

KEY VOCABULARY

Energy: a supply or source of electrical, mechanical, or other form of power

Friction: the resistance that one surface or object encounters when moving over another.

- **Water resistance** is a type of friction which happens when an object moves through a liquid
- **Air resistance** is a type of friction which happens when an object moves through the air

Force Meters: an instrument that measures force using a stretched spring.

Lever: a long, sturdy body that is used to help lift something heavy

Lift: is the force that directly opposes the weight of an airplane and holds the airplane in the air

Mass: is the amount of matter an object contains. The more matter something has, the more it will weigh.

Newton: a unit used for measuring force.

Pulley: is a simple machine used to reduce the time and energy taken to lift heavy objects.

Streamlined: to design or build something with a smooth shape so that it moves with minimum resistance through air or water

Upthrust: an upward push or thrust.

Weight: the force with which an object pushes down on a planet due to the planet's gravity.

KEY SCIENTIST



Sir Isaac Newton (1643-1727)

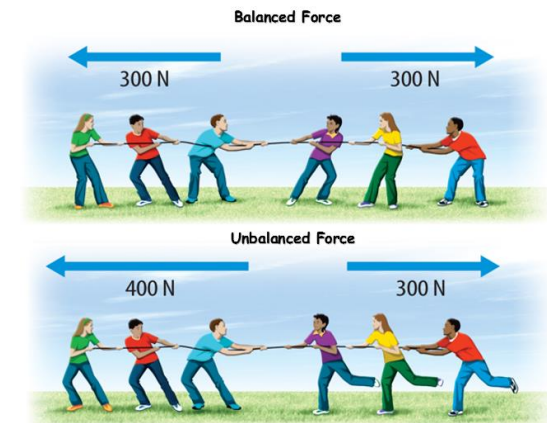
Newton was a scientist and mathematician who became famous for his work on gravity and his three laws of motion. He was also well known for his work on light and colour.

Newton believed that his many discoveries and inventions were supported by other members of the scientific community. He famously said: **“If I have seen further, it is by standing on the shoulders of giants.”**

STICKY KNOWLEDGE

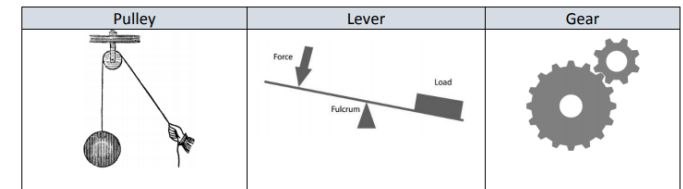
1. A force is a **push** or a **pull**
2. Forces can make something:
 - speed up
 - slow down
 - change shape
 - change direction
3. Gravity is the force that pulls objects down towards the centre of the Earth.
4. Gravity stops things floating into space. When something goes into the air (like a football being kicked), it is gravity which pulls it back down.

KEY CONCEPT



There are forces acting on objects all of the time. If an object is stationary, the forces acting on it must be balanced. If the forces are unbalanced, then the object moves, changes direction or changes shape.

KEY CONCEPT



Pulleys, levers and gears can all let a smaller force have a greater effect.

Pulleys are used to reduce the amount of force needed to lift a load.

Gears or cogs are used to change speed, direction or force of a motion.

Levers can be used to make a small force lift a lighter load.