

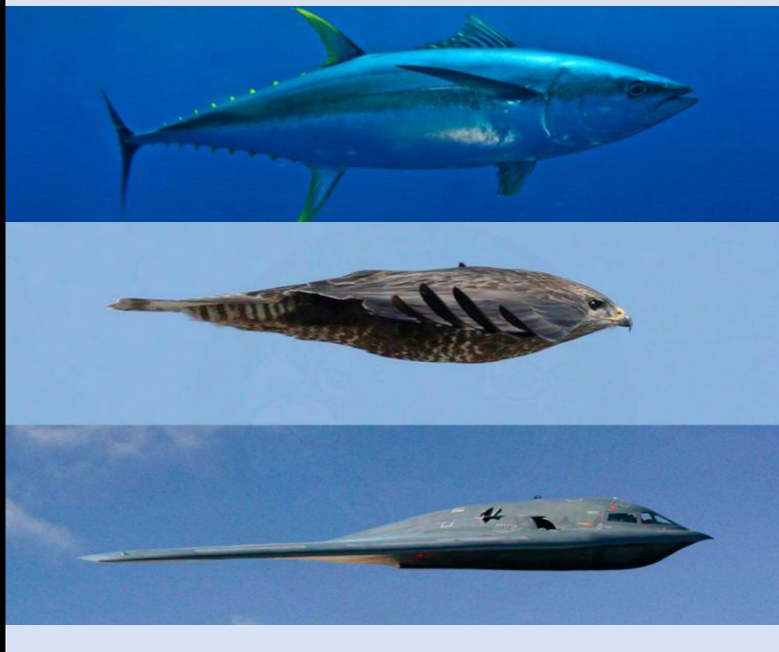
Cunningham Hill Junior School - Science Knowledge Organiser - Forces - Year 5

Key Vocabulary:

1	forces	Pushes or pulls.
2	gravity	A pulling force exerted by the Earth (or anything else which has mass).
3	gravitational pull	The pull that Earth exerts on an object, pulling it towards Earth's centre. It is the Earth's gravitational pull which keeps us on the ground.
4	weight	The measure of the force of gravity on an object. It can be measured in newtons (N).
5	mass	A measure of how much matter (or 'stuff') is inside an object. It can be measured in kilograms (kg).
6	friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
7	air resistance	A type of friction caused by air pushing against any moving object.
8	water resistance	A type of friction caused by water pushing against any moving object.
9	buoyancy	An upward force that a liquid applies to objects.
10	streamlined	When an object is shaped to minimise the effects of air or water resistance .
11	mechanism	Parts which work together in a machine. Examples of mechanisms are pulleys, gears and levers.
12	up thrust	A force that pushes objects up, usually in water.

Streamline Shapes

The fish, bird and plane are all **streamlined**. They both have a pointed nose to cut through the air or water and a smooth low curved back to allow the water or air to flow over it. This reduces **water resistance** and **air resistance**.



Different Forces:

Forces can make an object...

Start or Stop Moving



Change speed, speeding it up or slowing it down.



Change direction

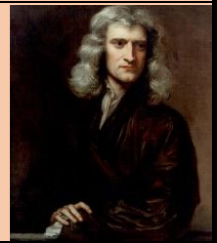


Change shape



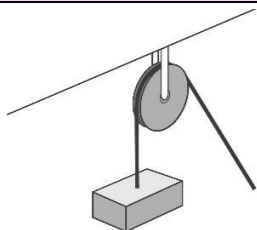
Sir Isaac Newton (1642- 1727)

Isaac Newton was born in 1643 and became a hugely significant scientist. He's most famous for his scientific discoveries around **gravity** and the three laws of motion. Newton described **gravity** as a pulling **force** that keeps people on the ground. Newton told the story of seeing an apple fall to the ground from a tree which inspired him to wonder why it fell down, rather than up or across.



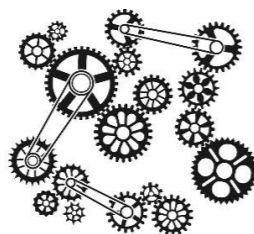
Pulleys:

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



Gears / Cogs:

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:

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



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, whereas **friction** on a bike chain can make the bike harder to pedal.

