

APOLLO

Cell respiration

HL

Biology

First assessment 2025

8 questions | questions

- 6.** What is an example of an intracellular enzyme-catalysed reaction?
- A. Chemical digestion in the gut
 - B. Glycolysis in cellular respiration
 - C. Blood clotting in the circulatory system
 - D. Recycling of acetylcholine in a synapse

7. What occurs during the stages of respiration?

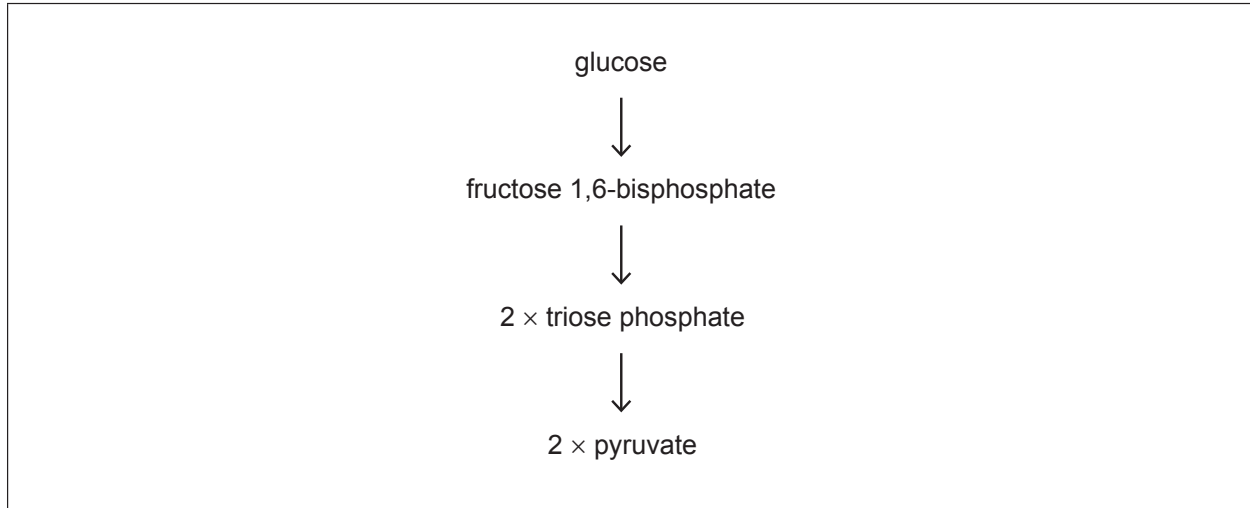
	Stage of respiration	Decarboxylation	Reduced NAD produced
A.	Glycolysis	No	No
B.	Link reaction	Yes	No
C.	Krebs cycle	Yes	Yes
D.	Electron transport chain	No	Yes

Turn over

Section A

Answer **all** questions. Answers must be written within the answer boxes provided.

6. Glucose is converted to pyruvate during the glycolysis stage of respiration.



- (a) On the diagram, label

- (i) with P where phosphorylation occurs; [1]
 (ii) with O where oxidation occurs. [1]

- (b) State where in the cell glycolysis takes place. [1]

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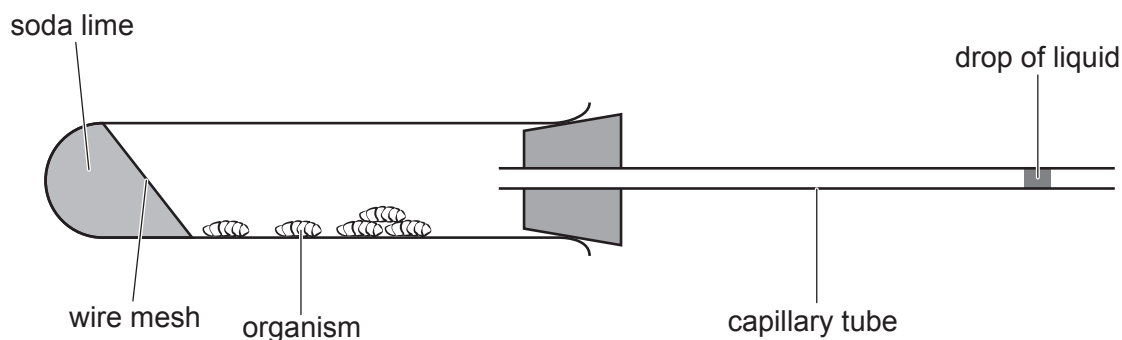
- (c) Outline how NAD is made available for glycolysis during anaerobic respiration in animal cells. [2]

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Turn over

6. The diagram shows a simple respirometer used to measure the rate of respiration. Soda lime is used to absorb carbon dioxide.

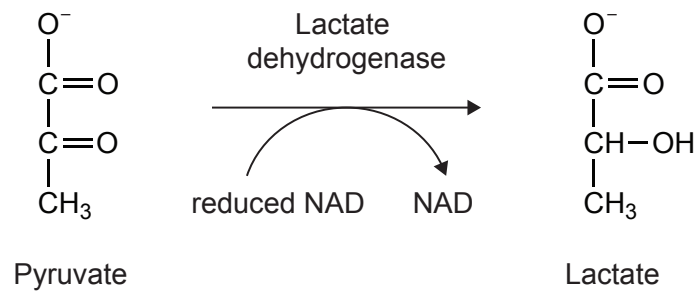


Which way will the drop of liquid move if the organisms are respiring aerobically?

- A. The drop of liquid will not move as the volume of oxygen used in respiration equals the volume of carbon dioxide produced.
- B. The drop of liquid will move left as oxygen is used up by the respiring organisms.
- C. The drop of liquid will move right as carbon dioxide is produced by respiring organisms.
- D. The drop of liquid will move right as carbon dioxide is produced and then left as oxygen is consumed.

7. Which of the following statements describes part of the Krebs cycle?
- A. Reduced NAD is converted back to NAD.
 - B. A 4-carbon citrate binds with acetyl-CoA to form a 6-carbon intermediate.
 - C. Two decarboxylation reactions occur.
 - D. One ATP molecule is used in one stage of the cycle.

5. The diagram shows the chemical reaction that occurs during the last step of anaerobic respiration in human skeletal muscle cells.



What is the purpose of this reaction?

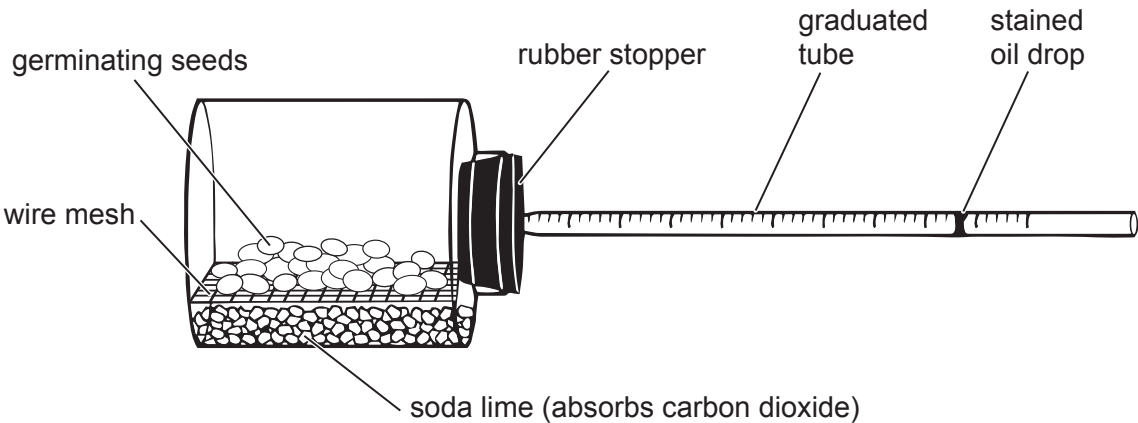
- A. To allow the release of energy from glucose breakdown to continue
- B. To establish a concentration gradient of hydrogen ions for adenosine triphosphate (ATP) synthesis
- C. To provide electrons for the electron transport chain
- D. To reduce carbon compounds in the absence of oxygen

Turn over

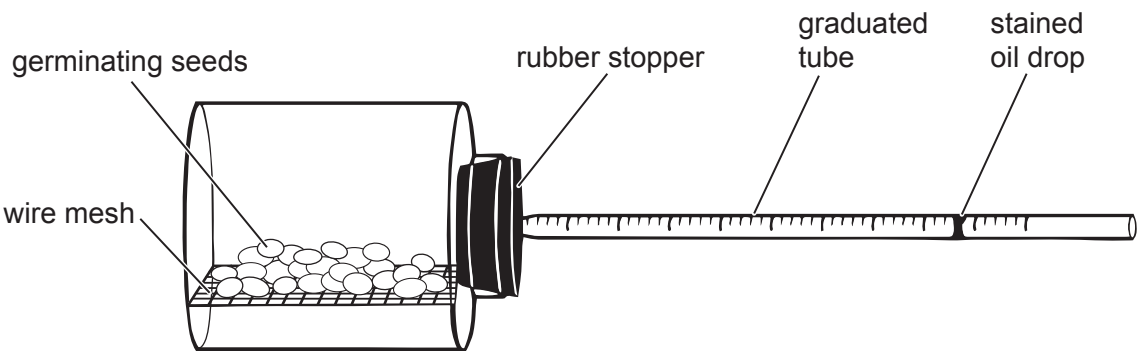
8. Students prepared respirometers in order to investigate respiration rates in seeds.

diagram not to scale

Respirometer 1



Respirometer 2



How would the results differ in the respirometers after 30 minutes?

	Respirometer 1	Respirometer 2
A.	Oil drop does not move	Oil drop moves left
B.	Oil drop does not move	Oil drop moves right
C.	Oil drop moves left	Oil drop moves right
D.	Oil drop moves left	Oil drop does not move

34. *Yersinia pestis* is a bacterium that caused an outbreak of bubonic plague in the 14th century. It normally produces ATP in the presence of oxygen but can still produce ATP if oxygen is absent. Which term describes this characteristic?

- A. Facultative respiration
- B. Facultative anaerobe
- C. Obligate anaerobe
- D. Obligate aerobe