

What will we be learning?

- To identify different forces acting on objects.
- Explain Newton’s role in discovering gravity.
- Accurately measure an objects weight and mass.
- Investigate air and water resistance,
- Identify streamlined shapes.
- Investigate friction.
- Find out about different mechanisms, including levers, gears and pulleys.

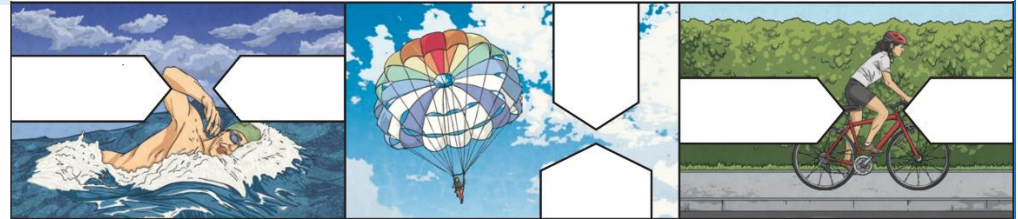
Key facts

- Forces can make an object: start to move, stop moving, change direction, move faster, move more slowly and change shape.
- Isaac Newton is famously thought to have developed his theory of gravity when he saw an apple fall to the ground from an apple tree.
- Weight is how strongly gravity is pulling an object down. It is measured in newtons (N).
- Mass is how much matter is inside an object. It is measured in kilograms (kg).

Key vocabulary

- **Forces:** Pushes or pulls.
- **Gravity:** A pulling force exerted by the Earth (or anything else which has mass).
- **Earth’s gravitational pull:** The pull that Earth exerts on an object, pulling it towards Earth’s centre. It is the Earth’s gravitational pull which 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.
- **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:** Mechanisms are simple machines with moving parts that change input forces and movement into a set of useful output forces. Examples of mechanisms are pulleys, gears and levers.
- **Upthrust:** A force that pushes objects up, usually in water.

Label the Forces.



A = Air resistance. B = Friction. C = Swimmer’s Force. D = Gravity. E = Cyclist’s Force. F = Water Resistance.

Pulleys	Gears/Cogs	Lever
<p>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.</p>	<p>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.</p>	<p>Lever can be used to make a small force lift a heavier load. A lever always rests on a pivot.</p>

What I have learnt.