Aerobic Respiration

KS3 Biology · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Write the word summary for aerobic respiration.

Step 1 · Reactants

Glucose (from food) and oxygen (from breathing).

Step 2 · Products

Carbon dioxide and water.

Step 3 · What it is for

Energy is released (transferred) for the cell to use. It is not a substance, so don't write it product molecule.

Answer: glucose + oxygen → carbon dioxide + water (energy released)

Check: Aerobic means 'with oxygen'.

2. Now try one with the steps

Give four uses of the energy released by respiration.

Step 1 · In animals

Step 2 · In all cells

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What is respiration? [1]

2. Name the two reactants of aerobic respiration. [2]

3. Name the two products of aerobic respiration. [2]

4. In which organelle does most aerobic respiration take place? [1]

5. Which living things carry out respiration? [1]

6. How does glucose reach your muscle cells? [2]

7. Which test shows a gas is carbon dioxide? [1]

8. Why do muscle cells have many mitochondria? [2]

9. Explain why your breathing rate and heart rate rise when you exercise. [3]

10. What does respiration 'break down', and what does that make possible? [2]

11. Germinating peas used 1.5 cm^3 of oxygen in 30 minutes. What is the rate per minute, in cm^3? [1]

12. Why were boiled peas used in the experiment? [2]

13. Suggest why a thermos flask of germinating seeds gets warmer over two days. [2]

14. A leaf in a sealed tube in the dark made indicator turn yellow. In bright light it turned purple. Explain both results. [3]

4. Before you hand it in

"Respiration is breathing."

Respiration is a chemical reaction in every cell. Breathing (ventilation) supplies the oxygen and removes the CO_2.

"Respiration produces energy."

Say respiration RELEASES or TRANSFERS energy that was stored in glucose.

"Plants photosynthesise instead of respiring."

Plant cells respire all the time, day and night.