WJEC Wales Biology GCSE

1.2 (a) to (b) - Respiration

Flashcards

What is respiration?

What is respiration?

A process that releases energy (in the form of ATP) from the breakdown of organic compounds (e.g. glucose)

What is ATP? (higher)

What is ATP? (higher)

- Short term energy store in all cells
- Universal energy carrier

What does ATP stand for? (higher)

What does ATP stand for? (higher)

Adenosine triphosphate

Why must respiration occur continuously in living cells?

Why must respiration occur continuously in living cells?

Energy is required for many essential processes in living cells e.g. movement, homeostasis and active transport.

What is aerobic respiration?

What is aerobic respiration?

Series of enzyme-controlled reactions that form ATP from the breakdown of glucose in the **presence of oxygen**

Write the word equation for aerobic respiration

Write the word equation for aerobic respiration

glucose + oxygen → carbon dioxide + water + energy

What does aerobic respiration require?

What does aerobic respiration require?

Glucose

Or another respiratory substance e.g. lipids, proteins

Oxygen

What does aerobic respiration produce?

What does aerobic respiration produce?

Carbon dioxide

Water

Energy (ATP)

What is anaerobic respiration?

What is anaerobic respiration?

Respiration that takes place **without oxygen** and forms ATP from the breakdown of glucose

When may anaerobic respiration take place in muscle cells?

When may anaerobic respiration take place in muscle cells?

During vigorous exercise

Write the word equation for anaerobic respiration in muscle cells

Write the word equation for anaerobic respiration in muscle cells

glucose → lactic acid + energy

Why may anaerobic respiration in muscle cells eventually stop?

Why may anaerobic respiration in muscle cells eventually stop?

Lactic acid build-up inhibits anaerobic respiration

What are the symptoms of lactic acid build-up?

What are the symptoms of lactic acid build-up?

Cramp and fatigue

What is oxygen debt?

What is oxygen debt?

The extra volume of oxygen that must be taken in after anaerobic respiration to break down lactic acid

Is aerobic or anaerobic respiration more efficient? Explain why (higher)

Is aerobic or anaerobic respiration more efficient? Explain why (higher)

Aerobic respiration is more efficient as it produces more molecules of ATP than anaerobic respiration

Why does anaerobic respiration release less energy than aerobic respiration? (higher)

Why does anaerobic respiration release less energy than aerobic respiration? (higher)

Glucose is only partially broken down in anaerobic respiration