

AQA GCSE Physics Worksheet

Particle Model and Pressure | Higher Tier | 4.3.3



HIGHER TIER

Student Name: _____ Date: _____ Total: 30 marks

1. [2 marks]

Describe the motion of particles in a gas.

2. [1 mark]

State what happens to the average kinetic energy of gas particles when the temperature increases.

3. [3 marks]

Explain, in terms of particles, how a gas exerts pressure on the walls of its container.

4. [2 marks]

State the temperature at which particles would have zero kinetic energy. Give your answer in both degrees C and K.

5.

[3 marks]

A gas has a volume of 0.80 m cubed at a pressure of 150 kPa. The gas is compressed at constant temperature to a volume of 0.40 m cubed. Calculate the new pressure. (HT only)

Pressure = _____ kPa

6.

[3 marks]

A sealed syringe contains 40 cm cubed of gas at a pressure of 1.0×10^5 Pa. The plunger is pushed in until the pressure is 2.5×10^5 Pa. Calculate the new volume of gas. Assume the temperature stays constant. (HT only)

Volume = _____ cm cubed

7.

[3 marks]

Explain why a bicycle pump gets warm when air is compressed inside it.

8.

[4 marks]

A sealed container of gas is heated. The volume of the container cannot change. Explain, in terms of particles, why the pressure inside the container increases.

9.

[6 marks]

Aerosol cans carry a warning: 'Do not expose to temperatures above 50 degrees C.'
Explain why this warning is necessary. In your answer, refer to particle motion, collisions, and pressure.

