YEAR 7						
Key Knowledge	• Place value • Powers of 10 • Comparing & Ordering • Rounding/estimating • Calculations 1: + and – • Angles & perimeter	• Calculations 2: × and ÷ • Area • Co-ordinates • Directed number **ASSESSMENT 1**	• Indices • Order of operations • Measures & conversions • Fractions	• Fractions ctd. • Fractions/decimals/ percentages & proportion • Ratio **ASSESSMENT 2**	• Statistics • Time • Divisibility tests **ASSESSMENT 3**	• Number theory • Compound shapes • Probability
Key Subject Skills	This term students will broaden their understanding of number. They will revisit writing numbers as both words and digits and using place value to represent digital numbers. They will multiply and divide by powers of 10, as well as by 0.1, 0.01 and 0.001. They will order numbers according to size and use the < and > inequality symbols. They will develop their understanding of rounding to include rounding to significant figures and estimating. Students will reinforce their mental and formal written skills in two of the four basic operations – addition, subtraction. Basic angle facts such as angles on a point, angles on a line and angles in a polygon (up to pentagons) will be considered as well as calculating the perimeter of a 2D shape.	Students will check their skills in mental and formal written methods of multiplication and division including transforming multiplication and division with decimals into a calculation involving integers. The unit on area will allow students to revisit calculating the area of a rectangle, triangle, parallelogram and compound shapes, developing their recognition the distinction between perpendicular height and sloping height. Students will develop their understanding of the structure of the xy co-ordinate grid, being able to set up a grid, plot points and calculate the midpoint of two points. Students will be introduced to the concept of directed numbers (positive and negative numbers), learning to add and subtract, multiply and	This term students will be introduced to the concept of numbers written in index form and learn to evaluate indices and compare indices using the < and > inequality symbols. Students will estimate square roots of non-square numbers using their knowledge of square numbers up to at least 12 squared. Students will learn to apply the rules of indices, a vital skill that is developed further in Year 8 in algebra-related topics. Order of operations is an important topic that takes the students' understanding further to include more complex calculations involving fractions and other groups of operations. In measures and conversions students will develop their understanding of where a range of measures are used today, and how to convert between various	Having developed their skills with fractions, students will take this further to convert between fractions, decimals and percentages and understanding the difference between terminating and recurring fractions. This is further developed to consider ratio, how ratios are represented and can be simplified. Students will become confident in sharing an amount in a given ratio and understand the difference between ratio and proportion.	This term students will be introduced to some basic statistical concepts such as discrete and continuous data and the data collection, process and analysis cycle. They will develop their understanding of time measurements and be able to convert between hours and minutes, working with numbers given in both fraction and decimal form. They will consider both the 12 and 24-hour clock, and how to count forward and backward. Finally this term, students will look at a range of divisibility tests that can be applied, such as a divisibility test to see if a number is divisible by 4. This will be developed further to consider compound divisibility tests, such as using their knowledge of divisibility tests for 3 and 5 to see if a number is divisible by 15.	The unit on number theory concludes the students' development of their understanding of number in Year 7. They will consider factors and multiples and learn efficient techniques in calculating the highest common factor and the lowest common multiple, including the use of Venn diagrams. In the compound shapes unit students develop further their understanding of working with polygons, finding area and missing lengths in compound shapes. The probability unit introduces students to the concept of probability and chance and considers issues around randomness, bias and equally likely outcomes. Students will learn to use the 0 – 1 probability scale and develop their range of probability-related language to calculate simple probabilities.

		divide with directed numbers.	metric measurements. Finally this term, students will reinforce their understanding of fractions, simplifying and finding equivalent fractions, using all four mathematical operations with fractions and applying those skills to problem-solving style questions. This is completed in Term 4.			
Personal development: • **RSE** • **Online safety** • **Enrichment**	Year 7 maths lessons help students to develop not only mathematical skills essential for functioning in society but also important life skills related to relationships, respect and ethical decision-making. The skills learnt support students in progressing academically in other subject areas as well as real-world application. In maths lessons we encourage and facilitate respectful discussions, listen to other's viewpoints and provide constructive feedback. Students are encouraged to present their mathematical findings to the class and develop an environment of clear and respectful communication. Teachers actively work on building students' confidence in their mathematical abilities, positively impacting their overall self-esteem. We look for opportunities to link their learning to real-life scenarios related to relationships and personal finance, such as budgeting and understanding loans and interest rates. We encourage collaborative problem-solving and group work to promote teamwork and communication skills. Enrichment opportunities: Pupils are offered the opportunity to take part in the Intermediate Mathematics Challenge run by UKMT and may qualify for subsequent rounds.					
Connections with careers	Key Stage 3 maths provides an understanding of mathematical concepts and skills which can support a wide range of careers including finance, computing and engineering. The skills learnt also promote and develop numeracy, problem-solving and analytical skills which are beneficial for an increasingly wide range of careers and areas of society.					
Home support	Following each assessment, students will receive a feedback sheet that identifies their strengths and areas for improvement. Students are encouraged to utilise this feedback effectively and promptly address any gaps in their understanding. Students have access to the following online platforms for support: Sparx – https://sparxmaths.com/ used for weekly homework and independent learning and revision Corbettmaths- https://corbettmaths.com/ These platforms offer a range of resources and tools to help students revise and reinforce their understanding of mathematics at different levels of complexity. Students are shown in class how to use these tools effectively and match to their current learning needs. Revision lists and assessment feedback are linked to content on Sparx so students can direct their learning as needed.					

YEAR 8						
Key Knowledge	• Expressions & simplifying • Multiplying & dividing terms • Substitution • Statistics	• Brackets & factorising • Algebraic fractions **ASSESSMENT 1**	• Forming expressions • Solving linear equations • Rearranging formulae	• Rearranging formulae ctd. • Sequences • Inequalities **ASSESSMENT 2**	• Inequalities ctd. • Percentage change • Angles & polygons	• Linear graphs • Loci & constructions **ASSESSMENT 3**
Key Subject Skills	This term students will begin their formal learning of algebraic language, skills and techniques. They will learn how to manipulate an algebraic expression, understand the commutative property of addition and multiplication and simplify an algebraic expression by gathering together 'like terms'. This will include practical application of skills learnt to algebraic perimeter. Students will also learn the meaning of the identity symbol and how it differs to the equal sign. Students will then learn to multiply and divide algebraic terms. Students will also recap on their previous learning on indices to include algebraic terms with indices. These skills are then developed further to substitute values into algebraic formulae and expressions, including scientific formula. Diverting away from algebra, students will develop further their learning of statistics to calculate types of averages and develop an understanding	Students will develop their understanding of algebra to include working with brackets. They will learn to expand a single bracket, recognising common mistakes and misconceptions. They will be able to expand brackets that contain more complex terms such as negative signs, fractions and numbers in index form. Students will work with expressions that contain two sets of brackets and develop their understanding of the impact a negative number has on the contents of a bracket. This is then developed to expand double brackets. Students will be taught how to factorise an algebraic expression, identifying the highest common factor and writing their answer clearly. Students will then be able to draw on their knowledge and skills of fractions as they are introduced to algebraic fractions. They will learn	This term students will learn to form algebraic expressions, following the convention of writing terms as a fraction rather than using the division symbol. They will build on prior learning to recognise the importance of the order of operations and the impact on the expressions. Armed with skills in working with algebraic expressions, students will now begin to solve linear equations. They will move from 1-step equations to 2-step equations, including equations with fractions, brackets and the unknown term on both sides. Techniques developed so far will then enable students to learn how to change the subject of the formulae, recognising what it means to be the subject of the formula.	Students will develop confidence in manipulating more complex formulae to change the subject of the formula, including those that require two or more steps, where the subject is in the denominator and where the subject is in a bracket. They will also rearrange formulae in context, working with formulae for area and the circumference of a circle. Students' algebraic journey is then developed to understand the terminology used with sequences and to find missing values in a sequence. They will learn to generate a sequence using the *n*th term, as well as being able to derive the *n*th term of a linear sequence for themselves. They will also be able to recognise Fibonacci-style sequences as well as quadratic and geometric sequences. Near the end of the term students will be introduced to inequalities and develop their understanding and use of the < and > symbols.	This term students will take their understanding of inequalities further to include representing an inequality on a number line. They will be able to use the skills and techniques learnt in solving linear equations and apply them to solving linear inequalities. They will also have experience of applying inequalities to geometry problems and problem-solving style word problems. Students will then take a break from algebra to learn about percentage change, drawing on their learning from Year 7 on percentages, fractions and decimals. They will consider percentage increases and decreases and calculating reverse percentages, making use of a multiplier to carry out the changes. The final unit of the term is a geometry unit focusing on angles and polygons. They will learn about interior and exterior	The first term this topic of linear graphs sees a return to algebra. Students will learn to recognise horizontal and vertical lines on an xy co-ordinate grid and the algebra that supports these graphs. They will learn to plot a linear graph and develop an understanding of y = mx + c and the resulting relationship between the x and y values. Students will develop an understanding of gradient as the rate of change between the x any y co-ordinate, and how to find the gradient between two points. They will be able to determine if a point is on a line or not, and various ways to calculate the equation of a given line. They will work with parallel and perpendicular lines and recognise various properties relating to these lines. Students will then learn to recognise loci as a set of all points which satisfy a particular condition, and to carry out a variety of constructions using a ruler

	of measures of spread. They will learn to present information in a graphical form using pictograms, pie charts, line graphs, bar graphs and frequency tables.	to add and subtract, and then multiply and divide algebraic fractions and write them in their simplest form.		They will consider the concept of greatest and least possible values in comparison with an equation which gives an exact value.	angles and how to find the angle sum of any polygon.	and a pair of compasses, such as a perpendicular bisector and an angle bisector.
Personal development: • **RSE** • **Online safety** • **Enrichment**	Year 8 maths lessons help students to develop not only mathematical skills essential for functioning in society but also important life skills related to relationships, respect and ethical decision-making. The skills learnt support students in progressing academically in other subject areas as well as real-world application. In maths lessons we encourage and facilitate respectful discussions, listen to other's viewpoints and provide constructive feedback. Students are encouraged to present their mathematical findings to the class and develop an environment of clear and respectful communication. Teachers actively work on building students' confidence in their mathematical abilities, positively impacting their overall self-esteem. We look for opportunities to link their learning to real-life scenarios related to relationships and personal finance, such as budgeting and understanding loans and interest rates. We encourage collaborative problem-solving and group work to promote teamwork and communication skills. Enrichment opportunities: Pupils are offered the opportunity to take part in the Intermediate Mathematics Challenge run by UKMT and may qualify for subsequent rounds.					
Connections with careers	Key Stage 3 maths provides an understanding of mathematical concepts and skills which can support a wide range of careers including finance, computing and engineering. The skills learnt also promote and develop numeracy, problem-solving and analytical skills which are beneficial for an increasingly wide range of careers and areas of society.					
Home support	Following each assessment, students will receive a feedback sheet that identifies their strengths and areas for improvement. Students are encouraged to utilise this feedback effectively and promptly address any gaps in their understanding. Students have access to the following online platforms for support: Sparx – https://sparxmaths.com/ used for weekly homework and independent learning and revision Corbettmaths- https://corbettmaths.com/ These platforms offer a range of resources and tools to help students revise and reinforce their understanding of mathematics at different levels of complexity. Students are shown in class how to use these tools effectively and match to their current learning needs. Revision lists and assessment feedback are linked to content on Sparx so students can direct their learning as needed.					

YEAR 9						
Key Knowledge	• Compound measures • Changing the subject • Factorising/difference of 2 squares (DOTS) • Solving by factorising/difference of 2 squares (DOTS)	• Probability • Algebraic fractions • Angles & polygons • Loci & constructions • Simultaneous equations – graphical **ASSESSMENT 1**	• Number – decimals, indices, significant figures, highest common factor/lowest common multiple (HCF/LCM), bounds • Converting units	• Scale drawing • Statistics **ASSESSMENT 2**	• Pythagoras • Similar triangles • Trigonometry	• Trigonometry ctd. • Transformations • Plans & elevations • Volume & surface area of cuboids • Volume & surface area of prisms **ASSESSMENT 3**
Key Subject Skills	Students will link their understanding of compound elements in science to compound measures in maths for speed, density and pressure, looking at the context of rates of pay to apply their knowledge to a real-world situation. This will be followed by a brief recap of algebraic skills in changing the subject of the formula from Year 8 to develop students' understanding further to include formulae with more complex terms. They will also need to work with formulae that involve factorising. The factorising unit will develop the students' understanding of algebra further to include factorising a quadratic expression by the difference of two squares, as well as factorising a quadratic expression with all three terms. These new skills are	In the probability unit students will recap on their understanding of the probability scale being from 0 to 1, and will calculate simple probabilities. They will learn about mutually exclusive and exhaustive events, and create sample space diagrams and two-way tables. Venn diagrams will be used to calculate probabilities. Students will then extend their understanding of algebraic fractions to include multiplying and dividing algebraic fractions and to solve equations with algebraic fractions. In the loci and constructions unit students develop their skills in constructing a range of situations involving perpendicular bisector, angle bisector,	The focus this term is around elements of number as students develop further their skills and knowledge in working with decimals and indices. They will learn to write numbers in standard form and to multiply and divide numbers that are in standard form, drawing on their knowledge of the rules of indices. Venn diagrams will be used to find the highest common factor (HCF) and lowest common multiple (LCM) of two numbers, focusing on prime factor decomposition. Bounds will be considered, finding lower and upper bounds, and calculating with bounds using real-world applications. Students will learn the skill of truncation and apply to a range of different sized numbers.	Students will draw on their knowledge of ratio and measurements to work with scale drawings, interpreting and constructing them to model real-world situations in a variety of scales and different types of maps. The statistics unit covers a range of statistical skills such as calculating mean from a frequency table and estimating the mean from a grouped frequency table. They will create and interpret scatter diagrams and consider lines of best fit and possible correlation, as well as creating stem and leaf diagrams and box plots. Students will consider the usefulness of the interquartile range compared with the range, and the impact outliers can have on a set of data.	Students will develop their use of algebra and geometry further this term to consider the application of Pythagoras' theorem in right-angled triangles. They will use Pythagoras' theorem to determine if a triangle is right-angled, and will apply the theorem in a range of problem-solving contexts. 3D Pythagoras will be considered as well as questions that require a multi-step Pythagoras approach. In the similar triangles unit, students will learn the meaning of congruence compared with similarity. They will learn to find the length scale factor to find missing lengths. Understanding of similar triangles is then developed further to consider trigonometry in	The trigonometry unit is continued this term. Multi-step problems will be considered modelling real-life situations and the application of trigonometry for angles of elevation and depression. Students will also consider the four main types of transformations that can be applied to a given figure – translations, rotations, reflections and enlargements. Students will consider briefly the role of drawing plans and elevations to represent 3D objects on a 2D surface, enabling students visualise and understand a structure from different perspectives. They will use this knowledge to calculate the volume and surface area of cubes, cuboids and prisms, including cylinders.

	then applied in solving quadratic equations.	line segments and perpendicular from a given point to a line. They will develop their understanding of the loci of points that are equidistant from a point, equidistant from two points, and equidistant from two lines. In the final unit of the term students are introduced to the concepts of simultaneous equations, learning how to solve them graphically by plotting on an xy co-ordinate grid.	Finally, students convert between metric units of length, area and volume, covering a range of problem-solving questions with real-world examples.		right-angled triangles. Trigonometry will be used to find missing lengths and to find missing angles.	
Personal development: • **RSE** • **Online safety** • **Enrichment**	Year 9 maths lessons help students to develop not only mathematical skills essential for functioning in society but also important life skills related to relationships, respect and ethical decision-making. The skills learnt support students in progressing academically in other subject areas as well as real-world application. In maths lessons we encourage and facilitate respectful discussions, listen to other's viewpoints and provide constructive feedback. Students are encouraged to present their mathematical findings to the class and develop an environment of clear and respectful communication. Teachers actively work on building students' confidence in their mathematical abilities, positively impacting their overall self-esteem. We look for opportunities to link their learning to real-life scenarios related to relationships and personal finance, such as budgeting and understanding loans and interest rates. We encourage collaborative problem-solving and group work to promote teamwork and communication skills. Enrichment opportunities: Pupils are offered the opportunity to take part in the Intermediate Mathematics Challenge run by UKMT and may qualify for subsequent rounds.					
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