

Speed

KS3 Physics · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

A runner covers 200 m in 40 s. Find the average speed.

Step 1 · Formula

Speed = distance ÷ time.

Step 2 · Calculate

$200 \div 40 = 5 \text{ m/s}$.

Answer: 5 m/s

Check: 5 m every second $\times 40 \text{ s} = 200 \text{ m}$ ✓

2. Now try one with the steps

A bus travels at 12 m/s for 25 s. How far does it go?

Step 1 · Rearrange

Step 2 · Calculate

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Write the equation linking speed, distance and time. [1]

2. What is the SI unit of speed? [1]

3. A dog runs 100 m in 20 s. What is its average speed, in m/s? [1]

4. A cyclist travels 600 m in 150 s. What is her average speed, in m/s? [1]

5. A car travels 90 km in 1.5 hours. What is its average speed, in km/h? [1]

6. A toy car moves at 3 m/s for 40 s. How far does it travel, in metres? [2]

7. How long does it take to run 1500 m at 5 m/s, in seconds? [2]

8. Write 2 minutes 30 seconds in seconds. [1]

9. Leila walks 400 m in 200 s, stops for 100 s, then walks 400 m in 200 s. What is her average speed for the whole trip, in m/s? [3]

10. A sprinter runs 100 m in 10 s. Explain why his top speed must be more than 10 m/s. [2]

11. A train travels 240 km in 2 hours 30 minutes. What is its average speed, in km/h? [2]

12. Convert 10 m/s to km/h. [2]

13. Fatima walks 1.8 km to school at 1.5 m/s. How many minutes does it take? [3]

14. Describe how you could measure the average speed of a friend walking across the playground. [3]

4. Before you hand it in

Speed = time ÷ distance.

Speed = distance ÷ time. Check: a bigger distance in the same time should give a bigger speed.

Averaging two speeds to find the average speed.

Average speed = total distance ÷ total time.

Mixing units, e.g. km with seconds.

Convert km → m and minutes → s before using m/s.

Leaving out stops when working out average speed.

Include all the time from start to finish.