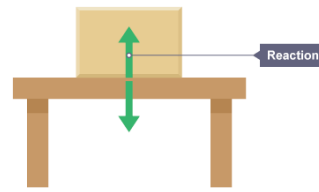


# Forces – knowledge organiser

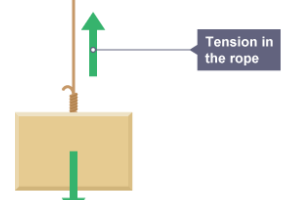
Key knowledge	
Forces can be	Either a push or a pull
Forces	
When a force is applied to an object it will:	<ul style="list-style-type: none"> <li>• start moving</li> <li>• stop moving</li> <li>• change shape</li> <li>• change direction</li> </ul>
Mechanical devices	Mechanical devices are used to help do work by letting a small force have a greater effect. Examples include: Gears, pulleys and levers
Objects fall to Earth due to gravity	The larger the object the larger its gravitational pull on other objects.
Force arrows are used to show	Direction of the force Size of the force
Balanced forces	Objects that have balanced forces acting on them either stay still or will move at a constant speed
Unbalanced forces	Objects that have unbalanced forces acting on them will speed up, slow down, change direction or shape
Floating and sinking	An object will float when the forces upthrust and weight are balanced. However, if weight is more than the upthrust then the object will sink
Examples of different forces	
Contact forces	Contact forces are forces that act between two objects that are physically touching each other. Examples of contact forces include: Reaction, tension, friction, water and air resistance
Non contact forces	Non-contact forces are forces that act between two objects that are not physically touching each other. Examples of non-contact forces include: Magnetism, electrostatic, gravitational
Scientists we need to know about	
5 facts about Isaac Newton	<ul style="list-style-type: none"> <li>• Born on December 25, 1642</li> <li>• Famous for defining the three laws of motion and universal gravitation</li> <li>• His farther was a farmer</li> <li>• Legend has it that Newton got his inspiration for gravity when he saw an apple fall from a tree on his farm.</li> <li>• In 1668 Newton invented the reflecting telescope</li> </ul>

## Contact forces

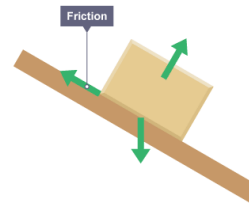
### Reaction force



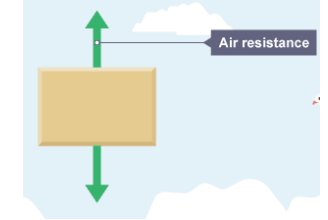
### Tension



### Friction



### Air resistance



## Non contact forces

### Magnets

Opposite magnetic poles (N - S or S - N) attract each other:



Like magnetic poles (N - N or S - S) repel each other:



## Unbalanced forces

Truck speeds up in this direction →



### Key Vocabulary

**Air resistance** - A force of friction produced when an object moves through the air.

**Attract** - Objects that tend to move together because of a force between them attract each other.

**Charged particles** - Particles, usually ions or electrons, that carry electrical charges.

**Contact forces** - Force exerted between two objects when they are touching.

**Electric field** - Area surrounding an electric charge that may influence other charged particles.

**Electrostatic force** - A force of attraction between particles with opposite charges.

**Force** - A push or a pull. The unit of force is the newton (N).

**Friction** - A force that opposes or prevents movement and converts kinetic energy into heat.

**Magnetic** - Able to be magnetised or attracted to a magnet.

**Magnetic field** - Area surrounding a magnet that can exert a force on magnetic materials.

**Mass** - The amount of matter an object contains. Mass is measured in kilograms (kg) or grams (g).

**Non-contact forces** - The push or pull acting between objects that are not physically touching when they interact.

**Reaction force** - Force exerted in the opposite direction to an action force.

**Repel** - Objects that tend to push apart because of a force between them repel each other.

**Tension** - Pulling force exerted by each end of an object such as a string or rope.