

What should I already know?

- How to recognise forces as pushes and pulls.
- That friction is a force which slows objects down.
- That magnets have a pulling force and there are different strengths.
- Construct bar charts and draw conclusions from their results.

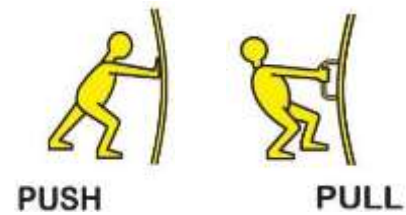
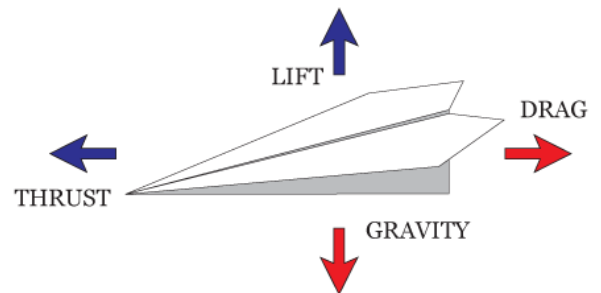
What will I know at the end of the unit?

- that the Earth and objects are pulled towards each other; this gravitational attraction causes objects to have weight
- to use a forcemeter carefully, interpreting the scale correctly
- that weight is a force and is measured in Newtons
- that several forces may act on one object
- to represent the direction of forces by arrows
- that when an object is submerged in water, the water provides an upward force (upthrust) on it
- to make careful measurements of force using a forcemeter
- to use tables to present results, identifying patterns and drawing conclusions
- to repeat measurements to check them
- to make careful measurements of length
- to represent data in a line graph and use this to identify patterns in the data

Investigate!

- Explore Newton's first law - the law of inertia.
- Demonstrate forces at work on a structure such as a bridge.
- Design a shape which offers less resistance in water.

Diagrams



Balanced force



Unbalanced force



Vocabulary

Air resistance - A force that is caused by air with the force acting in the opposite direction to an object moving through the air

Force - A push or pull upon an object resulting from its interaction with another object

Friction - The resistance that one surface or object encounters when moving over another

Gears - A toothed wheel that works with others to alter the relation between the speed of a driving mechanism (e.g. engine) and the speed of the driven parts (e.g. the wheels)

Gravity - The force that attracts a body towards the centre of the earth

Levers - A rigid bar resting on a pivot that is used to move a heavy or firmly fixed load

Mass - The weight measured by an objects acceleration under a given force or by the force exerted on it by gravity

Pull force - To draw or haul towards oneself or itself, in a particular direction

Pulleys - A wheel with a grooved rim around that changes the direction of a force applied to the cord

Push force - To move something in a specific way by exerting force

Water resistance - A force that is caused by water with the force acting in the opposite direction to an object moving through the water

Newtons - the unit of measure for forces. They are named after Sir Isaac Newton, who discovered the invisible force of gravity.

