

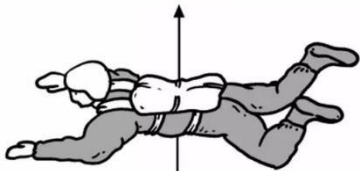


Forces

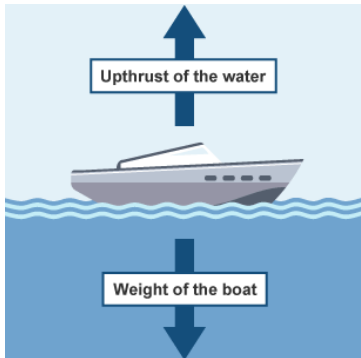


Push and pull forces

Air resistance



Weight



friction

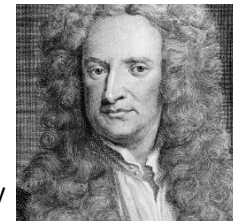


Key knowledge

What is a force?	A force is either a push or a pull. Forces can make things: speed up, slow down, change shape or change direction.
Gravity	Gravity is the force that pulls objects down towards the centre of the Earth. Gravity stops things from floating away into space. When things go into the air (like a football), gravity pulls them back down.
Air resistance	Air resistance slows down moving objects, because air slows things down as they move through it. To travel faster through the air, things need to be streamlined.
Water resistance	Water resistance slows down moving objects, because water slows things down as they move through it. To travel faster through the water, things need to be streamlined.
Friction	Friction happens when two surfaces touch each other. Friction gives things grip. Friction produces heat. Rougher surfaces slow things down a lot. Smoother surfaces don't slow things down as much.
Magnetism	Magnets attract or repel each other or other objects. North and South attract. But North and North or South and South will repel.

Sir Isaac Newton

Isaac Newton was born in 1643 and became famous for his work on gravity and his three laws of motion. He was also well known for his work on light and colour, and mathematics. The famous story of an apple falling to the ground from a tree illustrates how Newton's work on gravity was inspired by things he observed in the world around him.



Key Vocabulary

Force	A push or pull
Gravity	A force that pulls objects towards the centre of the Earth
Friction	A force caused by two surfaces touching each other
Air resistance	A kind of friction that slows objects down when they travel through air
Water resistance	A kind of friction that slows objects down when they travel through water
Buoyancy	An object's ability to float
Upthrust	A force that pushes objects up in water or air
Streamline	To shape an object in a way that reduces the effect of air resistance or water resistance
Pulleys	These use a rope running over a pulley wheel to increase a force
Levers	These use a long pole and a pivot point to increase a force