**Further Mechanics 1 Self-Assessment Sheets**

**BOLD items are in the A Level only**

Chapter 1 – Momentum and Impulse

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| **Progress Descriptor** | **☺** | **☹** |
| Calculate the momentum of a particle and the impulse of a force |  |  |
| Solve problems involving collisions using the principle of conservation of momentum |  |  |
| **Use the impulse-momentum principle and the principle of conservation of momentum in vector form** |  |  |
| What I need to do to improve… |

Chapter 2 – Work, Energy and Power

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| **Progress Descriptor** | **☺** | **☹** |
| Calculate the work done by a force when its point of application moves |  |  |
| Calculate the kinetic energy of a moving particle and the potential energy of a particle |  |  |
| Use the principle of conservation of mechanical energy and the work-energy principle |  |  |
| Calculate the power developed by an engine |  |  |
| What I need to do to improve… |

Chapter 3 – Elastic strings and springs

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| **Progress Descriptor** | **☺** | **☹** |
| **Use Hooke’s law to solve equilibrium problems involving elastic springs and strings** |  |  |
| **Use Hooke’s law to solve dynamics problems involving elastic springs and strings** |  |  |
| **Find the energy stored in an elastic spring or string** |  |  |
| **Solve problems involving elastic energy using the principle of conservation of mechanical energy and the work-energy principle** |  |  |
| What I need to do to improve… |

Chapter 4 – Elastic Collisions in One Dimension

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| **Progress Descriptor** | **☺** | **☹** |
| Solve problems involving the direct impact of two particles by using the principle of conservation of momentum and Newton’s law of restitution |  |  |
| Apply Newton’s law of restitution to problems involving the direct collision of a particle with a smooth plane surface |  |  |
| Find the change in energy due to an impact or the application of an impulse |  |  |
| Solve problems involving successive direct impacts |  |  |
| What I need to do to improve… |

Chapter 5 – Elastic Collisions in Two Dimensions

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| **Progress Descriptor** | **☺** | **☹** |
| **Solve problems involving the oblique impact of a smooth sphere with a fixed surface** |  |  |
| **Solve problems involving the oblique impact of two smooth spheres** |  |  |
| **Solve problems involving successive oblique impacts of a sphere with smooth plane surfaces** |  |  |
| What I need to do to improve… |