Bishop Heber High School

Subject	Year	Term
Maths	12	1

Topic

Proof, Surds & Indices, Quadratics & Cubics, Kinematics, Inequalities, Simultaneous Equations, Co-ordinate Geometry, Newton's Laws of Motion

Content (Intent)

Prior Learning (Topic) GCSE

- Constructing basic algebraic proofs.
- Laws of indices, simplifying surds, rationalising the denominator, connection between surds & indices.
- Solving quadratic equations, factorising quadratic expressions, completing the square, plotting quadratic graphs, plotting cubic graphs.
- Distance-time graphs & velocity-time graphs.
- Solving inequalities
- Gradients of parallel and perpendicular lines
- Transformations of graphs

Future Learning (Topic) Binomial Expansion, Trigonometry, Dynamics, Logarithms & Exponential Functions, Differentiation, Moments

What Knowledge and Skills will be taught (Implementation)	How will your understanding be assessed & recorded (Impact)
• Constructing proof using alternative methods. • Consolidation and extension of algebraic manipulation skills and of using the laws of surds & indices. • Fully understanding & using the discriminant. • Factorising both quadratic and cubic expressions using the Factor Theorem and algebraic long division • Kinematics – understanding constant acceleration formulae in 1-dimensional motion, and the links with velocity-time graphs	Baseline test in Pure Maths (start of year) Early Hurdle test in Pure Maths Formal Homework (Pure Maths & Mechanics) Ongoing self-assessment
• Solving linear & quadratic inequalities, expressing the solution using set notation, graphing inequalities in 2 variables. • Solving simultaneous equations including one non-linear. • Working with circles, tangents, normals, circumcircles, parallel and perpendicular lines. • Sketching and transforming graphs. • Drawing force diagrams., working with vector quantities. • Using Newton's Laws of Motion to set up and solve equations, including for connected particles.	Early Hurdle Test in Mechanics Formal Homework (Pure Maths & Mechanics) Ongoing self-assessment

How can parents help at home?

Check assessment record in formal assessed homework books.
Encourage use of MyMaths (www.mymaths.co.uk)

Helpful further reading/discussion (including Reading and Vocabulary Lists)

Class textbook Chapters 1 & 2, chapter 15 (not section 3)
Chapters 3 & 4, chapter 16

Additional textbooks:
ISBN 978-1-292-18339-8 (Pure) chapters 1-7
ISBN 978-1-292-23253-9 (Mechanics) chapters 9 & 10

Website:
https://qualifications.pearson.com/en/qualifications/edexcel-a-levels/mathematics-2017.html

Vocabulary Lists

Plane
Displacement
Inextensible
Magnitude
Resultant
Kinematics