Knowledge Organiser — Year 5 — Science — Forces — Autumn 1

Key Vocabulary	Meaning
Attract	To pull towards
Contact	When objects touch
Distance	The length between two objects
Drag	The frictional force experienced by an object moving through a fluid or air.
Force	A push or pull that acts upon an object that can cause it to move, change shape or change direction
Friction	The force that acts upon one surface when it moves against another
Gravity	A pull force that acts at a distance
Pull	To move something towards
Push	To move something away
Repel	To push away
Resistance	An opposing or slowing force

Key Aims:

- To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling objects.
- To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
- To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Friction is a **force created between two surfaces when they rub together**. Friction creates heat and always **slows down an object**.

Sir Isaac Newton was a scientist who developed the first description of the force of gravity. Newton said that he started thinking about gravity after watching an apple fall from a tree but it did not actually hit him on the head, as it is often claimed!

Air resistance is a force that acts **in the opposite direction to gravity. It acts between** a moving object and the air molecules around it, slowing the object down. Air resistance is a type of **friction**.

Water resistance is the force responsible for making it difficult for us to **move through the water**.

By the end of this unit, I will consolidate and extend my knowledge of forces by naming individual forces (e.g. gravity, friction, upthrust). I will extend my knowledge of frictional forces (air resistance and water resistance) and plan fair test investigations to discover which shoe has the greatest friction and which shapes offer the most water resistance. I will learn how forces can be helpful and unhelpful in various scenarios and identify the forces involved in each scenario. I will learn what a mechanism is and how pulleys, levers and gears are used to allow a smaller force to have a greater effect.