



Denton Community College 2019/20

Departmental Curriculum Map Template

Subject: Mathematics

Year Group: 8



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	Number	Algebra	Geometry	Proportional Reasoning	Further Geometry	Statistics
What will students during this unit?	Students will be doing number bonds, adding and subtracting 2 digits, timetables, place value, ordering, adding and subtracting decimals, multiplying and dividing integers, rounding to decimal places and significant figures, understanding factors, multiples and primes, indices, squares, cubes and roots, estimation, highest common factor and lowest common multiple, product of primes, using a calculator. Higher prior attaining students will be expected to extend their skills to standard form, index notation, error intervals,	All students will be expected to understand basic algebraic notation with the four operations. Students will be introduced to algebraic conventions and be able to simplify algebraic expressions, solve simple equations, use order of operations, perform substitution, factorisation and expand single brackets. Students will investigate sequences by finding the nth term and using this to generate term and be able to plot linear graphs.	Students will use geometric notation and develop their understanding of angles (including in parallel lines), tessellations and congruent shapes. They will calculate area and perimeter of rectangle, triangle, parallelogram and trapezium and area of circle and sector. Construct and solve problems using loci.	Students will be introduced to percentages, ratio and value for money. Students will be converting between fractions, decimals and percentages fluently. Students will be calculating with percentages such as finding percentages of amounts, increasing and decreasing by a percentage and expressing numbers as a percentage. Students will be introduced to multipliers and calculating percentages using a calculator.	Students will be expected to be able to recognise 3D shapes including different prisms. Students will be expected to understand and use key geometrical terminology such as parallel and perpendicular. Students should be able to describe properties of 3D shapes, understand the nets and draw the plan views. Students will be expected to be able to work out the surface area and volume of 3D shapes including volume of composite shapes. Students will be taught the area and perimeter of circles.	This area of our curriculum is under review – watch this space for the exciting new plans!

	mathematical reasoning.	Higher prior attaining students will be expected to extend their skills to expanding double brackets, solve equations with unknowns on both sides, solve inequalities, quadratic equations and simultaneous equations.		Some students will be also introduced to compound interest.	Students will be shown similar triangles and pythagoras and some students will be introduced to trigonometry. These students will also be working out volume of spheres and working with vectors.	
When will students be assessed?	Students will be given CABS after each component of learning. Students will have a pre-test at the beginning of the term and a post test at the end of topic.	Students will be given CABS after each component of learning. Students will have a pre-test at the beginning of the term and a post test at the end of topic.	Students will be given CABS after each component of learning. Students will have a pre-test at the beginning of the topic and a post test at the end of topic.	Students will be given CABS after each component of learning. Students will have a pre-test at the beginning of the term and a post test at the end of topic.	Students will be given CABS after each component of learning. Students will have a pre-test at the beginning of the term and a post test at the end of topic.	
How will students be assessed?	CABS (Classwork Assessment Booklet) + pre and post-tests.	CABS (Classwork Assessment Booklet) + pre and post-tests.	CABS (Classwork Assessment Booklet) + pre and post-tests.	CABS (Classwork Assessment Booklet) + pre and post-tests.	CABS (Classwork Assessment Booklet) + pre and post-tests.	
Key Vocabulary	Integers, rounding, primes, factors, multiples, prime factors, squares, cubes, roots, estimation, standard form, error intervals, indices.	Algebraic notation, simplifying, nth term, sequences, equations, factorising, quadratic, formulae, inequalities, simultaneous.	Acute, obtuse, right angle, alternate, corresponding, tessellation, congruent, area, perimeter, loci.	Percentages, increase, decrease, ratio, equivalent.	Area, surface area, volume, perimeter, prism, cross-section, faces, edges, vertices, parallel, perpendicular, radius, diameter, circumference, pythagoras, hypotenuse, sine, cosine, tangent.	

<p>Homework opportunities to broaden or deepen student knowledge</p>	<p>Mathswatch: Adding, Subtracting, Multiplication and Dividing Integers and Decimals. Finding the Product of Prime Factors. Squares, Cubes and Roots. Using a Calculator. Error Intervals.</p>	<p>Mathswatch: Simplifying Algebra, Function Machines, Generating Sequences, Substitution, Factorising, Linear Graphs, Expanding Brackets, Solving Equations, Inequalities.</p>	<p>Mathswatch: Angles, Tessellation, Congruence, Angles in Parallel Lines, Calculate Perimeter and Area, Loci.</p>		<p>Mathswatch: Properties of 3D Shapes, Volume of 3D Shapes, Surface area of 3D Shapes, Circumference and Area of Circles, Similar Triangles, Pythagoras, Trigonometry, Vectors.</p>	
<p>Links to the National Curriculum</p>	<p>Understand and use place value for decimals, measures and integers of any size. Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers. Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation. Use the four operations, including formal written methods, applied to</p>	<p>Use and interpret algebraic notation. Substitute numerical values into formulae and expressions, including scientific formulae. Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors. Simplify and manipulate algebraic expressions to maintain equivalence. Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement)</p>	<p>Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia. Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes. derive and use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); recognise and use the perpendicular distance from a point to a line</p>		<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders) ▪ calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes ▪ apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides, 	

	<p>integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative. Round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures]. Use approximation through rounding to estimate answers and calculate possible resulting errors expressed using inequality notation $a < x \leq b$.</p>	<p>Recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane. Generate terms of a sequence from either a term-to-term or a position-to-term rule. Recognise arithmetic sequences and find the nth term</p>	<p>as the shortest distance to the line use the standard conventions for labelling the sides and angles of triangle ABC, and know and use the criteria for congruence of triangles apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles understand and use the relationship between parallel lines and alternate and corresponding angles</p>		<p>including Pythagoras' Theorem, and use known results to obtain simple proofs</p> <ul style="list-style-type: none"> ▪ use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles ▪ use the properties of faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D 	
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