

Year 7

Subject: MATHEMATICS

<p>Overview of the year: Year 7 students will focus on developing, consolidating and applying the key concepts necessary to construct a deep and rigorous understanding of how to use fundamental Mathematical tools to solve a range of problems. During the whole of Year 7 some time each week will be targeted on numeracy and fluency with fundamental skills. Term 1 will centre on securing aspects of Number work, and using number concepts to model problems and answer questions. Other aspects of Maths will be delivered through the medium of number work. Term 2 is a multi-stranded term following modules on i) Properties of 2d and 3d shapes and transformations of shapes ii) Angle rules iii) Area and Perimeter iv) Handling Data Project Term 3 Module is focussed on beginning the mastery of Algebra to set up and solve problems, and get an introduction to the algebraic tools that underpin many mathematical concepts and ideas. This topic is delivered via use of secondary topics like angle rules/area/sequences that will have been covered the previous term</p>	<p>Ways to consolidate and extend your learning in Mathematics:</p> <ul style="list-style-type: none"> • Try to follow up lessons by using MathsWatch videos and worksheets at least twice a week. • Practice tables www.tablestest.com or use ttrockstars app • Practice number skills and number facts • Have a revision book at home • Sam Learning and MyMaths should be used often • Corbett Maths have 5-a-day activities which can be used to supplement primary gaps • Number Puzzle books • Get a Times Table APP/MathsBingo APP – in fact any Maths APP/Website that engages them and helps improve everyday numeracy <p>Best advice? Try to avoid saying ‘I could never do Maths’. It is much better to let your child know it might be a challenge, but hard work and effort will pay off. There is always a member of the Maths department available to help students before school or at 1.20pm, The SEND department give homework help too, and we have homework support in the department three times a week. Encouraging your child to apply Maths in everyday situations will help them become comfortable with numbers, estimating the shopping, working out change, measuring in the home, working out the cost of a holiday, the interest on your credit card bill, working out what time a programme will finish, estimating more abstractly ‘how many 10ps could fit in the sink?’</p> <p>For students who are looking to learn more about Maths then some possible good reads include: The Girl with a Mind for Math: The Story of Raye Montague JULIA FINLEY MOSCA Alex’s adventures in Numberland ALEX BELLOS Libellus di numeros. JIM WEST Zero:The biography of a dangerous idea: CHARLES SEIFE</p>
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Half term	Objectives/ enquiry questions	Content	Skills	Assessment
I	Number types Negative Numbers BIDMAS Fractions Numeracy Skills weekly	Odds/Evens/Factors/Multiples/Primes/HFC/LCM Simplify/Equivalence/Four functions of fractions remainder/Fractions of an amount/Percentage of amounts (Higher attainers will be extended)	Recall, pair and select facts, problem solve Spotting relationships between numbers	Diagnostic Setting Assessment September

HIGHGATE WOOD SCHOOL: CURRICULUM MAP FOR KEY STAGE 3

2	Decimals Percentages Ratio and Proportion Numeracy Skills weekly	Decimals of amounts. Operations with decimals Percentages of amounts Relationships between FDP Application of known methods to solve problems	Calculation, synthesis of methods, recall of facts, comparison of information, decision making, understanding place value	Number Assessment
3	2D and 3D Shapes Construction Transformations Angle rules and reasoning	Organise and identify shapes and solids by unique and shared properties – develop language of shapes Understand key words for angles, faces, sides and vertices Recognise symmetry of both types Construction triangles Apply all four types of transformation to 2D shapes. Apply basic angles rules building on earlier 2D module	Categorise shapes using different criteria Develop visual acuity to spot symmetry Know key vocabulary for 2 and 3 d shapes and apply it correctly for both identification and grouping Use apparatus to measure and draw Be able to translate/reflect/rotate/enlarge shapes following written instructions. Develop hand-eye co-ordination Describe transformations using key words and criteria Apply set rules to solve problems Reinforce use of equipment of measuring and drawing	Fraction and Percentages Assessment Spring 1
4	Perimeters Area Volume Handling Data project	Find Area/Perimeter and Volume of 2D/3D shapes and Solids Nets and surface area Introduction to data, collection presentation and interpretation, find averages as a project	Apply correct rule accurately to solve different problems Understand how to collect data, criticise a questionnaire and sample group Find different types of average Be able to use different tools to present data Interpret and criticise data presented in different forms	Shape and Space Assessment
5	Algebra	Simplify Label algebraically Expand Factorise Solve equations	Manipulate increasingly more complex expressions Make expressions from word and geometric information Recall and apply algebraic rules for powers and operations Factorise/expand simple expressions	Handling Data Assessment

HIGHGATE WOOD SCHOOL: CURRICULUM MAP FOR KEY STAGE 3

			Factorise/expand harder expressions Solve and make increasingly complex equations	
6	Algebra	Set up and solve equations formed from real life and mathematical problems Graphing from basics to quadratics dependent on baseline data Sequences and nth term	Solve and make increasingly complex equations Accurate plotting and predicting of graph shape. Describe and name different graphs. Extrapolating data from graphs. Spot patterns numerically, algebraically and geometrically Describe and test out ideas	Area and Perimeter Assessment End of Year Assessment

Year 8 & 9

Subject: MATHEMATICS

<p>Overview of the two years:</p> <p>Year 8 and 9 modules aim to extend and build on previous learning.</p> <p>The students will follow the same modules but start in at the point where they haven't covered the concepts.</p> <p>Students are expected to go back over previous learning independently if they have forgotten methods and language – Corbett Maths 5-a-day is a good format for random questions</p>	<p>Ways to consolidate and extend your learning in Mathematics:</p> <ul style="list-style-type: none"> • Watch a different MathsWatch video at least once a week – especially if you were uncertain about the topic. • Practice number skills and number facts often • Have a revision book at home • Sam Learning and MyMaths should be used regularly • NRICH has lots of ideas for strong Mathematicians • Number Puzzle books or Maths APP for tables and fluency • Trying out questions from old exam papers is a good way to improve literacy and check for areas that need more work (www.emaths.co.uk used to have papers and markschemes) • Keep Maths practice short and often and avoid students going over topics they already know off by heart • Use www.mathsgenie.co.uk and www.corbettmaths.com for videos worksheets and model answers <p>Best advice? Try to avoid saying 'I could never do Maths'. It is much better to let your child know it might be a challenge, but hard work and effort will pay off. There is always a member of the Maths department available to help students.</p> <p>Encouraging your child to apply Maths in everyday situations will help them become comfortable with numbers, estimating the shopping, working out change, measuring in the home, working out the cost of a holiday, the interest on your credit card bill, working out what time a programme will finish, estimating more abstractly 'how many 10ps could fit in the sink?</p> <p>For students who are looking to learn more about Maths then some possible good reads include: Alex's adventures in Numberland ALEX BELLOS Libellus di numeros. JIM WEST Zero:The biography of a dangerous idea: CHARLES SEIFE 50 Mathematical Ideas You Really Need To Know TONY CRILLY The Indisputable Existence of Santa Claus: HANNAH FRY</p>
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Half term	Objectives/ enquiry questions	Content Dependent on prior attainment:	Skills Dependent on prior attainment:	Assessment
I	Number types and number formats	Know directed number Understand factors/multiples/primes etc *Standard Form *Surds	Calculation Interpretation	8 and 9 Number Assessment

HIGHGATE WOOD SCHOOL: CURRICULUM MAP FOR KEY STAGE 3

	Fractions/Decimals and Percentages <i>(Year 9 using skills in context of pay/bills/work)</i>	Using 4 operations with FDP Conversion between F P and D. Percentages Fractions Decimals of amounts Solving problems with different number types Using FDP within the medium of other topics.	Identification Conversion Calculation Comparison Evaluation	
2	Ratio Proportion and Compound Measures Powers and Roots	Ratio and unit cost. Best values Direct and Indirect proportion. DST DMV Powers and Index laws	Make accurate calculations. Decision making with reasoning. Understand value of unit comparison and interpreting correctly numerical answers. Apply to real life situations. Connect numerical relationships between powers and roots Solve simple problems with powers – develop connections between indices and algebra	Year 8 Ratio Assessment Year 9 FDP Assessment
3	Expressions Formula	Simplify Label algebraically Substitute Expand Factorise Re-arrange	Manipulate increasingly more complex expressions Make expressions from word and geometric information Recall and apply algebraic rules for powers and operations Factorise/expand simple expressions Factorise/expand harder expressions Apply formulae to real life problems Re-arrange equations. Substitute into formulae with BIDMAS	Year 8 and 9 Expressions Skills (ALGEBRA 1) Assessment

HIGHGATE WOOD SCHOOL: CURRICULUM MAP FOR KEY STAGE 3

4	Equations and Graphs Sequences	Equations and Inequalities Trial and Improvement Sequences from even numbers to Fibonacci, from linear to quadratic.	Set up and solve equations of varying complexity Re-arrange equations building on work from expressions Solve inequalities Accurate plotting and predicting of different graphs and inequalities. Describe and name different graphs. Extrapolating data from graphs. Use trial and error to locate a reasonable solution. Spot, continue, describe and name sequences Develop links between sequences and graphing	Year 8 Solving Equations Year 9 Algebra 2 Equations and Graphs
5	1 Probability 2 Properties of Shape and Transformations 3 Perimeter Area and Volume (Yr 8) 3 Angle Rules and Reasoning (Yr 9)	Find and present probability Shape and solid properties and language, Tessellations, congruency and proof, introduction to similarity. Present and interpret data Criticise sampling and questionnaires Lines; Angle Rules, shape properties, Tessellations, congruency and proof, further similarity	Find probability using a variety of formats – linguistic and numerical. Use Venn diagrams and tables for probability Interpret probability in real world situation <i>(gambling module?)</i> Select and produce suitable forms of presentation for data Interpret and comment upon data Solve problems by identifying and applying correct rule for area/perimeter and volume for various and composite shapes and solids. Accurate measuring	Year 8 Probability Assessment Year 9 Angles
6	4 Perimeter Area Volume (Yr 9) 4 Handling Data (Yr 8) 5 Angle Rules and Reasoning (Yr 8) 5 Handling Data (Yr 9)	Pythagoras Trigonometry Advanced Trig Circle Theorems	Solve problems by identifying and applying correct rule for missing angles/edges Understand Pythagoras Theorem not just the rule Use in real-life situations Apply differing levels of Trig for solving problems Select and apply rules for single and multi-stage problems Understand and recall definitions, rules and proofs Use and apply trigonometry and different levels	End of Year Assessment