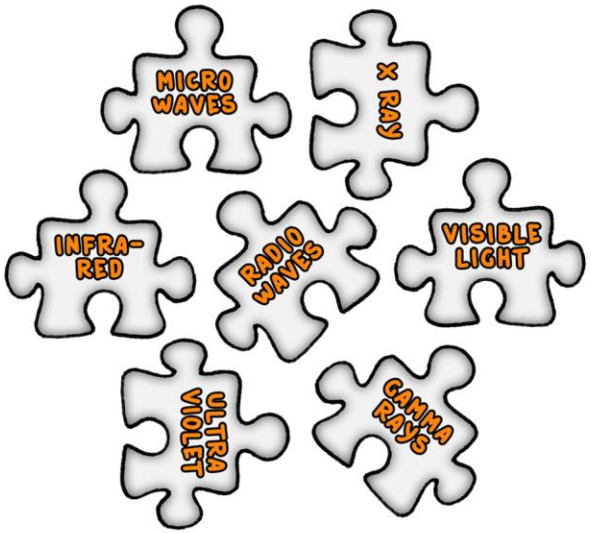
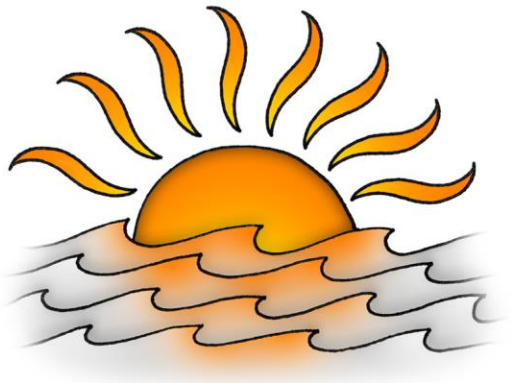
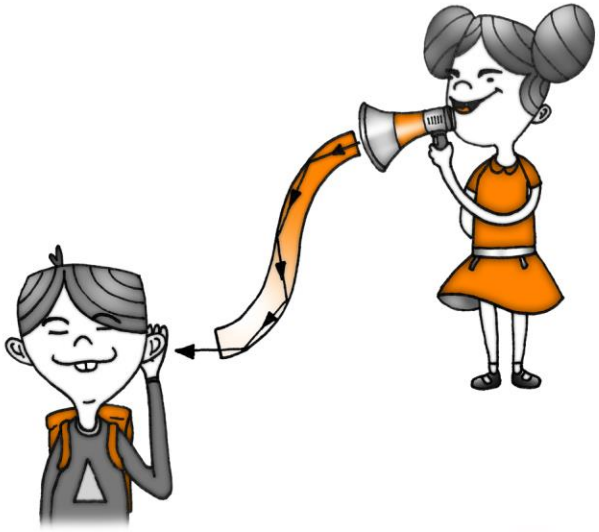
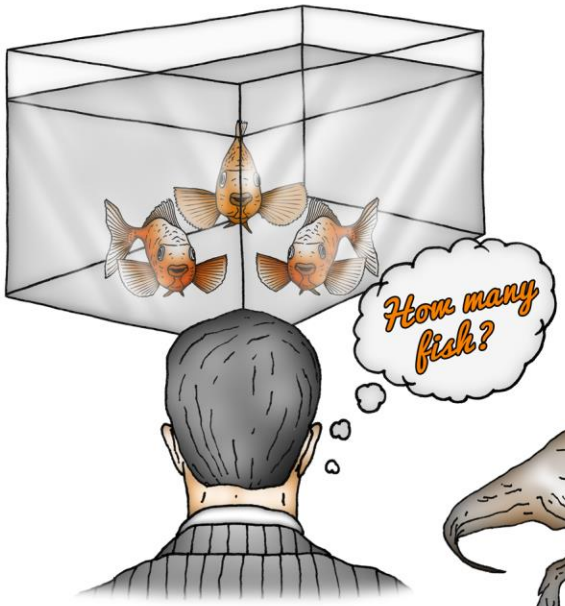
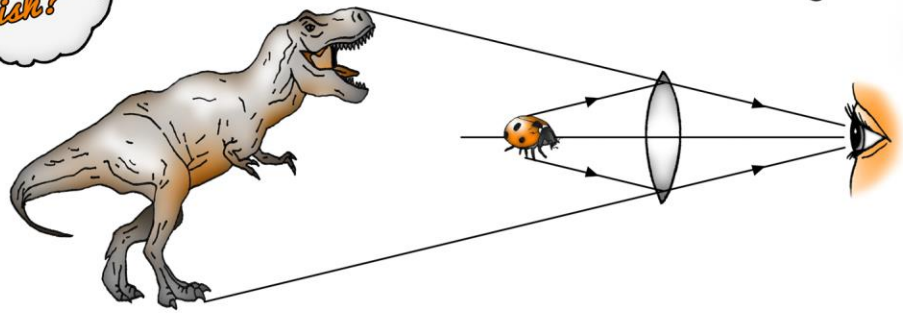






AQA GCSE WAVES THINK IT!





Wave properties:

- Try to develop the relationship between wave period and the velocity and wavelength of a wave.
- Investigate why the frequency of a light wave does not change when it passes from air into water.
- What happens to the velocity, wavelength and amplitude of a tsunami as it enters shallow water near the coast?

Electromagnetic waves:

- When studying em radiation from stars, which wavelengths can be studied from the ground and which have to be studied from space telescopes?
- The wavelength of light is measured in nanometres. Red light is about 700nm. What is this wavelength in metres?
- The star proxima centauri is 4.24 light years from Earth. How far is this in km?

Behaviour of waves at boundaries:

- Using a 30cm ruler to imitate a light wave, demonstrate to a friend why it refracts as it enters a tank of water.
- Why do you think radiators are painted white in houses?
- When observing the visible part of the spectrum from a star, black lines can appear in the spectrum where certain wavelengths of radiation are missing. Try to explain why they are missing.
- Why do diamonds sparkle more than glass?

Sound waves:

- What causes a sonic boom when a very fast plane passes over-head?
- What is a "silent" dog whistle and how does it work?
- Compare the frequency range of hearing between a bat, a whale and a human.
- Explain how a microphone could be compared to a human ear in its operation.
- Explain to a peer how you could measure the speed of sound by measuring the echo produced when you shout near a cliff.

AQA GCSE
Waves

ThinkIT!

Properties of electromagnetic waves:

- Investigate how a gamma wave is emitted from the nucleus of an atom.
- Radiation dose can depend on a number of factors and can be measured in different ways. Research one method of measuring radiation dose.
- When a radio wave is transmitted it is added to a carrier wave. Find out what a carrier wave is and why it is used.

Waves for detection and exploration:

- Find out how explosions on the Earth's surface are used to find oil bearing rocks.
- Identify the similarities and differences in ultrasound scanning and X rays.
- Research the three types of seismic wave produced by an earthquake and identify what makes them different.

Black body radiation:

- What do we mean when we say a piece of metal is red hot?
- Why do some scientists consider the Earth as a black body when studying climate change?
- Explain the relationship between a black body's temperature and the wavelengths it radiates.

Uses of electromagnetic waves:

- Compare the advantages of using fibre optics for carrying telephone messages compared to electrical signals in copper wires.
- Infrared cameras are often used to search for lost people in the countryside. When would it be preferable to use an infrared camera rather than a light camera?
- Under what conditions can a convex lens produce a real or a virtual image?