

Exercise walk-through

Aerobic respiration ■ 12.2

eXercise

You must be able to

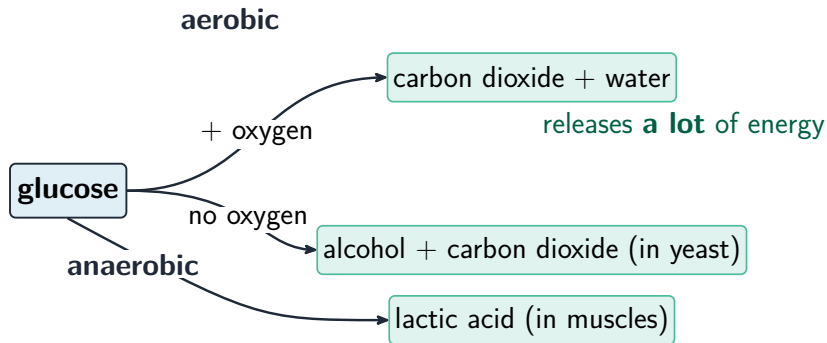
- write the word (and balanced) equation for aerobic respiration
- state that it needs oxygen and releases a lot of energy
- name the products

Method — Aerobic respiration

glucose + oxygen $\rightarrow$ carbon dioxide + water

Balanced: $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$.

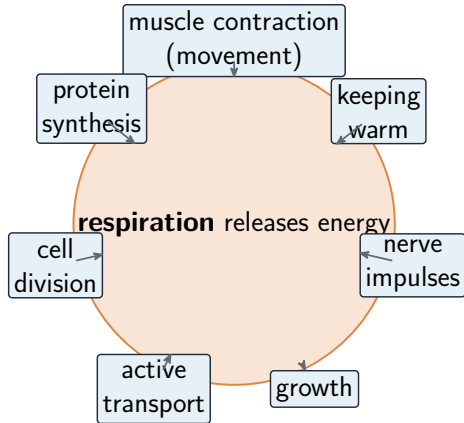
Method — Aerobic respiration



releases **much less** energy

Glucose split into aerobic and anaerobic pathways

Method — Aerobic respiration



Aerobic respiration releases energy for the cell

Practice 2.1 ■ 2 marks

Write the word equation for aerobic respiration.

Solution 2.1

Method: Aerobic respiration

Worked steps

glucose + oxygen $\rightarrow$ carbon dioxide + water M1 A1 *reactants, products.*

Practice 2.2 ■ 1 mark

State the gas needed for aerobic respiration.

Solution 2.2

Method: Aerobic respiration

Worked steps

oxygen **B1**.

Exam-style 3.1 ■ 1 mark

The products of aerobic respiration are:

A alcohol and carbon dioxide

B lactic acid only

C carbon dioxide and water

D glucose and oxygen

Solution 3.1

Method: Aerobic respiration

- A alcohol and carbon dioxide
- B lactic acid only
- C carbon dioxide and water
- D glucose and oxygen



Worked steps

C. Aerobic respiration produces carbon dioxide and water.

Exam-style 3.2 ■ 2 marks

Aerobic respiration releases energy from glucose.

- (a) Write the balanced chemical equation.
- (b) State how the energy released compares with anaerobic respiration.

Solution 3.2

Method: Aerobic respiration

Worked steps

(a) $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$ **M1** **A1** *formulae, balanced.*

(b) aerobic respiration releases much more energy **B1**.