Dec 3 Human Impact Stations 5-8

Station 5: Explain Biodiversity Loss from Eutrophication

Directions: Fill in the blanks below with the correct words and phrases.

In class you've seen how humans can affect water quality by dumping treated water from sewage back in to ponds and lakes. The increased nutrients in this treated water can cause eutrophication in ponds and lakes. In this activity, you will explain the causes of eutrophication, the process of eutrophication and how it relates to biodiversity loss in aquatic ecosystems. Use your notes from previous weeks when we've talked about eutrophication.



Eutrophication occurs _____. As the nutrients _____, algae multiplies and grows at a rate faster than the natural rate. Eventually, the algae grows so large that it covers _____. One effect of this mass growth is that _____ is blocked from entering the body of water, which deprives other aquatic plants from the necessary resource that it needs to survive. Once these plants die, _____. Additionally, _____ take up more oxygen as they decompose. This _____ impacts the aquatic animals living in the environment by _____. These animals can then suffocate and die. This would _____ the biodiversity in the environment because species of plants and animals in the area are dying.

LIVEWORKSHEETS

Station 6: Evaluate Human Impact on Water

Directions: click the link below to watch a video about a water treatment plant. Then answer the questions based on what you learned in the video.

In most parts of the United States, getting clean, safe water is as easy as turning on a faucet. Generally, this water comes from either groundwater or nearby streams and reservoirs. What most of us never see or have to worry about are the steps required to make this water drinkable.

CLICK HERE FOR THE VIDEO

1. At the beginning of the video you saw a large water reservoir. What are reservoirs used for?

A. Reservoirs allow towns and cities to farm their own fish.

B. Reservoirs allow towns and cities to store drinking water.

C. Reservoirs keep a town or city from drought.

2. Where did the water come from to fill the reservoir?

A. Rain water

B. The ocean

C. Sewage

3. What is the purpose of a water treatment plant?

A. To clean the water and then recycle it back out into the reservoir

B. To turn the reservoir water into drinking water by taking out any harmful material from the water

C. There is no purpose

4. What would happen if we did not treat our water before drinking it?

A. Everyone would get poisoned and die

B. Nothing, we would be fine

C. We would ingest many harmful bacteria and microorganisms and potentially get sick

LIVEWORKSHEETS

Station 7: Explain How We Impact the Biosphere

Directions: Read the following, then fill in the table at the bottom.



Human activities impact the biosphere in many ways. We destroy habitats when building roads and cities. Factories pollute the water as part of the process of making various consumer items.

We pollute the air by burning fossil fuels to power our cars and light our homes. Our love of pets results in adding invasive species to a habitat when the pets escape or we release them when they become too difficult to care for. All of these impacts disrupt or change ecosystems in the biosphere. The changes can threaten the survival of some species.

Extinction of Species

Many animals and plants have become extinct throughout the history of life on Earth. Ice ages, meteor strikes, and other natural events have resulted in the extinction of various species. For example, dinosaurs are believed to have all died off as the result of a large meteor striking Earth.

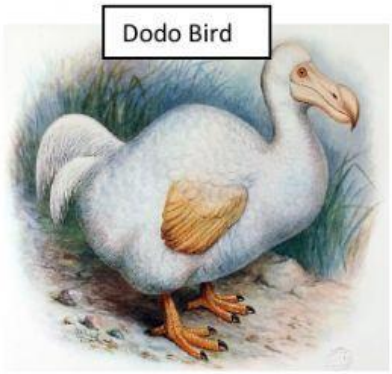


Extinction occurs when all organisms of the same species die.

However, in modern times, loss of habitat by deforestation is the primary cause of extinction. The human population keeps growing bigger and bigger. Our need for food, clothing, and shelter keeps increasing as well. In an effort to meet our needs, humans have destroyed habitats by clearing millions of acres of land for farming, housing, and industry. Clearing land or deforestation can cause habitats to be either fragmented (divided into parts separated by barriers), degraded (loss of some aspects that support life), or destroyed (no longer able to provide support for a species).

For example, the dodo was a large bird that only lived on the island of Mauritius in the Indian Ocean. In 1598, when humans began to colonize the island, the dodo's habitat was disrupted. Invasive species of pigs, cats, and monkeys fed on the dodo's eggs. By 1681, the large flightless birds were extinct.

Dodo Bird



Passenger Pigeon



LIVEWORKSHEETS

Human activities of overhunting and overfishing can also impact the population of a species to the point of extinction. For example, the passenger pigeon flew in flocks numbering in the millions. Observers described their migration as darkening the skies along their path and that one flock would take hours to fly past a single spot. Humans excessively overhunted the birds with the belief that a species so numerous could withstand the massive population loss. They were wrong. A combination of the loss of habitat and overhunting resulted in the extinction of the species.

Cause-and-Effect Reading Analysis

Directions: Complete the cause-and-effect boxes below by adding the words "increase/s" or "decrease/s" as appropriate. Then provide an impact of the cause-and-effect relationship by showing the effect of human activities on the biosphere.

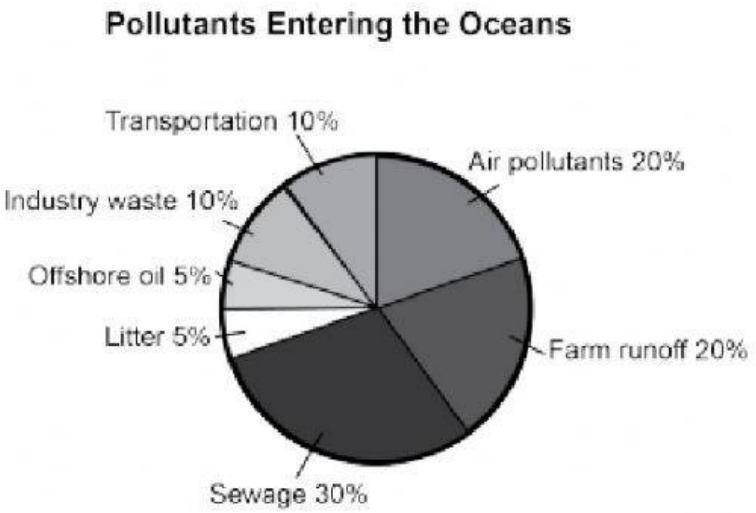
Cause	Effect	Impact on Biosphere
Human population growth Increase	Deforestation	
Conservation Increase	Deforestation	
Habitat management Increase	Maintaining a forest as a natural habitat	

LIVEWORKSHEETS

Station 8: Evaluate Human Impact

Directions: Choose the correct multiple-choice answers to the questions below.

1 This pie chart provides data on the sources of pollutants entering the oceans.



The greatest reduction in pollutants entering the ocean could be achieved if it were possible to reduce, by half, which source of pollution?

A Transportation

B Farming

C Industry

D Sewage

LIVEWORKSHEETS

2 Students decided to remove the litter from an abandoned park and to plant trees. Which of the following observations provides the best evidence that the actions of the students had a positive effect on the health of the park ecosystem?

A The number of human visitors decreased.

B The level of annual precipitation increased.

C The number and diversity of animals increased.

D The average daily high temperature decreased.

LIVEWORKSHEETS

3 This table shows crops planted on some land and the yield of each crop per acre.

Crop	Yield (bushels/acre)
Soybeans	150
Sweet potatoes	320
Wheat	50
Corn	155

A farmer wishing to have the smallest impact on the environment might choose to grow a crop that would use the least amount of land. In this case, which of the following crop yields should the farmer choose?

A 100 bushels of soybeans

B 200 bushels of sweet potatoes

C 300 bushels of wheat

D 400 bushels of corn

LIVEWORKSHEETS

4 Spix's macaw is an endangered species of bird native to Brazil. The population of the bird has declined over the past 30 years. During the same period, much of the rain forest habitat of the bird has been lost because of logging. What data would best support the claim that logging is a likely cause of the decline in the population of Spix's macaw?

A The trees harvested by logging are not those that are usually home to this bird.

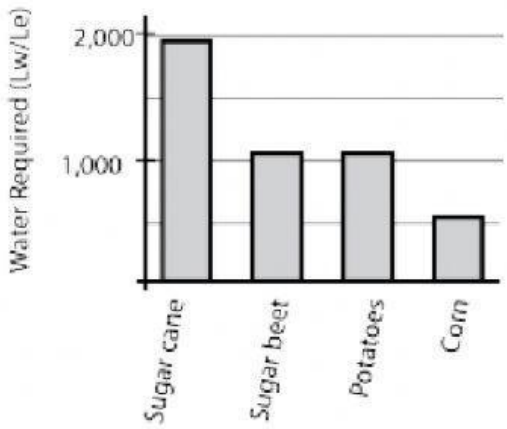
B This bird is a popular pet and has been bred successfully in captivity.

C The population of this bird was relatively constant before logging began.

D The land cleared by logging is often taken over by farmers for growing crops.

LIVEWORKSHEETS

5 This graph provides data on the amount of water needed to grow four crops, each used to produce ethanol, a fuel. For each crop, the graph shows how many liters of water (Lw) are needed to produce one liter of ethanol (Le).



Which of the following would require the most water?

A Producing 100 L of ethanol from sugar cane

B Producing 200 L of ethanol from sugar beet

C Producing 300 L of ethanol from potatoes

D Producing 400 L of ethanol from corn

LIVEWORKSHEETS