

Tier 3 Vocabulary

forces	Pushes or pulls
gravity	The pulling force exerted by the Earth (or anything else that has mass)
gravitational pull	The pulling force towards the centre of the Earth (this keeps us on the ground)
weight	Measures the pull of gravity on an object
mass	Measures how much matter (or "stuff") an object is made from
friction	A force that acts between two surfaces or object that are moving (or trying to move) across each other
air resistance	A type of friction caused by air pushing against a moving object
water resistance	A type of friction caused by water pushing against a moving object
buoyancy	An upward force that a liquid applies to objects
streamlined	When an object is shaped to minimise the effects of air or water resistance
mechanism	Parts that work together in a machine (e.g. pulleys, levers and gears)
Newton	Unit to measure force

Working and thinking scientifically

We are being scientists by:

- Using scientific language and ideas to identify forces
- Reporting on findings from research
- Identifying factors that affect the forces on parachutes
- Recording results, and drawing and presenting conclusions
- Taking and repeating readings with increasing accuracy

Key Facts

Forces can make an object...	- start to move, stop moving, move faster, move more slowly or change direction - change shape
Friction is ...	sometimes helpful and sometimes unhelpful
Air and water resistance are ...	forms of friction
The gravitational pull of the Earth	keeps us on the ground and keeps the moon in orbit
Pulleys, levers and	are examples of mechanisms
Weight...	measures the force of gravity on an object (and mass measures how much stuff it is made of)

Pictures and Diagrams

The Moon has a smaller **mass** than Earth so the **gravitational pull** on the Moon is smaller than it is on Earth.

Jupiter has a greater **mass** than Earth so the **gravitational pull** on Jupiter is stronger than on Earth.

swimmer's force, **water resistance**, **gravity**, **air resistance**, **cyclist's driving force**, **friction**

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.

Mass is how much matter is inside an object. It is measured in kilograms (kg).

Weight is how strongly **gravity** is pulling an object down. It is measured in newtons (N).

This shark is **streamlined**.

It does not create much **water resistance** so it can move through the water quickly.

<p>Pulleys</p> <p>Pulleys can be used to make a small force lift a lighter load. The more wheels in a pulley, the less force is needed to lift a weight.</p>	<p>Gears/Cogs</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>Levers</p> <p>Levers can be used to make a small force lift a lighter load. A lever always rests on a pivot.</p>
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