

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
Friction	A force that opposes motion
Weight	The force that acts on an object due to gravity
Gears	A toothed wheel that transmits motion between rotating parts allowing machines to operate efficiently.
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.

Gravity:

- Understanding the difference between gravitational force and weight. Students should begin to label a downward force as weight
- Students will understand gravity in terms of our solar system and satellites

Motion:

- Students will begin to be able to interpret graphs and describe the motion of a vehicle
- Students will enhance their descriptions of data using a graph
- Students will be able to apply their understanding of friction to a car
- Students will begin to explain that friction can be both useful and problematic in vehicles

Magnetic Effects of Electric Current:

- Relationship between electricity and magnetism.
- Electromagnets and their applications.

