

Golden Concepts

Asking scientific questions and making observations

Planning an investigation

Collecting, presenting and interpreting data

Errors and uncertainty

Science in our world

Key Vocabulary

| | |
|-------------------|---|
| Force | A push, pull or twist that acts on an object causing it to change direction, speed or shape |
| Mass | The amount of matter in an object |
| Acceleration | How fast an object speeds up or slows down |
| Pressure | How much force is acting on an area |
| Area | The amount of space a 2D shape takes up |
| Gravity | The force that pulls objects with mass or energy towards each other |
| Air resistance | A type of friction that occurs when an object moves through air |
| Terminal velocity | The maximum speed an object can reach when travelling through gas or liquid |
| Weight | The force that acts on an object due to gravity |
| Work done | The amount of energy transferred when a force moves an object over a distance |
| Electromagnets | A magnet created when electricity is passed through a coiled wire |

Forces Stage 8/9 - Knowledge Organiser

Newton's Second Law:

- Understanding the relationship between force, mass, and acceleration ($F = ma$).
- Calculating force, mass, or acceleration in simple scenarios.

Newton's Third Law:

- Action and reaction pairs- drawing force diagrams
- Practical examples illustrating Newton's Third Law.

Pressure:

- Definition of pressure.
- Pressure in fluids and gases.
- Calculating pressure ($P = F/A$).

Gravity:

- Understanding the difference between gravitational force and weight. Students should begin to label a downward force as weight

Terminal Velocity:

- Introduction to terminal velocity and its relationship with air resistance. Using parachutes to see the effects of air resistance

Work and Energy:

- Introduction to work done by forces.

Magnetic Effects of Electric Current:

2. Relationship between electricity and magnetism.
3. Electromagnets and their applications.

