

Respiration

Describe cellular respiration

Respiration

What does exothermic mean?

Respiration

What do organisms need energy from respiration for?

Respiration

Word equation for aerobic respiration

Respiration

Symbol equation for aerobic respiration

Respiration

Equation for anaerobic respiration in muscles

Respiration

Equation for anaerobic respiration in plant and yeast cells

Respiration

Why does anaerobic respiration transfer much less energy?

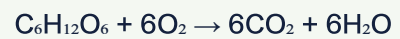
Energy is transferred to the surroundings / environment.

An exothermic reaction which is continuously occurring in living cells.

glucose + oxygen $\rightarrow$ carbon dioxide + water

Chemical reactions to build larger molecules, movement, and keeping warm.

glucose $\rightarrow$ lactic acid



The oxidation of glucose is incomplete.

glucose $\rightarrow$ ethanol + carbon dioxide

Respiration

What is aerobic respiration?

Respiration

What is anaerobic respiration?

Respiration

What is fermentation?

Respiration

Why is fermentation economically important?

Respiration

Compare aerobic and anaerobic respiration in muscles

Respiration

What three things increase during exercise?

Respiration

What happens in muscles if insufficient oxygen is supplied?

Respiration

What is muscle fatigue?

Respiration without oxygen.

Respiration that uses oxygen.

It is used in the manufacture of bread and alcoholic drinks.

Anaerobic respiration in yeast cells.

Heart rate, breathing rate and breath volume, to supply the muscles with more oxygenated blood.

Aerobic: oxygen needed, makes CO_2 and water, transfers much more energy.
Anaerobic: no oxygen, makes lactic acid, transfers much less energy.

After long periods of vigorous activity, muscles stop contracting efficiently.

Anaerobic respiration takes place, causing a build-up of lactic acid.

Respiration

What causes an oxygen debt to be created?

Respiration **Higher tier**

What happens to lactic acid after exercise?

Respiration **Higher tier**

Define oxygen debt

Respiration

How could you investigate the effect of exercise on the body?

Respiration

Define metabolism

Respiration

What is the energy from respiration used for in metabolism?

Respiration

Which carbohydrates can be made from glucose?

Respiration

What is a lipid made from?

Blood transports it from the muscles to the liver, where it is converted back into glucose.

The incomplete oxidation of glucose in anaerobic respiration, which builds up lactic acid.

Measure pulse or breathing rate at rest, after exercise, and during recovery, controlling the type and time of exercise.

The extra oxygen the body needs after exercise to react with the accumulated lactic acid and remove it from the cells.

The continual enzyme controlled processes of metabolism that synthesise new molecules.

The sum of all the reactions in a cell or the body.

One molecule of glycerol and three molecules of fatty acids.

Starch, glycogen and cellulose.

Respiration

How are proteins made in metabolism?

Respiration

What is formed when excess proteins are broken down?

Respiration

Which small molecules are used to build, and released when breaking down, carbohydrates, proteins and lipids?

Urea, for excretion.

Glucose and nitrate ions form amino acids, which are used to synthesise proteins.

Sugars (carbohydrates), amino acids (proteins), and fatty acids and glycerol (lipids).