

Draw an energy transfer diagram for a car that takes for every 100 joules of chemical energy it uses it produces 40j of kinetic energy. The rest of the energy is wasted.

(Use a ruler to ensure the diagram is to scale)

State the definition for efficiency.

State the equation for efficiency.

Calculate the efficiency of a light bulb that produces 3 Joules light energy for every 15 Joules it receives.

Explain how a different bulb can produce the same amount of light energy, but be less efficient.

Explain how to make a home more energy efficient.

Complete the table with information about methods of electricity generation. The first row has been done for you.

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| --- | --- | --- | --- |
| Name of source | Renewable? (Y/N) | Advantages | Disadvantages |
| Solar (Photovoltaics)  | Y | Clean, no pollution, will last for billions of years | Less output when not Sunny. Expensive. |
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Explain why many countries are pushing to use more and more renewable energy.

State the equation for gravitational potential energy.

Calculate the gravitational potential energy is a bicycle of mass 20kg and its rider of mass 50kg cycle to the top of a hill 120 metres high.

State the equation for kinetic energy.

Calculate the kinetic energy of a runner of mass 60kg running at a speed of 4m/s

State the types of energy stores

State the types of energy transfer

State the law of conservation of energy.

Write a couple of sentences describing the energy transfers in each situation. The first has been done for you

A ball rolled up a slope: Kinetic energy is transferred to gravitational potential energy as the ball gains height. It is also transferred to thermal energy through mechanical energy transfer (friction with slope)

An object hitting an obstacle and stopping:

A kettle boiling:

A vehicle applying its brakes to come to a stop.