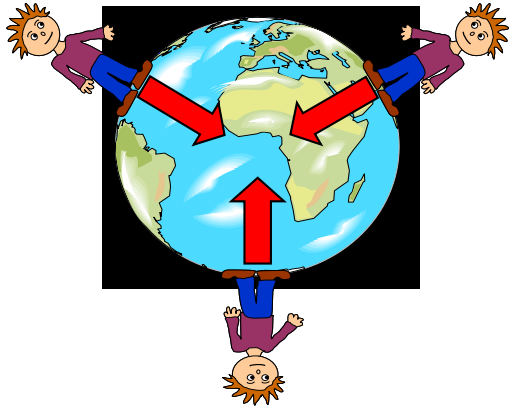


Gravity

Gravity is an attractive force that affects anything with **mass**:



Note that this force goes both ways - the Earth is attracted to us.

GRAVITY holds the planets in orbit around the sun

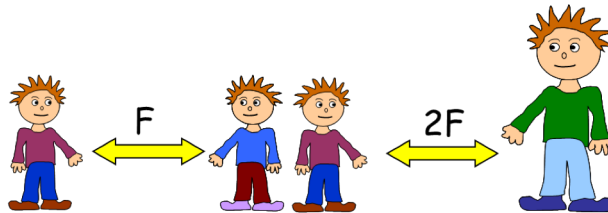
Mass is the amount of stuff in an object. It is **not** the same as **weight**.

Mass	the amount of 'stuff' or 'matter' in an object. It is measured in kilograms (kg). IT DOES NOT CHANGE !
Weight	the amount of force that acts on an object with mass. It is measured in Newtons (N). It depends upon the size of the mass and the strength of gravity. IT DOES CHANGE !
Gravitational field	is the area where other objects feel a gravitational force.
Non-contact force	one that acts without direct contact.

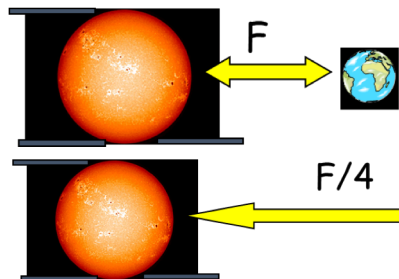
Gravity depends on 2 things:

1) The mass of the objects

If you double the mass of one object you double the force



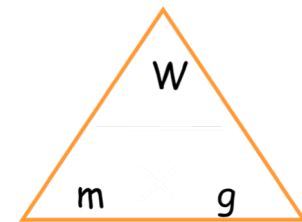
2) The distance between them



If you double the distance the gravitational force divides by 4...

Earth's Gravitational Field Strength is 10 N/kg. In other words, a 1 kg mass is pulled downwards by a force of 10 N.

The Gravitational Field Strength on the moon is only 1.6 N/kg because the moon has less mass than the Earth.



Weight = Mass x Gravitational Field Strength

(in N) (in kg) (in N/kg)

Example

What is the weight on Earth of a book with mass 2kg?

Weight = mass x gravity = 2 x 10 = 20 N

The attractive force of gravity exists because objects are surrounded by a **gravitational field** - this is the area where other objects feel a gravitational force. Magnets are surrounded by a **magnetic field**.