Further Mechanics 1

Week	Unit		Title
14/09/2020	1		**Momentum and impulse (part 1)**
		1.1	**Momentum and impulse. The impulse-momentum principle.** **The principle of conservation of momentum applied to two spheres colliding** **directly. (The spheres may be modelled as particles)**
21/09/2020	2		**Work, energy and power**
		2.1	**Kinetic and potential energy, work and power. The work-energy principle. The principle of conservation of mechanical energy. (Problems involving motion under a variable resistance and/or up and down an inclined plane may be set).**
	4		**Elastic collisions in one dimension**
02/11/2020		4.1	**Direct impact of elastic spheres. Newton's law of restitution. Loss of kinetic energy due to impact. (Students will be expected to know and use the inequalities $0 \le e \le 1$ (where e is the coefficient of restitution). The spheres may be modelled as particles.)**
30/11/2020		4.2	**Successive direct impacts of spheres and/or a sphere with a smooth plane surface(The spheres may be modelled as particles.)**

Further Mechanics 2

Week	Unit		Title
04/01/2021	1		**Motion in a circle (part 1)**
		1.1	**Angular speed. v = rω . Uniform motion of a particle moving in a horizontal circle. Radial acceleration in circular motion. The forms rω2 and 2 v r are required.(Problems involving the 'conical pendulum', an elastic string, motion on a banked surface, as well as other contexts, may be set).**
22/02/2021	2		**Centres of mass of plane figures**
		2.1	**Moment of a force. Centre of mass of a discrete mass distribution in one and two dimensions.**

		2.2	Centre of mass of uniform plane figures, and of composite plane figures. Centre of mass of frameworks. Equilibrium of a plane lamina or framework under the action of coplanar forces.(The use of an axis of symmetry will be acceptable where appropriate. Use of integration is not required. Questions may involve non-uniform composite plane figures/frameworks. Figures may include the shapes referred to in the formulae book. Unless otherwise stated in the question, results given in the formulae book may be quoted without proof).
12/04/2021	5		**Further kinematics (part 1)**
		5.1	Kinematics of a particle moving in a straight line when the acceleration is a function of the displacement (x), or time (t) or velocity (v).
07/06/2021			Start teaching Year 2 Further Mechanics curriculum

Further Mechanics
book 1 ch 1 p2-9

Assessment 1-Baseline assessment

Further Mechanics
book 1 ch 2 p16-33

Further Mechanics
book 1 Ch 4 p70-84

Assessment 2

Further Mechanics
book 1 Ch 4 p84-91

Assessment 3

Resources

Further Mechanics 2
chapter 1 p2-19

Further Mechanics 2
chapter 2 p37-43

Assessment 4-Mocks

Further Mechanics 2
Chapter 2 p43-72

Further Mechanics 2
Chapter 5 p147-166

Assessment 5

Year 12 exams

Helpful video clips/powerpoints etc

https://www.drfrostmaths.com/resource.php?rid=421

https://www.drfrostmaths.com/resource.php?rid=422

https://www.drfrostmaths.com/resource.php?rid=437

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