

# WJEC England Biology GCSE

## 6.2 - The principle of material cycling

### Flashcards

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# What are nutrient cycles?



# What are nutrient cycles?

Processes by which molecules and ions are transferred between dead and living organisms



Give 4 examples of nutrient cycles



# Give 4 examples of nutrient cycles

- Carbon cycle
- Nitrogen cycle
- Phosphorus cycle
- Water cycle



# Describe the carbon cycle



# Describe the carbon cycle

- Plants fix carbon dioxide into organic molecules during photosynthesis
- The organic carbon-containing molecules are passed onto organisms that eat the plants
- Carbon dioxide is released back into the atmosphere by respiration from animals and plants
- Burning fossil fuels also releases carbon dioxide into the atmosphere



# Describe the water cycle





# Describe the water cycle

- Water from lakes and oceans evaporates
- The evaporated water condenses into clouds and returns to earth as precipitation
- The water from precipitation is useful for life on land
- The water then returns to rivers and oceans through surface runoff



# Why is the water cycle important?



## Why is the water cycle important?

Living organisms require water and the water cycle provides organisms on land with a continuous supply of water



What are the two types of decomposition?



What are the two types of decomposition?

Aerobic decomposition (with oxygen)

Anaerobic decomposition (without oxygen)



# Which type of decomposition is faster?



Which type of decomposition is faster?

Aerobic decomposition is faster than anaerobic decomposition



How would a decrease in water availability affect the rate of decomposition?





How would a decrease in water availability affect the rate of decomposition?

- Decomposing microorganisms need water for chemical processes
- The less water available, the slower the rate of these processes



How does the presence of too much water affect decomposition?



How does the presence of too much water affect decomposition?

Waterlogged soil prevents oxygen from reaching the decomposers and so anaerobic decomposition must occur which is slower



How would a change in temperature affect the rate of decomposition?



# How would a change in temperature affect the rate of decomposition?

- A decrease in temperature slows the rate of the decomposition reactions
- A large increase in temperature will denature enzymes, slowing or even stopping decomposition



Where does mummification happen instead of decomposition?



Where does mummification happen instead of decomposition?

In places where the climate is too harsh for decomposition to take place (e.g. too dry or too hot)



# What is desertification? (Higher)





What is desertification? (Higher)

The process by which fertile land becomes desert



What does a decrease in water pH suggest about pollution levels? **(Higher)**



What does a decrease in water pH suggest about pollution levels? (**Higher**)

A lower pH (more acidic) suggests pollution levels are increasing as lots of gases in pollutants are acidic in solution ( $\text{CO}_2$  makes carbonic acid)



How can changes in water levels affect ecosystems? (Higher)



# How can changes in water levels affect ecosystems?

(Higher)

- Animals may have to migrate to find water
- Melting ice caps may destroy the habitats of some animals (either animals living in icy regions or by sea level rise)



How can atmospheric gases affect ecosystems? (Higher)



# How can atmospheric gases affect ecosystems?

(Higher)

- Some organisms cannot survive when certain gases are present
- Polluted water can cause illness to animals that drink it

