



Year 5  
Topic: Forces  
Strand: Physics

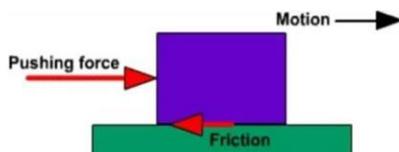
What I should already know.

- Know what a **force** is and be able to explain that a push and pull are types of **forces**.
- That when **forces** are applied to an object they allow them to move or stop moving.
- The strength of the **force** determines how far and fast an object moves.
- **Friction** is the **resistance of motion** when there is contact between two **surfaces**.
- The **force** that causes objects to move downwards towards the ground is **gravity**.
- That **magnets** have poles, and that opposite poles **attract**, while similar poles **repel**.

What will I know by the end of the unit?

What are forces?

- **Forces** are pushes and pulls.
- These **forces** change the **motion** of an object.
- They will make it start to move or speed up, slow it down or even make it stop.
- For example, when a cyclist pushes down on the pedals of a bike, it begins to move. The harder the cyclist pedals, the faster the bike moves.
- When the cyclist pulls the brakes, the bike slows down and eventually stops.
- **Friction** is a **force** - it is the **resistance of motion** when one object rubs against another.

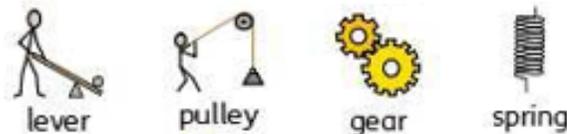


- Other **forces** that create **resistance of motion** include **water resistance** and **air resistance**.

Vocabulary

<b>Attract</b>	If one object <b>attracts</b> another object, it causes the second object to move towards it.
<b>Friction</b>	The <b>resistance of motion</b> when one object rub against another.
<b>Force</b>	The <b>pulling</b> or <b>pushing</b> effect that something has on something else.
<b>Gear</b>	A part of a machine that causes another part to move because of teeth which connect the two moving parts.
<b>Gravity</b>	The <b>force</b> which causes things to drop to the ground.
<b>Lever</b>	A basic tool used to lift or pry things open.
<b>Motion</b>	The activity of changing position or moving from one place to another.
<b>Opposite</b>	<b>Opposite</b> is used to describe things of the same kind, which are completely different in a particular way. For example, north and south are <b>opposite</b> directions.
<b>Pulley</b>	A simple machine that makes lifting something easier. A <b>pulley</b> has a wheel or set of wheels with grooves that a rope or chain can be pulled over.
<b>Repel</b>	When a magnetic pole <b>repels</b> another magnetic pole, it gives out a <b>force</b> that pushes the other pole away.
<b>Resistance</b>	A <b>force</b> which slows down a moving object or vehicle.
<b>Spring</b>	A spiral of wire which returns to its original shape after it is pressed or pulled.
<b>Streamlined</b>	A <b>streamlined</b> vehicle, animal, or object has a shape that allows it to move quickly or efficiently through air or water.
<b>Surface</b>	The flat top part of something or the outside of it.

What are examples of mechanisms?



What will I know by the end of the unit?

What is gravity and air resistance?

**Gravity** is the **force** that pulls objects to the centre of the Earth.  
Air **resistance** pushes up on the parachute, **opposing** the force of **gravity**. This makes the parachute land more slowly.



What is water resistance?

Water **resistance** is the **friction** that is created between water and an object that is moving through it.  
Some objects can move through water with less **resistance** if they are **streamlined**.



What are examples of mechanisms?

**Levers** allow us to do heavy work with less effort. For example, trying to pick up a large heavy box is difficult, however if a **lever** is used it becomes much easier to move it.  
**Pulleys** also allow us to do heavy work - objects are attached to ropes and **pulley** wheels, and so instead of lifting heavy object upwards, we can pull on the **pulley** rope downwards.  
**Gears** are toothed wheels. Their 'teeth' can fit into each other so that when the first wheel turns, so does the next one. This allows **forces** to move across a **surface**.  
**Springs** can be stretched by pulling them or squashed by pushing them. The greater the **force** pulling or pushing the **spring**, the greater the **spring** uses to move back to its normal shape.