FARINGDON COMMUNITY COLLEGE

Year 10 & 11 GCSE HIGHER Mathematics – Outline Programme of Study

	Year 10 Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Big ideas/ topics	Algebra – expanding, factorising & sequences. Statistical data	Fractions, ratio & percentages Pythagoras & trigonometry	Algebraic & real-life graphs Area & Volume	Transformations & constructions Algebra – equations & inequalities	Probability Multiplicative reasoning	Similarity & congruence Trigonometric graphing
Key Knowledge	Simplify and manipulate algebraic expressions. Expanding products of two or more binomials. Factorising quadratic expressions. Construct and interpret data in the forms of tables, graphs & charts.	Calculate and problem solve using fractions, ratio and percentages. Know the formulae for Pythagorean theorem and trigonometric ratios. Apply them to find lengths and angles in right angles triangles, including triangles in 3D shapes.	Plot and identify linear graphs and real-life graphs from kinematic problems, such as speed, distance and acceleration. Know and apply formula to calculate area and volume for a variety of shapes.	Understand transformation of shapes, including rotation, reflection, translation and enlargement. Construct using ruler, protractor and compasses. Use these to construct given figures and solve loci problems. Solve equations & inequalities.	Analyse probability, including using two-way tables, tree diagrams and Venn diagrams. Calculate the probability of dependent and independent combined events. Express a multiplicative relationship as a fraction or ratio.	Use congruence criteria for triangles. Identify, describe and construct congruent and similar shapes. Know and apply the sine and cosine rule. Sketch trigonometric graphs and recall exact trigonometric values for key angles. Translate, stretch and reflect graphs of functions.
	Year 11 Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Big ideas/ topics	Further statistics – Histograms & cumulative frequency Equations & graphs	Circle Theorems Algebra – algebraic fractions & proof	Vectors Geometric proof	Proportion Graphing functions	Past paper Practice Revision	Examinations
Key Knowledge	Construct and interpret diagrams for grouped discrete and continuous data, including histograms and cumulative frequencies together with box plots and interquartile ranges.	Apply and prove standard circle theorems concerning angles, radii, tangents & chords, and use them to prove related results. Manipulate algebraic fractions. Use mathematical algebraic argument to prove concepts.	Apply addition & subtraction of vectors, multiplication of vectors by a scalar and diagrammatic & column representations of vectors. Use vectors to construct geometric arguments and proof.	Understand direct and inverse proportional relationships. Set up, solve and interpret answers in growth and decay problems. Interpret the gradient at a point of a curve and rates of change.	Recall for all GCSE Foundation topics, using past paper questions and revision techniques.	Revision and past paper practice continues. Students are given 'predicted' paper 2 & 3 papers, once papers are sat in order to target revision practice.

Further information and reading list

- Our GCSE examination board is Edexcel.
- Revision guides are available from lead education publishers such as CPG, Pearson, Letts & Collins. Please check it for Edexcel examination board and for the correct tier – Higher.
- Pre-printed flash cards are available from CGP, which have methods, questions and answers or order from Corbettmaths.com
- There is lots of support available for GCSE higher students. YouTube videos, such as GSCE maths tutor, Khan Academy or examination past paper walk throughs.
- Sparx Maths provides help videos for homework and the independent learning button provides access to the whole course with videos and questions to practice.
- Useful websites: www.mathsgenie.co.uk (breaks revision topics into target grades), www.corbettmaths.com, (all topics with help videos and practice questions), https://www.bbc.co.uk/bitesize/examspecs/z9p3mnb (bbc bitesized for Edexcel).

Ways to support and extend student learning in this subject

- Building confidence is key for some higher tier students, ensure there are no gaps in their knowledge which can cause concern, for example: it is assumed that they can confidently use long division or use a compass competently, sometimes extra practice on these skills early on in year 10 can help when they get to year 11 and these skills are assumed in more complex problem solving.
- The best way to learn maths is through practice questions and repeating these regularly. Use the websites listed above to provide additional practice questions.