

Exercise walk-through

Respiration ■ 12.1

eXercise

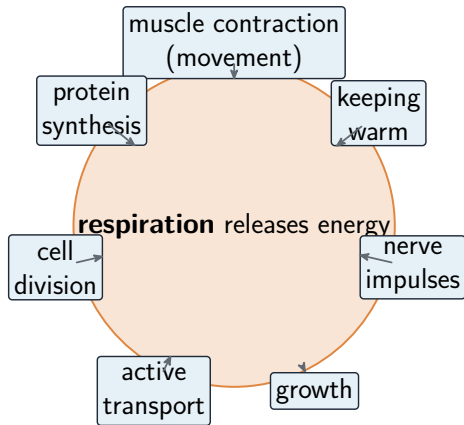
You must be able to

- define respiration as the release of energy from food in cells
- list the uses of the energy released
- distinguish respiration from breathing

Method — Uses of energy

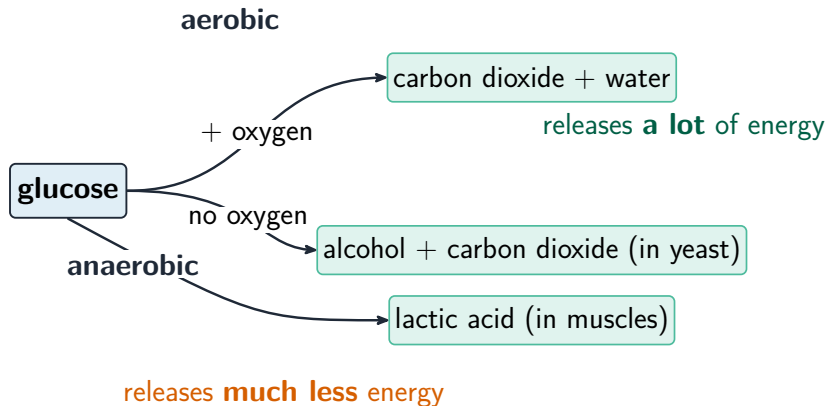
- **uses:** muscle contraction, protein synthesis, cell division, active transport, growth, nerve impulses, keeping warm.

Method — Uses of energy



A hub: respiration releases energy → many uses

Method — Uses of energy



Respiration can be aerobic or anaerobic

Practice 2.1 ■ 1 mark

Define respiration.

Solution 2.1

Worked steps

the release of energy from food (nutrient molecules) in cells **B1**.

Practice 2.2 ■ 2 marks

State two uses cells make of the energy from respiration.

Solution 2.2

Method: Uses of energy

Worked steps

any two of: muscle contraction; protein synthesis; cell division; active transport; growth; nerve impulses; keeping warm **B1** **B1**.

Exam-style 3.1 ■ 1 mark

Respiration takes place in:

A the lungs only

B all living cells

C the blood only

D the air spaces

Solution 3.1

A the lungs only

B all living cells 

C the blood only

D the air spaces

Worked steps

B. Respiration happens in all living cells.

Exam-style 3.2 ■ 2 marks

Respiration is often confused with breathing.

(a) State the difference between respiration and breathing.

(b) In a yeast experiment, explain why warmer yeast gives off carbon dioxide faster (up to a point).

Solution 3.2

Method: Uses of energy

Worked steps

- (a) respiration is the release of energy from food in cells **M1**; breathing is the movement of air in and out of the lungs **A1**.
- (b) warmer yeast respire faster as the enzymes work faster **M1**, so more carbon dioxide is given off **A1**.