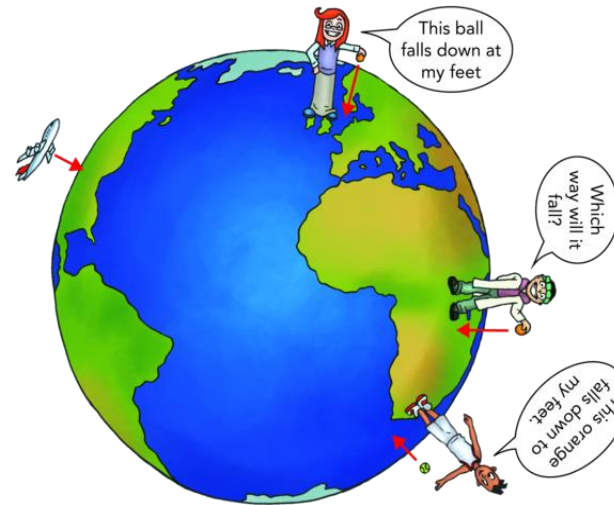


Knowledge Organiser – Forces (Science Year 5)

Key Vocabulary	Definition
Gravity	Natural attraction between physical bodies.
Air resistance	Frictional force of air pushes against a moving object.
Water resistance	Frictional force of water pushes against a moving object.
Friction	Resistance to movement of one object moving against another.
Levers	Strong bars that are used to lift and move something heavy.
Pulley	Simple machine for moving heavy objects up or down, consisting of a small wheel over which a rope or chain is attached to the object.
Gears	Part of machines that meshes with another toothed part to make things move or to change speed or direction.

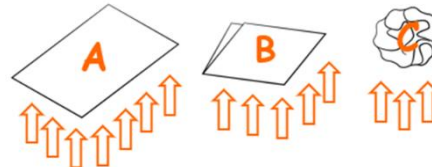


The force of gravity causes objects to be pulled towards the (centre of the) Earth. As the mass of the Earth is larger than the object, it falls towards it.

Mass	Weight
HOW MUCH 'STUFF' SOMETHING HAS	THE FORCE OF GRAVITY ON A MASS
MEASURED IN KILOGRAMS	MEASURED IN NEWTONS
REMAINS CONSTANT	CHANGES DEPENDING ON GRAVITY

Calculating weight: **Weight = mass x gravity**

Friction between the object and air acts in the direction opposite to motion.

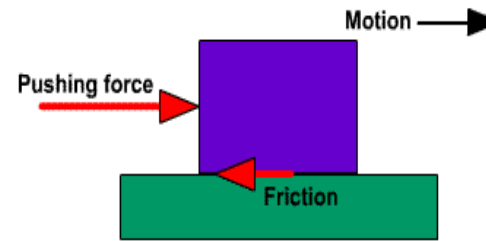


Air resistance is an upward force exerted on falling objects.

Streamlined shapes cause less air resistance than others.



Reducing the air resistance will make it go faster.



Friction is a force that reduces the speed of an object or may stop objects from moving.

### Effects of friction



Slows objects down



Can produce heat



Wears things away



Can make a noise

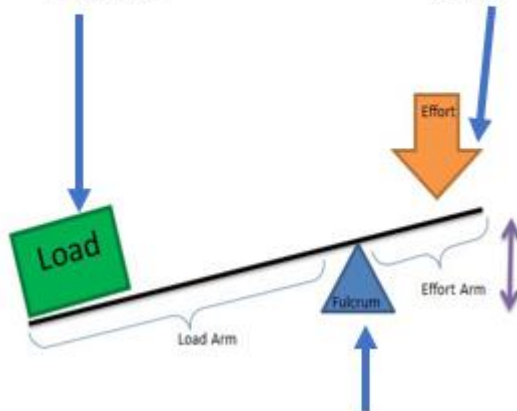
A simple machine (a mechanical device) is used to change:

- The size of a force.
- The direction of a force.

## Lever

The weight (force) that is being moved.

The force being used to move the load.



## Gears

A rotating wheel with cogs (teeth).

With another rotating wheel.



## Pulley

Reduces the effort required to raise a load.

The rope has a load on one end and someone or something pulling at the other end.

