

Year 5 Science

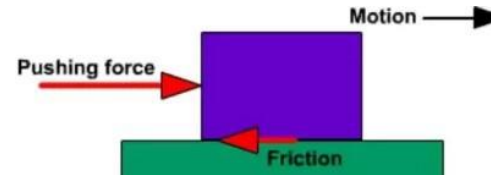
Physics : Forces

What we 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's next?

- **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**
- These include **water resistance** and **air resistance**.

Question linked to MTP (1)



What happens when unsupported objects fall towards the Earth how is the the force of gravity acting between the Earth and the falling object?

Do you think that there will be a link between an object's **weight** and its **mass**?

How did Galileo Galilei and Isaac Newton help to develop the theory of gravitation?



Question linked to MTP (3)

- What are **forces** and how do they have effect on objects?
- What is **gravity** and air **resistance** and what are the effects of this?
- How does surface area affect air resistance? .
- What is **water resistance** and what are the effect of this?
- Can some objects move through water with less **resistance** if they are **streamlined**.

Question linked to MTP (4,5,6)

- Can I recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect?
- What are the effects of friction, that acts between moving surfaces?
- How does a Lubricant impact the amount of friction exerted on an object?

Vocab

Tier One

Attract
Friction
Force
gravity

Tier Two

Motion
Opposite
Pulley
Lever
Motion
Repel
Surface
Spring
Upthrust
Increased
Reduced

Tier Three

Streamlined
Resistance

Question linked to MTP (2 / 3)

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.

