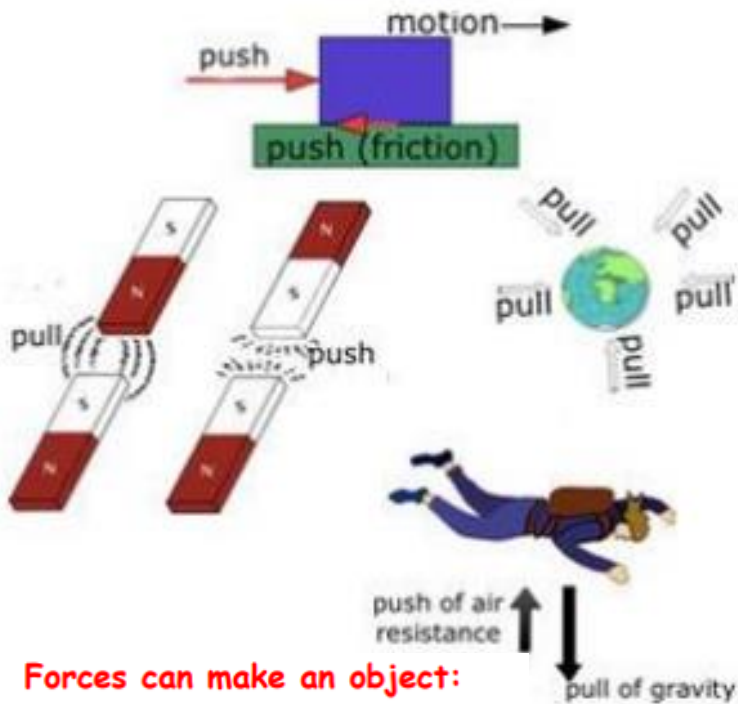




# Forces Knowledge Organiser



Forces can make an object:

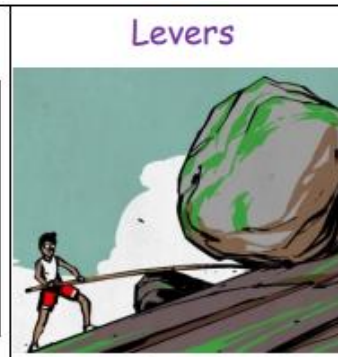
- start to move
- stop moving
- move faster
- move more slowly
- change shape
- change its direction



**Pulleys** can be used to make a small **force** lift a heavier load. The more wheels in a pulley, the less **force** is needed to lift a **weight**.



**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.



**Levers** can be used to make a small **force** lift a heavier load. A lever always rests on a pivot.



**Isaac Newton** is famously thought to have developed his theory of gravity when he saw an apple fall to the ground from an apple tree

### Examples of forces in action:

**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.



### Key vocabulary

forces	Pushes or pulls
gravity	A pulling force exerted by Earth or anything else that has mass.
Earth's gravitational pull	The force that Earth exerts on an object when it pulls it towards Earth's centre. Earth's gravitational pull is what keeps us on the ground.
weight	The measure of the force of gravity on an object
mass	A measure of how much matter (or stuff) is inside an object

friction	A <b>force</b> that acts between two surfaces or objects that are moving, or trying to move, across each other
air resistance	A type of <b>friction</b> caused by air pushing against any moving object
water resistance	A type of <b>friction</b> caused by water pushing against any moving object
buoyancy	An upward <b>force</b> that a liquid applies to objects
streamlined	When an object is shaped to minimise the effects of <b>air</b> or <b>water resistance</b>
mechanism	Parts which work together in a <b>machine</b> . Examples of mechanisms are <b>pulleys, gears and levers</b> .