

**Questions are for both separate science and combined science students****Q1.**

Hailstones are small balls of ice. Hailstones form in clouds and fall to the ground.

- (a) Explain the difference in the maximum kinetic energy of a hailstone with a mass of 10 g and a hailstone with a mass of 20 g.

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**(3)**

- (b) The kinetic energy of a hailstone is measured in joules.

Which of the following is the same as 1 joule?

Tick (✓) **one** box.

1 N m

☐

1 N/m

☐

1 N/m<sup>2</sup>

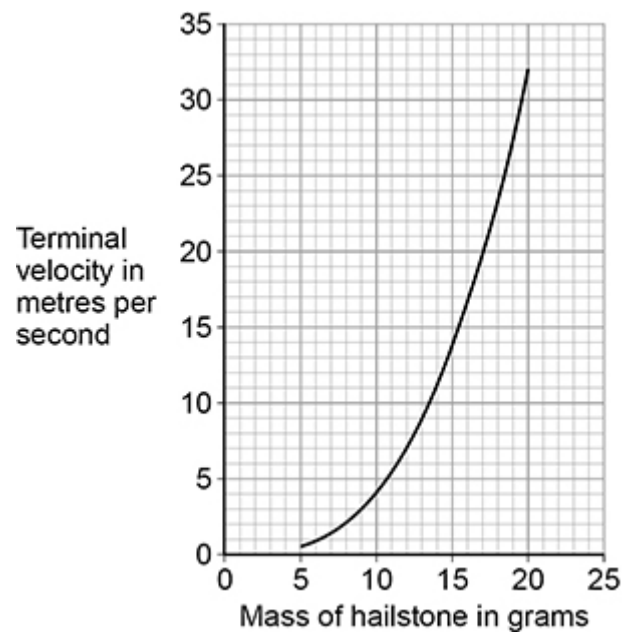
☐

1 N m<sup>2</sup>

☐**(1)**

**Figure 2** is repeated below.

**Figure 2**



- (c) A hailstone hit the ground at its terminal velocity of 25 m/s.

The hailstone took 0.060 s to stop moving.

Determine the average force on the hailstone as it hit the ground.

Use information from **Figure 2**.

Use the Physics Equations Sheet. **(HT only)**

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Average force = \_\_\_\_\_ N

(3)

(Total 7 marks)