

Wetland Mechanisms



Give three reasons why wetlands are such productive ecosystems:

They capture large amounts of energy and store it as chemical energy; highly efficient food chains; "pulsing" of water levels



How does "pulsing" aid the wetland ecosystem?

It oxygenates the land, and brings in more nutrients from flooding



What is a simple term for biogeochemical cycles?

Nutrient cycles



What is the best way to describe the phosphorus cycle?

a) sedimentary b) estrogen-based c) atmospheric
d) circular

(a)

The wetland at Tortuguero National Park in Costa Rica has 405 different bird species, 184 different types of fish, and 97 species of mammals (including tapirs, manatees, jaguars, pumas, and four different types of monkeys).

5 How does Carbon Dioxide (CO₂) get into the atmosphere? *Hint: there are four processes.*

Combustion, volcanic action, respiration, diffusion

6 What processes move carbon between organisms?

Consumption
Decomposition

7 What cycles in a wetland's hydrologic cycle?

a) electricity b) water soluble nutrients c) water
d) theorems e) air
(c)

8 What does transpiration do? Why is it important?

It moves water from plants to atmosphere; helps plants control their temperature

9 Why are bacteria important to the nitrogen cycle?

They convert N₂ from the air into NO₃, which plants and animals can use

Vast mangrove swamps have been planted throughout East Asia to help protect coastlines from tropical storms.

10 Complete the chart below, filling in the blanks to show what process moves nitrogen from the organism or element on the left to the organism or element on the right:

<i>Nitrogen Moves From</i>	<i>Through What Process</i>	<i>To</i>
animal	<u>metabolism</u>	soil
animal	<u>decomposition</u>	fungi
<u>soil</u>	consumption	plant
fungi	decomposition	<u>soil</u>
<u>soil</u>	denitrification	atmosphere
<u>water</u>	<u>nitrogen fixation</u>	soil
atmosphere	consumption	<u>animal</u>
plant	decomposition	<u>fungi</u>

Tests at nuclear weapons plants indicate that peat moss may filter radionuclides from contaminated water.

11

What is groundwater? Why is it important?

Underground water; it feeds springs and wells, and helps maintain rivers and streams in dry weather

12

How does a wetland help replenish groundwater?

By slowing waterflow, so water can seep down to the water table

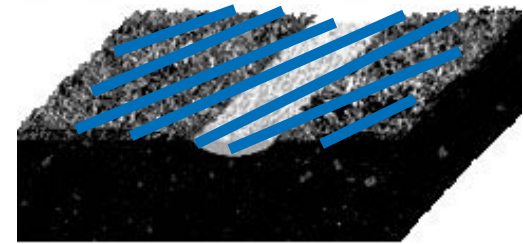
13

Assume that you have just bought a house on the edge of a cliff. It has a fantastic view overlooking the ocean, but at the base of the cliff lies a marsh. Your significant other wants to rip out the marsh and replace it with a beach. Why might this be a bad idea if you hope to live in the house for a long, long time?

Because marshes help to prevent erosion, and with just a beach your house could plunge into the ocean

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On the diagram below, indicate the differences in flood levels in lands with and without wetlands. Use a colored pen or pencil to shade the region



Flooding without wetlands



Flooding with wetlands

The students' diagrams will be approximate; what is important is that the flooding is much less severe for the region with wetlands