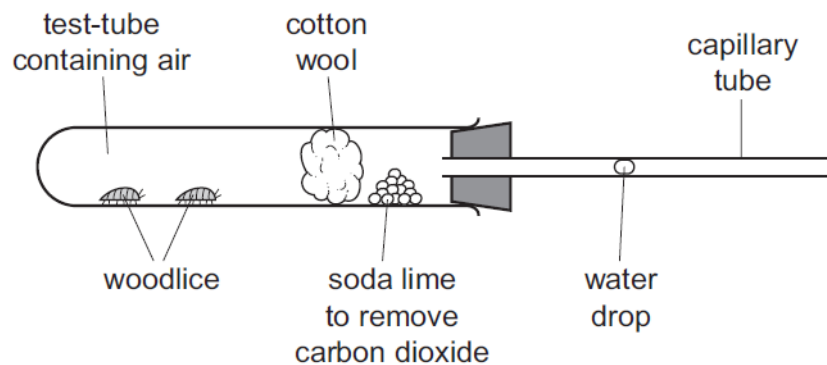


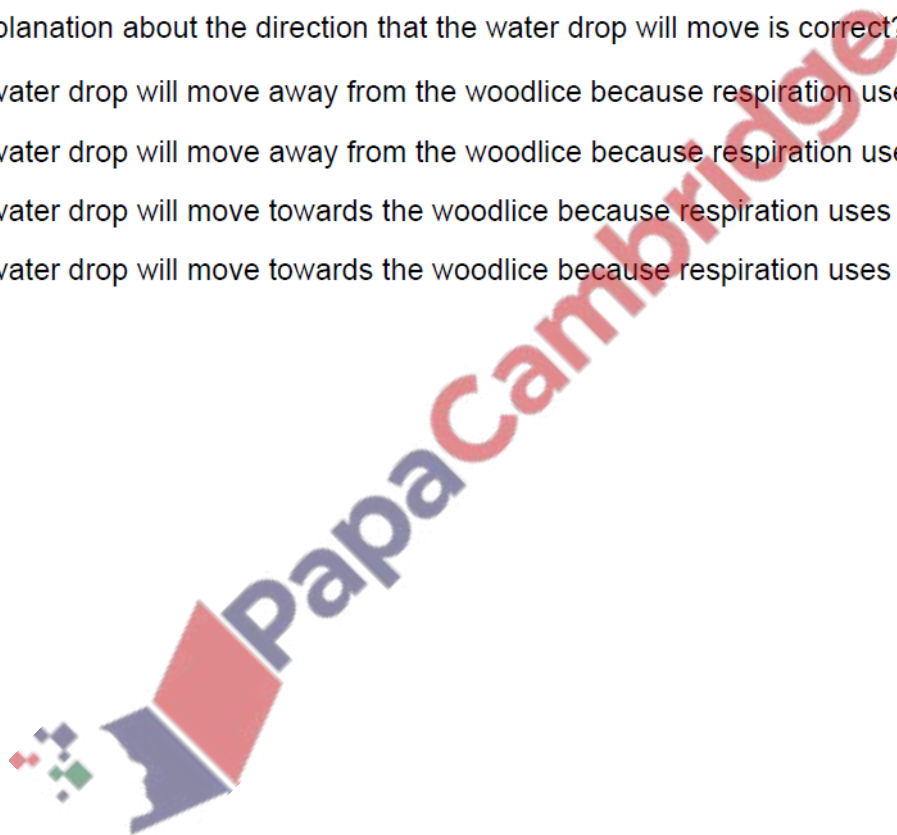
1. Nov/2021/Paper_11/No.23

The diagram shows the apparatus used by a student to investigate respiration in woodlice (small arthropods).



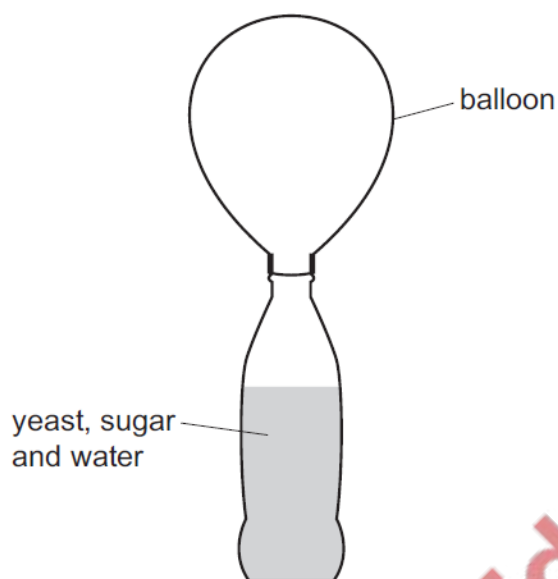
Which explanation about the direction that the water drop will move is correct?

- A** The water drop will move away from the woodlice because respiration uses carbon dioxide.
- B** The water drop will move away from the woodlice because respiration uses oxygen.
- C** The water drop will move towards the woodlice because respiration uses carbon dioxide.
- D** The water drop will move towards the woodlice because respiration uses oxygen.



2. Nov/2021/Paper_11/No.24

Some students placed yeast, sugar and water into a bottle. They then placed an empty balloon over the opening of the bottle. The bottle was left in a warm place for one hour. During this time the balloon increased in size.



Why does the balloon increase in size?

- A The yeast makes alcohol.
- B The yeast makes carbon dioxide.
- C The yeast makes oxygen.
- D The yeast makes lactic acid.

3. Nov/2021/Paper_12/No.23

Which chemicals are needed to release energy in aerobic respiration?

- A carbon dioxide and glucose
- B carbon dioxide and water
- C oxygen and glucose
- D oxygen and water

4. Nov/2021/Paper_12/No.24

Yeast is an organism used in the production of biofuels.

Which statement describes why yeast is used for biofuel production?

- A Yeast respire aerobically to produce carbon dioxide.
- B Yeast respire aerobically to produce carbon dioxide and ethanol.
- C Yeast respire anaerobically to produce carbon dioxide.
- D Yeast respire anaerobically to produce carbon dioxide and ethanol.

5. Nov/2021/Paper_13/No.23

The table shows some facts about aerobic respiration.

Which row is correct?

	nutrient molecules	oxygen	energy
A	broken down	released	released
B	broken down	used	released
C	built up	released	required
D	built up	used	required

6. Nov/2021/Paper_13/No.24

Which word equation represents anaerobic respiration in yeast cells?

- A glucose \rightarrow alcohol + carbon dioxide
- B glucose + oxygen \rightarrow carbon dioxide + water
- C glucose \rightarrow lactic acid
- D glucose \rightarrow alcohol

7. Nov/2021/Paper_21/No.22

In a balanced chemical equation for aerobic respiration, what are the products?

- A 6O_2 and $6\text{H}_2\text{O}$
- B $\text{C}_6\text{H}_{12}\text{O}_6$ and 6O_2
- C 6O_2 and 6CO_2
- D 6CO_2 and $6\text{H}_2\text{O}$

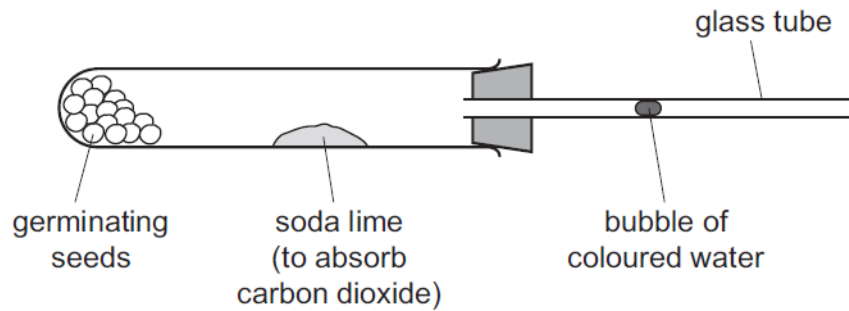
8. Nov/2021/Paper_22/No.22

Which statement about lactic acid is correct?

- A Lactic acid is a product of anaerobic respiration in yeast.
- B Lactic acid build-up in tissues can lead to an oxygen debt.
- C Lactic acid is produced from sucrose during anaerobic respiration.
- D Lactic acid is transported from the liver to the muscles after exercise.

9. Nov/2021/Paper_22/No.23

The diagram shows the apparatus used to measure the rate of respiration in germinating seeds. As the seeds respire, the bubble of coloured water moves along the glass tube.



The temperature is increased from 20 °C to 40 °C.

What happens to the movement of the bubble as the temperature increases?

- A The bubble moves more quickly towards the seeds at 40 °C than at 20 °C.
- B The bubble moves more quickly away from the seeds at 40 °C than at 20 °C.
- C The bubble moves more quickly towards the seeds at 20 °C than at 40 °C.
- D The bubble moves more quickly away from the seeds at 20 °C than at 40 °C.

10. Nov/2021/Paper_22/No.38

What is the useful product of anaerobic respiration in the manufacture of bread?

- A carbon dioxide
- B ethanol
- C lactic acid
- D oxygen

11. Nov/2021/Paper_23/No.23

What is the equation for anaerobic respiration in yeast?

- A $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$
- B $C_6H_{12}O_6 \rightarrow 2C_3H_6O_3$
- C $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$
- D $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

(a) Place ticks (✓) in the boxes that describe anaerobic respiration.

a chemical reaction in a cell	<input type="checkbox"/>
breaks down nutrient molecules	<input type="checkbox"/>
coordinates and regulates body functions	<input type="checkbox"/>
does not use oxygen	<input type="checkbox"/>
affects reaction times and self-control	<input type="checkbox"/>
produces alcohol and carbon dioxide in yeast	<input type="checkbox"/>
uses carbon dioxide	<input type="checkbox"/>
uses oxygen	<input type="checkbox"/>

[4]

(b) State the product of anaerobic respiration in muscles during vigorous exercise.

..... [1]

(c) State **three** uses of the energy released in respiration in the body.

1

2

3

[3]

[Total: 8]

Respiration is a process that occurs in all living organisms.

(a) (i) Complete the definition of aerobic respiration.

The reactions in cells that use
to break down molecules to release energy.

[3]

(ii) State **two** uses of the energy released by respiration in the human body.

1

2

[2]

(iii) Carbon dioxide is one chemical product of aerobic respiration.

State the name of the other chemical product of aerobic respiration.

..... [1]

(b) A student investigated respiration at two different temperatures in germinating pea seeds.

The apparatus is shown in Fig. 1.1.

Soda lime is a chemical that absorbs carbon dioxide.

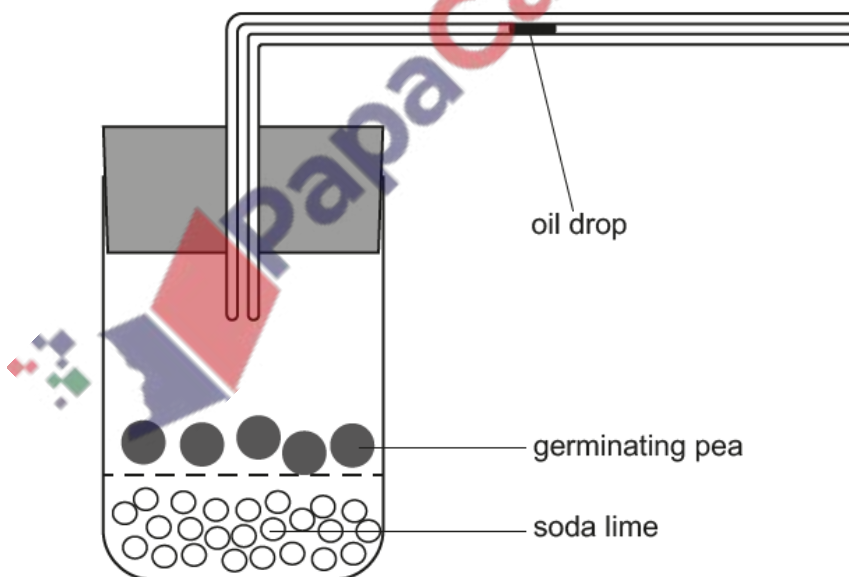


Fig. 1.1

The results of the investigation are shown in Table 1.1.

Table 1.1

temperature / °C	distance moved by the oil drop / cm
5	2.3
25	5.0

- (i) Calculate the percentage increase in the **distance** the oil drop moved, when the temperature changed from 5 °C to 25 °C.

Give your answer to **one** decimal place.

Space for working.

..... %
[3]

- (ii) State **two** environmental conditions that the pea seeds shown in Fig. 1.1 would need for germination.

1

2
[2]

[Total: 11]

