

# Rotherhithe Primary School - Science

## Topic: Forces

Year: 5

## Strand: Physics

### What should I already know?

- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
- Observe how magnets attract or repel each other and attract some materials and not others.
- 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.
- Describe magnets as having two poles.
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.

### What will I know by the end of the unit?

Why do things fall to the ground?

Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

What are the effects of air resistance?

When air resistance acts, acceleration during a fall will be less than  $g$  because air resistance affects the motion of the falling objects by slowing it down. Air resistance depends on two important factors - the speed of the object and its surface area. Increasing the surface area of an object decreases its speed.

What are the effects of water resistance?

Water resistance acts in the opposite direction to the direction of travel, so it slows the object down.

Which is the stronger force, water resistance or air resistance?

Water resistance is a much greater force than air resistance.

What allows small forces?

Some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

### Vocabulary

Air resistance

A force that is caused by air with the force acting in the opposite direction to an objects 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 objects encounters when moving another.

Gears

A toothed wheel that works with others to alter the relationship 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 heavy or firmly fixed load.

Mass

The weight measured by an object acceleration under a given force by the force exerted on it by.

Pull force

To draw or haul towards oneself or itself, in a particular direction.

Pulleys

A wheel with a grooved rim around that changed direction of a force applied to the cord.

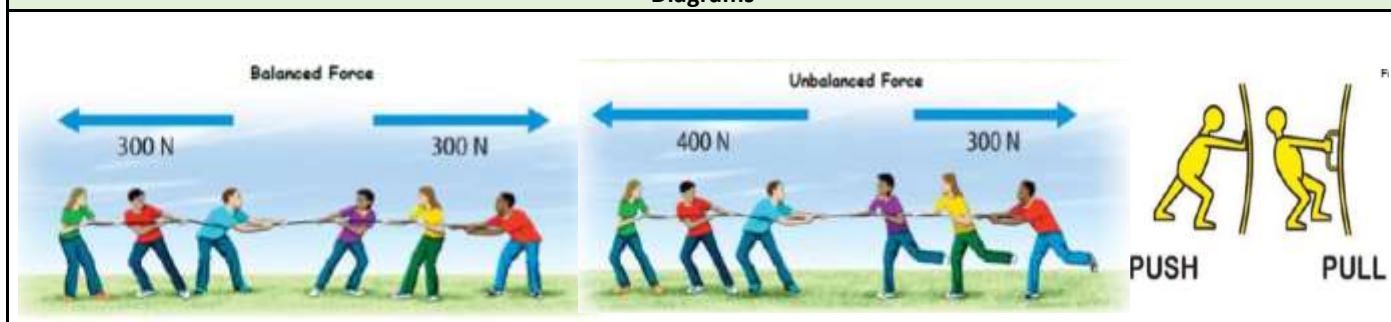
Push force

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.

### Diagrams



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Question 1

Question 2

Question 3

Question 4

Question 5