Year 7 Science: Speed: measuring it, calculating it and graphing it

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. A tūī flies 120 m in 8 s. What is its speed?

2. Convert 5 m/s into km/h.

3. A ferry travels at 30 km/h for 2 hours. How far does it go?

4. On a distance-time graph, line A is steeper than line B. Which object is faster?

5. Three timings of a falling ball are 0.6 s, 0.9 s and 0.6 s. Why should the class be careful about trusting these?

Fix the mistake

6. Correct this statement: "Speed = time ÷ distance, so 100 m in 20 s is 0.2 m/s."

7. Correct this statement: "A flat line on a distance-time graph means moving at a steady speed."

8. Correct this statement: "Dividing 3 km by 20 minutes gives a speed of 0.15 km/h."

9. Correct this statement: "If I measure once very carefully, I do not need repeats."

Answer key (for parents and tutors)

1. A tūī flies 120 m in 8 s. What is its speed?
   120 ÷ 8 = 15 m/s.
2. Convert 5 m/s into km/h.
   5 × 3.6 = 18 km/h.
3. A ferry travels at 30 km/h for 2 hours. How far does it go?
   30 × 2 = 60 km.
4. On a distance-time graph, line A is steeper than line B. Which object is faster?
   A, because a steeper line means more distance in each second.
5. Three timings of a falling ball are 0.6 s, 0.9 s and 0.6 s. Why should the class be careful about trusting these?
   The times are very short and do not agree, so reaction time causes large errors; drop from higher or film it.
6. Correct this statement: "Speed = time ÷ distance, so 100 m in 20 s is 0.2 m/s."
   Speed is distance ÷ time: 100 m ÷ 20 s = 5 m/s.
7. Correct this statement: "A flat line on a distance-time graph means moving at a steady speed."
   A flat line means the distance is not changing, so the object is stopped; a steady speed is a straight sloping line.
8. Correct this statement: "Dividing 3 km by 20 minutes gives a speed of 0.15 km/h."
   Change the time to hours first: 20 min = 1/3 h, so 3 km ÷ 1/3 h = 9 km/h.
9. Correct this statement: "If I measure once very carefully, I do not need repeats."
   Repeats show whether results agree and let you take a mean, which reduces the effect of reaction-time errors.