.</li> <li><input type="checkbox"/> Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes.</li> <li><input type="checkbox"/> Estimate volume [for example, using 1 cm<sup>3</sup> blocks to build cuboids (including cubes)] and capacity [for example, using water].</li> <li><input type="checkbox"/> Solve problems involving converting between units of time.</li> <li><input type="checkbox"/> Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</li> <li><input type="checkbox"/> Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.</li> <li><input type="checkbox"/> Draw given angles and measure them in degrees (°).</li> <li><input type="checkbox"/> Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 2 1 a turn (total 180°) other multiples of 90°.</li> <li><input type="checkbox"/> Use the properties of rectangles to deduce related facts and find missing lengths and angles.</li> <li><input type="checkbox"/> Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve comparison, sum and difference problems using information presented in a line graph.</li> <li><input type="checkbox"/> Complete, read and interpret information in tables, including timetables.</li> </ul>

## Year 6 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Expected</b>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</li> <li><input type="checkbox"/> Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.</li> <li><input type="checkbox"/> Convert between miles and kilometres.</li> <li><input type="checkbox"/> Recognise that shapes with the same areas can have different perimeters and vice versa.</li> <li><input type="checkbox"/> Recognise when it is possible to use formulae for area and volume of shapes.</li> <li><input type="checkbox"/> Calculate the area of parallelograms and triangles.</li> <li><input type="checkbox"/> Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units [for example, mm<sup>3</sup> and km<sup>3</sup>].</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Draw 2-D shapes using given dimensions and angles.</li> <li><input type="checkbox"/> Recognise, describe and build simple 3-D shapes, including making nets.</li> <li><input type="checkbox"/> Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.</li> <li><input type="checkbox"/> Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Describe positions on the full coordinate grid (all four quadrants).</li> <li><input type="checkbox"/> Draw and translate simple shapes on the coordinate plane and reflect them in the axes.</li> </ul>	<p><b>Sufficient evidence shows the ability to:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Interpret and construct pie charts and line graphs and use these to solve problems.</li> <li><input type="checkbox"/> Calculate and interpret the mean as an average.</li> </ul>

## Year 6 Geometry and Measures

	Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<b>Greater Depth</b>	<p>All aspects of measurement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Apply knowledge of other areas of the curriculum to their understanding of and problem solving with measures. E.g. squares, cubes, fractions, multiplication decimals.</li> <li><input type="checkbox"/> Convert fluently and efficiently between different units of measures and be able to reason about the multiplicative relationship between related measures.</li> <li><input type="checkbox"/> Use their understanding of the concepts related to measures to solve increasingly complex problems.</li> <li><input type="checkbox"/> Communicate reasoning and talk about mathematics using sophisticated mathematical language.</li> <li><input type="checkbox"/> Apply knowledge of measures to other areas of the curriculum such as science.</li> </ul>	<p>All aspects of shape at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Sort and classify shapes using a wide range of criterion using increasingly sophisticated mathematically appropriate vocabulary.</li> <li><input type="checkbox"/> Creatively apply knowledge of shapes to solving problems with increasing complexity and be able to justify reasoning and communicate their thinking.</li> <li><input type="checkbox"/> Make links and connections with other areas of the curriculum and be able to generalise their understanding.</li> </ul>	<p>All aspects of position and movement at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Solve increasingly complex problems involving position and movement.</li> <li><input type="checkbox"/> Apply knowledge and understanding of position and movement to other curriculum areas such as geography and science.</li> </ul>	<p>All aspects of statistics at the national standard are embedded.</p> <p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use knowledge of data handling to pose hypothesis and answer questions through the analysis and interpretation of data.</li> <li><input type="checkbox"/> Draw conclusions based on data and be able to communicate reasoning. Be able to look for alternative explanations and hypothesis.</li> <li><input type="checkbox"/> Use understanding of statistics in other curriculum areas.</li> </ul>