

**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.

⑦ A runner covers 100 m in 20 s. Calculate their speed.

⑧ A car travels at 15 m/s for 40 s. Calculate the distance travelled.

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

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

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

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

13 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.

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

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

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

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

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

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