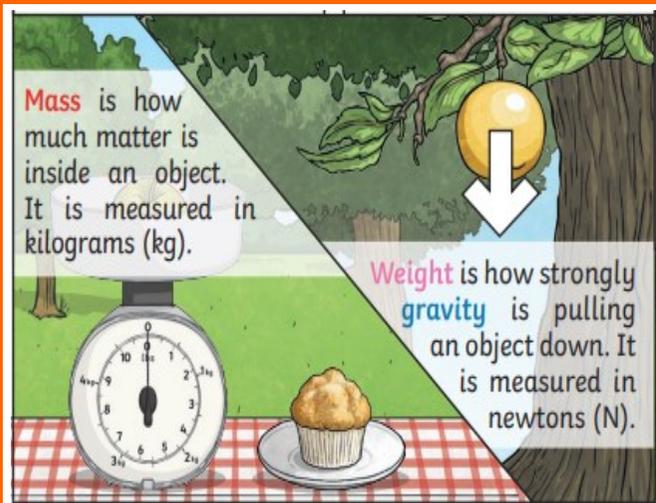


## What will I know by the end of this unit?

- A **force** can **push** or **pull** something.
- **Gravity** is the force that pulls objects down.
- **Friction** is the force between two objects when they move across each other.
- Friction can slow down an object. As a result, heat is produced.
- **Air resistance** is a type of friction that occurs between air and another material. It slows down the **acceleration** of the object towards the earth.
- **Water resistance** is a type of friction that occurs between water and an object. The water pushes against the object and slows down its acceleration.
- **Pulleys, gears** and **levers** are **mechanisms**. Mechanisms help to move things.

## Weight and Mass



Science

Year 5

**Topic:** Earth and Space

**Strand:** Physics

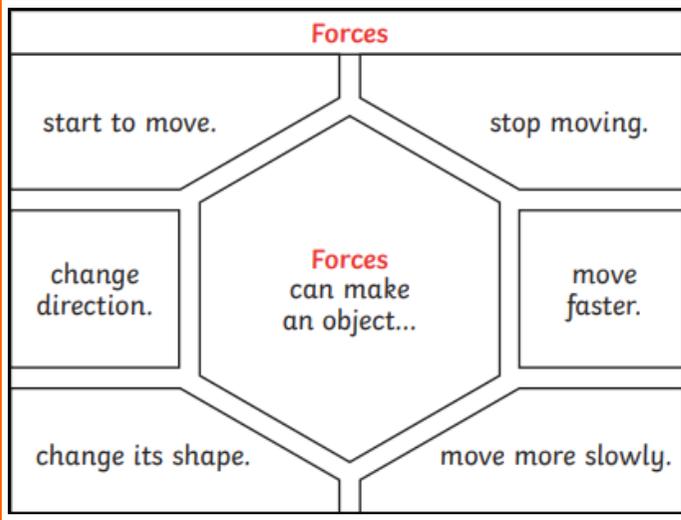
## What should I already know?

- Objects move differently on different surfaces.
- Some forces need contact between two objects, but magnetic forces can act at a distance
- Magnets attract or repel each other.
- Magnets attract some materials and not others.
- Know some magnetic materials.
- Magnets have two poles.

## Scientific Skills

- Ask questions about forces.
- Predict whether two magnets will attract or repel each other, depending on which way the poles are facing.
- Make careful observations.
- Take accurate measurements
- Record results using scientific diagrams and labels, tables, and scatter graphs.
- Report and present what I have found out in written forms.
- Identify scientific evidence that has been used to support or refute ideas or arguments
- Explain the force of gravity acting between the Earth and the falling object

## Forces can make an object...



## Gravity.



Gravity is the force that makes things fall to the ground. Gravity also holds the Earth and the other planets in their orbits around the Sun.

## Subject Specific Vocabulary

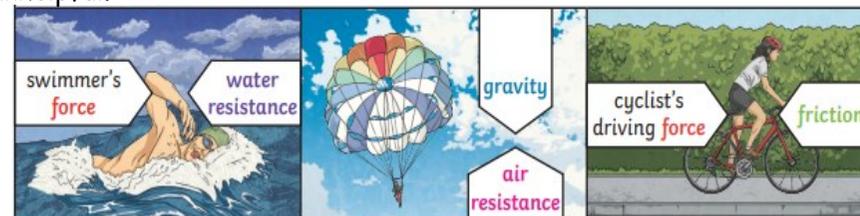
<b>forces</b>	A force is a push or a pull in a certain direction. Force gives an object the energy to move, stop moving or change direction.	<b>Earth's gravitational pull</b>	The pull that Earth exerts on an object, pulling it towards Earth's centre. It is the Earth's pull which keeps us on the ground.
<b>gravity</b>	This is a pulling force. It is exerted by the Earth	<b>Water resistance</b>	A type of friction caused by water pushing against any moving object.
<b>Air resistance</b>	A type of friction caused by air pushing against any moving object	<b>buoyancy</b>	An upward force that a liquid applies to objects
<b>weight</b>	This is the measure of the force of gravity on an object	<b>streamlined</b>	When an object is shaped to minimise the effects of air or water resistance.
<b>mass</b>	This is a measure of how much matter (or stuff) is inside an object.	<b>mechanism</b>	Parts which work together in a machine. Examples of mechanisms are pulleys, gears and levers.
<b>friction</b>	A force that acts between surfaces or objects that are moving, or trying to move across each other.		

## Mechanisms

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

## Forces in action

Water resistance and air resistance are forms of friction. Friction is sometimes helpful and sometimes unhelpful. 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.



Can you explain what a force is?

