

Forces

A **force** is a push or pull on an object.

A **force** can cause something to: move, change direction, change speed or change shape.

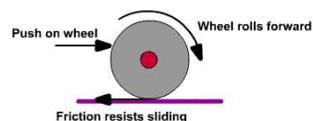
Force is measured in **Newtons (N)**. We can use **forcemeters (Newton meters)** to show the forces used for lifting or pulling things.

Objects can move differently, depending on what type of surface they are on.

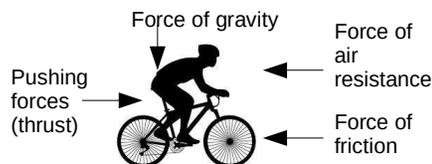
Some forces require contact with the object. Other forces, such as magnetic, can act at a distance.

Examples of forces

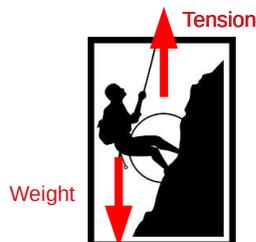
Friction is a force between two surfaces that acts against movement. e.g. This gives a tyre grip on the road when the brakes go on.



Air resistance is a type of friction between air and another material. e.g. This force tries to slow you down when cycling along.



Tension is the action of stretching something tight. e.g. This is the force in a stretched spring, string or rope.



Weight – this is the downward force of gravity.

Forces and Magnets

Magnets

Magnets are objects that pull or push things with an invisible force called **magnetism**.

A **magnet** is a material or object that produces a **magnetic field**. A **magnet** creates a force of attraction on an object, but you can't see the force.

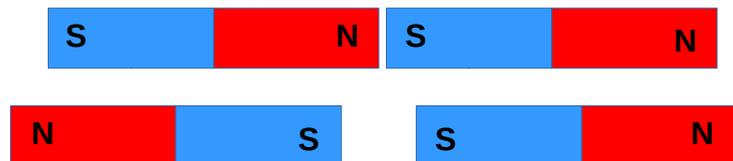
Magnets can attract some metals such as iron and nickel.

Magnets can not pull anything made of wood, plastic or metals such as copper, aluminium or gold.

Magnets have two ends which are known as north and south poles.

The **north pole** of a magnet pulls or **attracts** (stick together) the **south pole** of another magnet. If you bring two north (or two south) poles together, they **repel** each other – they push them away.

Opposite poles attract



Like poles repel

Types of magnets



Horseshoe



Bar



Ring



Disc