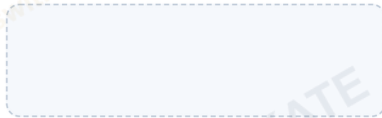


Energy Stores and Transfers

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Draw pictures in each box to help remember the energy stores and transfers

Gravitational Potential Energy



$$E_p = m g h$$

Kinetic Energy

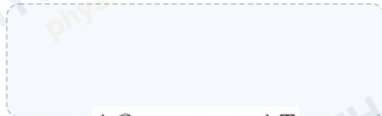


$$E_k = \frac{1}{2} m v^2$$

Elastic (Strain) Energy



Thermal Energy



$$\Delta Q = m \times c \times \Delta T$$

Energy Stores

Energy is **stored** in different ways. It can be transferred between stores, but the total energy stays the same.

Electrostatic Energy



Magnetic Energy



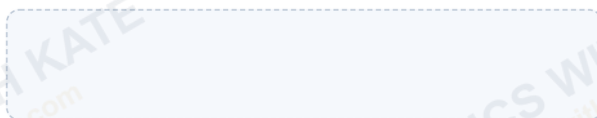
Nuclear Energy



Chemical Energy

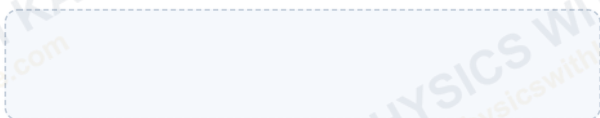


Electrically



$$E = I V t = P t$$

Mechanically



$$W = F \times d$$

Energy Transfer

aka "Work done by..."

This explains **how** energy moves between stores.

By Heating



By Radiation

light & sound



Conservation of Energy

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Definition

State what is meant by the principle of conservation of energy.

How to describe an energy transfer

For each stage, write: **object — store name — increases / decreases**

1

One object's store **decreases**.

2

Another object's store **increases**.

3

Name the transfer — work done:
mechanically / electrically / by heating / by radiation (sound or light).

a Tick the correct answer for each.

When a spring is stretched by hanging a weight on it, how is energy transferred to the spring?

- ☐ A electrically
☐ C mechanically

- ☐ B by heating
☐ D by radiation

A cell (battery) makes a bulb light up. How is energy transferred from the cell to the bulb?

- ☐ A electrically
☐ C mechanically

- ☐ B by heating
☐ D by radiation

b A skydiver speeds up as they fall through the air after jumping from a plane. Describe the changes to the energy stores. [3 marks]

EXAMPLE The gravitational potential energy store of the skydiver **decreases**.

c An egg is dropped. It hits the floor and breaks, so it does not rebound. Describe the energy transfers taking place from when the egg is dropped to after it has hit the floor. Refer to the energy stores as well as the transfers between them. [4 marks]

Before the egg is dropped

EXAMPLE

The egg has energy in its **gravitational potential** store (and no energy in its kinetic store).

Just before the egg hits the floor

After the egg has hit the floor