

12.1 Respiration

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS respiration 呼吸作用 • yeast 酵母 • carbon dioxide 二氧化碳 • energy 能量 • division 分裂

Objective

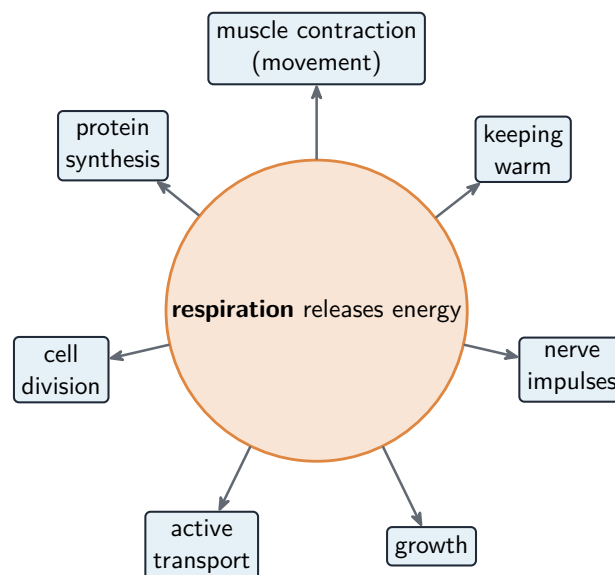
Build the skills to answer exam questions on **respiration** 呼吸作用 — what it is, why it is needed, and how it differs from breathing.

You must be able to:

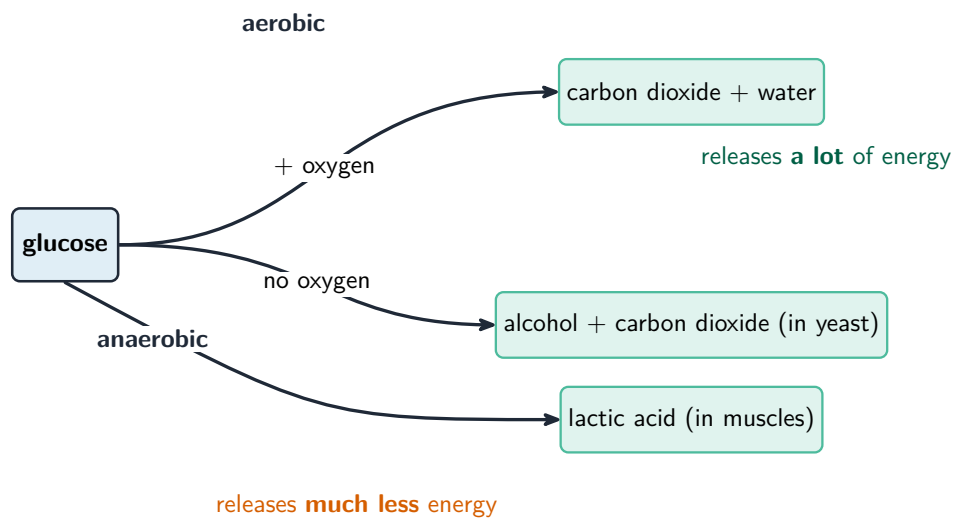
- define respiration as the release of energy from food in cells
- list the uses of the energy released
- distinguish respiration from breathing

1 Worked examples

■ Uses of energy



Respiration releases energy in all living cells, all the time (not the same as breathing)



Respiration can be aerobic or anaerobic

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

2 Practice

2.1 Define respiration.

[1]

2.2 State two uses cells make of the energy from respiration.

[2]

3 Exam-style questions

3.1 Respiration takes place in: [1]

- **A** the lungs only
 - **B** all living cells
 - **C** the blood only
 - **D** the air spaces
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3.2 Respiration is often confused with breathing.

(a) State the difference between respiration and breathing. [2]

(b) In a yeast experiment, explain why warmer yeast gives off carbon dioxide faster (up to a point). [2]

Solutions

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

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

3.1 B. Respiration happens in all living cells.

3.2 (a) respiration is the release of energy from food in cells; breathing is the movement of air in and out of the lungs.

(b) warmer yeast respire faster as the enzymes work faster, so more carbon dioxide is given off.