Curriculum Content Map

Subject: Maths Y9

Left margin headings
Cultural Transmission · Personal Empowerment · Preparation for Work · Preparation for Citizenship

	Term 1				Term 2				Term 3		
Month	September	October	November	December	January	February	March	April	May	June	July
Units of Work	Sequences and notation **ALGEBRA**	Types of Numbers and Simplifying **NUMBER AND ALGEBRA**	Constructions and Congruency **SHAPE**	Simultaneous Equations **ALGEBRA**	Numbers and Fractions **NUMBER**	Money and Transformations **NUMBER AND SHAPE**	Pythagoras **SHAPE**	Enlargement and Similarity **DATA**	Ratio and Proportion and Rates **NUMBER**	Probability **DATA**	Algebraic Representation **ALGEBRA**

National Curriculum area – KS3

September	October	November	December	January	February	March	April
Lines parallel to the axes, = and =− Using tables of values; Compare gradients y x; Compare intercepts; Understand and use = +; Write an equation in the form = +; Find the equation of a line from a graph; Interpret gradient and intercept of real-life graphs; Model real-life graphs involving inverse proportion; Explore perpendicular lines; Solve one- and two-step equations and inequalities; Solve one- and two-step equations and inequalities with brackets; Inequalities with negative numbers; Solve equations with unknowns on both sides; Solve inequalities with unknowns on both sides; Solving equations and inequalities in context; Substituting into formulae and equations; Rearrange formulae (one-step); Forming and Solving Equations; Rearrange formulae (two-step); Rearrange complex formulae including brackets and squares	Factors, Multiples and Primes; Show that Conjectures about number; Expand a pair of binomials; Conjectures with algebra; Explore the 100 grid; Expand three binomials Know names of 2-D and 3-D shapes	Recognise prisms; Accurate nets of cuboids and other 3-D shapes; Sketch and recognise nets of cuboids and other 3-D shapes; Plans and elevations; Find area of 2-D shapes; Surface area of cubes and cuboids; Surface area of triangular prisms; Surface area of a cylinder; Volume of cubes and cuboids; Volume of other 3-D shapes – prisms and cylinders; Explore volumes of cones, pyramids and spheres	Draw and measure angles; Construct and interpret scale drawings; Locus of distance from a point; Locus of distance from a straight line/shape; Locus equidistant from two points; Construct a perpendicular bisector; Construct a perpendicular from a point; Locus of distance from two lines; Construct an angle bisector; Construct triangles from given information; Identify congruent figures; Identify congruent triangles	Integers, real and rational numbers; Understand and use surds; Work with directed number; Solve problems with integers; Solve problems with decimals; HCF and LCM; Adding and subtracting fractions; Multiplying and dividing fractions; Solving problems with fractions; Numbers in standard form Solving problems with fractions; Numbers in standard form; Use the equivalence of fractions, decimals and percentages; Calculate percentage increase and decrease; Express a change as a percentage; Solve 'reverse' percentage problems; Recognise and solve percentage problems (non-calculator); Recognise and solve percentage problems (calculator); Solve problems with repeated percentage change	Solve problems with bills and bank statements; Calculate simple interest; Calculate compound interest; Solve problems with Value Added Tax; Calculate wages and taxes; Solve problems with exchange rates; Solve unit pricing problems; Angles in parallel lines; Solving angles problems (using chains of reasoning); Angles problems with algebra; Conjectures with angles; Conjectures with shapes; Link constructions and geometrical reasoning; Identify the order of rotational symmetry of a shape; Compare and contrast rotational symmetry with line symmetry; Rotate a shape about a point on a shape; Rotate a shape about a point not on a shape; Translate points and shapes by a given vector; Compare rotation and reflection of shapes; Find the result of a series of transformations	Squares and square roots; Identify the hypotenuse of a right-angled triangle; Determine whether a triangle is right-angled; Calculate the hypotenuse of a right-angled triangle; Solve problems with exchange rates; Calculate missing sides in right-angled triangles; Use Pythagoras theorem on coordinate axes; Explore proofs of Pythagoras' theorem; Use Pythagoras' theorem in 3-D shapes	Recognise enlargement and similarity; Enlarge a shape by a positive integer scale factor; Enlarge a shape by a positive integer scale factor from a point; Enlarge a shape by a positive fractional scale factor; Enlarge a shape by a negative scale factor; Work out missing sides and angles in a pair of given similar shapes; Solve problems with similar triangles; Explore ratios in right-angled triangles

May	June	July
Solve problems with direct proportion; Direct proportion and conversion graphs; Solve problems with inverse proportion; Graphs of inverse relationships; Solve ratio problems given the whole or a part; Solve 'best buy' problems; Solve problems ratio and algebra; Solve speed, distance and time problems without a calculator; Solve speed, distance and time problems with a calculator; Use distance/time graphs; Solve problems with density, mass and volume; Solve flow problems and their graphs; Rates of change and their units; Convert compound units	Single event probability; Relative frequency – include convergence; Expected outcomes; Independent events; Use tree diagrams; Use tree diagrams to solve 'without replacement' problems; Use diagrams to work out probabilities	Draw and interpret quadratic graphs; Interpret graphs, including reciprocal and piece-wise; Investigate graphs of simultaneous equations; Represent inequalities

Substantive Knowledge — *The What!*

September	October	November	December	January	February	March	April	May	June	July
Use y=mx+x; Explore straight line graphs; Solve and form equations; Solve and form Inequalities	Find Multiples, Primes and Factors. Make conjectures.	Expand terms and work with shapes	Draw and measure angles; Find Loci; Complete constructions; Explain Congruency	Identify types of numbers; Calculate with negative numbers; Add, subtract, multiply and divide fractions; Use standard form; Calculate percentage increase and decrease	Work with money, interest, wages and tax; Find missing angles; Perform and describe transformations	Explore right angled triangles and squares and square roots.	Enlarge shapes; Describe enlargement and state the scale factor; Find missing sides and angles using similar shapes	Explore proportion problems and solve ratio questions; Find out which is the best buy speed, distance, time; Calculate Density, Mass, Volume; Calculate rates of change	Find probabilities; Calculate probability from tree diagrams	Draw correct parabolas; Work with different types of graphs; Read simultaneous graphs; Draw Inequalities on a number line

Disciplinary knowledge — *The How!*

September	October	November	December	January	February	March	April	May	June	July
Understanding Equations Inequalities and straight line graphs	Understanding Multiples, Primes and Factors. Understand conjectures	Understand how to multiply Algebraic terms.	Understand how to construct shapes and find loci using a compass, ruler and protractor. Understand what congruency is and prove it;	Understand types of number, fractions, standard form and performing operations on fractions.	Understand and use percentages; Understand angles in parallel lines; Understand and describe transformations	Understand how to use the Theorem of Pythagoras to find missing angles and sides.	Understand enlargement and scale factor; Understand how similar shapes work	Understand and work with ratio and proportion; Understand why you use best buys; Understand different units of measure and how they work	Understand tree diagrams and fill them in; Understand probability	Understand substitution and use it to draw quadratric graps; Understands how simultaneous graphs work; Understan when to use an open or closed dot when representating inequalities.

Sequencing (Flow) — Retrieval & Extension

September	October	November	December	January	February	March	April	May	June	July
Builds from KS3: Plotting graps, solving simple equations — **Further develops in Y11:** Quadratic Graphs	**Builds from KS3:** Times tables — **Further develops in Y11:** Product of prime factors	**Builds from KS3:** Multiply in algebra — **Further develops in Y11:** Expand Brackets, Factorisaion	**Builds from KS3:** Use compass, ruler and protractor — **Further develops in Y11:** Bearings	**Builds from KS3:** Add, subtract, multiply and divide — **Further develops in Y11:** Venn Diagram HCF and LCM	**Builds from KS3:** Denominations of money, Rotaion, Symmetry, Translation — **Further develops in Y11:** Circle Theorems, Geometric Proof	**Builds from KS3:** Angles in a triangle add up to 180° — **Further develops in Y11:** Trigonometry	**Builds from KS3:** Enlargement and shapes — **Further develops in Y11:** Algenra in geometry	**Builds from KS3:** Money, ratio — **Further develops in Y11:** Recipe questions	**Builds from KS3:** Representing Data — **Further develops in Y11:** Complete tree diagra and find probabailty without replacement	**Builds from KS3:** Graphs — **Further develops in Y11:** Simultaneous equations including quadratic equations

Summative Assessment

September	October	November	December	January	February	March	April	May	June	July
Deep Mark 1: Homework; End of Topic Test - Graphs Equations Inequalities	Deep Mark 2: Homework; End of Topic Test - Number and Algebra	Deep Mark 1: AP1 Assessment - Whole School Data Collection; End of Topic Test - Algebra	Deep Mark 2: Homework; End of Topic Test -Constructions and Congruency	Deep Mark 1: Homework; End of Topic Test - Number	Deep Mark 2: Homework; End of Topic Test - Money, percentage and transformations	Deep Mark 1: AP2 Assessment - Whole School Data Collection; End of Topic Test -Pythagoras Homework	Deep Mark 2: Homework; End of Topic Test - En;argement and Similarity	Deep Mark 1: Homework; End of Topic Test - Ratio and Proportion and Measures	Deep Mark 2: AP3 Assessment - Whole School Data Collection; End of Topic Test - Probabailty Homework	End of Topic Test - Graphs and Equatons

Personal Empowerment — Virtue / Link to Virtue
The opportunity to reflect, think deeply and critically about an issue.

September	October	November	December	January	February	March	April (Self-Mastery)		May	June	July
Friendliness & Civility	**Justice & Truthfulness**	**Courage**	**Generosity**	**Gratitude**	**Good Speech**	**Good Temper & Humour**	**Self-Mastery**			**Compassion**	**Good Sense**
Students will need to ensure they demonstrate friendliness and civility as they support each other in consolidating and extending their algebra knowledge.	Students will look at the truthfulness of conjectures. Students will also look at how algebra are used to hide the truth.	Students will need to demonstrate courage to extend their knowledge of data and build upon this to tackle more difficult algebraic terms	Students will need to be generous with their time in terms of retrieval as this will need to be secure in order to use the compass accurately	Students will need to demonstrate their gratitude for the time spent securing their knowledge in number.	Students will need to demonstrate good speech as they explain their working and also explain how to find angles in parallel lines.	Students will need to demonstrate good temper and humour	Students have learned abuout shapes KS3 so this topic is about mastering these skills and developing them further.	Students have learned how to use direct proportion, but will now be mastering these skills and learning to describe them.		Students will need to show compassion for each other as they help and support each other in tackling more difficult data skills.	Students will need to use good sense to ensure that their inequalities make sense – and that they remember to check the answers!

Preparation for Work — Skill / Link to Skill — Transferable skills

September	October	November	December	January	February	March	April (Aiming High)		May	June	July
Listening	**Leadership**	**Problem-Solving**	**Creativity**	**Staying Positive**	**Speaking**	**Staying Positive**	**Aiming High**			**Speaking**	**Teamwork**
Students will need to listen to each other and be able to explain another students' opinion. Students will also need to be listen to the teacher to pull out consistency underlying themes or use of previous skills. This unit links to careers in desig and graphics	Students will lead their learning to ensure they are secure in building on previous knowledge. This unit links to careers in architecture and jobs in construction.	Students will need to use their problem-solving skills to be able to expand triple brackets. This unit links to careers in statistics and data analysis	Students will demonstrate creativity as they look at the different ways of explaining congruency. This unit links to careers in constructions, design and graphics	Students will need to stay positive as they encounter HCF nd LCM and ensure they feel secure in their knowledge. This unit links to careers in retail sector	Students will need to use their speaking skills as they explain their working and also explain how to transform shapes. This unit links to careers in retail sector	Students will need to stay positive as they encounter Pythagoras for the first time and ensure they feel secure in their knowledge. This unit links to careers in science.	Students will need to stay positive as they extend their shape knowledge to develop to several different types of diagrams and how to interpret these. This unit continues to look at careers in design, construction and photography.	Students will need to aim high when usingindirect proportion in problem solving. This unit links to careers in science and retail		Students will need to use their speaking skills as they complete tree diagrams and also explain the mistakes others have made. This unit links to careers in sport and business.	Students will work together and use teamwork to solve graph problems in various forms. This unit links to careers in construction and technology.

Preparation for Citizenship — SMSC & British Values — Developing opinions on current issues

September	October	November	December	January	February	March	April	May	June	July
Social; Mutual Respect	Social Moral; Rule of Law	Social Moral; Democracy	Social; Tolerance	Social Cultural; Rule of Law	Social; Democracy		Social Cultural; Individual Liberty	Social Cultural; Mutual Respect	Social; Rule of Law	Social Moral; Individual Liberty
Students will use their social skills during paired and group work, with a particular focus on the virtue of friendliness & civility as they interact. Mutual respect goes hand-in-hand with friendliness & civility so students will practice both the british value and virtue as they progress through this topic.	Students will look at the social skills they need in order to work together in pairs and grouped work. Students will look at the moral consequences of manipulation to hide information. Students will understand the 'rules of law' in terms of processes and methods linked to algebraic manipulation and solution.	Students will need to use their social skills to work together in pairs and groups. Students will look at the moral repercussions of ethical science applications	Students will need to use their social skills to retrieve and extend their learning in paired and group activities. Students will need to demonstrate tolerance for each other and support each other rather than get frustrated when peers find work more difficult.	Students will need to use their social skills as they work together in group activities. Students will discuss, debate and make decisions in a democratic way in order to ensure they use the appropriate words to describe combinations of transformations and use Pythagoras.	Students will use their social skills as they work together in pairs and groups.		Students will use their social skills to investigate enlargement of shapes and similarity. Students will look at how different cultures data anaysis. Students will demonstrate individual liberty by developing the confidence in their freedom to select the correct scale factor for the question.	Students will need to use their social skills as they work together tounderstand bounds. Students will look at how different cultures data anaysis. Students will need to show mutual respect as they help each other to make progress throughout this topic.	Students will need to use their social skills as they complete paired and group work. Students will understand the 'laws' surrounding methods and processes to fill in the tree diagram and use the information from there.	Students will use their social skills as they demonstrate the skill of teamwork and find the correct way to represent inequalities in pairs and groups. Students will discuss the moral repercussions of assuming in terms of information gained from inequalities to predict events. Students will use their individual liberty to choose the appropriate method of finding the inequality for each problem.