YEAR 8

Forces and Motion

Show the equation, then the numbers, then the answer with its unit. Marks are given for the working, not only for the final number.

Name: Date: Score:

Section A · Forces and their effects

Name the force and say which way it acts.

1. State the unit that force is measured in.

2. Name the instrument used to measure force.

3. What is meant by a **balanced** pair of forces?

4. A book rests on a table. Name the two forces acting on it.

5. Name the force that opposes motion between two touching surfaces.

6. Give **one** way friction is useful and **one** way it is a nuisance.

Section B · Speed, distance and time

Speed = distance ÷ time. Rearrange before you substitute.

1. A runner covers 100 m in 20 s. Calculate their speed.

2. A car travels at 15 m/s for 40 s. Calculate the distance travelled.

3. A cyclist covers 900 m at a steady 6 m/s. Calculate the time taken.

4. A train covers 3000 m in 100 s. Calculate its speed.

5. A walker moves at 1.5 m/s for 200 s. Calculate the distance travelled.

6. On a distance-time graph, what does a horizontal line tell you?

7. On a distance-time graph, what does a steeper line tell you?

Section C · Mass, weight and gravity

Mass is in kilograms. Weight is a force, in newtons.

1. State the equation linking weight, mass and gravitational field strength.

2. On Earth g is 10 N/kg. Calculate the weight of a 6 kg bag.

3. Calculate the mass of an object that weighs 250 N on Earth, where g is 10 N/kg.

4. On the Moon g is about 1.6 N/kg. Calculate the weight of a 6 kg bag on the Moon.

5. Explain why your mass is the same on the Moon but your weight is not.

6. A parachutist falls at a steady speed. What can you say about the forces acting on them?