

Year 3: Feel the Force

1. Terms	Definitions
Force	A push (when something is forced away) or a pull (when something is pulled closer)
Friction	A force between two surfaces
Magnetic field/force	The space around a magnet where you can feel its pull or push
Magnetic materials	Objects which are pulled towards a magnet
Poles	Each magnet has a north and a south pole
Repel	To push away
Attract	To pull together
Hypothesis	What you think will happen based on what you already know.
Fair test	Only changing one thing in an investigation so you can be sure your results are accurate.
Properties	something about a material that we can measure, see or feel. For example if a material is durable, magnetic, waterproof etc.
Contact force	forces that act between two objects that are physically touching each other (direct contact)
Non-contact force	Non-contact forces are at play when an object is able to push or pull another object without coming into contact with it.

2. Forces

- A force is always a **push**, a **pull** or a **twist**.
- Friction is a force **between two surfaces** that are sliding, or trying to slide, across each other.
- Friction always works in the direction **opposite** to the direction in which the object is moving, or trying to move.
- Friction always **slows** a moving object down.
- The rougher the **surface**, the more friction is produced.
- The smoother the surface, the faster an object will travel on it.
- Friction can be good. We want our shoes to grip, so we need MORE friction.



- Air resistance** is friction between the air and an object. Parachutes use air resistance to slow skydivers down as they fall.
- Water resistance** slows objects down as they move through the water. Swimmers try and reduce water resistance by wearing smooth swimming costumes.



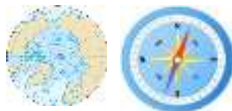
Gravity is the force which pulls objects towards the centre of the earth and keeps the earth orbiting the sun. There is less gravity on the moon which is why astronauts can bounce high on the moon's surface.



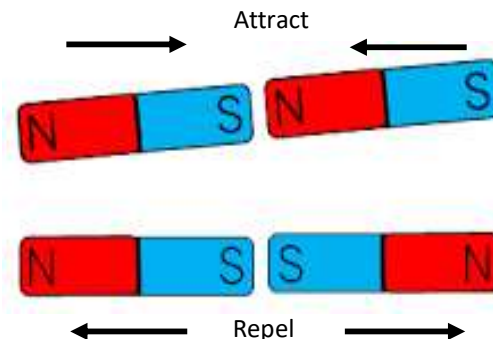
4. Compass

We use compasses to help us with directions. The main points are **North, South, East and West**.

- The earth has a magnetic field, which is why we have a **North Pole** and a **South Pole**.
- A compass will always point to **MAGNETIC** north which is usually slightly west of **TRUE** north. It moves slowly because of changes to the earth's magnetic field.
- TRUE NORTH** is a fixed geographical point on the globe: the North Pole.



3. Magnets



- A magnet attracts magnetic materials.
- Examples of **magnetic materials** are iron and nickel. This is why pennies, paper clips and nails are magnetic.
- The strongest parts of a magnet are the **poles**.
- Magnets have two poles, a north pole and a south pole.
- If two north poles or two south poles are brought together, they will push away from each other (**repel**).
- If two unlike poles, e.g. a north and south, are brought together they will pull together (**attract**).
- Magnets do not have to have touch with the object for it attract or repel the object.