Your notes

KS3 Science: revision notes

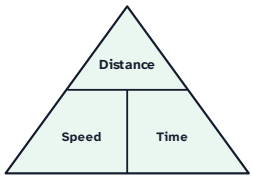
P2.1 Movement and pressure

Contents

1. Speed
2. Distance-time graphs
3. Pressure
4. Moments
5. Key terms
6. Quick questions
7. What to do next

Speed

- **Speed** = distance ÷ time. It is measured in metres per second (m/s), or kilometres per hour (km/h).
- A cyclist who travels 100 m in 20 s has an **average speed** of 100 ÷ 20 = 5 m/s.
- Rearranging: distance = **speed** × time, and time = distance ÷ **speed**.



Distance = Speed × Time

Speed = Distance ÷ Time

Time = Distance ÷ Speed

Cover the one you want: what's left shows how to work it out.

Distance-time graphs

- A horizontal (flat) line **means** the object is **stationary**.
- A straight sloping line **means** a constant **speed**. The steeper the line, the faster the **speed**.
- A curved line **means** the **speed** is changing.
- The **gradient** (steepness) of the line gives the **speed**.

Pressure

- **Pressure** = force ÷ area. It is measured in **pascals** (Pa), which are newtons per square metre (N/m^2).
- A large area gives a low **pressure**: snowshoes, wide tractor tyres and camels' feet stop things sinking.
- A small area gives a high **pressure**: sharp knives, drawing pins and stiletto heels.
- **Pressure** in a liquid increases with depth, so dams are thicker at the bottom. Air **pressure** decreases as you go higher.

Moments

- A **moment** is the turning effect of a force: **moment** = force × distance from the **pivot**. It is measured in newton metres (N m).
- When something is balanced, the clockwise **moments** equal the anticlockwise **moments** (the **principle of moments**).
- **Levers**, such as spanners and crowbars, use a long distance to make a small force give a big turning effect.
- Averages: the **mean** is the total ÷ the number of values; the **median** is the middle value in order; the **mode** is the most common value.

Key terms

Speed	How fast something moves: distance ÷ time.
Average speed	The total distance divided by the total time.
Distance-time graph	A graph showing how far something has travelled over time.
Gradient	How steep a line on a graph is.
Stationary	Not moving.
Pressure	The force acting on each unit of area: force ÷ area.
Pascal	The unit of pressure (1 Pa = 1 N/m^2).
Moment	The turning effect of a force: force × distance from the pivot.
Pivot	The point something turns around.
Lever	A bar that turns around a pivot to make a force more effective.
Principle of moments	In balance, clockwise moments equal anticlockwise moments.
Mean	The total of the values divided by the number of values.
Median	The middle value when the values are in order.
Mode	The most common value.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. How do you calculate speed?
2. A cyclist travels 100 m in 20 s. What is their speed?
3. On a distance-time graph, what does a horizontal (flat) line show?
4. On a distance-time graph, what does a steeper straight line show?
5. How long does it take to travel 300 m at 15 m/s?

Your notes

6. How is pressure calculated?
7. A force of 100 N acts on an area of 2 m^2. What is the pressure?
8. Why do snowshoes stop you sinking into snow?

Answers

1. Distance divided by time
2. 5 m/s
3. The object is stationary
4. A faster constant speed
5. 20 s
6. Force divided by area
7. 50 Pa
8. They spread your weight over a bigger area, lowering the pressure

What to do next

Practise 15 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

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