1. Forces

Force

- A push or a pull on an object.
- It causes the object to:

Move things	Slow/stop/change direction	Change shape
Kick Roll	Catch Bounce	Press Stretch

Friction

- A **force** between two surfaces that are sliding across each other.
- A **rough** (uneven) surface creates **more friction** so the object moves slower.
- A **smooth** (even) surface creates **less friction** so the object moves quicker.

Gravity

- A **pulling** force exerted by the Earth on objects, causing them to move **towards** the ground.

2. Sir Isaac Newton's Three Laws of Motion

First	An object will stay in the **state** it is in (rest or motion) unless a force acts on it.
Second	**Acceleration** (ability to get faster) depends on the **magnitude** (how much/big) of the force applied and the mass of the object.
Third law	"For every action, there is an equal and opposite re-action."

3. Magnetic Force

Magnetic force

- Magnets are objects that pull or push things with an invisible force called **magnetism.**
- Magnets **attract** (cause something to come near) some objects and **repel** (force something away) some objects.
- Some magnets are stronger than others.
- Stronger magnets create a bigger push and pull force than weaker magnets

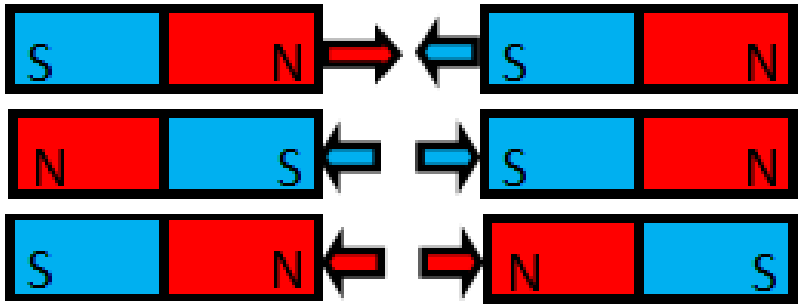
Magnetic	Non-magnetic	
Iron Steel Nickel	Brass Tin Copper	Aluminium Gold Silver

4. Magnetic Poles

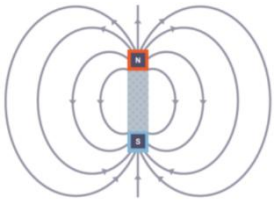
Poles

- The ends of a magnet are called its **poles**. One end is called the **north pole** and the other end is called the **south pole**.
- A **north** pole and a **south** pole **attract**.
- **Two north** poles **together** or two south poles together **repel**.

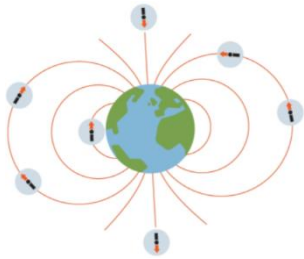
Laws of Attraction



Magnetic force flows from the North pole of the magnet to the South pole.
This creates a **magnetic field** (the space around a magnet in which a magnetic force is active).



The **Earth** behaves as if it contains a **giant magnet**. It produces a magnetic field in which the field lines are most concentrated at the poles.



The north pole of the **compass** needle points towards the Earth's north pole. This lets you **navigate** (plan and direct a route) outdoors using a map.

5. Key Figure

Galileo Galilei

- Born 15th February 1564 in Pisa, Italy
- Died January 8th 1642 under house arrest because the Church thought his ideas went against their teachings.
- Proved the Earth and the planets resolved around the Sun
- Proved that heavy and light objects fall at the same speed