

MR SULLY UNFOLDS PHYSICS

Gas pressure

AQA 4.3.3
Particle model · Paper 1
Foundation & Higher

Name _____ Class _____ Date _____

Gas particles are always moving. When they hit the walls of their container, they exert a force: this is gas **pressure**.

KEY IDEAS

- Gas molecules are in constant random motion. Temperature is related to their **average kinetic energy**.
- At constant volume, heating a gas increases its pressure.
- **Physics only:** for a fixed mass of gas at constant temperature, pV = constant. Doing work on a gas increases its temperature.

Section A · Recall

Grade 4–5

1 Describe the motion of particles in a gas. [1]

2 Explain how gas particles cause pressure on the walls of a container. [2]

Section B · Explain

Grade 5–6

3 A sealed container of gas is heated. The volume doesn't change. Explain why the pressure increases. [4]

4 Explain why car tyre pressure is higher after a long journey. [2]

Section C · Physics only

Grade 6–7+

5 A gas has a volume of 0.004 m^3 at a pressure of 100 kPa. It is compressed to 0.001 m^3 at constant temperature. Calculate the new pressure. [3]

6 Explain why the air in a bicycle pump gets warmer when the plunger is pushed in quickly. [3]
(Higher)

Exam-style question

AQA style

7 An aerosol can contains gas at high pressure. The label says 'Do not heat'.

a Explain, in terms of particles, why heating the can is dangerous. [3]

b The gas pressure exerts a force on the can. State the direction of this force. [1]

Total: _____ / 19

How confident am I?	Not yet	Nearly	Got it
I can explain gas pressure using particles	☐	☐	☐
I can explain how temperature affects pressure	☐	☐	☐
I can use pV = constant (Physics only)	☐	☐	☐