

## Year 5 Mathematics Yearly Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	
<b>Week 1</b>	<b>Unit 1</b> Place Value	<b>Unit 6</b> Multiplication and Division	<b>Unit 10</b> Place Value and Negative Numbers	<b>Unit 15</b> Fractions	<b>Unit 20</b> Place Value	<b>Unit 25</b> Division	
<b>Week 2</b>			<b>Unit 11</b> Addition and Subtraction			<b>Unit 16</b> Geometry (Shape)	<b>Unit 26</b> Fractions
<b>Week 3</b>	<b>Unit 2</b> Addition and Subtraction	<b>Unit 7</b> Fractions	<b>Unit 12</b> Multiplication	<b>Unit 17</b> Measurement (Volume)		<b>Unit 21</b> Measurement and Statistics	<b>Unit 27</b> Percentages
<b>Week 4</b>			<b>Unit 8</b> Multiplication and Area	<b>Unit 13</b> Measures (Length, Mass and Capacity)	<b>Unit 18</b> Statistics	<b>Unit 22</b> Geometry	<b>Unit 28</b> Statistics
<b>Week 5</b>				<b>Unit 3</b> Statistics	<b>Unit 14</b> Geometry	<b>Unit 19</b> Problem Solving including Bar Modelling	<b>Unit 23</b> Addition and Subtraction
	<b>Unit 4</b> Geometry (Angles)	<b>Unit 9</b> Time					
<b>Week 6</b>	<b>Unit 5</b> Geometry and Measures	Assess and review week		Assess and review week	<b>Unit 24</b> Multiplication	Assess and review week	

## Year 5 Expectations – Sequence of Learning

### Autumn 1 – 6 weeks

<b>Starters</b>	
<ul style="list-style-type: none"> <li>• Count forwards in fractional thousandths (<math>\frac{1}{1000}</math>) including where hundredths boundaries are crossed, e.g. <math>\frac{167}{1000}, \frac{168}{1000}, \frac{169}{1000}, \frac{170}{1000}, \frac{171}{1000}, \dots</math></li> <li>• Count backwards in fractional thousandths (<math>\frac{1}{1000}</math>) including where hundredths boundaries are crossed, e.g. <math>\frac{171}{1000}, \frac{170}{1000}, \frac{169}{1000}, \frac{168}{1000}, \frac{167}{1000}, \dots</math></li> <li>• Multiply/divide whole numbers and decimals by 10 where 0 is not used as a place holder, e.g. <math>3.24 \times 10</math> or <math>729 \div 10</math></li> <li>• Multiply/divide whole numbers and decimals by 10 where 0 is used as a place holder, e.g. <math>2.04 \times 10</math> or <math>806 \div 10</math></li> <li>• Recognise that the numbers in addition calculations can be reordered to make calculating more efficient e.g. <math>1.7 + 2.8 + 0.3</math> becomes <math>1.7 + 0.3 + 2.8</math> or <math>58 + 47 - 38</math> becomes <math>58 - 38 + 47</math> and use this strategy where appropriate</li> <li>• Recognise and solve calculations that involve known or related facts e.g. <math>1.2 + 0.8</math></li> <li>• Recall and use addition and subtraction facts for 1 (with decimal numbers to one decimal place)</li> <li>• Recall and use addition and subtraction facts for 10 (with decimal numbers to one decimal place)</li> <li>• Use practical apparatus (e.g. place value counters, a 10 by 10 grid, a 100 bead string) and known facts (e.g. <math>42 + 58 = 100</math>) to create addition and subtraction facts for 1 with decimal numbers to two decimal places (e.g. <math>0.42 + 0.58 = 1</math>) Create generalisations based on addition and subtraction facts for 1 (e.g. the hundredths digits sum to 0.1 and the tenths digits sum to 0.9 and these add to give a total of 1)</li> <li>• Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)</li> <li>• Add and subtract a whole number to/from a number with two decimal places, e.g. <math>4.32 + 4</math></li> <li>• Add a four-digit number to another four-digit number where no boundaries are crossed e.g. <math>5124 + 1352</math></li> <li>• Add a number with two decimal places to another where the tenths boundary is not crossed, e.g. <math>6.34 + 2.53</math></li> <li>• Subtract a four-digit number from another four-digit number where no boundaries are crossed e.g. <math>7859 - 3427</math></li> <li>• Subtract a number with two decimal places from another where the tenths boundary is not crossed, e.g. <math>5.45 - 2.33</math></li> <li>• Recall and use multiplication facts up to <math>12 \times 12</math> and related division facts</li> <li>• Interpret information in a variety of sorting diagrams</li> <li>• Complete a variety of sorting diagrams with given information</li> <li>• Identify the properties used to sort a set of numbers or shapes in a completed diagram</li> <li>• Read and interpret information in a range of tables with different contexts</li> <li>• Complete tables by identifying missing information (context for +- )</li> <li>• Read and interpret information in a range of timetables with different contexts (context for +-)</li> </ul>	
<b>Number and Place Value</b>	
<b>Weeks 1 and 2</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Exchange 10 thousands for 1 ten thousand and vice versa using place value counters Exchange 10 ten thousands for 1 hundred thousand and vice versa using place value counters Identify and represent numbers up to 100,000 using place value counters and a place value chart Partition a five-digit number into ten thousands, thousands, hundreds, tens and ones
2	Exchange 10 ten thousands for 1 hundred thousand and vice versa using place value counters Exchange 10 hundred thousands for 1 million and vice versa using place value counters Identify and represent numbers up to 1,000,000 using place value counters and a place value chart Partition a six-digit number into hundred thousands, ten thousands, thousands, hundreds, tens and ones
3	Exchange 1 tenth for 10 hundredths and vice versa using place value counters Exchange 1 hundredth for 10 thousandths and vice versa using place value counters

	Identify and represent numbers up to three decimal places using place value counters Partition a number with up to three decimal places into tens, ones, tenths, hundredths and thousandths Use a place value chart or place value counters to support with identifying the value of each digit to three decimal places
4	Compare numbers to 1,000,000 Compare numbers up to three decimal places where 0 is not used as a place holder
5	Order numbers to 1,000,000 Order numbers up to three decimal places where 0 is not used as a place holder
6	Identify, represent and estimate numbers on a number line from 0 to 100,000 where the number line has ten demarcations Identify, represent and estimate numbers on a number line from 0 to 1,000,000 where the number line has ten demarcations
7	Round any number up to 100,000 (Year 5 number) to the nearest 10, 100 or 1000 (Year 4 rounding) Round any number up to 1,000,000 (Year 5 number) to the nearest 10, 100 or 1000 (Year 4 rounding) Round any number up to 100,000 to the nearest 10,000
8	Find 0.01, 0.1, 1, 10, 100, 1000 more or less than a given number up to 1,000,000 including crossing boundaries Find 10,000 more or less than a given number up to 1,000,000 including crossing 100,000 boundaries Find 100,000 more or less than a given number up to 1,000,000
9	Count forwards and backwards in steps of 10, 100 or 1,000 (Year 4 steps) for any given number up to 100,000 (Year 5 number) Count forwards and backwards in steps of 10, 100 or 1,000 (Year 4 steps) for any given number up to 1,000,000 (Year 5 number) Count forwards and backwards in steps of 10,000 for any given number up to 1,000,000
10	Describe and extend number sequences where the step size is in multiples of tenths, e.g. 1.4, 1.7, 2.0, 2.3 (step size 0.3) Describe and extend number sequences where the step size is in multiples of hundredths less than a tenth, e.g. 2.31, 2.37, 2.43, 2.49 (step size 0.06) Describe and extend number sequences where the step size is in multiples of hundredths greater than a tenth, e.g. 2.42, 2.57, 2.72, 2.87 (step size 0.15)

### Addition and Subtraction

#### Weeks 3 and 4

Lesson	Lesson Focus
1	Recognise calculations that require mental partitioning e.g. $4300 + 1400$ or $424 - 250$ or $6.32 - 3.5$ and use this strategy where appropriate (This could be supported by jottings)
2	Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently e.g. $1995 + 278$ becomes $1995 + 5 + 273$ or $703 - 128$ becomes $703 - 3 - 125$ and use this strategy where appropriate (This could be supported by pictures or jottings)
3	Recognise calculations that require counting on mentally to find the difference e.g. $5003 - 1960$ (counting efficiently between the two numbers) and use this strategy where appropriate (This could be supported by a number line)
4	Recognise calculations that require a mental compensation method e.g. $325 + 298$ becomes $325 + 300 - 2$ and use this strategy where appropriate (This could be supported by pictures or jottings)
5	Choose an appropriate mental strategy to solve a calculation based upon the numbers involved
6	Add whole numbers with more than 4 digits including combinations of numbers with different amounts of digits using a column method e.g. $4689 + 67,302 + 785 =$ Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
7	Add decimals with two decimal places using a column method, e.g. $53.67 + 26.54 =$

	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
8	Subtract whole numbers with more than 4 digits including pairs of numbers with different amounts of digits, e.g. 54 368 – 9279 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
9	Subtract decimals with two decimal places, e.g. 206.04 – 72.36 Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
10	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
<b>Statistics</b>	
<b>Week 5</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Discrete data Answer questions which ask 'How many/much more...?' or 'How many fewer/much less...?' when comparing two categories in a data set Answer questions which ask 'How many in total...?' for different data readings Solve question where the answer has to be inferred from a given data set e.g. few ice creams were sold on Tuesday because it was raining Understand the purpose of different types of graph and identify which is best suited for a particular data set
2	Continuous data Answer questions which ask 'How many/much more...?' or 'How many fewer/much less...?' when comparing two categories in a data set Answer questions which ask 'How many in total...?' for different data readings Solve question where the answer has to be inferred from a given data set e.g. few ice creams were sold on Tuesday because it was raining Understand the purpose of different types of graph and identify which is best suited for a particular data set
<b>Geometry (Angles)</b>	
<b>Week 5</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Know that angles are measured in degrees ° Identify reflex angles as those greater than 180° where two lines meet Compare all types of angles including reflex angles
2	Measure acute angles to the nearest degree Measure obtuse angles to the nearest degree
3	Draw acute angles to the nearest degree Draw obtuse angles to the nearest degree
<b>Geometry</b>	
<b>Week 6</b>	
	<b>Measures</b>
1	Measure and draw lines to the nearest mm Draw shapes with some given side dimensions, for example draw a triangle with side lengths of 67mm and 4.3cm. What is the length of the other side? Is there more than one possibility?
2	Identify the perimeter of composite rectilinear shapes through accurate measuring to the nearest mm
3	Calculate/identify the length of missing sides of composite rectilinear shapes (lengths in mm and decimal cm)
4	Calculate the perimeter of a composite rectilinear shape where the lengths of some sides are not given (lengths in mm and decimal cm)
<b>Learning Check Up To This Point</b>	



## Autumn 2 – 5 weeks

Starters	
<ul style="list-style-type: none"> <li>Recall and use multiplication facts up to <math>12 \times 12</math> and related division facts</li> <li>Use partitioning to double any decimal number to two decimal places</li> <li>Use partitioning to halve any decimal number to two decimal places where all the digits are even, e.g. halve 4.68</li> <li>Use partitioning to halve any decimal number to two decimal places where not all the digits are even, e.g. halve 6.74</li> <li>Use knowledge of place value and multiplication facts to multiply multiples of 100 and 1000 by a one-digit number e.g. <math>3000 \times 8 = 24\ 000</math></li> <li>Use knowledge of place value and multiplication facts to divide related larger numbers e.g. <math>6300 \div 9 = 700</math></li> <li>Use knowledge of place value and multiplication facts to decimals by a one-digit number e.g. <math>0.7 \times 6 = 4.2</math></li> <li>Multiply a two-digit number by a one-digit number using a partitioning strategy</li> <li>Read and write decimal numbers as fractions in tenths or hundredths, e.g. <math>0.9 = \frac{9}{10}</math>, <math>0.71 = \frac{71}{100}</math></li> <li>Multiply T0 x T0 using knowledge of factorising and tables facts e.g. <math>60 \times 40 = 6 \times 4 \times 10 \times 10 = 2400</math></li> <li>Use knowledge of place value and multiplication facts to multiply multiples of 100 and 1000 by a one-digit number e.g. <math>3000 \times 8 = 24\ 000</math></li> <li>Multiply T0 x T0 using knowledge of factorising and tables facts e.g. <math>60 \times 40 = 6 \times 4 \times 10 \times 10 = 2400</math></li> <li>Use compensation strategy to multiply H99 x U</li> </ul>	
Multiplication and Division	
Weeks 1 and 2	
Lesson	Lesson Focus
1	Understand the term 'multiple' and identify multiples within known tables or counting patterns in hundreds and thousands Identify multiples of 2, 5, 10, 25, 50 and 100 using rules of divisibility
2	Use and derive multiplication and division facts to identify factors within known tables Recognise that a square number is the product of two equal integers and can be written using <sup>2</sup> notation, e.g. $7 \times 7 = 7^2$ Recognise and use square numbers up to $12^2$
3	Use known facts to derive factors of multiples of 10 and 100, e.g. 240 could be factorised to $6 \times 40$
4	Use a list strategy to identify common factors of two numbers within known tables
5	Multiply a two-digit number by a one-digit number using a partitioning strategy Multiply a U.t number by a one-digit number using a partitioning strategy
6	Divide a 4-digit number by a 1-digit number Estimate division by rounding to the nearest multiple of 10, 100 or 1,000 of the divisor and using related facts e.g. $3452 \div 6 \approx 3600 \div 6$
7	Divide a 4-digit number by a 1-digit number and interpret remainders appropriately for the context Estimate division by rounding to the nearest multiple of 10, 100 or 1,000 of the divisor and using related facts e.g. $3452 \div 6 \approx 3600 \div 6$
8	Divide a 4-digit number by a 1-digit number and interpret remainders appropriately for the context Estimate division by rounding to the nearest multiple of 10, 100 or 1,000 of the divisor and using related facts e.g. $3452 \div 6 \approx 3600 \div 6$
9	Divide a three-digit number by a one-digit number using a partitioning strategy e.g. $942 \div 6$ becomes $(600 \div 6) + (300 \div 6) + (42 \div 6)$
10	Choose an appropriate strategy to solve a division calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)

**Fractions  
Week 3**

Lesson	Lesson Focus
1	Identify, name and write equivalent fractions of a given fraction by using multiplication and division facts, e.g. $\frac{5}{7} = \frac{40}{56}$
2	Compare two fractions where the denominator of one fraction is a multiple of the denominator of the other fraction, e.g. compare $\frac{2}{3}$ and $\frac{7}{9}$ Compare two fractions whose denominators are both multiples of the same number, e.g. compare $\frac{24}{32}$ and $\frac{32}{56}$ (only where the numerator allows a conversion to the common denominator)
3	Order more than two fractions whose denominators are all multiples of the same number (only where the numerator allows a conversion to the common denominator)
4	Recognise and use thousandths, e.g. $\frac{3}{1000} = 0.003$ and vice-versa Relate thousandths to tenths and hundredths, e.g. $\frac{70}{1000} = \frac{7}{100} = 0.07$ , $\frac{900}{1000} = \frac{9}{10} = 0.9$
5	Read and write decimal numbers as fractions, e.g. $0.8 = \frac{8}{10} = \frac{4}{5}$ , $0.85 = \frac{85}{100} = \frac{17}{20}$ Identify, name and write equivalent fractions for tenths and hundredths, e.g. $\frac{85}{100} = \frac{17}{20}$

**Multiplication  
Week 4**

**Area**

Lesson	Lesson Focus
1	Use compensation strategy to multiply $H99 \times U$
2	Multiply a 4 digit by a 1-digit number using grid method Estimate multiplication by rounding to the nearest multiple of 10, 100 or 1,000 and using related facts e.g. $3842 \times 6 \approx 4000 \times 6$
3	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
4	Solve problems involving multiplication and division, including understanding the meaning of the equals sign (bar modelling)
5	Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates (bar modelling)
6	Use knowledge of arrays to understand why the area of rectangles can be calculated using length multiplied by width Calculate the area of rectangles (see progression in mental and written multiplication)
7	Compare rectangles by area

**Measures (Time)  
Week 5**

Lesson	Lesson Focus
1	Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks
2	Complete timetables by identifying missing information
3	Read and interpret information in a range of timetables with different contexts

**Learning Check Up To This Point**

## Spring 1 – 6 weeks

Starters	
<ul style="list-style-type: none"> <li>Count forwards and backwards in fractional thousandths (1/1000) including where tenths boundaries are crossed</li> <li>Count forwards and backwards in fractional thousandths (1/1000) including where ones boundaries are crossed,</li> <li>Count forwards and backwards in fractional thousandths</li> <li>Count forwards and backwards in decimal thousandths</li> <li>Count forwards and backwards in decimal thousandths (0.001) including where hundredths or tenths boundaries are crossed,</li> <li>e.g. 1.428, 1.429, 1.430, 1.431</li> <li>Use knowledge of equivalence to refine the sequence, e.g. 1.428, 1.429, 1.43, 1.431</li> <li>Identify angles that are other multiples of 90°, e.g. when jumping a snowboarder rotates through one and a half turns. Through how many degrees has the snowboarder turned? Answer: 540°</li> <li>Use knowledge of place value and multiplication facts to divide related larger numbers e.g. <math>6,300 \div 9 = 700</math></li> <li>Recall and use multiplication facts up to <math>12 \times 12</math> and related division facts</li> <li>Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend is scaled down e.g. <math>3.2 \div 8 = 0.4</math></li> <li>Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend and divisor are scaled down e.g. <math>3.2 \div 0.8 = 4</math></li> </ul>	
Place Value and Negative Numbers	
Week 1	
Lesson	Lesson Focus
1	Read and write numbers up to three decimal places where 0 is used as a place holder in any position Identify and represent numbers with up to three decimal places
2	Identify the value of each digit to three decimal places in a variety of ways, e.g. the value of the digit 7 in 3.867 is seven thousandths, $\frac{7}{1000}$ or 0.007
3	Compare numbers with three decimal places where 0 is used as a place holder in any position Order numbers with three decimal places where 0 is used as a place holder in any position
4	Round decimals with two decimal places to the nearest whole number (e.g. 267.62 rounds to 268)
5	Explain the meaning of a negative number in a variety of real-life contexts (e.g. below freezing, below sea level, under par (golf), negative goal difference) Count on and back with positive and negative whole numbers through zero Order temperatures including those below 0°C ( <i>consolidation of Year 4</i> )
Addition and Subtraction	
Week 2	
Lesson	Lesson Focus
1	Recognise calculations that require counting on or back mentally, bridging through a multiple of 10 efficiently e.g. $230 - 72$ becomes $230 - 30 - 40 - 2$ and use this strategy where appropriate Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
2	Recognise calculations that require counting on mentally to find the difference e.g. $5,003 - 1,960$ (counting efficiently between the two numbers) and use this strategy where appropriate Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
3	Recognise calculations that require a mental compensation method e.g. $325 + 298$ becomes $325 + 300 - 2$ and use this strategy where appropriate Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
4	Add and subtract whole numbers with more than 4 digits using formal written methods

	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
5	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
<b>Multiplication Week 3</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Identify multiples of 3, 4, 6, 9, 20, using rules of divisibility
2	Identify factors of numbers beyond known tables (e.g. 91) Use a list strategy to identify common factors of two numbers beyond known tables
3	Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers Establish whether a number up to 100 is prime Recall prime numbers up to 19
4	Multiply a 2 digit by a 2-digit number using grid method
5	Multiply a 3 digit by a 2-digit number using grid method
<b>Measures (Length, Mass and Capacity) Week 4</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Multiply/divide whole numbers and decimals by 100 where 0 is not used as a place holder, e.g. $5.68 \times 100$ or $8532 \div 100$ Multiply/divide whole numbers and decimals by 100 where 0 is used as a place holder, e.g. $15.106 \times 100$ or $4070 \div 100$ Revisit converting cm to metre and vice versa
2	Multiply/divide whole numbers and decimals by 1,000 where 0 is not used as a place holder, e.g. $19.73 \times 1,000$ or $2378 \div 1,000$ Multiply/divide whole numbers and decimals by 1,000 where 0 is used as a place holder, e.g. $33.003 \times 1,000$ or $123\ 006 \div 1000$
3	Convert km (up to 3 decimal places) to m, and vice versa where 0 is not used as a place holder, e.g. $3,756\text{m} = 3.756\text{km}$ Convert km (up to 3 decimal places) to m and vice versa where 0 is used as a place holder, e.g. $72\text{m} = 0.072\text{km}$ Convert kg (up to 3 decimal places) to g and vice versa where 0 is not used as a place holder, e.g. $7,582\text{g} = 7.582\text{kg}$ Convert kg (up to 3 decimal places) to g and vice versa where 0 is used as a place holder, e.g. $604\text{g} = 0.604\text{kg}$ Convert l (up to 3 decimal places) to ml and vice versa where 0 is not used as a place holder, e.g. $2,759\text{l} = 2,759\text{ml}$ Convert l (up to 3 decimal places) to ml and vice versa where 0 is used as a place holder, e.g. $0.093\text{l} = 93\text{ml}$
4	Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend is scaled down e.g. $3.2 \div 8 = 0.4$ Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend and divisor are scaled down e.g. $3.2 \div 0.8 = 4$
5	Use all four operations to solve problems involving measure using decimal notation, including scaling
<b>Geometry Weeks 5 and 6</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Identify, describe and represent the position of a rectilinear shape following a reflection in a horizontal or vertical mirror line when all/some/no sides are parallel or perpendicular to the mirror line and when the shape is not touching the mirror line.
2	Identify, describe and represent the position of a rectilinear shape following a reflection in a horizontal or vertical mirror line when all/some/no sides are parallel or perpendicular to the mirror line and when the shape is touching the mirror line.
3	Describe positions on a 2-D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon <i>Use reflection as a context</i>

4	<p>Represent the position of a shape following a translation in one or two directions (left/right and/or up/down)</p> <p>Describe the translation for a shape that moves in one or two directions (left/right and/or up/down)</p> <p><i>Using a square grid</i></p>
5	<p>Identify the position of a shape following a translation in one or two directions (left/right and/or up/down)</p> <p><i>Using a coordinate grid</i></p>
6	<p>Measure acute and obtuse angles to the nearest degree using a 180° protractor</p> <p>Measure reflex angles to the nearest degree using a 360° protractor</p>
7	<p>Draw acute and obtuse angles to the nearest degree using a 180° protractor</p> <p>Draw reflex angles to the nearest degree using a 360° protractor</p>
8	<p>Estimate acute, obtuse and reflex angles using knowledge of a right angle and fractions of a right angle e.g. half a right angle is 45°; one third of a right angle is 30° and two thirds of a right angle is 60° and adding these to 90° (obtuse), and 180° or 270° (reflex)</p>
9	<p>Use information given to calculate missing angles at a point on a straight line and half a turn (total 180°)</p> <p>Use information given to calculate missing angles at a point and one whole turn (total 360°)</p>

**Learning Check Up To This Point**

## Spring 2 – 6 weeks

Starters	
<ul style="list-style-type: none"> <li>Recall and use multiplication facts up to <math>12 \times 12</math> and related division facts</li> <li>Identify cubes and cuboids from 2-D pictures of them</li> <li>Identify other 3-D shapes from 2-D pictures of them</li> <li>Estimate the capacity of different containers</li> <li>Estimate the volume of liquid in a container</li> <li>Estimate the volume of cubes and cuboids by estimating their dimensions</li> <li>Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)</li> </ul>	
Fractions	
Weeks 1 and 2	
Lesson	Lesson Focus
1	Use concrete materials or pictorial representations to demonstrate conversion from an improper fraction to a mixed number, e.g. seeing that $\frac{7}{5}$ is the same as 1 whole one and $\frac{2}{5}$ of another whole one Recognise a mixed number with a fractional part in halves, thirds or quarters and convert it to an improper fraction and vice-versa Recognise a mixed number and convert it to an improper fraction and vice-versa
2	Use multiples of the denominator to identify how many whole ones can be made from the improper fraction and how many fractional parts remain, e.g. $\frac{21}{5}$ can be converted using $\frac{5}{5}$ is 1, $\frac{10}{5}$ is 2, $\frac{15}{5}$ is 3, $\frac{20}{5}$ is 4 and $\frac{1}{5}$ remains so $\frac{21}{5} = 4\frac{1}{5}$
3	Identify, name and write equivalent fractions of a given fraction by using multiplication and division facts, e.g. $\frac{5}{7} = \frac{40}{56}$
4	Add fractions with denominators that are multiples of the same number where the answer is less than 1, e.g. $\frac{2}{3} + \frac{1}{6} = \frac{4}{6} + \frac{1}{6} = \frac{5}{6}$ Add fractions with denominators that are multiples of the same number where the answer is greater than 1, e.g. $\frac{2}{5} + \frac{9}{10} = \frac{4}{10} + \frac{9}{10} = \frac{13}{10} = 1\frac{3}{10}$ ; $1\frac{1}{4} + 3\frac{7}{8} = 1\frac{2}{8} + 3\frac{7}{8} = 4\frac{9}{8} = 5\frac{1}{8}$
5	Subtract fractions with denominators that are multiples of the same number within 1, e.g. $\frac{5}{6} - \frac{1}{3} = \frac{5}{6} - \frac{2}{6} = \frac{3}{6}$ Subtract fractions with denominators that are multiples of the same number that involve mixed numbers, e.g. $1\frac{1}{3} - \frac{5}{6} = 1\frac{2}{6} - \frac{5}{6} = \frac{3}{6} = \frac{1}{2}$ ; $5\frac{5}{6} - 3\frac{1}{3} = 5\frac{5}{6} - 3\frac{2}{6} = 2\frac{3}{6} = 2\frac{1}{2}$
6	Add and subtract fractions with denominators that are multiples of the same number where the answer is $>1$ and that involve mixed numbers
7	Solve problems involving fractions
Geometry (2-D and 3-D Shape)	
Week 2	
Lesson	Lesson Focus
1	Identify whether a shape is regular or irregular by measuring its side lengths and angles Measure lengths to the nearest millimetre ( <i>from Year 3</i> ) Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
2	Use the properties of rectangles to deduce related facts and find missing angles at a vertex when diagonals have been drawn and one angle is given Use the properties of rectangles to deduce related facts and find missing angles where the diagonals bisect when one angle is given
3	Know that a 'net' is a flat shape that can be folded into a 3-D shape Identify a net of a cube from a range of nets Identify a net of other cuboids from a range of nets Identify a net of other prisms and pyramids from a range of nets
Measurement (Volume)	
Week 3	
Lesson	Lesson Focus
1	Measure and record liquid volume in ml and l (to 3 decimal places)

2	Calculate the area of rectangles <i>(to build to volume of cuboids in next lesson)</i>
3	Understand that the units of liquid volume ml and units of solid volume $\text{cm}^3$ have the same value Build cuboids using cm cubes Find the volume of different cuboids by counting cubes efficiently
4	Use $\text{cm}^3$ blocks to build cuboids of a given volume Recognise that a cube number is the product of three equal integers and can be written using $^3$ notation, e.g. $4 \times 4 \times 4 = 4^3$ Recognise and use cube numbers for $1^3, 2^3, 3^3, 4^3, 5^3$ and $10^3$
5	Use all four operations to solve problems involving volume using decimal notation, including scaling
<b>Statistics</b>	
<b>Week 4</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Solve comparison, sum and difference problems using information presented in all types of graph including a line graph Complete, read and interpret information in tables
2	Calculate the mode of a set of values
3	Calculate the range of a set of values
4	Calculate the median for an odd number of values Calculate the median for an even number of values
5	Identify when it is appropriate to use mode, median and range
<b>Problem Solving Including Bar Modelling</b>	
<b>Week 5</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Solve missing number problems involving all four operations (arithmetic) G1 – single step G2 – multi-step
2	Solve missing number problems involving all four operations (word problems) G1 – single step G2 – multi-step
3	Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
4	Solve problems involving fractions
5	Solve problems involving fractions
<b>Learning Check Up To This Point</b>	

## Summer 1 – 6 weeks

Starters	
<ul style="list-style-type: none"><li>• Identify the value of each digit to three decimal places</li><li>• Find 0.01, 0.1, 1, 10, 100, 1000 and other powers of 10 more or less than a given number</li><li>• Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000</li><li>• Convert between different units of metric measure</li><li>• Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks</li><li>• Describe positions on the first quadrant of a coordinate grid</li><li>• Plot specified points on the first quadrant of the coordinate grid</li><li>• Identify, describe and represent the position of a shape following a translation</li><li>• Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)</li><li>• Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)</li><li>• Round decimals with two decimal places within a calculation to an appropriate power of 10 e.g. <math>267.62 + 34.78</math> rounds to <math>270 + 30</math></li><li>• Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</li><li>• Establish whether a number up to 100 is prime and recall prime numbers up to 19</li><li>• Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</li><li>• Use partitioning to double or halve any number, including decimals to two decimal places</li><li>• Recall and use multiplication facts up to <math>12 \times 12</math> and related division facts</li><li>• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</li><li>• Recognise and use square (<math>^2</math>) and cube (<math>^3</math>) numbers, and notation</li></ul>	
Place Value	
Weeks 1, 2 and 3	
Lesson	Lesson Focus
1	Read, write, compare and order numbers to 1,000,000 and determine the value of each digit
2	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000
3	Identify, represent and estimate numbers on a number line from 0 to 100,000 where the number line has no demarcations Identify, represent and estimate numbers on a number line from 0 to 1,000,000 where the number line has no demarcations
4	Identify, represent and estimate numbers up to 100,000 on a number line where the starting point is a number other than 0 (e.g. 50,000 to 75,000) Identify, represent and estimate numbers up to 1,000,000 on a number line where the starting point is a number other than 0 (e.g. 600,000 to 950,000)
5	Round any number up to 1,000,000 to the nearest 10,000 Round any number up to 1,000,000 to the nearest 100,000
6	Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero Continue to order temperatures including those below $0^{\circ}\text{C}$
7	Read Roman numerals using the symbols I, V, X, L, C, D, M where subtracting of the symbols (e.g. a lower value symbol in front of a higher value one such as IX, CM) is not required Read Roman numerals using the symbols I, V, X, L, C, D, M in any order Read Roman numerals to 1,000 (M); recognise years written as such
8	Count forwards and backwards in decimal thousandths (0.001) including where ones boundaries are crossed, e.g. 5.998, 5.999, 6, 6.001, 6.002 Describe and extend number sequences where the step size is in thousandths, e.g. 5.742, 5.747, 5.752 (step size 0.005)
9	Compare and order numbers with up to 3 decimal places
10	Correctly place multiples of one thousandth on a number line where hundredths are marked but not labelled

11	Round decimals with two decimal places to the nearest whole number and to one decimal place
12	Multiply/divide whole numbers and decimals by 10, 100 and 1,000
<b>Measurement and Statistics</b>	
<b>Week 3</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Convert between different units of time using an appropriate strategy e.g. How many hours are there in a year? How many hours are there in a fortnight? How many full weeks is 337 days?
2	Understand and use approximate equivalences between metric and imperial measures using a conversion graph: 1 inch $\approx$ 2.54cm    1 foot $\approx$ 30cm    1 yard $\approx$ 90cm 1 lb $\approx$ 500g    1 oz $\approx$ 30g 1 pint $\approx$ 0.6 litres    1 gallon $\approx$ 4.5 litres
3	Understand and use approximate equivalences between metric and imperial measures using conversion facts: 1 inch $\approx$ 2.54cm    1 foot $\approx$ 30cm    1 yard $\approx$ 90cm 1 lb $\approx$ 500g    1 oz $\approx$ 30g 1 pint $\approx$ 0.6 litres    1 gallon $\approx$ 4.5 litres
<b>Geometry</b>	
<b>Week 4</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Know angles are measured in degrees: estimate ( <i>and measure</i> ) and compare acute, obtuse and reflex angles
2	Draw given angles, and measure them in degrees ( $^{\circ}$ )
3	Identify: - angles at a point and one whole turn (total $360^{\circ}$ ) - angles at a point on a straight line and half a turn (total $180^{\circ}$ ) - other multiples of $90^{\circ}$
4	Use the properties of rectangles to deduce related facts and find missing lengths and angles
5	Plot points to complete shapes on the first quadrant of the coordinate grid Identify, describe and represent the position of a shape following a reflection, using the appropriate language, and know that the shape has not changed
<b>Addition and Subtraction</b>	
<b>Week 5</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Add decimals with up to two decimal places including pairs of numbers with different amounts of digits, e.g. $154.7 + 68.56$ Subtract decimals with up to two decimal places including pairs of numbers with different amounts of digits, e.g. $245.3 - 72.64$
2	Choose an appropriate strategy to solve addition calculations based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) Select a mental strategy appropriate for the numbers involved in the calculation
3	Choose an appropriate strategy to solve subtraction calculations based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) Select a mental strategy appropriate for the numbers involved in the calculation
4	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Measure/calculate the perimeter of composite rectilinear shapes ( <i>context</i> )
5	Solve addition and subtraction problems involving missing numbers
<b>Multiplication</b>	
<b>Week 6</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Multiply a 4 digit by a two-digit number using a formal written method 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

2	Choose an appropriate strategy to solve multiplication calculations based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
3	Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy
4	Solve problems involving multiplication including using their knowledge of factors and multiples, squares and cubes Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates ( <i>include measures contexts</i> )

**Learning Check Up To This Point**

## Summer 2 – 6 weeks

Starters	
<ul style="list-style-type: none"> <li>Recall and use multiplication facts up to <math>12 \times 12</math> and related division facts</li> <li>Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend is scaled down e.g. <math>3.2 \div 8 = 0.4</math></li> <li>Use knowledge of place value and multiplication facts to divide related decimal numbers where the dividend and divisor are scaled down e.g. <math>3.2 \div 0.8 = 4</math></li> <li>Add and subtract fractions with denominators that are the same and that are multiples of the same number (using diagrams)</li> <li>Write statements <math>&gt; 1</math> as a mixed number (e.g. <math>\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}</math>)</li> <li>Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks</li> <li>Use knowledge of place value and multiplication facts to divide related larger numbers e.g. <math>6,300 \div 9 = 700</math></li> </ul>	
Division Week 1	
Lesson	Lesson Focus
1	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
2	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 Estimate division by rounding to the nearest multiple of 10, 100 or 1,000 of the divisor and using related facts e.g. $3,452 \div 6 \approx 3,600 \div 6$
3	Divide a three-digit number by a one-digit number using a partitioning strategy e.g. $942 \div 6$ becomes $(600 \div 6) + (300 \div 6) + (42 \div 6)$
4	Divide a three-digit number by a one-digit number using a partitioning strategy e.g. $942 \div 6$ becomes $(600 \div 6) + (300 \div 6) + (42 \div 6)$ Estimate division by rounding to the nearest multiple of 10, 100 or 1,000 of the divisor and using related facts e.g. $3,452 \div 6 \approx 3,600 \div 6$
5	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)
Fractions Week 2	
Lesson	Lesson Focus
1	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
2	Compare and order fractions whose denominators are all multiples of the same number (including on a number line)
3	Recognise mixed numbers and improper fractions and convert from one form to the other
4	Use concrete materials or pictorial representations to multiply proper fractions by whole numbers where the answer is less than 1, e.g. $\frac{1}{7} \times 4 = \frac{4}{7}$ Use concrete materials or pictorial representations to multiply proper fractions by whole numbers where the answer is greater than 1, e.g. $\frac{3}{7} \times 4 = \frac{12}{7} = 1\frac{5}{7}$
5	Use partitioning to multiply mixed numbers by whole numbers where the fractional part of the answer is less than 1, e.g. $3\frac{1}{5} \times 4 = (3 \times 4) + (\frac{1}{5} \times 4) = 12\frac{4}{5}$ Use partitioning to multiply mixed numbers by whole numbers where the fractional part of the answer is greater than 1, e.g. $3\frac{4}{5} \times 7 = (3 \times 7) + (\frac{4}{5} \times 7) = 21\frac{28}{5} = 21 + 5\frac{3}{5} = 26\frac{3}{5}$
Percentages Week 3	
Lesson	Lesson Focus
1	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
2	For halves, quarters, fifths and tenths give the equivalent percentage and vice versa

	Solve problems which require knowing percentage and decimal equivalents halves, quarters, fifths and tenths
3	For fractions with a denominator which is a multiple of 10 or 25, give the equivalent percentage and vice versa Solve problems which require knowing percentage and decimal equivalents of fractions with a denominator which is a multiple of 10 or 25
4	Find percentages of amounts where they are equivalent to halves, quarters, fifths, tenths or fractions with a denominator which is a multiple of 10 or 25 Solve problems which require knowing percentage and decimal equivalents of halves, quarters, fifths, tenths or fractions with a denominator which is a multiple of 10 or 25
5	Solve problems involving fractions and percentages
<b>Statistics</b>	
<b>Week 4</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)
2	Complete, read and interpret information in timetables Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks
3	Complete, read and interpret information in tables
4	Complete, read and interpret information in tables Solve comparison, sum and difference problems using information presented in all types of graph including a line graph
5	Calculate and interpret the mode, median and range
<b>Measurement</b>	
<b>Week 5</b>	
<b>Lesson</b>	<b>Lesson Focus</b>
1	Use, read and write standard units of mass Solve problems involving decimals to three places (converting between units of metric measure)
2	Use, read and write standard units of length Solve problems involving decimals to three places (converting between units of metric measure)
3	Use all four operations to solve problems involving measure using decimal notation, including scaling
4	Calculate and compare the area of rectangle, use standard units square centimetres (cm <sup>2</sup> ) and square metres (m <sup>2</sup> )
5	Estimate (and calculate) volume ((e.g., using 1 cm <sup>3</sup> blocks to build cuboids (including cubes)) and capacity (e.g. using water)
<b>Learning Check Up To This Point</b>	