

Year 5 Science Knowledge Organiser

Forces

Key Knowledge

Gravity (or gravitational pull) is the invisible force that pulls all objects towards the centre of the Earth. Without gravity, things would float away into space.

The larger an object is, the more gravitational pull is acting on it. When objects are thrown into the air, or dropped, it is gravity that pulls them to the ground.

Friction is a force between 2 surfaces that are sliding or trying to slide. It works in the opposite direction to the way it is sliding. The rougher the surface, the more friction is produced.

Air resistance is a type of friction between an object and the air. The larger the surface area of the object, the more air resistance it has.

Water resistance is a type of friction between an object and the water. Like air, the more surface area you have, the more water resistance there will be. Water resistance is stronger than air resistance because water is **more dense** than air.

Levers, pulleys and gears allow a larger force to act on an object that the effort put in. This means it is easier to move larger or heavier objects with one of these **mechanisms**.

The longer the lever, pulley or gear is, the further the effort acts from the **pivot**. This means the force on the load is much greater. This means, if you want to move something heavy using a lever, the longer the lever is, the easier it will be to move the object.

Key Vocabulary

Gravity	The force that pulls objects towards the centre of Earth
Friction	The force between sliding objects
Resistance	The force that slows the movement of one object over another
Mass	The measure of how much matter is in an object
Dense	How tightly packed together particles are in a substance
Gear	A special wheel with grooves called teeth around the outer edge
Lever	A mechanism that has a bar to pivot around a fixed point (called a fulcrum)
Pulley	A type of wheel with an inner groove that allows you to put a rope, cable or belt in it to help move heavy things more easily
Pivot	A centre point of a mechanism that can be moved or turned on

