

# Forces

## Scientific Enquiries



WHO?

Isaac Newton



Year 3 Forces


Physics



### Vocabulary


<b>force</b>	A push or a pull, contact or non-contact.	<b>water resistance</b>	The friction between water and another object.
<b>gravity</b>	An invisible force that pulls objects towards the centre of the earth.	<b>pulley</b>	A machine made by looping rope over one or more wheels.
<b>friction</b>	The force between two objects moving against each other.	<b>lever</b>	A machine made with a fulcrum to lift weights.
<b>air resistance</b>	A type of friction between air and another object.	<b>gears</b>	Wheels with teeth that slot together – when one turns, the other will also turn.

### WHAT?




1.

- **Gravity** is a **non-contact** force that pulls objects to the Earth.
- The bigger the object, the larger its **gravitational force**.
- The Sun's gravity keeps the planets turning around it.
- A **Newton meter** is used to measure weight.




4.

- **Friction** is a resistance force between two objects that move across each other.
- It is a **contact force**.
- Car tyres use friction to help grip onto the road. In icy conditions, this can be trickier because the ground is smoother.
- Friction can cause **heat**.




2.

- The **mass** of an object does not affect how quickly it falls to the ground.
- **Air resistance** affects **how quickly** an object will fall to the ground from a height.
- **Friction** between the **air** and an **object** slows it down.
- The **larger the surface area**, the **more air resistance** is created.




5.

- A **lever** is a rigid bar that **rotates** around a particular point. It makes it easier to lift a **heavy load**.
- The place where the lever rotates is called the **fulcrum**.
- **Pulleys** are a **wheel** on a **fixed axle**, with a groove along the edges to guide a rope or cable. They help to lift a heavy load by pulling.



3.

- **Water resistance** is the **friction force** between water and an object.
- It prevents objects from moving easily through water.
- Water resistance is **stronger** than air resistance.
- Anything that needs to move through water easily needs to be **streamlined** e.g. dolphins have smooth, tapering bodies.



6.

- **Gears** are **toothed wheels** that are connected with a chain. When one wheel turns, it forces the other to turn too.
- When two gears grind together, they **rotate** in **opposite** directions.
- Gears can do 3 things: change the **direction of motion**, change the **speed of motion**, or change the **amount of force**.

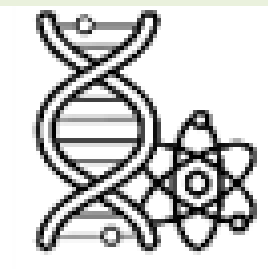
# Helpful links



Learn more about Isaac Newton



What is physics?



What are air resistance, water resistance and friction?



Can you beat the world's strongest man using pulleys?

