

Energy

OxfordAQA International GCSE Physics 9203 energy full package

1. Energy: the accountant of physics

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Nothing destroys energy — it is only moved between stores and partly dissipated into less useful forms

OxfordAQA's second topic builds the accounting: work and power, the three energy-store equations, conservation with Sankey diagrams, and the choices behind national energy resources

2. Forces and energy

Forces and energy

$$W = F \times d \quad E_e = \frac{1}{2}ke^2 \quad E_p = mgh \quad E_k = \frac{1}{2}mv^2 \quad P = \frac{E}{t}$$

Work is done when a force moves its point of application through a distance; work against friction transfers energy by heating (shuttle re-entry, meteorites, brakes)

3. Energy transfers and dissipation

Energy transfers and dissipation

When a system changes, energy is transferred — usefully, stored, or dissipated ("wasted") into less useful stores; it is never created or destroyed

Friction and air resistance dissipate energy by heating

4. Energy resources

Energy resources

Fuels are chosen for ease of storage, energy content and safety; some transfer more of their energy usefully than others

National generation trades renewability against cost, reliability and the environmental cost of extraction, use and disposal

Check yourself

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Work each checklist line against the worked examples named in the handout.

Redo any line you cannot close without the handout open.