

By the end of the unit, pupils will be able to answer...

- What is gravity and what does it do?
- What are the effects of air resistance, water resistance and friction?
- How do different mechanisms increase the effects of smaller forces?

Vocabulary	Definition
air resistance	a type of friction between air and something else
force	the pulling or pushing effect that something has on something else
friction	the resistance of motion when there is contact between two surfaces
gear	a part of a machine that causes another part to move
gravity	the force which causes things to drop to the ground
lever	a basic tool used to lift something or pry something open
mechanism	a system of parts working together
motion	changing position or moving from one place to another
pulley	a simple machine that makes lifting something easier
water resistance	a type of friction between water and something else

Forces in Action Fact Sheet



Air resistance is a type of friction which slows the fall of a parachute or a piece of paper in air. The bigger the surface area the greater the amount of air resistance.



This is a forcemeter. It is marked in newtons, and is used to measure the magnitude of a force.

Friction is the force between two surfaces - for example there is friction between a car tyre and the road, or a ski and snow. Melted snow between the ski and the snow lubricates the ski and reduces the friction.





Water resistance is another type of friction which slows objects moving through water.



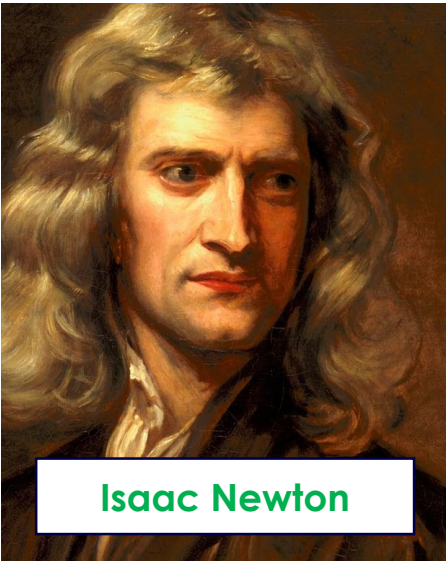
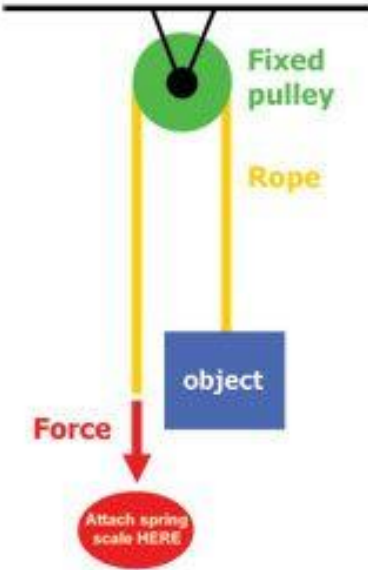
The forces of gravity and upthrust need to be balanced for a ship to float.



These two teams are both pulling, in the direction of the arrows, in this game of tug o' war.



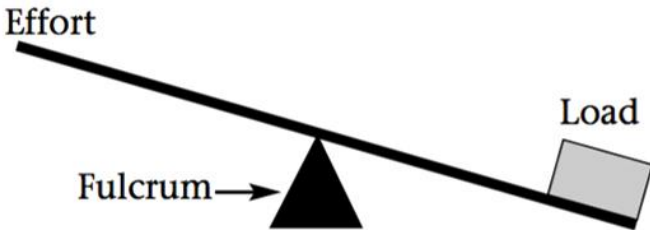
The Earth's gravity pulls objects to its centre.



Isaac Newton



Galileo Galilei



Investigate!

- Explore the effects of friction in a range of contexts (eg trainers, bathmats, mats for a helter skelter)
- Investigate the effects of water resistance in a range of contexts (eg dropping shapes through water, pulling boats along the surface of water)
- Examine the effects of air resistance in a range of contexts (eg parachutes, spinners, boat sails)

- Explore how levers, pulleys and gears work
- Make a product that includes a lever, pulley or gear
- Create a time that uses gravity to move a ball
- Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation