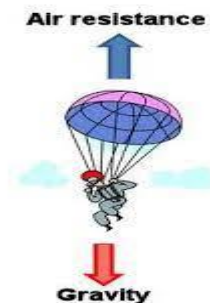




Science Knowledge Organiser

Term 1

Forces



Prior knowledge/key knowledge

Prior knowledge in this box.

Years 3

Compare how things move on different surfaces.
Notice that some forces need contact between two objects, but magnetic forces can act at a distance.
Observe how magnets attract or repel each other and attract some materials and not others.
Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.
Describe magnets as having two poles.
Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Key knowledge for current year

Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

Identify the effects of air resistance, water resistance and friction that act between moving surfaces.

Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Vocabulary

Gravity	The force that pulls things to the ground on Earth and other planets
Earth's Gravitational pull	The pull that Earth puts on an object – pulling it to the Earth's centre. It is the Earth's gravitational pull that keeps us on the ground.
Weight	The measure of the force of gravity on an object.
Mass	A measure of how much matter (or stuff) is inside an object.
Friction	A force that acts between two surfaces or objects that are moving or trying to move across each other.
Resistance	A type of friction caused by air and water pushing against any moving objects.
Streamlined	When an object is shaped to minimise the effects of air or water resistance.
Mechanism	Parts that work together in a machine for example levers, pulleys and gears.
Fulcrum	A point at which an object pivots
Drag	The force which resists motion.

Key skills /investigative focus

Researching	How does a plane fly?
Observing	Which surface provides friction? What shapes will create the most or least air / water resistance? Create experiments to explore. Collect results and analyse the data.

Big Questions/Challenging Perceptions



Can they describe and explain how motion is affected by forces? (including gravitational attractions, magnetic attraction and friction)
Can they design very effective parachutes?
Can they work out how water can cause resistance to floating objects?
Can they explore how scientists, such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation?