

Edexcel Physics A-Level

Topic 2.4 - Energy and Efficiency

Flashcards

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State the equation used to calculate the work done by a force.



State the equation used to calculate the work done by a force.

$$W = F\Delta s$$

Work Done = Force x Change in
Distance



What force is used when calculating the work done by a force over a distance?



What force is used when calculating the work done by a force over a distance?

The component of the force that is in the direction of the object's motion.



What is the unit of work?



What is the unit of work?

Joules, J



What is the work done by the force, F when it moves the object a distance of x ?



What is the work done by the force, F when it moves the object a distance of x ?



$$\text{Work Done} = F \cos \theta x$$



What form of energy do all moving objects have?



What form of energy do all moving objects have?

All moving objects have kinetic energy.



State the equation used to calculate the kinetic energy of an object.



State the equation used to calculate the kinetic energy of an object.

Kinetic Energy = $\frac{1}{2} \times \text{Mass} \times \text{Velocity}^2$

$$E = \frac{1}{2} mv^2$$



What form of energy does a raised object have?



What form of energy does a raised object have?

Gravitational Potential Energy



State the equation used to calculate gravitational potential energy.



State the equation used to calculate gravitational potential energy.

GPE = Mass x Gravitational Field
Strength x Height

$$E = mgh$$



What is the conservation of energy?



What is the conservation of energy?

The law of conservation of energy states that energy cannot be created or destroyed - it can only be transferred between different forms.



What is power?



What is power?

The rate at which energy or work is done.



State two equations used to calculate power.



State two equations used to calculate power.

$$P = E/t$$

$$P = W/t$$



What is the unit of power?



What is the unit of power?

Watt, W



What is the waste energy of an electrical appliance?



What is the waste energy of an electrical appliance?

The waste energy is the energy that is not used for the appliance's intended purpose.



State the equation relating energy and efficiency.



State the equation relating energy and efficiency.

$$\text{Efficiency} = \frac{\text{Useful Energy Output}}{\text{Total Energy Input}}$$



State the equation relating power and efficiency.



State the equation relating power and efficiency.

$$\text{Efficiency} = \frac{\text{Useful Power Output}}{\text{Total Power Input}}$$



What is the unit of efficiency?



What is the unit of efficiency?

Efficiency is a ratio and so doesn't have an associated unit.

