4.1.1.1

Energy Stores and Systems

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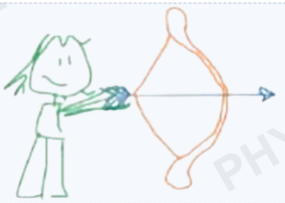
Gravitational Potential Energy

$E_p = m\,g\,h$

Kinetic Energy

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

Elastic Potential Energy



$E_e = \frac{1}{2}\,k\,e^2$

Thermal Energy

$E = m\,c\,\Delta\theta$

Energy Stores

Energy is not created or destroyed, only transferred. The total energy is **constant** in a closed system.

Electrostatic Energy

Magnetic Energy

Nuclear Energy

Chemical Energy

Energy Stores and Systems

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Describing Energy Transfers

How to get all 3 marks — describing energy transfers

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

1. One object's store **decreases**.
2. Another object's store **increases**.
3. Work done against **friction / air resistance** increases the **thermal** store.

a **Describe the changes to the energy stores as a child slides down a playground slide.** [3 marks]

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

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 kinetic energy store of the skydiver **increases**.*

c **A cyclist freewheels (without pedalling) down a hill and speeds up. Describe the changes to the energy stores.** [3 marks]

EXAMPLE

Work done against friction and air resistance increases the thermal energy store of the surroundings.