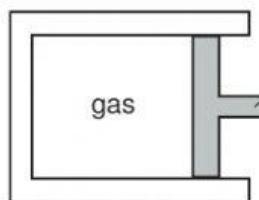


25 Extremely small pollen grains in water are viewed through a microscope. The grains are seen to move continually and randomly.

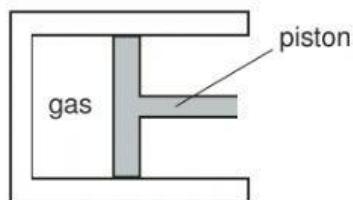
What is the reason for this random movement?

- A The grains are moved by randomly moving water molecules.
- B The grains are moved by random convection currents in the water.
- C The grains are moved by random rays of light reflecting off them.
- D The grains are moved by the random motion of their own atoms.

26 A gas is compressed in a sealed cylinder by moving a piston.



initial position



after gas has been compressed

Which row in the table states what happens to the density of the gas and to the pressure of the gas when it is compressed?

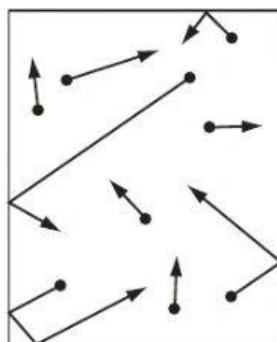
	density	pressure
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

27 During evaporation, molecules escape rapidly from the surface of a liquid.

What happens to the average energy of the molecules of the remaining liquid and what happens to the temperature of the remaining liquid?

	average energy of remaining molecules	temperature of remaining liquid
A	decreases	decreases
B	decreases	increases
C	stays the same	decreases
D	stays the same	increases

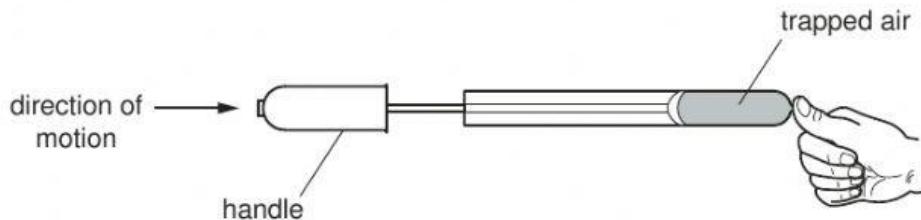
28 The diagram represents molecules of gas moving in a container.



What happens to the gas molecules when the temperature of the gas increases?

- A** They move more quickly.
- B** They move more slowly.
- C** They vibrate more quickly.
- D** They vibrate more slowly.

29 A student places his thumb firmly on the outlet of a bicycle pump, to stop the air coming out.

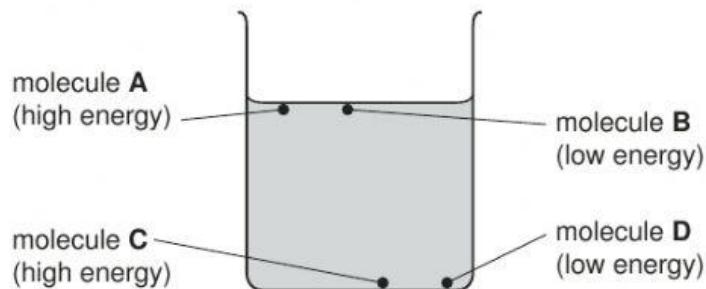


What happens to the pressure and what happens to the volume of the trapped air as the pump handle is pushed in?

	pressure	volume
A	decreases	decreases
B	decreases	remains the same
C	increases	decreases
D	increases	remains the same

30 The diagram shows a beaker of water. Four molecules are labelled. The relative amount of energy of each molecule is shown.

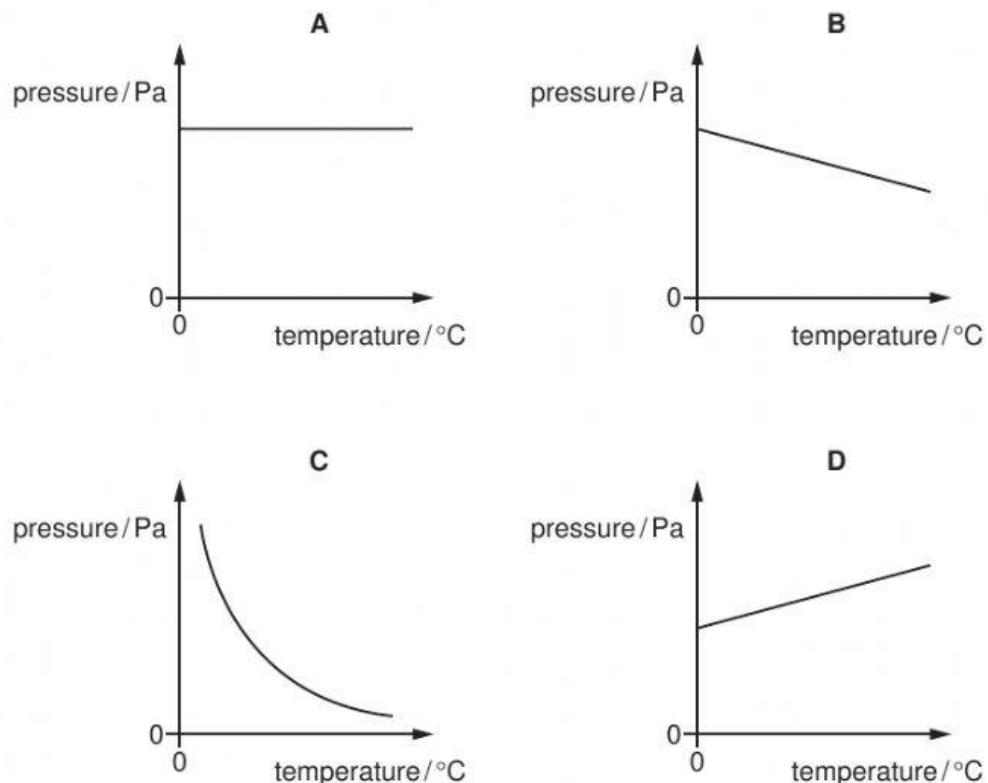
Which molecule is most likely to escape from the liquid?



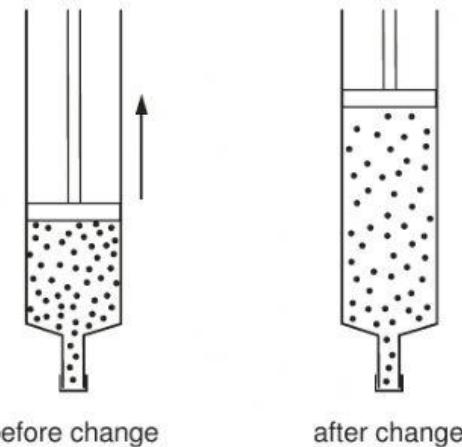
31 Some gas is trapped in a container of fixed volume.

The temperature of the gas increases.

Which graph shows how the pressure of the gas changes with temperature?



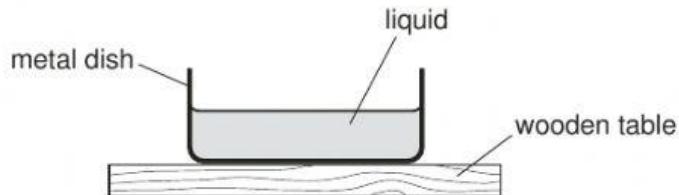
32 The volume of a gas in a sealed syringe is increased. The temperature of the gas does not change.



After this change is made, what has happened to the gas molecules in the syringe?

- A They move more quickly.
- B They move more slowly.
- C They hit the syringe walls less often.
- D They hit the syringe walls more often.

33 Some liquid is poured into a metal dish on a wooden table. The dish, the liquid, the table and the air around the dish are all at the same temperature.

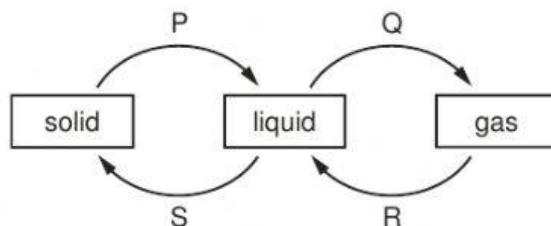


The temperature of the liquid now starts to decrease.

What could cause this temperature decrease?

- A convection currents in the liquid
- B conduction of heat through the metal dish
- C evaporation of the liquid
- D heat radiation from the liquid

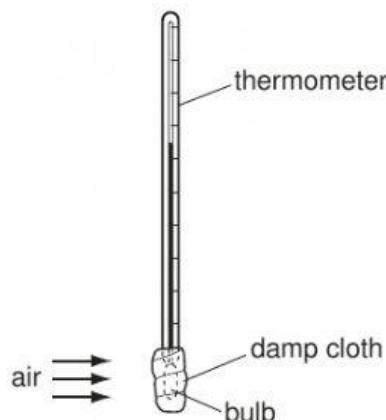
34 The diagram shows four labelled changes of state between solid, liquid and gas.



Which changes need an energy input?

A P and Q **B** Q and R **C** R and S **D** S and P

35 A thermometer bulb is covered by a piece of damp absorbent cloth.

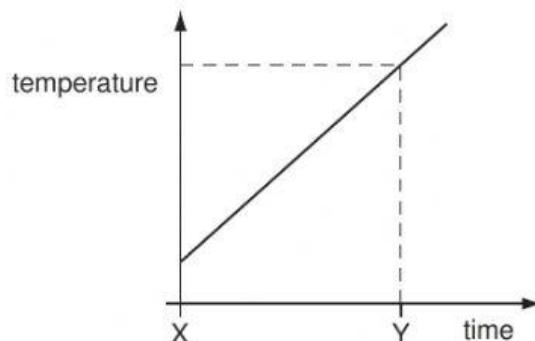


Air at room temperature is blown across the damp cloth.

What happens to the thermometer reading?

A It remains constant.
B It rises.
C It rises then falls.
D It falls.

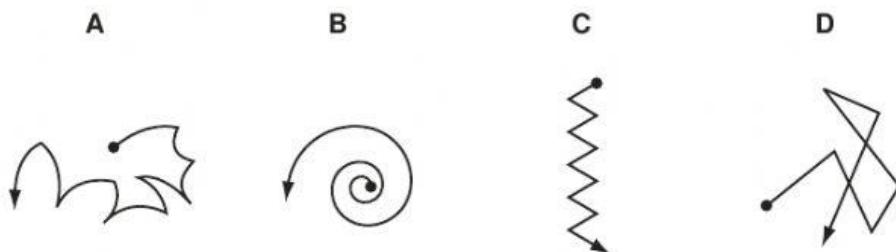
36 A gas storage tank has a fixed volume. The graph shows how the temperature of the gas in the tank varies with time.



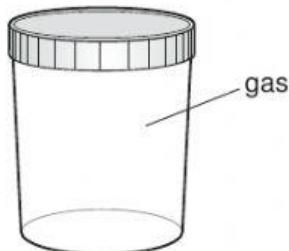
At time Y, the gas molecules are

- A closer together than at time X.
- B hitting the sides of the tank harder than at time X.
- C larger in size than at time X.
- D moving more slowly than at time X.

37 Which diagram best shows the path of a gas molecule?



38 The diagram shows a sealed jar containing a gas.



Which statement about the gas in the jar is correct?

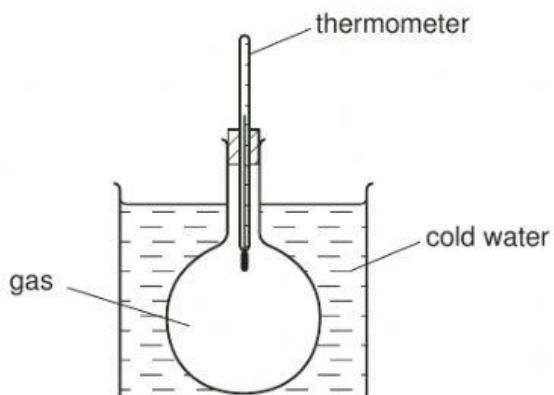
- A The gas molecules collide with the inside of the jar more often as the temperature increases.
- B The gas molecules move more slowly as the temperature increases.
- C The pressure of the gas decreases as the temperature increases.
- D The pressure of the gas is higher at the top of the jar than at the bottom of the jar.

39 A block of ice cream is prevented from melting by wrapping it in newspaper soaked in water. The water evaporates from the newspaper.

Which molecules escape from the water and what happens to the average speed of the water molecules that remain in the newspaper?

	escaping molecules	average speed of the remaining water molecules
A	the less energetic ones	decreases
B	the less energetic ones	increases
C	the more energetic ones	decreases
D	the more energetic ones	increases

40 A closed flask of gas is placed in a cold-water bath.



As the flask cools, the temperature of the gas decreases.

What happens to the molecules of the gas?

- A They contract.
- B They expand.
- C They move more quickly.
- D They move more slowly.

41 Brownian motion is observed when looking at smoke particles in air using a microscope.

What causes the smoke particles to move at random?

- A Smoke particles are hit by air molecules.
- B Smoke particles are moved by convection currents in the air.
- C Smoke particles have different weights and fall at different speeds.
- D Smoke particles hit the walls of the container.