



Forces

Y3/4 Objectives

Y5/6 Objectives

Notice that some forces need contact between two objects, but magnetic forces can act at a distance

Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

Compare how things move on different surfaces. Investigation with a car, ramp and different surfaces (friction).

Identify the effects of air resistance and water resistance that act between moving surfaces.

Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.

Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.
(D and T)

Describe magnets as having two poles. Predict and observe whether two magnets will attract or repel each other, depending on which poles are facing.

Scientist: Isaac Newton (1643-1727)

Isaac Newton was a brilliant scientist and mathematician known for his discoveries in physics and mathematics, particularly his work on gravity and the laws of motion. He also made important contributions to optics, inventing the reflecting telescope.

He realised that earth must have a force that pulls objects downwards rather than letting them float upwards. Also, he discovered that gravity pulls objects towards each other.



Questions

- 1) Name some contact forces.
- 2) Name non-contact forces.
- 3) What is gravity and what does it do?
- 4) Who was Sir Isaac Newton?
- 5) What is friction?
- 6) What is air resistance?
- 7) What is water resistance?
- 8) How do you create a fair test?
- 9) What is an independent variable?
- 10) True or false? Friction speeds moving objects up.
- 11) Why is friction useful?
- 12) A force is either a _____ or a _____.

Scientific Terminology

Air Resistance - is a type of friction that occurs when an object moves through the air. It's a force that slows down an object's movement, pushing back against it in the opposite direction

Attract- - to pull towards

Contact - when objects touch

Force - a push or pull that acts upon an object that can cause it to move, change shape or change direction

Friction- the force that acts upon one surface when it moves against another

Gravity - a pull force and a non-contact force that acts at a distance

Resistance - an opposing or slowing force

Water Resistance - a frictional force exerted by water on an object moving through it, slowing it down or stopping it.