

Numeracy Foundation Phase		Reception	Year 1	Year 2
Strands	Elements	Learners are able to:	Learners are able to:	Learners are able to:
Developing numerical reasoning	Identify processes and connections	<ul style="list-style-type: none"> <li>transfer mathematical skills to play and classroom activities</li> <li>identify steps to complete the task or reach a solution</li> <li>select appropriate mathematics and techniques to use</li> <li>select and use relevant number facts and mental strategies</li> <li>select appropriate equipment and resources</li> <li>use knowledge and practical experience to inform estimations</li> </ul>		
	Represent and communicate	<ul style="list-style-type: none"> <li>use everyday and mathematical language to talk about their own ideas and choices</li> <li>present work orally, pictorially and in written form, and use a variety of ways to represent collected data</li> <li>devise and refine informal, personal methods of recording, moving to using words and symbols in number sentences</li> </ul>		
	Review	<ul style="list-style-type: none"> <li>use checking strategies to decide if answers are reasonable</li> <li>interpret answers within the context of the problem and consider whether answers are sensible</li> <li>interpret information presented in charts and diagrams and draw appropriate conclusions</li> </ul>		
Using number skills	Use number facts and relationships	<ul style="list-style-type: none"> <li>count reliably up to 10 objects</li> <li>read and write numbers to at least 10</li> <li>compare and order numbers to at least 10</li> </ul>	<ul style="list-style-type: none"> <li>count reliably up to 20 objects</li> <li>read and write numbers to at least 20</li> <li>compare and order numbers to at least 20</li> <li>use number facts within 10, i.e.: <ul style="list-style-type: none"> <li>doubling and halving, e.g. <math>4 + 4</math></li> <li>bonds of 10, e.g. <math>6 + 4</math></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>count sets of objects by grouping in 2s, 5s or 10s</li> <li>read and write numbers to 100</li> <li>compare and order 2-digit numbers</li> <li>use mental recall of number facts to 10 to derive other facts, i.e.: <ul style="list-style-type: none"> <li>doubling and halving, e.g. <i>derive <math>40 + 40</math> from knowing <math>4 + 4</math></i></li> <li>bonds of 10, e.g. <i>derive <math>60 + 40</math> from knowing <math>6 + 4</math></i></li> </ul> </li> <li>recall and use 2, 5 and 10 multiplication tables</li> </ul>
	Fractions, decimals, percentages and ratio		<ul style="list-style-type: none"> <li>find halves in practical situations</li> </ul>	<ul style="list-style-type: none"> <li>find halves and quarters in practical situations</li> </ul>
	Calculate using mental and written methods	<ul style="list-style-type: none"> <li>combine two groups of objects to find 'how many altogether?'</li> <li>take away objects to find 'how many are left?'</li> </ul>	<ul style="list-style-type: none"> <li>add and subtract numbers involving up to 10 objects</li> <li>use 'counting on' strategies to add 2 collections, starting with the larger number, e.g. <math>8 + 5</math></li> </ul>	<ul style="list-style-type: none"> <li>find small differences within 20 by using 'counting on' strategies</li> <li>use mental recall of number facts to 10 and place value to add or subtract larger numbers, e.g. <math>24 + 4</math>, <math>30 + 5</math>, <math>34 + 10</math></li> </ul>
	Estimate and check		<ul style="list-style-type: none"> <li>make a sensible estimate of a number of objects that can be checked by counting</li> </ul>	<ul style="list-style-type: none"> <li>use checking strategies: <ul style="list-style-type: none"> <li>repeat addition in a different order</li> <li>use halving and doubling within 20</li> </ul> </li> </ul>
	Manage money	<ul style="list-style-type: none"> <li>use 1p, 2p, 5p and 10p coins to pay for items</li> </ul>	<ul style="list-style-type: none"> <li>use different combinations of money to pay for items up to 20p</li> <li>find totals and give change from 10p</li> </ul>	<ul style="list-style-type: none"> <li>use different combinations of money to pay for items up to £1</li> <li>find totals and give change from multiples of 10p</li> </ul>
Using measuring skills	Length, weight/mass, capacity	<ul style="list-style-type: none"> <li>use direct comparisons with: <ul style="list-style-type: none"> <li>length, height and distance, e.g. <i>longer/shorter than</i></li> <li>weight/mass, e.g. <i>heavier/lighter than</i></li> <li>capacity, e.g. <i>holds more/less than</i></li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>use non-standard units to measure: <ul style="list-style-type: none"> <li>length, height and distance</li> <li>weight/mass</li> <li>capacity</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>use standard units to measure: <ul style="list-style-type: none"> <li>length, height and distance: metres, half metres or centimetres</li> <li>weight/mass: kilograms or 10 gram weights</li> <li>capacity: litres</li> </ul> </li> </ul>
	Time	<ul style="list-style-type: none"> <li>demonstrate a developing sense of how long tasks and everyday events take</li> <li>use the concept of time in terms of their daily activities</li> </ul>	<ul style="list-style-type: none"> <li>use standard units of time to read 'o'clock' using both analogue and 12-hour digital clocks</li> <li>use the concept of time in terms of their daily and weekly activities and the seasons of the year</li> </ul>	<ul style="list-style-type: none"> <li>read 'half past', 'quarter past' and 'quarter to' on an analogue clock</li> <li>read hours and minutes on a 12-hour digital clock</li> </ul>
	Temperature	<ul style="list-style-type: none"> <li>use direct comparisons when describing temperature, e.g. <i>hot/cold</i></li> </ul>	<ul style="list-style-type: none"> <li>use descriptive words for a range of temperatures, e.g. <i>cooler/warmer</i></li> </ul>	<ul style="list-style-type: none"> <li>compare daily temperatures using a thermometer (°C)</li> </ul>
	Area and volume Angle and position	<ul style="list-style-type: none"> <li>move in given directions</li> </ul>	<ul style="list-style-type: none"> <li>make whole turns and half turns</li> </ul>	<ul style="list-style-type: none"> <li>recognise half and quarter turns, clockwise and anti-clockwise</li> <li>recognise that a quarter turn is a right angle</li> </ul>
Using data skills	Collect and record data Present and analyse data Interpret results	<ul style="list-style-type: none"> <li>sort and classify objects using one criterion</li> <li>record collections using marks, numbers or pictures.</li> </ul>	<ul style="list-style-type: none"> <li>sort and classify objects using more than one criterion</li> <li>collect information by voting or sorting and represent it in pictures, objects or drawings</li> <li>make lists and tables based on data collected.</li> </ul>	<ul style="list-style-type: none"> <li>gather and record data from: <ul style="list-style-type: none"> <li>lists and tables</li> <li>diagrams</li> <li>block graphs</li> <li>pictograms where the symbol represents one unit</li> </ul> </li> <li>extract and interpret information from lists, tables, diagrams and graphs.</li> </ul>

Numeracy Key Stage 2		Year 3	Year 4	Year 5	Year 6
Strands	Elements	Learners are able to:	Learners are able to:	Learners are able to:	Learners are able to:
Developing numerical reasoning	Identify processes and connections	<ul style="list-style-type: none"> <li>transfer mathematical skills to a variety of contexts and everyday situations</li> <li>identify the appropriate steps and information needed to complete the task or reach a solution</li> <li>select appropriate mathematics and techniques to use</li> <li>select and use suitable instruments and units of measurement</li> <li>choose an appropriate mental or written strategy and know when it is appropriate to use a calculator</li> <li>estimate and visualise size when measuring and use the correct units</li> </ul>			
	Represent and communicate	<ul style="list-style-type: none"> <li>explain results and procedures clearly using mathematical language</li> <li>refine informal methods of recording written calculations, moving to formal methods of calculation when developmentally ready</li> <li>use appropriate notation, symbols and units of measurement</li> <li>select and construct appropriate charts, diagrams and graphs with suitable scales</li> </ul>			
	Review	<ul style="list-style-type: none"> <li>select from an increasing range of checking strategies to decide if answers are reasonable</li> <li>interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible</li> <li>draw conclusions from data and recognise that some conclusions may be misleading or uncertain</li> </ul>			
Using number skills	Use number facts and relationships	<ul style="list-style-type: none"> <li>read and write numbers to 1000</li> <li>compare and estimate with numbers up to 100</li> <li>use mental strategies to recall number facts within 20</li> <li>recall 2, 3, 4, 5 and 10 multiplication tables and use to solve multiplication and division problems</li> <li>multiply numbers by 10</li> </ul>	<ul style="list-style-type: none"> <li>read and write numbers to 10 000</li> <li>compare and estimate with numbers up to 1000</li> <li>use mental strategies to recall multiplication tables for 2, 3, 4, 5, 6 and 10 and use to solve division problems</li> <li>multiply and divide numbers by 10 and 100</li> </ul>	<ul style="list-style-type: none"> <li>read and write numbers to 100 000</li> <li>compare numbers with 1 and 2 decimal places</li> <li>use mental strategies to recall multiplication tables for 2, 3, 4, 5, 6, 8 and 10 and use to solve division problems</li> <li>multiply and divide numbers and decimals by 10 and 100</li> </ul>	<ul style="list-style-type: none"> <li>read and write numbers to 1 million and numbers to 3 decimal places</li> <li>use mental strategies to recall multiplication tables up to 10 x 10 and use to solve division problems</li> <li>multiply numbers and decimals by a multiple of 10, e.g. <math>15 \times 30</math>, <math>1.4\text{cm} \times 20</math></li> </ul>
	Fractions, decimals, percentages and ratio	<ul style="list-style-type: none"> <li>use halves and quarters</li> <li>halve 2-digit numbers in the context of number, money and measures</li> <li>find fractional quantities linked to known multiplication facts, e.g. <math>\frac{1}{3}</math> of 18, <math>\frac{1}{5}</math> of 15</li> </ul>	<ul style="list-style-type: none"> <li>halve 3-digit numbers in the context of number, money and measures</li> <li>find fractional quantities using known table facts, e.g. <math>\frac{1}{6}</math> of 30cm</li> <li>recognise fractions that are several parts of a whole, e.g. <math>\frac{2}{3}</math>, <math>\frac{3}{10}</math></li> </ul>	<ul style="list-style-type: none"> <li>use understanding of simple fraction and decimal equivalences when measuring and calculating, e.g. <math>\frac{1}{2} = 0.5</math>, <math>\frac{1}{10} = 0.1</math></li> <li>calculate fractional quantities, e.g. <math>\frac{1}{8}</math> of 24 = 3, so <math>\frac{5}{8}</math> of 24 = 15</li> <li>use doubling and halving strategies when working with simple proportions</li> </ul>	<ul style="list-style-type: none"> <li>use understanding of simple fraction, decimal and percentage equivalences, e.g. find 25% of 60cm and know that this is equivalent to <math>\frac{1}{4}</math> of 60cm</li> <li>calculate percentage quantities based on 10%, e.g. 20%, 5%, 15%</li> <li>use simple ratio and proportion</li> </ul>
	Calculate using mental and written methods	<ul style="list-style-type: none"> <li>find differences within 100</li> <li>use mental strategies to add and subtract 2-digit numbers</li> <li>use partitioning to double and halve 2-digit numbers</li> </ul>	<ul style="list-style-type: none"> <li>find differences within 1000</li> <li>add a 2-digit number to, and subtract a 2-digit number from, a 3-digit number using an appropriate mental or written method</li> <li>use mental strategies to multiply and divide 2-digit numbers by a single digit number</li> </ul>	<ul style="list-style-type: none"> <li>find differences between numbers with 1 decimal place</li> <li>add and subtract 3-digit numbers using an appropriate mental or written method</li> <li>multiply and divide 3-digit numbers by a single-digit number</li> </ul>	<ul style="list-style-type: none"> <li>add and subtract numbers using whole numbers and decimals</li> <li>multiply 2- and 3-digit numbers by a 2-digit number</li> <li>divide 3-digit numbers by a 2-digit number</li> </ul>
	Estimate and check	<ul style="list-style-type: none"> <li>check subtraction using addition</li> <li>check halving using doubling</li> <li>check multiplication using repeated addition</li> </ul>	<ul style="list-style-type: none"> <li>check answers using inverse operations</li> <li>estimate by rounding to the nearest 10 or 100</li> </ul>	<ul style="list-style-type: none"> <li>check answers using inverse operations</li> <li>estimate by rounding to the nearest 10, 100 or 1000</li> </ul>	<ul style="list-style-type: none"> <li>check answers using inverse operations</li> <li>estimate by rounding to the nearest 10, 100, 1000 or whole number</li> </ul>
	Manage money	<ul style="list-style-type: none"> <li>use different combinations of money to pay for items up to £2 and calculate the change</li> <li>order and compare items up to £10</li> <li>record money spent and saved</li> </ul>	<ul style="list-style-type: none"> <li>use money to pay for items up to £10 and calculate the change</li> <li>order and compare items up to £100</li> <li>add and subtract totals less than £10 using correct notation, e.g. £6.85 – £2.76</li> <li>manage money, compare costs from different retailers and determine what can be bought within a given budget</li> </ul>	<ul style="list-style-type: none"> <li>order and compare the cost of items up to £1000</li> <li>add and subtract totals less than £100 using correct notation, e.g. £28.18 + £33.45</li> <li>plan and track money and savings by keeping accurate records</li> <li>realise that budgeting is important</li> </ul>	<ul style="list-style-type: none"> <li>use the terms profit and loss in buying and selling activities and make calculations for this</li> <li>understand the advantages and disadvantages of using bank accounts</li> <li>make comparisons between prices and understand which is best value for money</li> </ul>
	Using measuring skills	Length, weight/mass, capacity	<ul style="list-style-type: none"> <li>recognise that perimeter is the distance around a shape</li> <li>use standard units of measure: <ul style="list-style-type: none"> <li>length: measure on a ruler to the nearest <math>\frac{1}{2}</math> cm</li> <li>weight/mass: use 5g, 10g and 100g weights</li> <li>capacity: use litres and half litres; measure to the nearest 100ml</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>measure and calculate the perimeter of squares and rectangles</li> <li>measure on a ruler to the nearest mm and record using a mix of units, e.g. 1cm 3mm</li> <li>use weighing scales with divisions to weigh objects to the nearest 5g, 10g, 25g or 100g</li> <li>measure capacities to the nearest 50ml or 100ml</li> <li>convert metric units of length to smaller units, e.g. cm to mm, m to cm, km to m</li> </ul>	<ul style="list-style-type: none"> <li>measure perimeters</li> <li>use measuring instruments with 10 equal divisions between each major unit, and record using decimal notation, e.g. 4.2cm, 1.3kg</li> <li>make use of conversions, e.g. <math>\frac{1}{4}</math> of a km = 250m</li> </ul>
Time		<ul style="list-style-type: none"> <li>tell the time to the nearest 5 minutes on an analogue clock and calculate how long it is to the next hour</li> <li>read hours and minutes on a 12-hour digital clock using am/pm conventions</li> </ul>	<ul style="list-style-type: none"> <li>tell the time to the nearest minute on analogue clocks</li> <li>read hours and minutes on a 24-hour digital clock</li> <li>time and order events in seconds</li> <li>use calendars to plan events</li> </ul>	<ul style="list-style-type: none"> <li>read and use analogue and digital clocks</li> <li>time events in minutes and seconds, and order the results</li> <li>carry out practical activities involving timed events and explain which unit of time is the most appropriate</li> </ul>	<ul style="list-style-type: none"> <li>use and interpret timetables and schedules to plan events and activities and make calculations as part of the planning process</li> <li>estimate how long a journey takes</li> <li>time events in minutes and seconds to the nearest tenth of a second</li> </ul>
Temperature		<ul style="list-style-type: none"> <li>take temperature readings using thermometers and interpret readings above and below 0°C</li> </ul>		<ul style="list-style-type: none"> <li>measure and record temperatures involving positive and negative readings</li> <li>calculate temperature differences, including those involving temperature rise and fall across 0°C</li> </ul>	
Area and volume Angle and position		<ul style="list-style-type: none"> <li>find areas by counting squares</li> <li>use the four compass points to describe directions</li> </ul>	<ul style="list-style-type: none"> <li>recognise volume in practical contexts</li> <li>use eight compass points to describe direction</li> </ul>	<ul style="list-style-type: none"> <li>calculate, estimate and compare the area of squares and rectangles using standard units</li> <li>find volumes by counting and other practical methods</li> <li>use coordinates to specify location</li> </ul>	<ul style="list-style-type: none"> <li>calculate the area of squares and rectangles</li> <li>use grid references to specify location</li> </ul>
Using data skills	Collect and record data Present and analyse data Interpret results	<ul style="list-style-type: none"> <li>represent data using: <ul style="list-style-type: none"> <li>lists, tally charts, tables and diagrams</li> <li>bar charts and bar line graphs labelled in 2s, 5s and 10s</li> <li>pictograms where one symbol represents more than one unit using a key</li> <li>Venn and Carroll diagrams</li> </ul> </li> <li>extract and interpret information from charts, timetables, diagrams and graphs.</li> </ul>			<ul style="list-style-type: none"> <li>represent data using: <ul style="list-style-type: none"> <li>lists, tally charts, tables, diagrams and frequency tables</li> <li>bar charts, grouped data charts, line graphs and conversion graphs</li> </ul> </li> <li>extract and interpret information from an increasing range of diagrams, timetables and graphs (including pie charts)</li> <li>use mean, median, mode and range to describe a data set.</li> </ul>

Numeracy Key Stage 3		Year 7	Year 8	Year 9
Strands	Elements	Learners are able to:	Learners are able to:	Learners are able to:
Developing numerical reasoning	Identify processes and connections	<ul style="list-style-type: none"> <li>transfer mathematical skills across the curriculum in a variety of contexts and everyday situations</li> <li>select, trial and evaluate a variety of possible approaches and break complex problems into a series of tasks</li> <li>prioritise and organise the relevant steps needed to complete the task or reach a solution</li> <li>choose an appropriate mental or written strategy and know when it is appropriate to use a calculator</li> <li>use a scientific calculator to carry out calculations effectively and efficiently using the available range of function keys</li> <li>identify, measure or obtain required information to complete the task</li> <li>identify what further information might be required and select what information is most appropriate</li> <li>select appropriate mathematics and techniques to use</li> <li>estimate and visualise size when measuring and use the correct units</li> </ul>		
	Represent and communicate	<ul style="list-style-type: none"> <li>explain results and procedures precisely using appropriate mathematical language</li> <li>refine methods of recording calculations</li> <li>use appropriate notation, symbols and units of measurement, including compound measures</li> <li>select and construct appropriate charts, diagrams and graphs with suitable scales</li> <li>interpret graphs that describe real-life situations, including those used in the media, recognising that some graphs may be misleading</li> </ul>		
	Review	<ul style="list-style-type: none"> <li>select and apply appropriate checking strategies</li> <li>interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible</li> <li>verify and justify results or solutions, including discussion on risk and chance where relevant</li> <li>interpret mathematical information; draw inferences from graphs, diagrams and data, including discussion on limitations of data</li> <li>draw conclusions from data and recognise that some conclusions may be misleading or uncertain</li> </ul>		
Using number skills	Use number facts and relationships	<ul style="list-style-type: none"> <li>read and write numbers of any size and use the four operations and the connections between them, e.g. <i>apply division as the inverse of multiplication</i></li> <li>recognise and apply key mental facts and strategies</li> <li>use appropriate strategies for multiplication and division, including application of known facts</li> <li>use the terms square and square root</li> </ul>	<ul style="list-style-type: none"> <li>recognise and apply key mental facts and strategies</li> <li>use known facts to derive others, e.g. <i>use <math>7 \times 6</math> to derive <math>0.7 \times 6</math></i></li> <li>use the terms cube, cube root and reciprocal</li> </ul>	<ul style="list-style-type: none"> <li>use powers and understand the importance of powers of 10</li> <li>show awareness of the need for standard form and its representation on a calculator</li> </ul>
	Fractions, decimals, percentages and ratio	<ul style="list-style-type: none"> <li>use equivalence of fractions, decimals and percentages to compare proportions</li> <li>recognise that some fractions are recurring decimals, e.g. <math>\frac{1}{3}</math> is <math>0.33\bar{3}</math></li> <li>calculate percentages of quantities using non-calculator methods where appropriate</li> <li>use ratio and proportion including map scales</li> </ul>	<ul style="list-style-type: none"> <li>use equivalence of fractions, decimals and percentages to select the most appropriate for a calculation</li> <li>simplify a calculation by using fractions in their simplest terms</li> <li>calculate a percentage, fraction, decimal of any quantity with a calculator where appropriate</li> <li>calculate the outcome of a given percentage increase or decrease</li> <li>use ratio and proportion to calculate quantities</li> </ul>	<ul style="list-style-type: none"> <li>use equivalence of fractions, decimals and percentages to select the most appropriate for a calculation</li> <li>use and interpret different representations of fractions, e.g. <i>mixed numbers and improper fractions</i></li> <li>express one quantity as a percentage of another</li> <li>calculate a percentage increase or decrease</li> <li>use ratio and proportion to calculate quantities</li> </ul>
	Calculate using mental and written methods	<ul style="list-style-type: none"> <li>use efficient written methods to add and subtract numbers with up to 2 decimal places</li> <li>multiply and divide 3-digit by 2-digit whole numbers, extending to multiplying and dividing decimals with 1 or 2 places by single-digit whole numbers</li> <li>multiply and divide whole numbers by 0.5, 0.2, 0.1</li> <li>use the order of operations</li> </ul>	<ul style="list-style-type: none"> <li>use efficient written methods to add and subtract numbers with up to 2 decimal places</li> <li>use efficient methods for multiplication and division of whole numbers and decimals, including decimals such as 0.6 or 0.06</li> <li>use the order of operations including brackets</li> </ul>	<ul style="list-style-type: none"> <li>use efficient written methods to add and subtract numbers and decimals of any size, including a mixture of large and small numbers with differing numbers of decimal places</li> <li>multiply and divide whole numbers and decimals</li> <li>use the order of operations including brackets and powers</li> </ul>
	Estimate and check	<ul style="list-style-type: none"> <li>use a range of strategies to check calculations including the use of inverse operations, equivalent calculations and the rules of divisibility</li> <li>use rounding to estimate answers</li> <li>present answers to a given number of decimal places</li> </ul>	<ul style="list-style-type: none"> <li>use rounding to estimate answers to a given number of significant figures</li> <li>present answers to a given number of significant figures</li> </ul>	<ul style="list-style-type: none"> <li>make and justify estimates and approximations of calculations</li> <li>choose the appropriate degree of accuracy to present answers</li> </ul>
	Manage money	<ul style="list-style-type: none"> <li>use profit and loss in buying and selling calculations</li> <li>understand the advantages and disadvantages of using bank accounts, including bank cards</li> <li>make informed decisions relating to discounts and special offers</li> </ul>	<ul style="list-style-type: none"> <li>carry out calculations relating to VAT, saving and borrowing</li> <li>appreciate the basic principles of budgeting, saving (including understanding compound interest) and borrowing</li> </ul>	<ul style="list-style-type: none"> <li>calculate using foreign money and exchange rates</li> <li>understand the risks involved in different ways of saving and investing</li> <li>describe why insurance is important and understand the impact of not being insured</li> </ul>
Using measuring skills	Length, weight/mass, capacity	<ul style="list-style-type: none"> <li>find perimeters of shapes with straight sides</li> <li>read and interpret scales on a range of measuring instruments</li> <li>convert between units of the metric system and carry out calculations</li> </ul>	<ul style="list-style-type: none"> <li>use the common units of measure, convert between related units of the metric system and carry out calculations</li> <li>use rough metric equivalents of imperial units in daily use</li> </ul>	<ul style="list-style-type: none"> <li>find circumferences of circles</li> <li>make links between speed, distance and time</li> </ul>
	Time	<ul style="list-style-type: none"> <li>measure and record time in hundredths of a second</li> <li>use time zones</li> </ul>	<ul style="list-style-type: none"> <li>interpret fractions of a second appropriately</li> <li>use timetables and time zones to calculate travel time</li> </ul>	
	Temperature	<ul style="list-style-type: none"> <li>record temperatures in appropriate temperature scales</li> </ul>	<ul style="list-style-type: none"> <li>convert temperatures between appropriate temperature scales</li> </ul>	<ul style="list-style-type: none"> <li>convert temperatures between appropriate temperature scales</li> </ul>
	Area and volume Angle and position	<ul style="list-style-type: none"> <li>use formulae for the area of rectangles and triangles</li> <li>measure and draw angles</li> </ul>	<ul style="list-style-type: none"> <li>calculate areas of compound shapes (e.g. <i>consisting of rectangles and triangles</i>) and volumes of simple solids (e.g. <i>cubes and cuboids</i>)</li> <li>use compass bearings and grid references to specify locations</li> </ul>	<ul style="list-style-type: none"> <li>find areas of circles</li> <li>apply understanding of bearings and scale to interpret maps and plans, and to create plans and drawings to scale</li> </ul>
Using data skills	Collect and record data Present and analyse data Interpret results	<ul style="list-style-type: none"> <li>collect own data for a survey, e.g. <i>through designing a questionnaire</i></li> <li>construct frequency tables for sets of data, grouped where appropriate, in equal class intervals (groups given to learners)</li> <li>construct a wide range of graphs and diagrams to represent the data and reflect the importance of scale</li> <li>interpret diagrams and graphs (including pie charts)</li> <li>use mean, median, mode and range to compare two distributions (discrete data).</li> </ul>	<ul style="list-style-type: none"> <li>plan how to collect data to test hypotheses</li> <li>construct a wide range of graphs and diagrams to represent discrete and continuous data</li> <li>construct frequency tables for sets of data in equal class intervals, selecting groups as appropriate</li> <li>construct graphs to represent data including scatter diagrams to investigate correlation</li> <li>interpret diagrams and graphs to compare sets of data</li> <li>use mean, median, mode and range to compare two distributions (continuous data).</li> </ul>	<ul style="list-style-type: none"> <li>test hypotheses, making decisions about how best to record and analyse the information from large data sets</li> <li>construct and interpret graphs and diagrams (including pie charts) to represent discrete or continuous data, with the learner choosing an appropriate scale</li> <li>select and justify statistics most appropriate to the problem considering extreme values (outliers)</li> <li>examine results critically, select and justify choice of statistics recognising the limitations of any assumptions and their effect on the conclusions drawn</li> <li>use appropriate mathematical instruments and methods to construct accurate drawings.</li> </ul>

Numeracy More able and talented		Extension
Strands	Elements	Learners are able to:
Developing numerical reasoning	Identify processes and connections	<ul style="list-style-type: none"> <li>transfer mathematical skills across the curriculum in a variety of contexts and everyday situations</li> <li>select, trial and evaluate a variety of possible approaches and break complex problems into a series of tasks</li> <li>prioritise and organise the relevant steps needed to complete the task or reach a solution</li> <li>choose an appropriate mental or written strategy and know when it is appropriate to use a calculator</li> <li>use a scientific calculator to carry out calculations effectively and efficiently using the available range of function keys</li> <li>identify, measure or obtain required information to complete the task</li> <li>identify what further information might be required and select what information is most appropriate</li> <li>select appropriate mathematics and techniques to use</li> <li>estimate and visualise size when measuring and use the correct units</li> </ul>
	Represent and communicate	<ul style="list-style-type: none"> <li>explain results and procedures precisely using appropriate mathematical language</li> <li>refine methods of recording calculations</li> <li>use appropriate notation, symbols and units of measurement, including compound measures</li> <li>select and construct appropriate charts, diagrams and graphs with suitable scales</li> <li>interpret graphs that describe real-life situations, including those used in the media, recognising that some graphs may be misleading</li> </ul>
	Review	<ul style="list-style-type: none"> <li>select and apply appropriate checking strategies</li> <li>interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible</li> <li>verify and justify results or solutions, including discussion on risk and chance where relevant</li> <li>interpret mathematical information; draw inferences from graphs, diagrams and data, including discussion on limitations of data</li> <li>draw conclusions from data and recognise that some conclusions may be misleading or uncertain</li> </ul>
Using number skills	Use number facts and relationships	<ul style="list-style-type: none"> <li>use and interpret numbers in standard form within calculations</li> </ul>
	Fractions, decimals, percentages and ratio	<ul style="list-style-type: none"> <li>use and understand the idea of reverse percentage to find an original quantity</li> <li>use multipliers as an efficient method when working with percentages, e.g. <i>multiply by 1.2 to increase an amount by 20%</i></li> <li>use and understand ratio and proportion in 2 dimensions</li> </ul>
	Calculate using mental and written methods	
	Estimate and check	<ul style="list-style-type: none"> <li>recognise and define limitations on accuracy of measurements</li> </ul>
	Manage money	<ul style="list-style-type: none"> <li>use and understand efficient methods of calculating compound interest</li> <li>understand and demonstrate the real-life process of foreign exchange</li> <li>understand and calculate income tax</li> </ul>
Using measuring skills	Length, weight/mass, capacity	<ul style="list-style-type: none"> <li>understand and use a variety of compound measures</li> </ul>
	Time	
	Temperature	
	Area and volume Angle and position	<ul style="list-style-type: none"> <li>apply proportional change to 2-dimensional designs</li> </ul>
Using data skills	Collect and record data Present and analyse data Interpret results	<ul style="list-style-type: none"> <li>understand slopes and gradients of graphs and relate to compound measures.</li> </ul>