Bishop Heber High School

Subject	Year	Term
Further Maths	**13**	**2**

Topic

Methods in Differential Equations, Modelling with Differential Equations, Volumes of Revolution, Decision Analysis, Game Theory, Recurrence Relations

Content (Intent)

Prior Learning (Topic) Year 12 Maths & Further Maths

- Differentiation and integration skills
- Basic volumes of revolution
- Parametric equations

Future Learning (Topic)

What Knowledge and Skills will be taught (Implementation)	How will your understanding be assessed & recorded (Impact)
• Find general and particular solutions of first order differential equations by using an integrating factor. • Solve second order differential equations of the form $y'' + ay' + by = f(x)$ where $f(x)$ is a polynomial, exponential or trigonometric function. • Solve differential equations linked to various contexts, including simple harmonic motion, and damped oscillations. • Construct and use a decision tree, and calculate expected monetary values • Reduce a pay-off matrix using dominance arguments	**Mock Exams** Formal Homework (Pure Maths & Decision Maths) Ongoing self-assessment
• Calculate volumes of revolution about both the x and y-axes for more complex functions • Find volumes of revolution for functions given in parametric form. • Solve second order recurrence relations and apply solutions to problems in context.	Formal Homework (Pure Maths & Decision Maths) Ongoing self-assessment

How can parents help at home?

Encourage use of Mixed Exercises (in textbooks) as revision at the end of each chapter.
Encourage use of past exam papers (available on Pearson website)

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

Textbooks (ISBN):
Core Pure Book 1: ISBN 9781292183336
Core Pure Book 2: ISBN 9781292183343
Decision Mathematics 1: ISBN 9781292183299
Decision Mathematics 2: ISBN 9781292183305
Website: https://qualifications.pearson.com

Vocabulary Lists

Dummy	Node
Degeneracy	Definite
Unbalanced	Discontinuous
Sources	Auxiliary
Sinks	Harmonic
Capacity	Damped
Homogeneous	Oscillations