Year 7 Curriculum Overview: Mathematics

RESPECT
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	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**(1)** Developing Number Sense **(2)** Number Properties **(3)** Place Value **(4)** Directed Number	• Order of operations • Factors, multiples & primes • Prime factors, HCF & LCM • Square & triangular numbers • Compare & order integers & decimals • Rounding to powers of 10 • Rounding to significant figures • Estimation • Four operations with negative numbers	A 'skills check' will be completed in the first few weeks of the year, which will help us assess the knowledge retained from KS2 topics so we can plan any amendments to the curriculum (if necessary). End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework, promoting resilience by encouraging students to try the homework independently using the attached support videos if needed.
Spring Term	**(5)** Algebraic Thinking **(6)** Solving Equations **(7)** Sequences **(8)** FDP Equivalence **(9)** … of Amounts	• Like & unlike terms • Function machines • Substitution • One-step & two-step equations • Continuing sequences • Linear & non-linear sequences • Understanding tenths & hundredths, fifths & quarters • Converting fluently between FDP • Fractions and percentages of amounts	A mid-year assessment will be completed on the topics covered up to that point in the year. Students will receive a revision checklist two weeks before and full information will be posted on ClassCharts. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework, promoting resilience by encouraging students to try the homework independently using the attached support videos if needed. Support students with revision (as required) ahead of the assessment.
Summer Term	**(10)** Working With Shape **(11)** Fractional Thinking **(12)** Working With Angles (13) Representing Data	• Understand & draw angles • Types of triangle & quadrilateral • Area & perimeter • Mixed numbers & improper fractions • Adding & subtracting fractions • Key angle facts • Angles in parallel lines • Frequency trees and two way tables • Pictograms and Bar Charts • Scatter Graphs	An end of year assessment will be completed on the topics covered across the year. Students will receive a revision checklist two weeks before and full information will be posted on ClassCharts. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework, promoting resilience by encouraging students to try the homework independently using the attached support videos if needed. Support students with revision (as required) ahead of the assessment.

Year 8 Curriculum Overview: Mathematics

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	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**(1)** Multiply & Divide Fractions **(2)** Ratio **(3)** Working With Percentages **(4)** Proportion **(5)** Brackets & Expressions	• Multiply and divide fractions by integers & fractions • Simplify ratio • Divide into a given ratio • Percentage increase & decrease • Percentage change • Conversion graphs • Currency conversions • Simplifying expressions • Expanding brackets • Factorising into a bracket	End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework, promoting resilience by encouraging students to try the homework independently using the attached support videos if needed.
Spring Term	**(6)** Probability Basics **(7)** Equations & Inequalities **(8)** Further Angles & Shape **(9)** Constructions **(10)** Area, Perimeter & Circles	• Probability scale • Probability of single events • Forming & solving equations & inequalities • Equations & inequalities (x on both sides) • Angles in parallel lines • Angles in polygons • Circumference and area of a circle • Area of compound shapes	A mid-year assessment will be completed on the topics covered up to that point in the year. Students will receive a revision checklist two weeks before and full information will be posted on ClassCharts. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework, promoting resilience by encouraging students to try the homework independently using the attached support videos if needed. Support students with revision (as required) ahead of the assessment.
Summer Term	**(11)** Real World Maths **(12)** Sets & Venns **(13)** Reflection and Rotation	• Metric units • Mean, median and range • Probability from Venn diagrams • Reflection • Rotation	An end of year assessment will be completed on the topics covered across the year. Students will receive a revision checklist two weeks before and full information will be posted on ClassCharts. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework, promoting resilience by encouraging students to try the homework independently using the attached support videos if needed. Support students with revision (as required) ahead of the assessment.

Year 9 Curriculum Overview:
Mathematics

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	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**(1) Factors, Multiples and Primes** **(2) Indices** **(3) Formulae** **(4) 3D Shapes – surface area** **(5) Surds** **(6) Direct Proportion** **(7) Linear Graphs** **(8) Data Representation**	• Product of Prime factors, HCF, LCM • Apply index laws including negative & fractional indices • Work with numbers in standard form • Form, rearrange and apply formulae • Plans and elevations • Surface area of cuboids, cones and spheres • Pressure • Simplfiy, add, subtract and multiply surds • Expand brackets with surds and rationalise the denominator • Understand the gradient and y-intercept of linear graphs • Plot linear graphs • Solve coordinate geometry problems • Draw and interpret pie charts	Review assessments will take place twice a term towards the end of each half term. Assessments will cover content that has been taught in the current half term as well as some key concepts from earlier in the year or in previous years.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Spring Term	**(9) Pythagoras' Theorem** **(10) Ratio** **(11) Percentage change** **(12) Transformations** **(13) Congruence** **(14) Data Analysis**	• Calculate missing sides in a right-angled triangles • Use Pythagoras' theorem to solve problems in context • Problem solving with ratios including three part ratios • Percentage multipliers, repeated percentage change, simple and compound interest • Column vectors and translation • Reflections, rotations and combinations of transformation, including invariant points • Congruent triangles and proofs of congruency • Frequency trees • Frequency polygons • Estimating averages from ungrouped and grouped frequency tables	Review assessments will take place twice a term towards the end of each half term. Assessments will cover content that has been taught in the current half term as well as some key concepts from earlier in the year or in previous years.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Summer Term	**(15) Similar Shapes** **(16) Enlargement** **(17) Similarity** **(18) Trigonometry in right-angled triangles** **(19) Probability** **(20) Volume** **(21) Data Representation and analysis**	• Similar Shapes and scale factor • Enlargement with positive integer and fractional scale factors. Enlargement with negative scale factors • Find missing sides and angles using trigonometric ratios (Sine, Cosine, Tangent) • Relative frequency and experimental probability • Volumes of cuboids, prisms and cylinders • Density • Scatter Graphs and lines of best fit • Stem and Leaf Diagrams • Quartiles and Interquartile range.	Review assessments will take place twice a term towards the end of each half term. Assessments will cover content that has been taught in the current half term as well as some key concepts from earlier in the year or in previous years.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths

Year 10 Curriculum Overview:
Mathematics

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	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**(1)** Algebraic manipulation **(2)** Bearings **(3)** Trigonometry **(4)** Accuracy and Bounds **(5)** Vectors and transformations **(6)** Congruence **(7)** Data representation and analysis	• Expand double and triple brackets and factorise quadratic expressions • Solve quadratic equations • Plot quadratic functions • Measure, draw and calculate bearings • Find missing sides and angles using trigonometric ratios (Sine, Cosine, Tangent) • Error intervals for rounded and truncated numbers and • Find bounds for calculations • Understand column vectors • Translations, rotations and reflections • Understand congruence and prove congruence in triangles • Cumulative frequency graphs and Box plots • Averages from Frequency tables	Review assessments will take place twice a term towards the end of each half term. Assessments will cover content that has been taught in the current half term as well as some key concepts from earlier in the year or in previous years.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Spring Term	**(8)** Quadratic Functions **(9)** Constructions and Loci **(10)** Venn Diagrams and Set notation **(11)** Probability **(12)** Direct and Inverse proportion **(13)** Reciprocal graphs **(14)** Linear Graphs **(15)** Inequalities **(16)** Circles	• Completing the square • Quadratic formula • Identify roots and turning points of functions • Perpendicular and angle bisectors and loci • Venn diagrams, set notation • Probability tree diagrams • Direct and inverse proportion (word problems, algebraic representation and graphs) • Plot and understand reciprocal graphs • Find equations of parallel and perpendicular lines • Solve linear and quadratic inequalities. Represent inequalities graphically • Circle mensuration, arcs and sectors, and Circle Theorems • Volume of prisms, spheres, pyramids and cones.	Review assessments will take place twice a term towards the end of each half term. Assessments will cover content that has been taught in the current half term as well as some key concepts from earlier in the year or in previous years.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Summer Term	**(17)** Simultaneous Equations **(18)** Data Representation **(19)** Trigonometry **(20)** Algebraic fractions **(21)** Volume Problems **(22)** Problem Solving and application	• Solve linear simultaneous equations by elimination and substitution • Solve simultaneous equations one of which is non-linear • Pie charts, stem and leaf diagrams and histograms • Sine rule, cosine rule, area of triangle formula • Simplify and manipulate algebraic fractions and solve equations involving algebraic fractions • Solve real world problems involving number, money, percentages, and perimeter, area and volume.	An end of year assessment will be completed on the topics covered in years 9 and 10. Students will receive a revision checklist and full information will be posted on ClassCharts. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths

Year 11 Curriculum Overview:
Foundation Mathematics

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	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**(1)** Vectors **(2)** Enlargement and similarity **(3)** Coordinate Geometry **(4)** Non-linear Graphs **(5)** 3D shapes **(6)** Compass constructions **(7)** Maps, scales and loci **(8)** Fraction and percentage problems	• Column vectors, add, subtract vectors, find scalar multiples of vectors in diagrammatic and column form. • Enlarge shapes • Finding missing sides in similar shapes • Solve problems involving equations of straight lines and coordinates • Volumes of 3D shapes, including prisms, cylinders, spheres, pyramids and cones. • Plans and elevations, and nets. • Construct triangles, length and angle bisectors and loci • Understand and calculate with map scales • Problems involving fractions, mixed numbers, percentages, simple and compound interest.	The Mock Examination in November will assess content from across the whole of the GCSE curriculum that has been taught so far. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Encourage students to attend lunch time and after-school revision sessions as required. Encourage students to complete the mixed practice revision homewok Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Spring Term	**(10)** Problems with speed, distance and time **(11)** Problems involving direct and inverse proportion **(12)** Angles **(13)** Probability **(14)** Exam preparation and revision	• Read, interpret and solve problems with clocks, timetables, energy bills • Speed, distance, time problems • Direct and inverse proportion problems • Consolidate angle properties in triangles, polygons, parallel lines • Consolidate understanding of and solve problems involving probability	The Mock Examination in March will assess content from across the whole of the GCSE curriculum. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Encourage students to complete the mixed practice revision homewok Encourage students to attend lunch time and after-school revision sessions as required. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Summer Term	• **Revision** • **Problem Solving** • **Exam Preparation**	• Revision in class of specific topics • Practise of applying problem solving skills to examination style questions • Completing past examination papers	Paper 1- No Calculator Allowed – 90 minutes Paper 2 - Calculator Allowed – 90 minutes Paper 3 - Calculator Allowed – 90 minutes	Encourage students to complete past paper homeworks. Encourage students to attend lunch time and after-school revision sessions as required. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths

Year 11 Curriculum Overview:
Higher Mathematics

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	Topics / Content Outline	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	**(1)** Transformations **(2)** Functions **(3)** Trigonometric Functions **(4)** Transformations of graphs **(5)** Circle Theorems **(6)** Estimating gradients and area under curved graphs **(7)** Algebraic representation of proportion **(8)** Compass constructions and loci	• Column vectors, translations, reflections, rotation and enlargements • Function notation, composite functions, inverse functions, • Graphs of trigonometric functions, exact values of trigonometric functions. • Reflections and translations of graphs • Circle theorems and proofs of circle theorems • Estimate gradients of curved graphs and velocity from distance-time graphs etc • Estimate area under curved graphs and distance from velocity-time graphs • Find equations for proportional relationships • Construct perpendicular bisector of a line and bisector of angle, and construct loci	The Mock Examination in November will assess content from across the whole of the GCSE curriculum that has been taught so far. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Encourage students to complete the mixed practice revision homewok Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Spring Term	**(9)** Simultaneous equations by substitution **(10)** Equation of a circle **(11)** Parallel and perpendicular lines **(9)** Surds – rationalising denominators **(10)** Geometric sequences	• Solve linear and non-linear simultaneous equations by substitution • Understand the equation of a circle • Solve problems with parallel and perpendicular lines and tangents to circles • Rationalse denominators of expressions with surds • Solve problems involving geometric equations	The Mock Examination in March will assess content from across the whole of the GCSE curriculum. End of topic tests will be completed in lessons every 2 – 3 weeks.	Encourage active participation in weekly Sparx Maths 'Compulsory' homework. Encourage students to complete the mixed practice revision homewok Encourage students to attend lunch time and after-school revision sessions as required. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths
Summer Term	• **Revision** • **Problem Solving** • **Exam Preparation**	• Revision in class of specific topic • Practise of applying problem solving skills to examination style questions • Completing past examination papers	Paper 1- No Calculator Allowed – 90 minutes Paper 2 - Calculator Allowed – 90 minutes Paper 3 - Calculator Allowed – 90 minutes	Encourage students to complete past paper homeworks. Encourage students to attend lunch time and after-school revision sessions as required. Support students with revision (as required) ahead of the assessment using quality resources such at Maths Genie Dr Frost Maths Corbett Maths