

### Key learning

A force is a push or pull in a particular direction. If two forces are balanced, it means the forces are the same size but are acting in opposite directions. If two balanced forces are acting on an object, that object will not change its motion. If it is still, the object will stay still or if it is moving, it will continue moving in the same direction and at the same speed

Friction is the resistance of motion when one object rubs against another. Anytime two objects rub against each other, they cause friction. Friction works against the motion and acts in the opposite direction. When one object is sliding on another it starts to slow down due to friction.

Unsupported objects fall towards the earth because of the force of gravity.

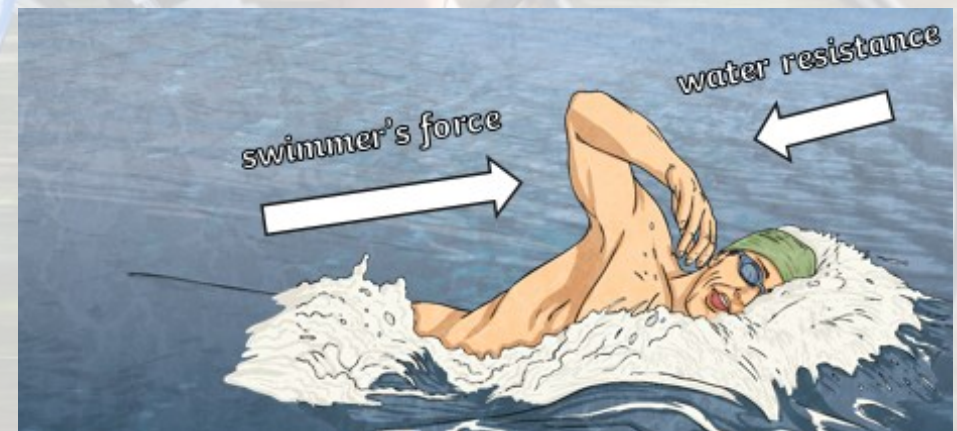
Air resistance is the frictional force that acts against gravity when an object is falling. It can affect how fast an object falls.

Water resistance is a force that tries to slow things down that are moving through water. It is a type of friction and sometimes called drag.

Some mechanisms such as pulleys, gears and levers allow a smaller force to have a greater effect.

### Prior Learning to Reactive

- Compare how things move on different surfaces (Year 3)
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance (Year 3)
- Observe how magnets attract or repel each other and attract some materials and not others (Year 3)
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials (Year 3)
- Describe magnets as having two poles (Year 3)
- Predict whether two magnets will attract or repel each other, depending on which poles are facing (Year 3)



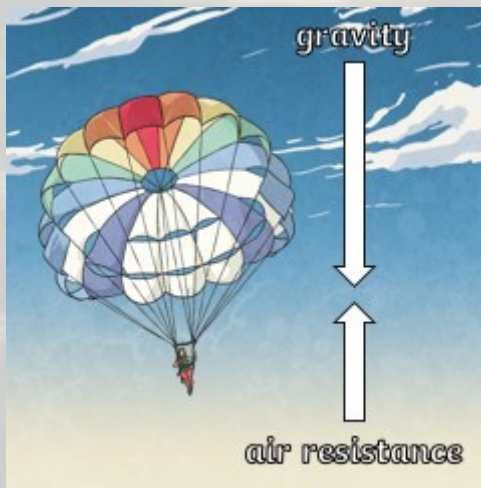
### Scientific Skills

Exploring falling paper cones or cupcake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective recording findings using scientific diagrams and labels.

Exploring resistance in water by making and testing boats of different

Shapes taking repeat readings where appropriate using results from findings to plan and set up further tests to find the best model.

Designing and making products that use levers, pulleys, gears and/or springs and explore their effects.



### Key vocabulary

<b>Force</b>	A push or pull in a certain direction
<b>Air resistance</b>	The friction that acts against an object as it falls
<b>Water re-sistance</b>	The friction that acts against an object as it moves through water.
<b>Gravity</b>	The force that pulls objects towards the centre of the earth.
<b>Pulley</b>	A pulley is a wheel on an axle or shaft that is designed to support movement and change of direction
<b>Gear</b>	Gears are wheels with teeth that slot together. When one gear is turned the other one turns as well. If the gears are of different sizes, they can be used to increase the power of a turning force.
<b>Fulcrum</b>	The point at which a lever is supported to allow it to lift an object.
<b>Up thrust</b>	The upward force
<b>Streamlined</b>	Having a form that presents very little resistance to a flow of air or water