**Physics Topic 1: Energy**

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| **Definitions** | **Equations** |
| 1 | Power | The rate at which energy is transferred. | 1 |  |  |
| 2 | Watt | The unit of Power equal to one joule per second | 2 | **Kinetic energy = 0.5 x mass x (speed)2** |  |
| 3 | System | An object or a group of objects. | 3 | **Grav. Pot. Energy = mass x Grav. Field Strength x Height** |  |
| 4 | Kinetic energy | The energy of moving objects. | 4 |   |  |
| 5 | Elastic Potential Energy | Energy stored in stretched or compressed materials (eg a spring). | 5 |  |  |
| 6 | Gravitational Potential Energy | Energy stored in objects by lifting them up. | **Equations given to you** |
| **1** | **Elastic potential energy = 0.5 x spring constant x (extension)2** |  |
| 7 | Renewable Energy Resource | A resource that can be replaced as it is used. | **2** | **Change in thermal energy = mass x specific heat capacity x temperature change** |  |
| 8 | Fossil Fuels | Non-renewable energy resources made from the fossilised remains of animals and plants. | **Diagrams** |
| 9 | Dissipated | Lost to the environment or wasted. | **Required Practical 1: Finding Specific Heat Capacity of brass*** The brass starts at 0°C
* When moved into the hot water the brass warms up and water cools down until both are same temperature
* Energy gained by brass = Energy lost by water
* Using equation 2 above:
* So
* Insert measurements into equation to give specific heat capacity of brass.
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| 10 | Energy Efficiency | The proportion of the total energy supplied to a device that is transferred usefully |
| 11 | Conservation of Energy | Energy cannot be created or destroyed, just transferred from one store to another |
| **Units** |
| 1 | Energy/Work | Joules (J) |
| 2 | Mass | Kilograms (kg) |
| 3 | Force | Newtons (N) |
| 4 | Speed | Metres per second (m/s) |
| 5 | Power | Watts (W) |
| 6 | Gravitational field strength | Newtons per kilogram (N/kg) |
| 7 | Specific heat capacity | Joules per kilogram per degree Celsius(J/kg°C) |