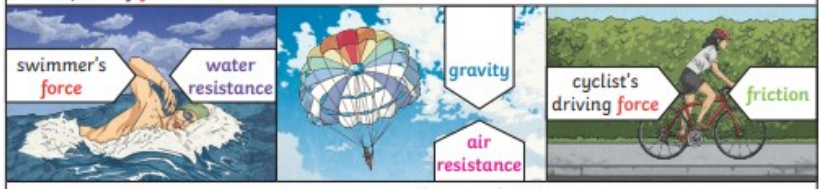
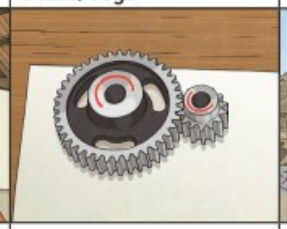
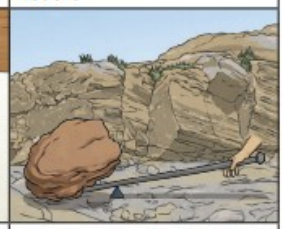
Year 5 Physics—Forces

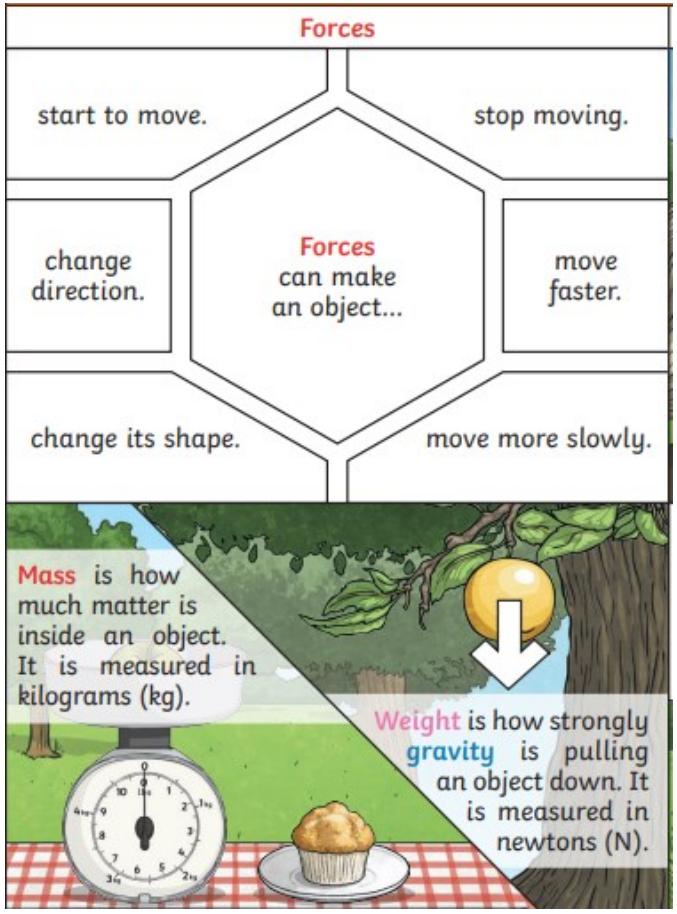
Key knowledge

Examples of forces in action:



Water resistance and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. For example, air resistance is helpful as it stops the skydiver hitting the ground at high speed. Friction on a bike chain can make the bike harder to pedal so it is unhelpful.

Pulleys	Gears/Cogs	Levers
		
Pulleys can be used to make a small force lift a heavier load. The more wheels in a pulley, the less force is needed to lift a weight.	Gears or cogs can be used to change the speed, force or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other.	Levers can be used to make a small force lift a heavier load. A lever always rests on a pivot.



Famous Scientists

Emma England

Aerospace engineer who designs the wings for aircraft

Investigation

To identify the effect of air resistance that acts between moving surfaces:

- Can I systematically collect results?
- Can I improve my accuracy by repeating measurements?

What we will learn:

- Explain that unsupported objects fall towards the Earth because of the force of gravity
- 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 affect

Key Vocabulary

Forces	Pushes or pulls
Gravity	A pulling force exerted by the Earth (or anything else that has a mass)
Gravitational pull	The pull that Earth exerts on an object, pulling it towards Earth's centre.
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.
Air resistance	A type of friction caused by air pushing against any moving object.
Water resistance	A type of friction caused by water pushing against any moving object.
buoyancy	An object is buoyant if it floats. This is because the weight of the object is equal to the upthrust.
Streamlined	When an object is shaped to minimise the effects of air or water resistance.
Mechanism	Parts which work together in a machine. Examples are pulleys, gears and levers.
Upthrust	A force which pushes objects up, usually in water.