

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	Number Sense	Using number lines (M763) Integer place value (M704) Decimal place value (M522) Ordering negative numbers (M527) Rounding integers (M111) Rounding decimals (M431)	We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.	Our lessons foster critical thinking and problem-solving skills, we encourage pupils to approach questions using different methods and persevere with any challenges. We also promote logical reasoning, helping pupils develop their ability to think systematically and make informed decisions. In addition to this, the important discipline of regular practice is promoted and recognised through achievement.
	Adding and Subtracting	Adding integers (M928) Adding decimals (M429) Subtracting integers (M347) Subtracting decimals (M152)		
	Multiplying	Multiplying and dividing by 10, 100 and 1000 (M113) Multiplying using place value (M911) Using a written method to multiply integers (M187) Using a written method to multiply decimals (M803)		
	Dividing	Dividing numbers into equal groups (M462) Using a written method to divide integers (M354) Dividing with remainder (M873) Using a written method to divide by integers to get a decimal answer (M262) Using a written method to divide by decimals (M91)		
	Calculating with Negative Numbers	Adding and subtracting with negative numbers (M106) Multiplying and dividing with negative numbers (M288)		
	Order of Operations	Calculating with roots and powers (M135) Using the correct order of operations (M521) Using the commutative laws (M952) Using the associative laws (M409)		
				Understanding decimals and negative numbers helps students develop important skills like financial literacy. It prepares them for real-world situations such as budgeting, temperature calculations, and measuring losses.

Autumn 2	Expressions	Algebraic notation (M813) Algebraic terminology (M830) Simplifying expressions containing a single variable (M795) Simplifying expressions containing multiple variables (M531) Simplifying expressions containing non-linear terms (M949)	Towards the end of a term pupils will complete a test which includes recent topics and recall questions	Learning how to manipulate algebraic expressions and solve equations helps us model, analyse and solve real-world problems by breaking them down into manageable, logical steps.
	Substitution	Substituting into expressions with one operation (M417) Substituting into expressions with multiple operations (M327) Substituting into algebraic formulae (M208) Substituting into real-life formulae (M949)		
	Solving Equations	Solving equations with one step (M707) Solving equations of the form $ax+b=c$ (M634) Solving equations of the form $x/a+b=c$ (M647)		
	Time	Converting units of time (M515) Using clocks (M892) Calculating with time (M627) Using timetables (M963) Using calendars (M747)		Learning about time allows pupils to better manage their daily lives and responsibilities, including scheduling activities and meet deadlines. An awareness of time zones is important too for travelling and business.
	Measures	Estimating and measuring length, mass and capacity (M828) Converting units of length, mass and capacity (M774) Using appropriate units (M487)		Understanding measures such as length, weight, volume, area, and time is essential for everyday activities like cooking, shopping, building, and traveling. It plays a crucial role in science, engineering, and technology, where precise measurements are necessary for experiments, designs and inventions.
Spring 1	Line and Shape Properties	Line properties (M814) Shape properties (M276) Symmetry (M523)	We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.	Learning about perimeter and area is important as it will help with planning home improvements such as organising
	Perimeter	Finding perimeters using grids (M920) Finding the perimeter of rectangles and simple shapes (M635) Finding the perimeter of compound shapes (M690)		

	Area	Finding areas using grids (M900) Finding the area of rectangles (M390) Finding the area of compound shapes (M269) Finding the area of triangles (M610) Finding the area of compound shapes containing triangles (M996)		space, ordering materials (paint, paper, skirting etc.)
	Coordinates and Shapes	Reading and plotting coordinates (M618) Solving shape problems involving coordinates (M230)		Knowing about factors, multiples and primes are helpful when organising events, managing time and dealing with measurements in cooking, construction and more.
	Factors and Multiples	Finding the lowest common multiple (M227) Finding factors and using divisibility tests (M823) Finding the highest common factor (M698)		
	Primes	Finding prime numbers (M322) Prime factor decomposition (M108)		
Spring 2	Writing and Comparing Fractions	Finding fractions of shapes (M158) Constructing fractions (M939) Finding equivalent fractions (M410) Simplifying fractions (M671) Ordering fractions (M335) Converting between mixed numbers and improper fractions (M601)	Towards the end of a term pupils will complete a test which includes recent topics and recall questions	Fractions are used in many everyday activities such as cooking, shopping, time management and budgeting. For example when adjusting the quantities in a recipe, splitting a bill with friends or sharing money between siblings etc.
	Adding and Subtracting Fractions Single Brackets	Adding and subtracting fractions (M835) Adding and subtracting mixed numbers (M931) Using the distributive law (M637) Expanding single brackets (M237) Expanding single brackets and simplifying expressions (M792) Factorising into one bracket (M100)		
Summer 1	Angles	Types of angles (M502) Estimating angles (M541) Measuring angles (M780) Drawing angles (M331)	We continually assess student progress via low stake quizzes, effective questioning, work samples	Learning about angles is important because they are fundamental to geometry, trigonometry, and many real-world applications like architecture, navigation and art. It also enhances

	Finding Unknown Angles	Angles on a line and about a point (M818) Vertically opposite angles (M163) Angles in triangles (M351)	during independent tasks and homework.	spatial awareness, which is valuable in everyday tasks and sports.
	Averages and Range	Calculating the range (M328) Calculating the median (M934) Finding the mode (M841) Calculating the mean (M940)		Learning the differences between the three types of averages (mean, median, and mode) is important because each one provides unique insights into a data set and can be used in different situations.
	Tables and Charts	Interpreting frequency tables and two-way tables (M899) Drawing and interpreting tally charts (M597) Drawing and interpreting pictograms (M664) Drawing bar charts (M460) Interpreting bar charts (M738)		
	Collecting and Presenting Data	Collecting and recording data using tables (M945) Finding averages from frequency tables (M127) Choosing suitable averages and solving problems (M440)		Reading and constructing tables is important because it helps organize and analyse information in a clear and systematic way.
	Proportion Word Problems	Solving proportion problems (M478)		Proportion is important because it helps us understand the relationship between quantities and how they change in relation to each other. It is essential for solving real-world problems in areas like cooking, budgeting, and scaling models.
Summer 2	Multiplying and Dividing Fractions	Reciprocals (M216) Multiplying fractions (M157) Dividing fractions (M110) Multiplying with mixed numbers (M197) Dividing with mixed numbers (M265)	Towards the end of a half term pupils will complete a test which includes recent topics and recall questions	
	Fractions of Amounts	Fractions of amounts without a calculator (M695) Fractions of amounts with a calculator (M684)		
	Fractions, Decimals and Percentages	Converting between fractions and decimals (M958)		Learning about the link between fractions, decimals, and percentages is

	Theoretical Probability	<p>Converting between fractions, decimals and percentages (M264)</p> <p>Ordering fractions, decimals and percentages (M553)</p> <p>Writing numbers as percentages of other numbers (M235)</p> <p>Using probability phrases (M655)</p> <p>Writing probabilities as fractions (M941)</p> <p>Writing probabilities as fractions, decimals and percentages (M938)</p> <p>Probabilities of mutually exclusive events (M755)</p> <p>Sample space diagrams (M718)</p>	<p>important because it helps you understand different ways to represent the same value, making it easier to compare and manipulate numbers. Mastering these connections allows for greater flexibility in problem-solving.</p> <p>A secure knowledge of probability is crucial as it helps you make predictions and informed decisions about a variety of real-world applications. Whether you're planning for the future, analysing risk, or just trying to understand chance-based events, probability is key!</p>
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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	<p>Percentages of amounts</p> <p>Percentage change</p> <p>Calculating with money</p> <p>Index laws</p>	<p>Finding percentages of amounts without a calculator (M437)</p> <p>Finding percentages of amounts with a calculator (M905)</p> <p>Percentage change without a calculator (M476)</p> <p>Percentage change with a calculator (M533)</p> <p>Value for money (M681)</p> <p>Index rules with positive indices (M608)</p> <p>Index rules with negative indices (M150)</p> <p>Simplifying expressions using index laws (M120)</p> <p>Simplifying algebraic fractions by cancelling common factors (M568)</p>	<p>We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.</p>	<p>Our lessons foster critical thinking and problem-solving skills, we encourage pupils to approach questions using different methods and persevere with any challenges. We also promote logical reasoning, helping pupils develop their ability to think systematically and make informed decisions. In addition to this, the important discipline of regular practice is promoted and recognised through achievement.</p> <p>Calculating percentage change is important because it helps us understand how values increase or decrease relative to their original amount, which is useful in many real-life situations. It allows us to calculate things like price increases, discounts, and financial growth or loss, which are crucial in areas such as shopping, investing, and budgeting. Understanding percentage change is also essential for interpreting data in fields like economics, science, and business, where growth trends or changes in statistics need to be measured accurately.</p>

Autumn 2	Solving Equations	<p>Solving linear equations of the form $(x+a)/b=c$ (M401)</p> <p>Solving linear equations involving brackets (M902)</p> <p>Solving linear equations with unknowns both sides (M554)</p> <p>Solving linear equations with an unknown in the denominator (M387)</p> <p>Constructing and solving equations (M957)</p>	Towards the end of a term pupils will complete a test which includes recent topics and recall questions	<p>Mastering number sequences strengthens our ability to identify patterns and solve problems more efficiently in all areas of mathematics, nature and everyday life.</p> <p>Understanding ratio is important because they help us compare two or more quantities and understand how they relate to each other. Ratios are used in real-life situations like mixing ingredients in recipes, creating scale models, or calculating speeds and distances.</p>
	Term-to-term rules	<p>Term-to-term rules for numerical sequences (M381)</p> <p>Term-to-term rules for sequences of patterns (M241)</p>		
	Position to term rules	<p>Substituting into position-to-term rules (M166)</p> <p>Position-to-term rules for arithmetic sequences (M991)</p> <p>Position-to-term rules for sequences of patterns (M866)</p>		
	Ratio	<p>Writing and simplifying ratios (M885)</p> <p>Writing ratios in the form 1:n (M543)</p> <p>Converting between ratios, fractions and percentages (M267)</p> <p>Using equivalent ratios to find unknown amounts (M801)</p> <p>Sharing in a given ratio (M525)</p>		
Spring 1	Scale diagrams	Drawing and interpreting scale diagrams (M112)	We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.	Understanding significant figures is important because it ensures that numbers are read and understood with the level of precision intended. Significant figures also play an important role when estimating a calculation.
	Significant figures	<p>Rounding integers using significant figures (M994)</p> <p>Rounding decimals using significant figures (M131)</p> <p>Estimating calculations (M878)</p>		
	Coordinates and midpoints	<p>Calculating midpoints (M622)</p> <p>Mixed problems, coordinates and midpoints (M311)</p>		
	Area and units	<p>Finding the area of parallelograms (M291)</p> <p>Finding the area of trapezium (M705)</p>		

	Area and circumference	<p>Converting units of area (M728)</p> <p>Identifying parts of circles (M595)</p> <p>Finding the circumference of circles (M169)</p> <p>Finding the area of circles (M231)</p>		<p>Knowing how to find the area and circumference of circles is helpful in designing things like round tables, pizza, or even circular gardens. While calculating the circumference is useful for measuring distances around circular objects, like wheels or tracks.</p>
Spring 2	<p>Standard form and ordinary numbers</p> <p>Venn diagrams</p> <p>Factors, multiples and primes</p> <p>Nets</p> <p>Surface area</p>	<p>Using standard form with positive indices (M719)</p> <p>Using standard form with negative indices (M678)</p> <p>Venn diagrams (M829)</p> <p>Probabilities from Venn diagrams (M419)</p> <p>Finding the HCF and LCM using prime factor decomposition (M365)</p> <p>Properties of 3D shapes (M767)</p> <p>Nets of 3D shapes (M518)</p> <p>Finding the surface area from a net (M884)</p> <p>Finding the surface area of cubes and cuboids (M534)</p> <p>Finding the surface area of prisms (M661)</p>	<p>Towards the end of a term pupils will complete a test which includes recent topics and recall questions</p>	<p>Understanding standard form is important because it allows us to work with very large or very small numbers more easily and efficiently. Standard form is commonly used in fields like science, engineering, and finance to express quantities like distances in space or microscopic measurements, where using long strings of digits would be impractical</p> <p>Understanding surface area and volume is essential in many everyday tasks. For example, calculating the surface area is needed when painting a wall,</p>

	Volume	<p>Finding the volume of cubes and cuboids (M765)</p> <p>Finding the volume of prisms (M722)</p> <p>Converting units of volume (M465)</p>		<p>wrapping a gift or designing packaging.</p> <p>Volume is crucial for things like filling a swimming pool, determining how much space is available in a container, or measuring liquids in recipes.</p>
Summer 1	<p>Plotting graphs and finding equations</p> <p>Transforming shapes</p> <p>Finding unknown angles</p> <p>Drawing and interpreting statistical diagrams</p>	<p>Plotting horizontal, vertical and diagonal lines (M797)</p> <p>Plotting straight line graphs (M932)</p> <p>Finding equations of straight line graphs (M544)</p> <p>Translation (M139)</p> <p>Reflection (M290)</p> <p>Angles in quadrilaterals (M679)</p> <p>Combining angle facts (M319)</p> <p>Angles on parallel lines (606)</p> <p>Using quadrilateral properties to find angles (M393)</p> <p>Angles in polygons (M653)</p> <p>Drawing pie charts (M574)</p> <p>Interpreting pie charts (M165)</p> <p>Drawing line graphs (M140)</p> <p>Interpreting line graphs (M183)</p> <p>Drawing stem and leaf diagrams (M648)</p> <p>Interpreting stem and leaf diagrams (M210)</p> <p>Finding averages from diagrams (U854)</p>	<p>We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.</p>	<p>Translation involves moving shapes without changing their size or orientation, while reflection involves flipping shapes over a line, which are key in understanding symmetry and transformations. These concepts are used in real-world applications like graphic design, architecture, and computer graphics, where shapes and objects need to be manipulated or altered in specific ways.</p> <p>Drawing and interpreting statistical diagrams is important because they help us understand and communicate data clearly and effectively. Diagrams can make data more accessible and allow us to quickly identify trends, patterns, and outliers. These skills are crucial for analysing information in real-life situations, such as making decisions in business, science, or social studies.</p>

Summer 2	Linear inequalities	Reading and drawing linear inequalities on number lines (M384) Solving single inequalities (M118)	Towards the end of a term pupils will complete a test which includes recent topics and recall questions	Understanding inequalities is important because they help us represent and solve problems that involve conditions or limits, such as "greater than," "less than," or "between." Inequalities are widely used in real-life situations like budgeting, planning, and analysing situations where things can't be equal, such as speed limits or minimum requirements for certain tasks.
	Double brackets	Expanding double brackets (M960)		
	Fractions review	Calculating with fractions (M645) Calculating with mixed numbers (M619)		
	Algebraic fractions	Simplifying algebraic fractions by factorising (M754) Adding and subtracting algebraic fractions (M336)		
	Fractions and recurring decimals	Using recurring decimal notation (M701) Converting fractions to recurring decimals (M922)		

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	Fractions, decimals and percentages review	Converting between fractions, decimals and percentages (U888) Ordering fractions, decimals and percentages (U594) Finding fractions of amounts without a calculator (U881) Finding fractions of amounts with a calculator (U916) Finding percentages of amounts without a calculator (U554) Finding percentages of amounts with a calculator (U349)	We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.	Our lessons foster critical thinking and problem-solving skills, we encourage pupils to approach questions using different methods and persevere with any challenges. We also promote logical reasoning, helping pupils develop their ability to think systematically and make informed decisions. In addition to this, the important discipline of regular practice is promoted and recognised through achievement.
	Percentage change	Percentage change without a calculator (U773) Percentage change with a calculator (U671) Finding original values in percentage calculations (U286) Finding the percentage an amount has been changed by (U278) Simple interest calculations (U533)		
	Theoretical and experimental probability	Expected results from repeated experiments (U166) Calculating experimental probabilities (U580) Frequency trees (U280)		
	Calculations with standard form	Multiplying and dividing numbers in standard form (U264) Adding and subtracting numbers in standard form (U290) Standard form with a calculator (U161)		
	Linear inequalities	Solving inequalities with the unknown on both sides (U738) Solving double inequalities (U145) Constructing and solving inequalities (U337)		Understanding inequalities is important because they help us represent and solve problems that involve conditions or limits, such as "greater than," "less than," or "between." Inequalities are widely used in real-life situations like budgeting, planning, and analysing situations where things can't be equal, such

				as speed limits or minimum requirements for certain tasks.
Autumn 2	Factorising and solving quadratic equations	Factorising quadratic equations of the form x^2+bx+c (U178) Factorising the difference of two squares (U963) Factorising to solve quadratic equations of the form $x^2+bx+c=0$ (U228)	Towards the end of a term pupils will complete a test which includes recent topics and recall questions	Solving quadratics is essential for understanding real-world problems, such as projectile motion, optimization problems, and calculating areas or volumes in physics, engineering, and economics.
	Rearranging formulae	Changing the subjects of formulae with one step (U675) Changing the subjects of formulae with two or more steps (U181)		Being able to rearrange formulae makes you more adaptable and improves your overall mathematical literacy, which is essential for both academic and practical purposes.
	Constructing bisectors and perpendicular lines	Constructing bisectors of angles (U787) Constructing perpendicular bisectors and lines (U245)		
	Circles and cylinders	Finding the arc length of sectors (U221) Finding the area of sectors (U373) Finding the surface area of cylinders (U464) Finding the volume of cylinders (U915)		Arc length and area of sectors are used in the design of circular structures, in robotics, surveying etc.
Spring 1	Error intervals	Finding error intervals (U657) Truncating decimals (U108) Finding error intervals for truncated numbers (U301)	We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.	Life is full of uncertainties. Error intervals show us how to work with uncertainty and how to present results in a way that reflects possible variation or imprecision. This skill is essential not just in maths but in many aspects of life, from financial planning to understanding news reports or research findings.

	Representations of 3D shapes	Plans and elevations (U743)		<p>Pythagoras' theorem allows pupils to see the link between the lengths of sides on a right angles triangle. Vital in modelling, construction and engineering.</p> <p>Understanding ratio is important because they help us compare two or more quantities and understand how they relate to each other. Ratios are used in real-life situations like mixing ingredients in recipes, creating scale models, or calculating speeds and distances.</p> <p>Proportion exists in every aspect of life. For example, understanding how speed is related to distance and time (direct proportion), or how the amount of ingredients in a recipe changes with the number of servings (inverse proportion).</p>
	Pythagoras' theorem in 2D	Using Pythagoras' theorem in 2D (U385) Applying Pythagoras' theorem in 2D (U828)		
	Ratio	Writing and simplifying ratios (U687) Sharing amounts in a given ratio (U577)		
	Proportion word problems	Solving direct proportion word problems (U721) Solving inverse proportion word problems (U357) Currency conversion (U610)		
Spring 2	Plotting graphs and finding equations	Plotting straight line graphs (U741) Finding equations of straight-line graphs (U315) Interpreting equations of straight-line graphs (U669)	Towards the end of a term pupils will complete a test which includes recent topics and recall questions	<p>Speed is a concept used in everyday life, from determining how long it will take to travel somewhere, to understanding how fast things happen, like a car's movement or a plane's flight. Learning how to calculate speed helps people make better</p>
	Speed and rates	Calculating with speed (U151) Calculating with rates (U256)		
	Distance-time graphs	Plotting distance-time graphs (U403) Interpreting distance-time graphs (U914) Calculating speed from distance-time graphs (U462) Plotting distance-time graphs using speeds (U966)		

				decisions when planning trips or managing time.
Summer 1	<p>Plotting and interpreting quadratic graphs</p> <p>Angles</p> <p>Bearings</p> <p>Transforming shapes</p> <p>Similarity</p>	<p>Plotting graphs of quadratic functions (U989) Interpreting graphs of quadratic functions (U667) Solving quadratic equations graphically (U601)</p> <p>Combining angle facts (U655) Angles on parallel lines (U826) Using quadrilateral properties to find angles (U329) Angles in polygons (U427)</p> <p>Measuring and drawing bearings (U525) Calculating bearings (U107)</p> <p>Translation (U196) Reflection (U799) Rotation (U696) Enlargement by a positive scale factor (U519) Mixed transformations (M881)</p> <p>Understanding similarity (U551) Finding unknown sides in similar shapes (U578)</p>	We continually assess student progress via low stake quizzes, effective questioning, work samples during independent tasks and homework.	<p>Quadratic graphs in science, technology and economics when considering projectile motion and maximum/minimum points</p> <p>Bearings are important in aviation, navigation, travel and GPS.</p> <p>Transformations are used extensively in fields like architecture, interior design, and product design. For example, rotating or reflecting a design plan, scaling up a model, or translating designs from one place to another all rely on understanding transformations. In the digital world, transformations are the backbone of computer graphics. Whether it's rotating an image, resizing it, or flipping it for animation, computer graphics relies heavily on transformation techniques to manipulate images and objects.</p>
Summer 2	<p>Congruence</p> <p>Scatter graphs</p>	<p>Understanding congruence (U790) Congruent triangles (U866) Constructing triangles (U187)</p> <p>Plotting scatter graphs (U199)</p>	Towards the end of a term pupils will complete a test which includes recent topics and recall questions	

	Collecting and presenting data	<p>Interpreting scatter graphs (U277)</p> <p>Using lines of best fit (U128)</p>		<p>Data is frequently used in the media to support news stories or advertisements. Whether it's statistics about health, politics, economics, or social trends, being able to interpret data helps students better understand the world around them and avoid being misled by biased or poorly presented information.</p>
	Grouped data	<p>Types of data (U322)</p> <p>Presenting data and making conclusions (U571)</p> <p>Comparing populations using diagrams (U520)</p> <p>Choosing suitable averages and solving problems (U717)</p>		
	Column vectors	<p>Interpreting frequency tables with grouped data (U312)</p> <p>Finding averages from grouped data (U877)</p> <p>Drawing and interpreting frequency polygons (U840)</p> <p>Understanding column vectors (U632)</p> <p>Adding and subtracting column vectors (U903)</p> <p>Multiplying column vectors by a scalar (U564)</p> <p>Identifying parallel vectors (U660)</p>		