

Activity – Gravity

Draw arrows to show where gravity is acting between the astronomical bodies shown – the Sun, Earth and Moon.

Note: draw arrows pointing in the direction of attraction.

Weight is a force

The weight of an object is different from the mass of an object. Weight is a force – caused by the downward pull of gravity. Your weight changes if gravity changes. For example, on the Moon you would weigh one-sixth of your present weight.

Mass is the amount of matter in an object. Your mass is unaffected by gravity. Your mass would be the same on the Moon as it is on Earth. Mass is measured in grams, kilograms, etc. Weight is measured in newtons (N). To find your weight in newtons, simply multiply your mass in kg by 10.

Example:

American Neil Armstrong became the first man to walk on the Moon on 21 July 1969.

On Earth, Neil Armstrong had a mass of 80 kg and a weight of 800 N ($80 \times 10 = 800$).

On the Moon, Neil Armstrong had a mass of 80 kg and a weight of 133 N ($80 \times 10 \times 1/6 = 133$).

Activity – Explaining mass and weight

- How high could you jump on the Moon? _____
Why? _____
- What is your mass on the Moon? _____
 - What is your weight on the Moon? _____
- Why will a sheet of paper float slowly to the ground instead of falling straight down?

- What is your weight, in newtons? _____

