Year 5 Science Knowledge Organiser: Forces

Subject Specific Skills

- 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

Prior Learning

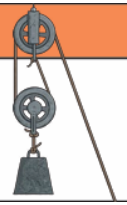
- Compare how things move on different surfaces
- Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance
- Observe how magnets attract or repel each other and attract some materials and not others
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- Describe magnets as having 2 poles
- Predict whether 2 magnets will attract or repel each other, depending on which poles are facing

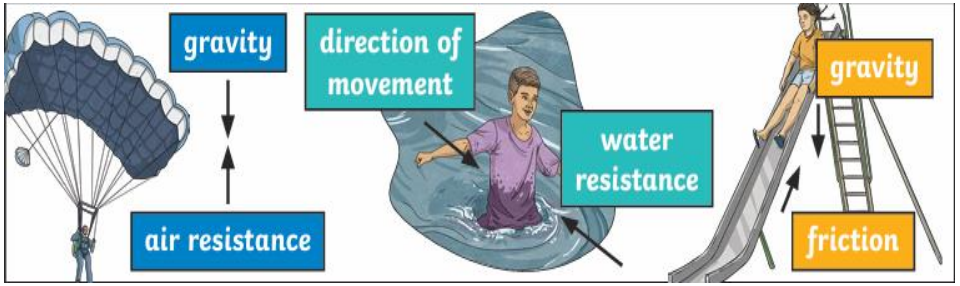
Key Vocabulary

Force A force is a push or pull that can cause an object to start or stop moving or change its speed, direction or shape.
Gravity Gravity is a pulling force exerted by the Earth (or any object with mass)
Newton (N) The newton (N) is a unit of measurement used to measure force, named after Sir Isaac Newton.
Friction Friction is a contact force that occurs between two touching surfaces that are either trying to move or are already moving across each other.
Air resistance Air resistance is a form of friction that occurs between air and an object moving through it. It can also be referred to as 'drag'.
Water resistance Water resistance is a type of friction that happens when water (or any liquid) pushes against an object moving through it.
Streamlined mechanism lever Streamlined objects have a shape that allows them to move more efficiently through air or water by reducing resistance.
Mechanism A mechanism is the smaller moving parts of a machine.
Lever A lever is a mechanism that uses a small force to move a heavier load by pivoting on a fixed point.
Pulley gear A pulley is a wheel (or set of wheels) over which a rope is looped, used to lift heavy objects with less effort.
Gears Gears are wheels with teeth that lock together and turn each other to transfer motion.

Key Individuals: Isaac Newton/ Galileo Galilei

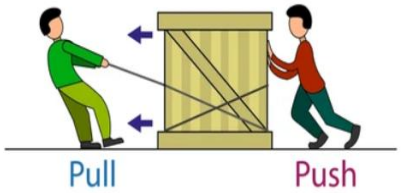
Key Knowledge: Levers, pulleys and gears and forces in action

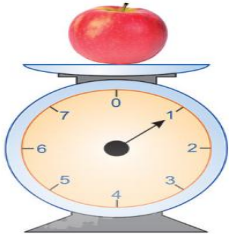
Levers	Pulleys	Gears
		



Key Knowledge:

Forces: Forces can be categorised as pushes or pulls





Mass: Mass is the measure of the amount of matter within an object and is typically measured in grams (g) or kilograms (kg)

Weight: Weight is the measure of the gravitational force acting on an object and is measured in newtons (N)