

Buglawton Primary School

Be the Best We Can

Subject: Science **Topic: Forces** Year: 5 Term: Autumn

What should I already know?

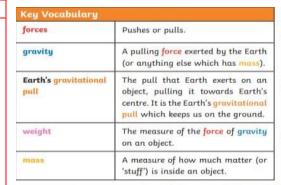
- Compare how things move on different surfaces. (Y3 Forces
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and
- Observe how magnets attract or repel each other and attract some materials and not others. (Y3 - Forces and magnets)
- 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. (Y3 - Forces and magnets)
- Describe magnets as having two poles. (Y3 Forces and
- Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 - Forces and magnets)

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

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling
- Identify the effects of air resistance, water resistance and friction that act between moving surfaces.
- Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

What will I be able to do by the end of the unit?

- Can demonstrate the effect of gravity acting on an unsupported object
- Can give examples of friction, water resistance and air resistance
- Can give examples of when it is beneficial to have high or low friction, water resistance and air resistance
- Can demonstrate how pulleys, levers and gears work
- Can explain the results of their investigations in terms of the force, showing a good understanding that as the object tries to move through the water or air or across the surface the particles in the water, air or on the surface slow it down
- Can demonstrate clearly the effects of using levers, pulleys and



A force that acts between two surfaces or objects that are moving,

or truing to move, across each other.

A type of friction caused by air

pushing against any moving object.

A type of friction caused by water

pushing against any moving object.

An upward force that a liquid

When an object is shaped to minimise the effects of air or water resistance.

Parts which work together in a

machine. Examples of mechanisms

The Moon has a smaller mass than Earth so the gravitational pull on the Moon is smaller than it is on Earth.



air resistance

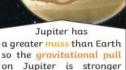
buoyancy

streamlined

mechanism

pointed

water resistance





start to move.

change its shape.

much matter is

kilograms (kg).

inside an object.

It is measured in

change

direction.

Forces

Forces

can make

an object...

stop moving.

move more slowly.

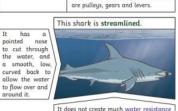
Neight is how strongly

newtons (N).

move

faster.

Water resistance and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. For example, air resistance is helpful as it stops the skydiver hitting the ground at high speed. Friction on a bike chain can make the bike harder to pedal so it is unhelpful



make a small force lift used to change the a heavier load. The more wheels in a pulley, the less force is needed to lift so it can move through the water quickly.

Pulleys can be used to Gears or cogs can be

each other

Levers can be used to make a small force lift speed, force or direction a heavier load. A lever of a motion. When two always rests on a pivot. gears are connected, they always turn in the opposite direction to

Levers

Agreed Real-life outcome:

Isaac Newton

Isaac Newton is famously

thought to have developed

his theory of gravity

when he saw an apple

fall to the ground from an

apple tree.

Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.

