Hobart High School Key Stage 3 Curriculum Map – Year 7

Department: Mathematics

	Unit, Topic or Summary of work covered	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	Place Value The Four Operations	Order and compare positive integers using inequality notation. Round to the nearest 10, 100 and 100. Understand decimal place value. Round to a given number of decimal places. Order decimals, including in context. Multiply and divide by powers of 10. Add and subtract using column method, including decimals. Recall multiplication facts and their associated division facts. Multiply integers using formal written methods. Multiply decimals using formal written methods. Use formal written methods to divide integers and decimals by a single and double digit integer. Identify the operation required to solve a worded problem. List multiples and factors of a given number. Identify the HCF and LCM of a set of numbers.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	
Autumn 2	Perimeter, Area and Units Angles and 2D Shapes	Convert between metric and imperial measures. Compare and order measures of length including when the units are different. Find the missing length of a shape when given the perimeter. Find the area of rectangles. Find the area of compound shapes made from rectangles. Solve functional problems by finding the area or perimeter of compound shapes made from rectangles. Find the area of parallelograms and triangles. Find the missing length of a shape when given the area. Find the area of compound shapes. Accurately measure angles in geometrical diagrams. Accurately draw angles of a given size. Apply the sum of angles at a point, on a straight line and vertically opposite angles. Find unknown angles in a triangle and quadrilateral. Solve an angle problem using the standard angle facts. Identify the symmetries of all 2D shapes and name them. Classify triangles using angle and side properties. Find missing angles in special types of triangles. Use geometrical terms and notation. Recognise and classify quadrilaterals from their properties.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	
Spring 1	Fractions	Compare and order fractions with different denominators. Simplify fractions using common factors. Add and subtract fractions with different denominators. Covert between a mixed number and an improper fraction. Solve problems including the addition and subtraction of fractions.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons.	

	Fractions, Decimals and Percentages	Represent a fraction, decimal and percentage on a hundred square. Find equivalent fractions, decimals and percentages. Compare fractions, decimals and percentages. Express one quantity as a fraction of another. Find a fraction of a quantity. Calculate a fractional increase or decrease. Find a percentage of a quantity. Calculate a percentage increase or decrease. Solve a percentage change problem in context.	Homework is also set regularly.	
Spring 2	Introduction to Algebra Coordinates and Graphs	Use function machines and find the output, input or function. Simplify expressions by collecting like terms, including powers. Simplify expressions involving multiplication and division. Substitute positive integers into expressions and formulae. Form simple expressions. Multiply a term over a single bracket. Take out common factors to factorise. Continue a sequence and find missing terms within a sequence. Find the term to term rule of a sequence. Find the next term of a diagrammatic sequence. Find the nth term of a linear sequence. Solve simple problems on a coordinate grid. Find the midpoint of two points and the endpoint when given the midpoint and one endpoint. Identify the equations of horizontal and vertical lines. Use a table of values to plot graphs of simple linear functions. Identify the y-intercept of a linear graph from the equation and the graph. Interpret the gradient of a linear graph and identify it from the equation. Use the form y = mx + c to identify parallel lines. Read and interpret real life linear graphs (eg. conversion graphs).	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	
Summer 1	Order of Operations Ratio and Proportion	Apply equal priority laws to calculations (+/- and x/÷). Use the order of operations to solve simple calculations including (+,-, x and ÷). Use the order of operations to solve simple calculations including brackets and integer powers and roots. Reason and justify by applying the order of operations. Put brackets into a calculation to make it true. Write equivalent ratios and find the missing number in two equivalent ratios. Reduce a ratio to its simplest from including with different units. Divide into a ratio when given one share. Divide into a ratio when given the total. Identify the relationship between ratios and fractions. Solve best value problems. Solve simple direct proportion problems. Use proportion to adapt a recipe and use this to solve problems.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	
Summer 2	Working with Data	Calculate the mode, median and range from a list of data. Calculate the mean from a list of data. Interpret the mode, median, mean and range of two sets of data and make comparisons. Identify the appropriate average to use in a given situation. Read information from and complete a discrete or grouped frequency table.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent	

		Draw a stem and leaf diagram, including back to back. Read, complete and interpret a two way table. Draw bar charts from a frequency table including dual/composite. Interpret bar charts and use them to solve problems. Complete and interpret scatter graphs, including correlation and a line of best fit. Identify misleading chart features.	topics and problem solving skills.	

Hobart High School Key Stage 3 Curriculum Map – Year 8

Department: Mathematics

	Unit, Topic or Summary of work covered	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	Number Properties	Find integer powers and roots. Use the index laws for the multiplication and division of integer powers. Recognise, list and define prime numbers. Perform prime factor decompositions. Find the HCF and LCM of a set of numbers.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	
	Positive and negative numbers	Compare and order positive and negative integers using inequality notation. Interpret negative values in context (eg. temperature, debt …) Add and subtract positive and negative integers. Multiply and divide positive and negative integers. Substitute negative integers into expressions and formulae. Apply the order of operations to the four operations with negative integers.		
	Rounding and Estimation	Round to the nearest whole number. Round to a given number of decimal places. Round to a given number of significant figures. Use rounding to significant figures to estimate in calculations including worded problems. Estimate roots.		
Autumn 2	Length and Area	Solve functional problems by finding the area or perimeter of compound shapes made from rectangles. Find the area of parallelograms, triangles and trapezia Find the missing length of a shape when given the area. Solve complex problems regarding the perimeter and area of given shapes. Find the area of compound shapes. Recognise and name the parts of a circle. Calculate the circumference and area of a circle.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	
	3D Shapes	Recognise and complete the nets of 3D shapes. Identify the properties of 3D shapes. Construct and interpret plans and elevations of 3D shapes. Calculate the volume and surface area of cuboids and solve problems involving these. Calculate the volume and surface area of prisms including cylinders. Convert between units of area and volume.		
	Compound measures	Read speed-time graphs. Read distance-time graphs. Find the speed from a distance-time graph. Convert compound units (eg. m/s to km/h) Calculate speed, distance and time. Calculate speed, distance and time where units need converting. Calculate density, mass and volume. Calculate pressure, force and area.		

Spring 1	Calculations with Fractions Probability	Convert between a mixed number and an improper fraction. Compare and order fractions with different denominators. Add and subtract fractions with different denominators. Solve problems including the addition and subtraction of fractions. Recognise and find reciprocals and understand a reciprocal as a multiplicative inverse. Multiply fractions and integers. Divide fractions and integers. Solve problems including the multiplication and division of fractions. Place theoretical probabilities accurately on the probability scale. Find probabilities based on equally likely outcomes in simple contexts. Apply the property that the probabilities of mutually exclusive outcomes sum to 1 Systematically list outcomes. Complete sample spaces for combined events with equally likely outcomes and calculate probabilities from these. Calculate probabilities from a two way table. Read and complete Venn diagrams. Find probabilities from Venn diagrams. Interpret the frequency of outcomes of probability experiments from tables and find relative frequency from these. Calculate expected outcomes of future experiments by applying relative frequency.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	
Spring 2	Algebraic Manipulation Solving Equations	Identify a term, expression, equation, formula and identity. Substitute positive and negative integers into expressions and formulae, including powers. Form expressions Simplify expressions by collecting like terms, including powers. Simplify expressions involving multiplication and division. Expand and simplify multiple single brackets. Take out common factors and factorise. Solve two-step linear equations. Write simple equations from problems involving the area and perimeter of shapes. Construct and solve simple linear equations with integer coefficients and unknowns on one side including brackets and fractions. Solve linear equations with one unknown on both sides. Check the solution to an equation by using substitution. Solve two step linear inequalities in one variable. Represent the solution of a linear inequality on a number line. List the integers that satisfy an equality.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	
Summer 1	Angles	Accurately measure angles in geometrical diagrams. Identify parallel and perpendicular lines. Solve an angle problem using the standard angle facts. Find missing angles in special types of triangles. Use alternate, corresponding and co-interior angles to find a missing angle on a parallel line. Solve complex angle problems using alternate, corresponding and co-interior angles properties. Know the properties of polygons (and know their names). Use the sum of angles in a triangle to deduce the angle sum of a polygon. Find the unknown interior angles in any regular or irregular polygon Find the exterior angle of any regular polygon.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	

	Transformations	Transform 2D shapes by reflecting in diagonal mirror lines on a grid. Transform 2D shapes by reflecting in x=a or y=b lines on a coordinate grid. Transform 2D shapes by translating using column vector notation on a coordinate grid. Construct similar shapes by enlargement of a positive integer scale factor on a grid. Transform 2D shapes by rotating them about a given point on a grid. Identify which basic transformation has occurred.		
Summer 2	Statistics	Find the mode, median, mean and range from a list of data. Interpret the mode, median, mean and range of two sets of data and make comparisons. Find the data based on information given on the averages and range. Adjust the mean when data is added or taken away from the set. Find the mode, range, median and mean from a stem and leaf diagram. Find the mode range, median and mean from a discrete frequency table. Read, complete and interpret a two way table. Construct, read and interpret pie charts. Complete and interpret scatter graphs, including correlation, line of best fit and interpolation/extrapolation.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	

Hobart High School Key Stage 3 Curriculum Map – Year 9

Department: Mathematics

	Unit, Topic or Summary of work covered	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	Arithmetic	Multiply decimals using formal written methods. Use formal written methods to divide integers and decimals by an integer. Use formal written methods to divide an integer by a decimal. Use formal written methods to divide a decimal by a decimal. Identify the operation required to solve a worded problem. Add and subtract positive and negative integers. Multiply and divide positive and negative integers.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	
	Powers and Roots	Find integer powers and roots Use the index laws for multiplication and division of integer powers. Simplify expressions involving sums, products and powers, including using index laws. Solve complex BIDMAS calculations. Put the brackets into a calculation to make it true. Convert between ordinary numbers and standard form. Rewrite a number in correct standard form notation. Multiply and divide with numbers written in standard form.		
	Fractions, Decimals and Percentages	Solve problems including the addition and subtraction of fractions. Add and subtract mixed numbers and improper fractions. Solve problems including the multiplication and division of fractions. Multiply and divide fractions including improper fractions and mixed numbers. Calculate exactly with fractions, including solving problems. Find equivalent fractions, decimals and percentages. Order fractions, decimals and percentages. Convert fractions into recurring decimals (including ordering)		
Autumn 2	Algebraic manipulation	Simplify expression by collecting like terms, including powers. Form expressions. Substitute positive and negative integers into expressions and formulae, including powers. Expand and simplify multiple single brackets. Take out common factors to factorise. Use algebra to construct arguments and prove identities.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	
	Coordinates and Graphs	Solve simple problems on a coordinate grid. Find the midpoint of two points and the endpoint when given the midpoint and one endpoint. Use a table of values to plot graphs of simple linear functions. Identify the y-intercept of a linear graph from the equation and the graph. Interpret the gradient of a linear graph and identify it from the equation. Identify the gradient of a linear graph from the equation and the graph. Identify the equation of a linear graph from the graph. Use the form y = mx + c to interpret the graph. Use the form y = mx + c to identify parallel lines.		

Spring 1	2D Shapes 3D Shapes	Find the missing length of a shape when given the perimeter. Find the area of triangles. Find the missing length of a shape when given the area. Use Pythagoras' theorem to find a missing length in right-angled triangles. Apply Pythagoras' theorem to prove whether a triangle is right-angled or not. Apply Pythagoras' theorem to solve a problem involving area or perimeter of shapes. Apply Pythagoras' theorem to solve a real life problem. Construct and interpret plans and elevations of 3D shapes. Calculate the surface area of cubes and cuboids. Calculate the volume of cubes and cuboids and solve problems involving these. Calculate the volume of prisms, including cylinders and solve problems involving these. Calculate the surface area of prisms, including cylinders.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	
Spring 2	Solving Equations Sequences	Construct and solve simple equations with integer coefficients and unknown on one side. Solve linear equations with one unknown on both sides and those involving brackets. Construct and solve linear equations with one unknown on both sides. Write simple equations from a problem or area and perimeter of shapes. Solve two linear simultaneous equations in two variables algebraically with integer solutions. Recognise and continue recursive (Fibonacci-type) sequences. Find the nth term of a linear sequence. Use the nth term of a linear sequence to solve a problem. Find the nth term of a linear diagrammatic sequence.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	
Summer 1	Percentages Proportion	Find a percentage of a quantity. Solve a percentage change problem given in context. Find the percentage change. Identify and work with fractions and percentages in problems. Express percentages and percentage change as a decimal, and interpret these multiplicatively. Solve original value problems. Calculate simple interest. Solve best value problems. Use proportion to adapt a recipe and use this to solve problems. Solve direct proportion problems. Solve indirect proportion problems. Solve problems involving direct and indirect proportion.. Apply statistics to a capture and recapture problem. Apply statistics to a capture and recapture problem. Apply statistic to describe a population.	Throughout the year pupils will complete end of topic tests, this is in addition to the verbal and written feedback they get during lessons. Homework is also set regularly.	
Summer 2	Constructions, Loci and Bearings	Accurately draw diagrams from written descriptions. Accurately construct triangles from ASA and SAS information. Accurately construct triangles from SSS information. Identify parallel and perpendicular lines. Construct a perpendicular line bisector. Use a ruler and compass to construct a perpendicular to a given line from a given point. Use a ruler and compass to construct an angle bisector. Use constructions to solve simple loci problems. Use scale factors, diagrams and maps.	One in lesson termly test will assess pupils recall skills of prior learning, their understanding of recent topics and problem solving skills.	