



Key Vocabulary

<u>Word</u>	<u>Meaning</u>
Force	A push or pull that changes the motion/shape of an object.
Mass	A measure of the amount of material an object is made of.
Weight	The force of gravity on an object (measured in Newtons).
Gravity	The pulling force between Earth and a falling object.
Friction	The resistance one object or surface encounters when moving over another.
Air Resistance	The frictional push force which slows down objects as they move through air.
Water Resistance	The force that pushes against objects as they pass through water.
Gears	Different-sized cogs which work together and give a machine extra force or speed.
Pulley	A grooved wheel that a rope goes over making it easier to lift heavy loads.
Lever	A rigid bar resting on a pivot used to move a heavy load.
Buoyancy	The ability of objects to float in water or air (boat & balloon).
Thrust	A reaction force where mass is pushed in one direction.

Forces are **push** and **pull** in a particular direction.

They are represented by **arrows** in a diagram. Forces are measured in **Newtons**.

Forces can change the **shape, direction** and **speed** of an object.

An example of a force is **gravity**. This force pulls everything towards the **centre** of the earth.

Friction is another force which occurs between two objects that are sliding across each other. It always acts in the **opposite** direction.



PUSH

PULL



Simple Machines

Simple machines work by turning small forces into larger ones, allowing us to perform tasks with more strength or speed. Examples of simple machines include; levers, gears, pulleys, wheels and screws.

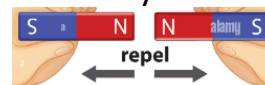
There are three types of levers: first class lever, second class lever and third class lever.

Streamlined Shapes

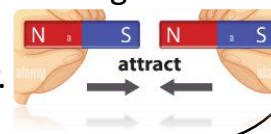
Some shapes, known as streamlined shapes, cause less resistance than others. Aeroplanes and cars are streamlined, so that they move through the air as easily as possible.

Magnetism

Same poles **repel** - If you try to put two magnets together with the same poles pointing towards one another, the magnets will push away from each other. We say they repel each other.



Different poles **attract** - If you put two magnets together with different poles pointing towards one another, the magnets will pull towards each other. We say they attract each other.



Sir Isaac Newton



Sir Isaac Newton spearheaded the scientific revolution and was a hugely significant figure in many different areas of learning. He's most famous for his scientific discoveries around gravity and the three laws of motion, but he also explored light and colour.

Extending your learning:

1. Make parachutes of different materials, different sizes, and different shapes. Which ones work best?

2. Create your own magnetic maze.

3. Watch Isaac Newton:

[The work of Sir Isaac Newton - BBC Teach](#)

4. Research how Galileo Galilei helped to develop the theory of gravitation.