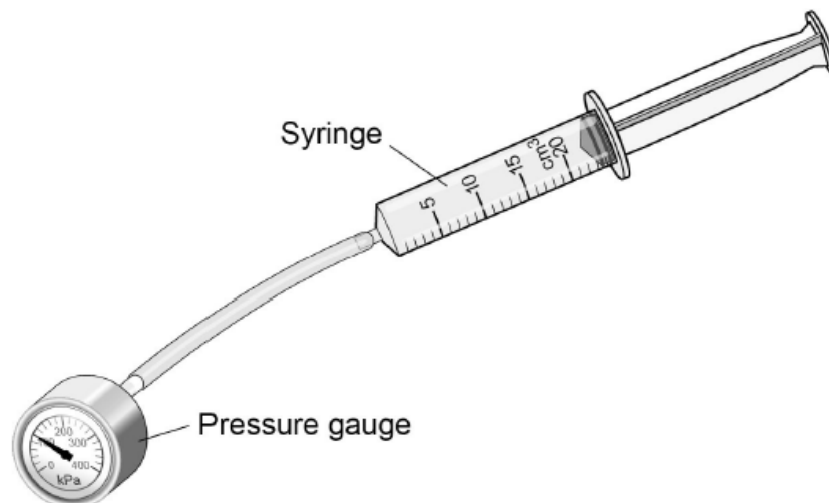


**AQA - Particle model and pressure – GCSE Physics**1. **May/2020/Paper\_1F/No.6**

0	6
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A student used the equipment in **Figure 9** to investigate how the pressure of a gas varies with the volume of the gas.

**Figure 9**

The syringe is filled with air.

**Table 2** shows the results.

**Table 2**

Volume in cm <sup>3</sup>	Pressure in kPa
24	100
20	120
12	200
10	240

0 6 . 1

Describe how the student could use the equipment in **Figure 9** to obtain the data shown in **Table 2**.

**[4 marks]**

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0 6 . 2

Describe what happens to the pressure of the air when the volume of the air is halved.

**[2 marks]**

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0 6 . 3

The temperature of the air in the syringe remained constant during the student's investigation.

Which **two** properties of the air particles would change if the temperature increased?  
[2 marks]

Tick (✓) **two** boxes.

kinetic energy

mass

shape

speed

volume

2. May/2020/Paper\_1H/No.10

1 0

Figure 15 shows a balloon filled with helium gas.

Figure 15



1 0 . 1

Which statements describe the movement of the gas particles in the balloon?

[2 marks]

Tick (✓) **two** boxes.

The particles all move in a predictable way.

The particles move at the same speed.

The particles move in circular paths.

The particles move in random directions.

The particles move with a range of speeds.

The particles vibrate about fixed positions.

1 0 . 2 The pressure of the helium in the balloon is 100 000 Pa.

The volume of the balloon is 0.030 m<sup>3</sup>.

The balloon is compressed at a constant temperature causing the volume to decrease to 0.025 m<sup>3</sup>.

No helium leaves the balloon.

Calculate the new pressure in the balloon.

[4 marks]

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New pressure = \_\_\_\_\_ Pa

1 0 . 3 The temperature of the helium in the balloon was increased.

The mass and volume of helium in the balloon remained constant.

Explain why the pressure exerted by the helium inside the balloon would increase.

[4 marks]

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