Week	Topic	Topic Key: Entry Core Extension	Home learning
2nd Sept	Bounds	Recap on rounding to decimal places and significant figures	
		State the lower and upper bounds of measurements rounded to the nearest unit or part unit	
		State the bounds of an answer to a calculation involving the addition of more than one measurement	
		State the bounds of an answer to a calculation involving the subtraction of more than one measurement	
		Solve problems in context involving upper and lower bounds	
9th Sept	Fractions	Recap on equivalent fractions	HT1 10I1
		Add and subtract fractions with different denominators	
		Convert between improper fractions and mixed numbers	
		Add and subtract improper fractions and mixed numbers	
		Multiply proper and improper fractions	
16th Sept		Divide proper and improper fractions	HT1 10I2
		Recognise that reccuring decimals are exact fractions, and that some exact fractions are recurring decimals	
		Add and subract algebraic fractions	
		Solve real life problems involving fractions	
23rd Sept	Scales and bearings	Read a variety of scales	HT1 10I3
		Use a real life measurement and a given scale to calculate measurement s for scale drawings. Construct scale drawings.	
		Using and interpreting maps	
		Measure and write three figure bearings.	
		Solve problems involving scale, bearings and converting units	
30th Sept	Averages and range	Calculate the mean, median, mode and range and state the mode for ungrouped discrete data	HT1 10I4
		Select and use an appropriate measure of central tendency and/or the range to compare two distributions in real life practical situations	
		Calculate the mean and range for ungrouped discrete data represented in a frequency table	
		Estimate the mean and range of grouped frequency distributions (discrete and continuous)	
		State the modal class and estimate the median of grouped frequency distributions	
		Construct cumulative frequency tables and cumulative frequency diagrams	
7th Oct		Estimate the median and interquartile range from a cumulative frequency diagram	HT1 10I5
		Interpret cumulative frequency diagrams in real life contexts (e.g. If 70% was the pass mark, how many passed the test?)	
		Construct box plots	
		Compare distributions using cumulative frequency, box plots or estimates of centrality and spread	
		Solve reverse problems with averages	
14th Oct	Loci	Bisect a line and an angle	HT1 10I6
		Construct the locus of points that are the same distance from a given point or two given points	
		Construct the locus of points that are the same distance from two given intersecting lines	

Week	Topic	Topic Key: Entry Core Extension	Home learning
		Construct the locus of points that are the same distance from a given line	
		Solve problems involving intersecting loci in two dimensions	
21st Oct	Time and timetables	Convert between times written in the 12 and 24 hour clock	HT1 10I7
		Convert between units for time involving time	
		Read and interpret two way tables, calendars, time sheets, timetables and distance charts to answer problems	
		Read and interpret travel timetables to answer real life problems e.g. holiday bookings and time zones	
		Obtain exchange rates from tables, charts and graphs and convert between different units of currency to solve numerical problems (e.g. best buys – of a product home and abroad)	
		Construct and interpret conversion graphs e.g. for exchange rates, temperatures and distances	
		Answer questions set in purely mathematical contexts relating to time, timetables and travel	
Half Term			
4th Nov	AP2 Assessment	AP2 Preperation	
11th Nov		AP2 Assessment and repair	
18th Nov	Graphs and compound measures	Convert between fractions of an hour and minutes	HT2 10I3
		Draw, interpret and 'tell the story' of graphs representing real life situations e.g. profit, costs/prices/charges for a service,	
		Graphs showing change over time e.g. temperatures, depth of water, monetary values e.g. link to depreciation, unemployment etc.	
		Plot and interpret distance-time graphs/travel graphs	
25th Nov		Read and interpret graphs and charts (distance/mileage charts and distance-time graphs) to calculate speed	HT2 10I4
		Calculate speed using correct units to solve problems	
		Convert units of measure in order to calculate density, mass and volume to solve problems	
		Work with population figures to calculate population densities	
2nd Dec	Functions and graphs	Use coordinates in four quadrants	HT2 10I5
		Find coordintes of points identified by geometrical informatio, find the mid-point of a line, find a location given by a distance and angle from a point	
		Recognise, draw, sketch and interpret graphs of straight lines of the form x = a and y = b	
		Use ICT to identify parallel lines, investigating the effect of varying the gradient and y intercept for graphs of the form y = ax + b	
		Sketch and draw graphs of the form y = ax + b	
		Use the equation of a straight line of the form y = mx + c to draw straight line graphs	HT2 10I6
		Identify the equation of a straight line from a graph and the equation of lines parallel to it	
		Identify the equation of lines perpendicular to a given line	
		Recognise and sketch graphs of the form y = ax^2 + b	
		Draw quadratic graphs by completing a table of values (y = ax^2 + b, y = ax^2 + bx + c	

Week	Topic	Topic Key: Entry Core Extension	Home learning
9th Dec		Interpret and solve quadratic graphs	
		Draw and interpret graphs where y is given implicitly in terms of x	
		Use the concepts of direct proportion and inverse proportion to recognise and interpret graphs	
16th Dec	Real life finances	Calculate percentages of amounts	
		Conversions between pounds and pence	
		Work with household budgets (incomings and outgoings) and bank statements	
		Solve problems relating to monthly and annual fuel, food, council tax and clothing bills etc. Calculate discounts for prompt or direct debit monthly payments	
		Calculate VAT and other tax payments (e.g. income tax, car tax)	
		Calculate profit and loss	
		Read payslips and solve problems relating to wages and salaries	
		Compare two service providers and decide on the best one e.g. mobile phone contracts, buying a TV, travel, hotels and holidays, commission on exchanging currencies	
		Calculate household bills e.g. gas, electricity and water bills	
Christmas				
6th Jan	Real life finances	Compare best buys using hire purchase	HT3 10I1
		Calculate loan and mortgage repayments	
		Use graphs and calculations to consider profit and loss and setting up a business	
		Decide on the best saving, borrowing or investment product given a set of requirements (simple and compound interest using efficient formula method)	
		Complete calculations involving appreciation (e.g. house prices and investments) and depreciation (e.g. car values, sales)	
		Understand the difference between compound interest and simple interest	
13th Jan	Pythagoras' theorem	To understand squared numbers and square roots	HT3 10I2
		Investigate lengths of sides and the area of squares on the sides of right angle triangles to determine Pythagoras' Theorem.	
		Use Pythagoras' theorem to calculate the length of a side of a right-angled triangle when you know the other two.	
		Identify triangles that must be right-angled from their side lengths.	
		Apply Pythagoras' theorem to real life situations including reverse problems and diagonals of rectangular figures.	
		Label the sides of right-angled triangles to investigate the connection between sides and angles in right-angle triangles.	
		Use the trigonometric functions on a calculator.	
		Apply a trig ratio to calculate the length of a side in a right-angled triangle (where the unknown is the numerator of the fraction).	
		Apply a trig ratio to calculate the length of a side in a right-angled triangle (where the unknown is the denominator of the fraction).	
		Use trig ratios to calculate an angle in a right-angled triangle.	

Week	Topic	Topic Key: Entry Core Extension	Home learning
20th Jan	Trigonometry	Use trigonometric relationships in right-angled triangles to solve problems, including those involving bearings and angles of elevation and depression.	HT3 10I3
		Solve problems involving combinations of Pythagoras' theorem and trig ratios	
		Use Pythagoras' theorem and trig ratios to calculate missing sides and angles in purely mathematical contexts.	
		To solve Pythagoras' theorem in 3D	
27th Jan	Skills check		
3rd Feb	Trial and improvement	Substitute values into expressions	HT3 10I4
		Solution of a range of quadratic and cubic equations by trial and improvement methods, justifying the accuracy of the solution	
		Draw the graohs to check the solutions	
10th Feb	Sampling	To understand different types of data	HT3 10I5
		Write a statistical question as a hypothesis taking note of limitations such as the sample size, bias, anomalies and outliers	
		To understand the method and reasoning behind random sampling	
		Identify and collect suitable data using a systematic sampling method	
		To understand the method and reasoning behind stratified sampling	
		Draw conclusions considering the effect of sample size and other factors that affect the reliability of conclusions drawn	
		To explain when each method of sampling would be suitable	
		Feb half term	
24th Feb	Angles in polygons	To use angle facts to find missing angles (straight lines, triangles, quadrilaterals, around a point)	HT3 10I6
		Identify regular and irregular polygons	
		Investigate the angle facts for interior and exterior angles of polygons	
		Calculate missing interior and exterior angles for regular polygons	
		Calculate missing interior and exterior angles for irregular polygons	
		Use the angle at the centre of a regular polygon angle fact	
		To find interior angle sums for any given polygon	
2nd Mar	Factorising and solving quadratics	Factorise by extracting a common factor	HT3 10I7
		Multiply two linear expressions	
		Factorise quadratic expressions in the form x^2+ ax + b.	
9th Mar		Solution by factorisation of quadratic equations in the form x^2+ ax + b.	
		Check the answers by drawing the graph	
16th Mar		AP2 Revision and practise	
23rd Mar		AP2 Assessment	
		Understand and use the vocabulary of probability, including notions of uncertainty and risk	

Week	Topic	Topic Key: Entry Core Extension	Home learning
30th Mar	Probability	Use the language of probability to place events on a probability scale written in words	HT4 10I2
		Place probabilities stated as fractions, percentages or decimals on a probability scale from 0 to 1	
		Calculate theoretical probabilities based on equally like outcomes	
		Calculate theoretical probabilities using the fact that the probability of an event not occurring is one minus the probability that it occurs.	
Easter			
20th Apr	Probability	State all the outcomes from two events using a list or table (sample space)	HT4 10I3
		Calculate simple probabilities of two events from Venn diagrams and other diagrammatical representations e.g.bar charts	
		Recognise when probabilities can be associated with independent or mutually exclusive events.	
		Use the OR rule to calculate probabilities for mutually exclusive events	
		Use the AND rule to calculate probabilities for independent events	
		Draw tree diagrams to identify all the outcome of a combination of two events	
		Calculate probabilities using tree diagrams	
27th Apr	Simultaneous equations	Solving Linear Two Step Equations/Substitution	HT4 10I4
		Form two simultaneous linear equations (where the coefficients of at least one pair of unknowns is the same) and solve using an algebraic (elimination) method	
		Form two simultaneous linear equations (where neither of the unknowns has the same coefficient) and solve using an algebraic (elimination) method	
4th May	Simultaneous equations	To set up simultaneous equations and solve	
		Form two simultaneous linear equations and solve using a graphical method	
11th May	Direct and inverse proportion	Use ratio and proportion	
		Solve problems involving proportion in context	
		Use direct and inverse proportion to solve problems	
15th May		Recognise and interpret graphs that illustrate direct and inverse proportion	
		Write equations for direct and inverse proportion	
18th May	Angles on parallel lines	Calculate angles in triangles, on a straight line and around a point	
		Calculate angles in special types of triangles and quadrilaterals	
		Solve problems involving angles in parallel lines	
		Justify angles using angle facts	
		Give proofs using angle rules for polygons and parallel lines	
May half term			
		Conduct experiments and surveys to compare outcomes and identify bias.	

Week	Topic	Topic Key: Entry Core Extension	Home learning
1st June	Relative frequency	Write estimates of experimental probability/relative frequencies (in decimals) and know that you need a large number of trials (100+) to get a good estimate.	HT5 10I4
		Compare estimated probabilities/relative frequencies from experimental evidence with theoretical probabilities.	
		Calculate relative frequencies and represent graphically, plotting relative frequency against the number of trials. (Recognise that increasing the number of trials results in experimental probability tending to a limit, and that this limit may be the only way to estimate probability).	
8th June	Transformations		HT6 10I2
		Reflect shapes given the equation of a vertical, horizontal or diagonal line (y = x or y = -x)	
		Rotate shapes through a given angle and direction using a centre of rotation	
		Enlarge shapes by a positive whole number or fractional scale factor (no centre of enlargement)	
		Enlarge shapes using a centre of enlargement and a positive whole number scale factor on squared paper or a coordinate grid	
15th June		Enlarge shapes using a centre of enlargement and a positive fractional scale factor on squared paper or a coordinate grid	
		Recognise and describe translations using column vectors	
		Transform an object applying two successive transformations	
		Solving problems in the context of tiling patterns and tessellation	
		Understand and be able to justify why polygons tessellate	
22nd June	Skills check	One lesson test - Maths Full paper	
		One lesson feedback	
		Two lessons purple sheets & subject improvement tasks	
29th June	Circle theorems		
		Apply the following circle theorems to determine lengths and angles (combining Pythagoras and trig ratios)	
		Two tangents to a circle from an external point are equal in length	
		The tangent at any point on a circle is perpendicular to the radius at that point	
6th July		The angle subtended by an arc at the centre of a circle is twice the angle that it subtends at any point on the circumference	
		The angle subtended at the circumference in a semicircle is a right angle	
		Angles in the same segment of a circle are equal	
13th July	Circle theorems	The opposite angles of a cyclic quadrilateral add up to 180 degrees	
		The perpendicular from the centre to a chord bisects the chord	