

The Particle Model (H)

1. The atomic model has changed over time.

Why did the model need to change over time?

- A Models only have a finite lifetime
- B Computers were invented
- C The older models could not explain new evidence
- D Peer review

Your answer

[1]

2. What is the typical diameter of an atom?

- A 1.0×10^{-15} m
- B 1.0×10^{-10} m
- C $1.0 \mu\text{m}$
- D 1.0 mm

Your answer

[1]

3. A liquid has a volume of 0.01 m^3 and a mass of 12 kg .

What is the density of the liquid?

Use the equation: density = mass / volume

- A $0.12 \text{ kg} / \text{m}^3$
- B $12 \text{ kg} / \text{m}^3$
- C $120 \text{ kg} / \text{m}^3$
- D $1200 \text{ kg} / \text{m}^3$

Your answer

[1]

4. A student investigates what happens when she heats a beaker of water.

	The temperature increases	The state changes	The energy stored in the water changes
A	✓	✓	✓
B	✓	x	x
C	x	✓	x
D	x	x	✓

Which row in the table describes what **could** happen when the water is heated?

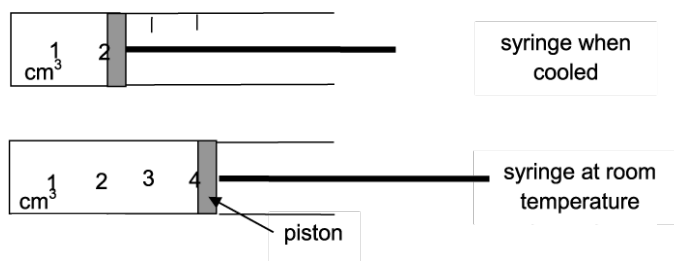
Your answer

[1]

5. A graduated syringe contains air.

It is put in a freezer to cool it down.

When it is removed from the freezer the piston has moved inwards.



The density of the air in the syringe when cooled is 2.4 kg/m^3 .

What was the density of the air at room temperature?

- A. 0.6 kg/m^3
- B. 1.2 kg/m^3
- C. 2.4 kg/m^3
- D. 4.8 kg/m^3

Your answer

[1]

6. A piece of metal has a volume of $2.0 \times 10^{-5} \text{ m}^3$.

The density of it is $8.0 \times 10^3 \text{ kg/m}^3$.

What is its mass?

- A. $2.5 \times 10^{-3} \text{ kg}$
- B. $4.0 \times 10^{-2} \text{ kg}$
- C. $1.6 \times 10^{-1} \text{ kg}$
- D. $1.6 \times 10^3 \text{ kg}$

Your answer

[1]

7(a). A student uses a ruler to determine the volume of a cube, **A**. The length of one side of the cube is 0.100 m.

i. Calculate the volume of cube **A**.

Volume of cube **A** = m^3 [2]

ii. Cube **B** has the same volume as cube **A**.

The mass of cube **B** is ten times greater than the mass of cube **A**.

Compare the density of cube **B** with cube **A**.

Use the equation for density to help your explanation.

[2]

(b). Give **one** reason why a solid is more dense than a gas.

[1]