**Physics Revision: Energy Equations**

Mastery Matrix Points

|  |
| --- |
| Describe the law of conservation of energy in open and closed systems. |
| Describe ways in which energy can be transferred within a system |
| Describe ways to store energy |
| Use and rearrange equations for elastic potential energy |
| Use and rearrange equations for kinetic energy |
| Use and rearrange equations for gravitational potential energy |
| Recall the units and symbols for the quantities in these equations |

Key Knowledge

Law of conservation of energy:

Closed systems:

* All energy transferred usefully/ some wasted?
* Real life/simplified?

Open systems:

* All energy transferred usefully/ some wasted?
* Real life/simplified?

Name all the types of potential (stored) energy:

Equations:

Elastic potential energy

Kinetic energy

Gravitational energy

|  |  |  |
| --- | --- | --- |
| Name | Symbol | Units |
|  | Ek |  |
|  | Eg |  |
|  | Ee |  |
|  | m |  |
|  | v |  |
|  | g |  |
|  | h |  |
|  | k |  |
|  | e |  |

Understanding and Explaining

1. **Explain the energy transfers when i) a ball is projected upwards ii) a moving car hits an obstacle iii) an car is accelerated by a constant force iv) a vehicle slows down v) water boils in an electric kettle.**
2. **Show how to rearrange the elastic potential energy equation for k and then e.**
3. **Show how to rearrange the kinetic energy equation for m and then v.**
4. **Show how to rearrange the gravitational potential energy equation for m, g and then h.**