



Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.

Topic 1: Energy

Energy Stores There are many different stores of energy, including:

chemical (in food and fuels) thermal (in hot objects) kinetic (in moving objects) elastic (in stretched or compressed objects) nuclear (in nuclear fuels) gravitational potential (in raised up objects)

Conservation of energy

Energy cannot be created or destroyed!

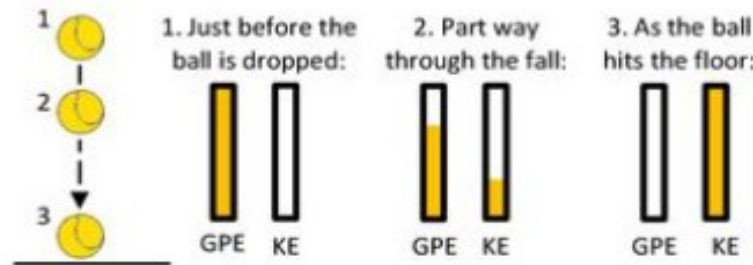
Energy can only be stored or transferred

The total energy in a system before a change occurs equals the total energy in the system after the change

With each energy transfer, some energy is transferred to the surroundings through heat or as sound.

Energy Transfers: When work is done, energy is transferred or shifted between energy stores, eg:

When a ball falls energy is shifted from the gravitational potential store of the ball to the kinetic store of the ball.



When firing a catapult, energy is shifted from the chemical store of the person's arm to the elastic store of the catapult to the kinetic store of the stone.



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Topic 2: Heating and temperature

ENERGY AND TEMPERATURE

- **Thermometers** measure temperature in degrees **Celsius (°C)**.
- Temperature measures the *average* energy.
- **Thermal energy** measures the total energy.

A warm bath has more thermal energy than a heated kettle, even though the kettle has a higher temperature.

Heating solids, liquids, and gases

- As we heat things the particles gain more **kinetic energy**, and vibrate more or faster.
- The energy needed to heat an object depends on the mass, material and temperature rise.

RAIDIATION

Infrared radiation transfer energy without particles – It is a wave

All objects emit radiation

The amount depends on their temperature and the surface colour and texture

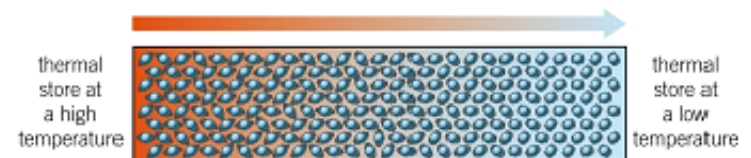
Radiation can be absorbed or reflected

CONDUCTION AND CONVECTION

Thermal energy can be **transferred** by **conduction**, **convection** or **radiation**.

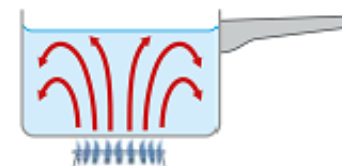
Conduction

- Particles collide into others when they vibrate.
- Occurs in solids.



Convection

- Occurs in liquids or gases.
- The part in contact with the heat source gets hotter. The particles move faster, causing them to become further apart, and a decrease in density.
- The hot part then rises, and cooler, denser parts fall and take its place at the bottom.
- They now heat, so the cycle continues. We call this a **convection current**.



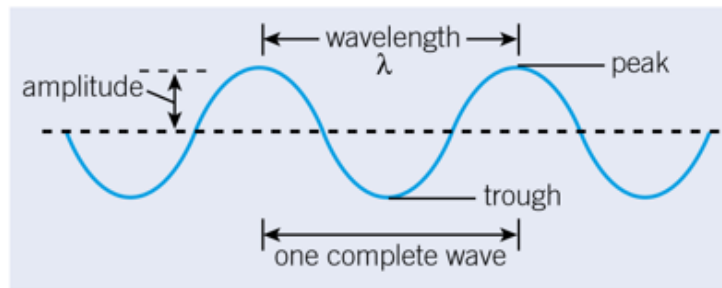


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Topic 3: Waves

PROPERTIES OF WAVES

A wave is an **oscillation** or **vibration** that transfers energy. Matter is not transferred. Waves can be longitudinal or transverse.



Amplitude – distance from the middle to the top or bottom of the wave

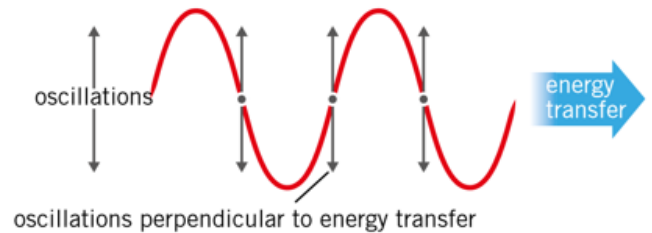
Wavelength – distance between a point on the wave to the same point on the next wave

Trough – bottom of the wave **Peak** – top of the wave

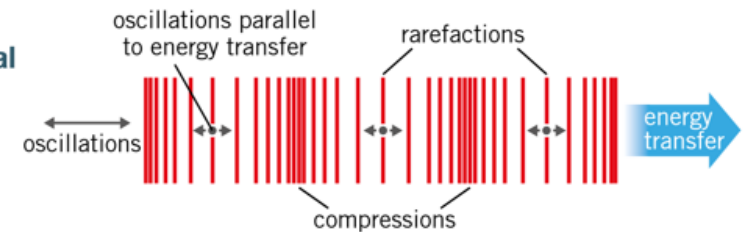
Frequency – how many waves go past a particular point in a second, measured in **hertz** (Hz) or kHz

TRANSVERSE AND LONGITUDINAL WAVES

Transverse waves



Longitudinal waves



Transverse wave – A wave in which the oscillation are at right angles to the direction of energy transfer

Longitudinal wave – A wave in which the oscillation is parallel to the direction of the energy transfer



Vocabulary	Wider Research	Apply
<ol style="list-style-type: none">1) Thermal energy2) Sound energy3) Light energy4) Kinetic energy5) Chemical energy6) Gravitation potential energy7) Elastic energy8) Nuclear energy9) Energy transfer10) Conservation of energy11) Temperature12) Conduction13) Convection14) Radiation15) Wave16) Wavelength17) Frequency18) Amplitude19) Peak20) Trough21) Transverse wave22) Longitudinal wave	<p>Provide definitions for each key words in the vocabulary section</p> <p>Energy stores and transfers</p> <p>https://www.bbc.co.uk/bitesize/guides/z99jq6f/revision/1</p> <p>Conduction, convection and radiation</p> <p>https://www.bbc.co.uk/bitesize/clips/zhdyr82</p> <p>Waves</p> <p>https://www.bbc.co.uk/bitesize/topics/zw982hv/articles/z27mgdm</p> <p>https://www.bbc.co.uk/bitesize/topics/zw982hv/articles/z8mmb82</p>	<p><u>Energy transfers</u></p> <p>Find 10 different appliances that are in your home and produce an energy transfer diagram to show how they use energy</p> <p><u>Heat and temperature</u></p> <p>Research how a vacuum flask works. How do they keep hot drinks hot and cold drinks cold</p> <p><u>Waves</u></p> <p>Compare transverse and longitudinal waves</p>