Biology

Ecology Unit

Week 4

Sept. 5th – 8th

Apply what you have learned about Ecosystems, Energy pyramid, and Biodiversity

- Design, evaluate, and refine a solution to reducing the impacts of human activities on the environment and biodiversity.

Ecosystem Poster Project

Wed. Savanna- Siena & Beverly-☺

Thurs. Desert – Eli, David – Sonoran
Thurs. Ocean – Kate, Given, Martin – Artic
Thurs. Grasslands – Micah - African
Thurs. Wetland - Toby
Thurs. Tundra – Lupita & Marisol

Fri. Woods – Lee, JJ, Adrian
Fri. Coastal Desert – Daniel & Hayden
Fri. Ocean- Alexus & Yoselini- Atlantic
Fri. Ocean – Monet, Josh - Indian
Fri. Ocean – Tyler - Atlantic
Fri. Rain Forest – Stephanie & Katrina
Fri. Taiga – Nate

NOTES page 37

Fri. Ocean – Ysevella – Pacific
Fri. Grasslands – Nika

Mon. Tropical Rain Forest – Kevin Brazil

NOTES: Page 37 NB
Make 3 Columns:
Ecosystem Human Impact & Solutions

Student: _____Biology Class_____

On a Poster paper Create an Ecosystem. DO **NOT** use the Southwest Desert,p. 51 BB. You may work by yourself or have 1 – 2 people to work with. Use your resources such as: p.51,75 – 83 Biology Book, Notebook, and the Internet. This Ecosystem Poster Project is due 9/6 – 9/8 and is worth 50 points. Keep this paper to staple to the back of your poster for grading. DUE Sept. 6,7,8th

Ecosystem Poster Rubric

Name of Ecosystem (Front)	5points	
Artwork/ Drawing	5 points	
On the back of the Poster, List 10 Biotic and 5 Abiotic Factors for your Ecosystem	10 points	
On the back of the Poster, Describe 5 ways Biotic & Abiotic Factors help each other.	5 points	
On the front of the poster, Label and identify the Producers, 1st, 2nd, & 3rd Level Consumers, & Decomposers (3) Include all **Energy Arrows** between the related Biotic factors.	15 points	
On the back of the Poster, Draw the Energy Pyramid. Include in your Energy Pyramid each level of your biotic factors for your Ecosystem.	10 points	
Total	50 points	

Presentation:
Voice (5 Points)
Explanation of Problem:
(5 Points)
Explanation of Solution:
(5 Points)

5/1 Food web Ch 2 & 3

Obj. TSW demonstrate understanding of Energy Pathways by making a Food Web. P.44 NB

1. What is the source of all energy in this ecosystem?
2. What path (Food Chain) does this energy take to get to the hawk?
3. Identify 10 Biotic and 5 Abiotic Factors in this Ecosystem.

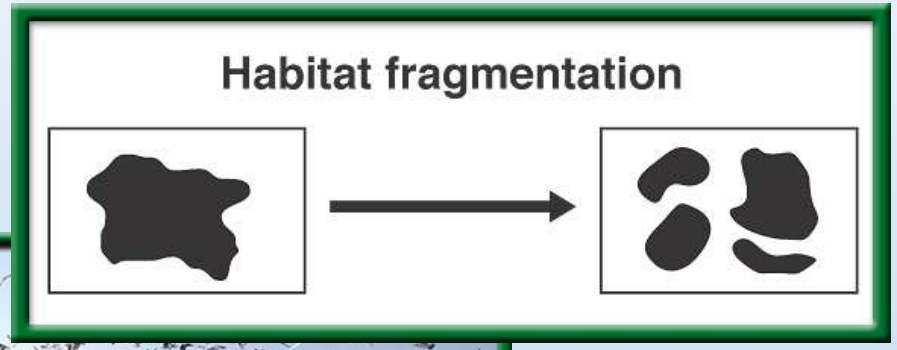
Draw a **Food Chain**.

Start with the producers, include all three levels of consumers.

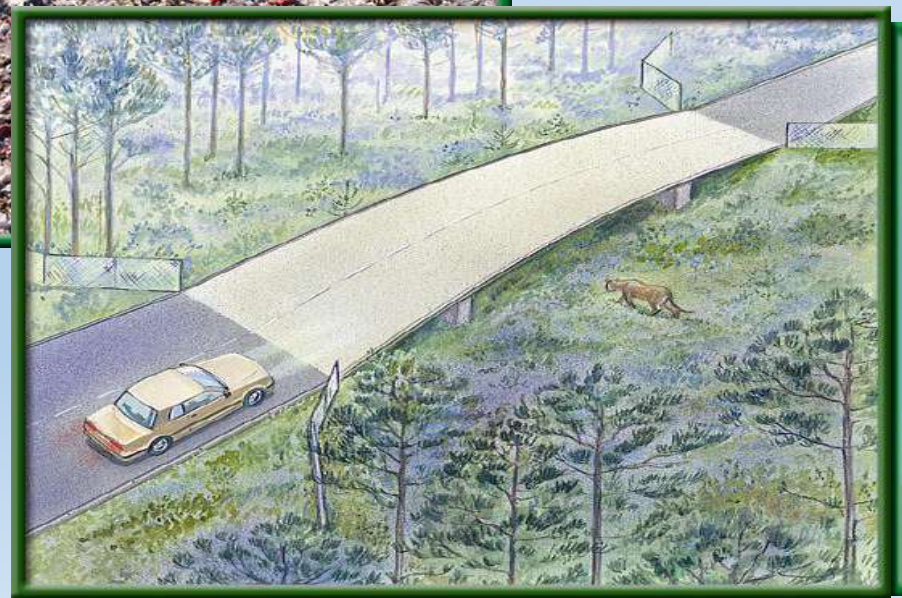
Students write answers on the board.

Conservation of Biodiversity 5.1 & 5.2

9/5 Obj. TSW understand the importance of Conservation Biology for the protection of biodiversity by going over the Concept Map and doing critical thinking problems. P. 32 NB



1. How can habitat degradation cause changes in an area's biodiversity?
2. How might Habitat corridors help overcome problems with habitat fragmentation?
3. What Threats to Biodiversity have accelerated the rate of extinctions?



Warm Up Answers

1. Habitat degradation harms biodiversity, because it decreases available resources for the organisms.
2. Habitat corridors help overcome habitat fragmentation by allowing large predators to continue hunting.
3. Three problems that have increased extinction rates are: Habitat Loss, Invasive Species, Pollution, Climate Change, Overharvesting

Write a 3 – 5 sentence summary.

Chapter 5

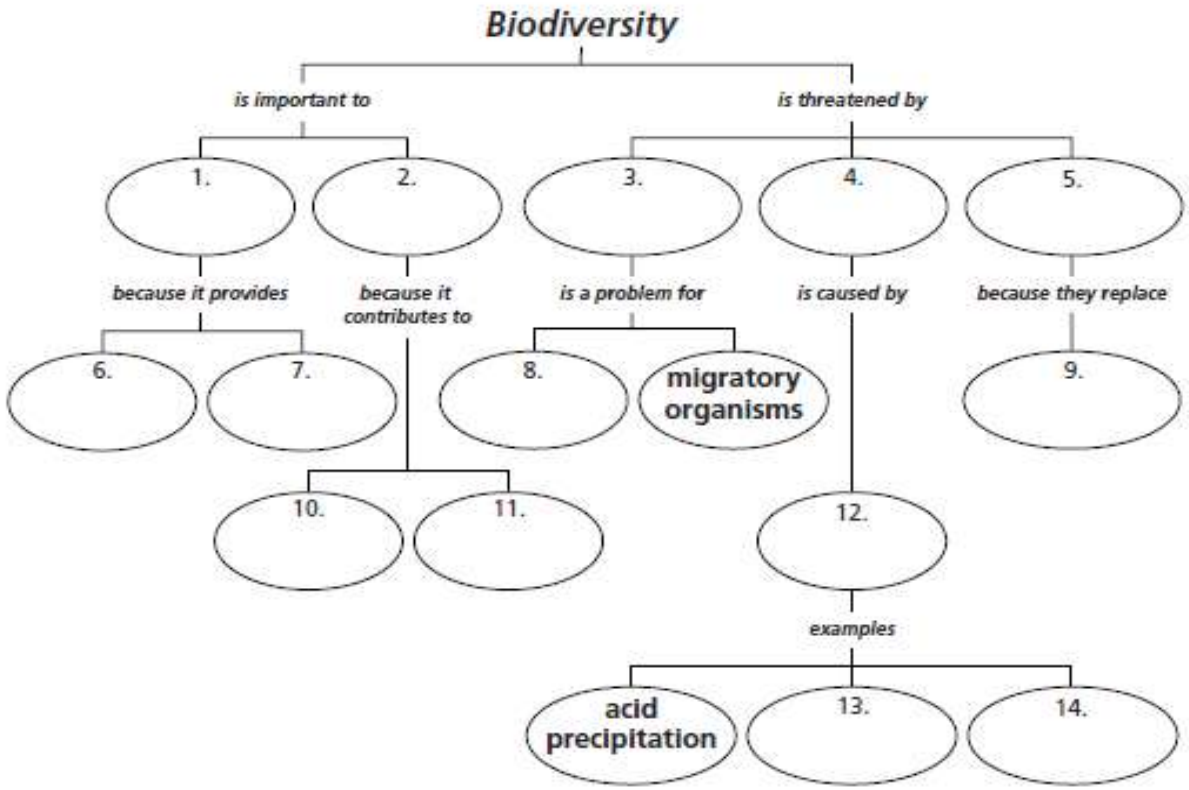
Biological Diversity and Conservation

Concept Mapping

Use with Chapter 5, Section 5.1

Biological Diversity

Complete the concept map on biological diversity. Use these words or phrases once: *pollution, nature, large predators, trash, variety of foods, native species, habitat degradation, people, chemicals in runoff, medicines, food webs, introduction of exotic species, habitat fragmentation, stability of ecosystems.*

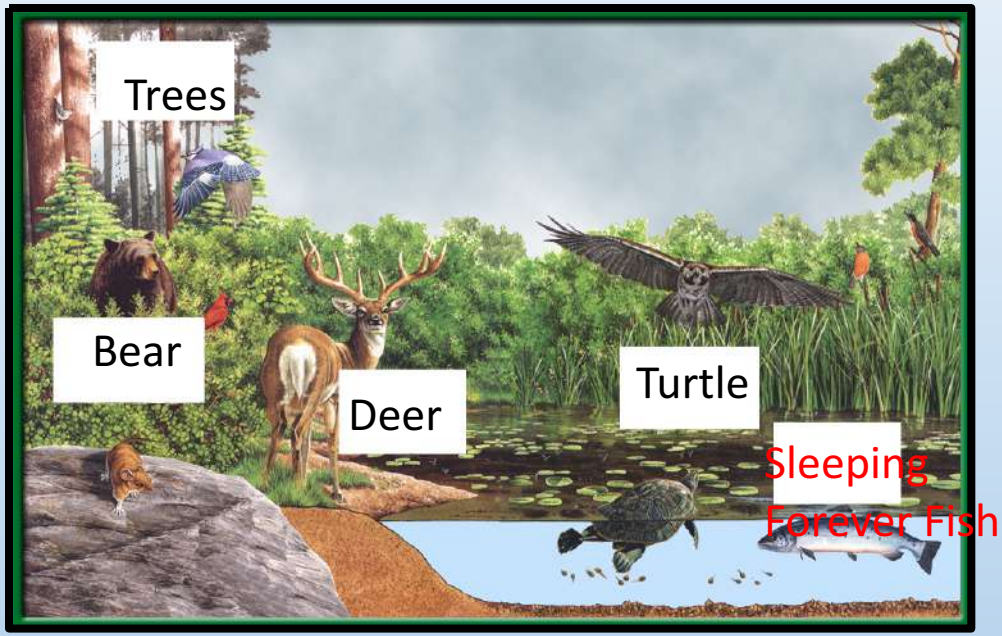


P. 35 NB Word Bank

Pollution
Nature
Large Predators
Trash
Variety of Foods
Native Species
Habitat degradation
People
Chemical in runoff
Medicines
Food Webs
Introduction of Exotic Species
Habitat Fragmentation
Stability of Ecosystems

5/4 Ecosystems 2.1

Obj. TSW demonstrate that a vital part of an ecosystem is the stability of its producers, consumers and decomposers in their Ecology Study Guide and class discussion & Problem Solving Lab. P.46NB

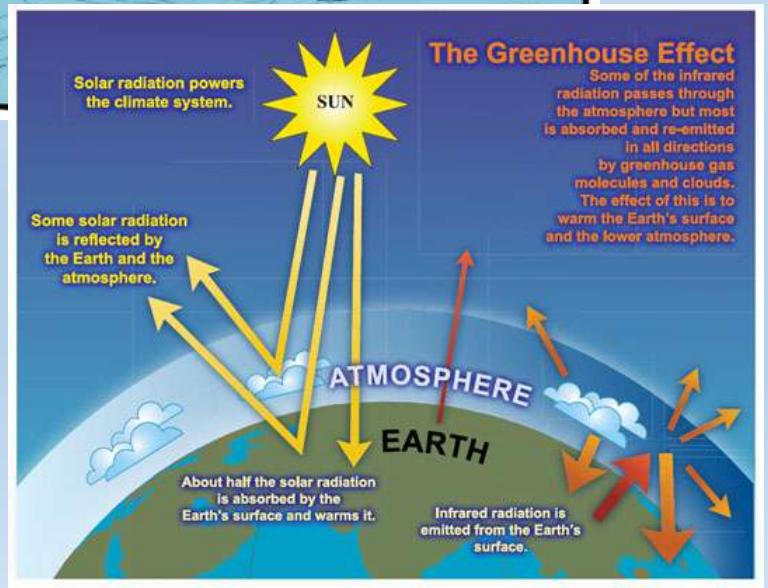


1. Compare and Contrast **Heterotrophs** and **Autotrophs** with examples of each.
2. What **factors** make this picture an Ecosystem, name 3?
3. How are **decomposers** important to an ecosystem, name 3.

9/6 Global Warming CH 5

Obj. TSW have a greater understanding of what global warming is and it's possible effects on us through a class discussion on solutions.

P. 34 NB



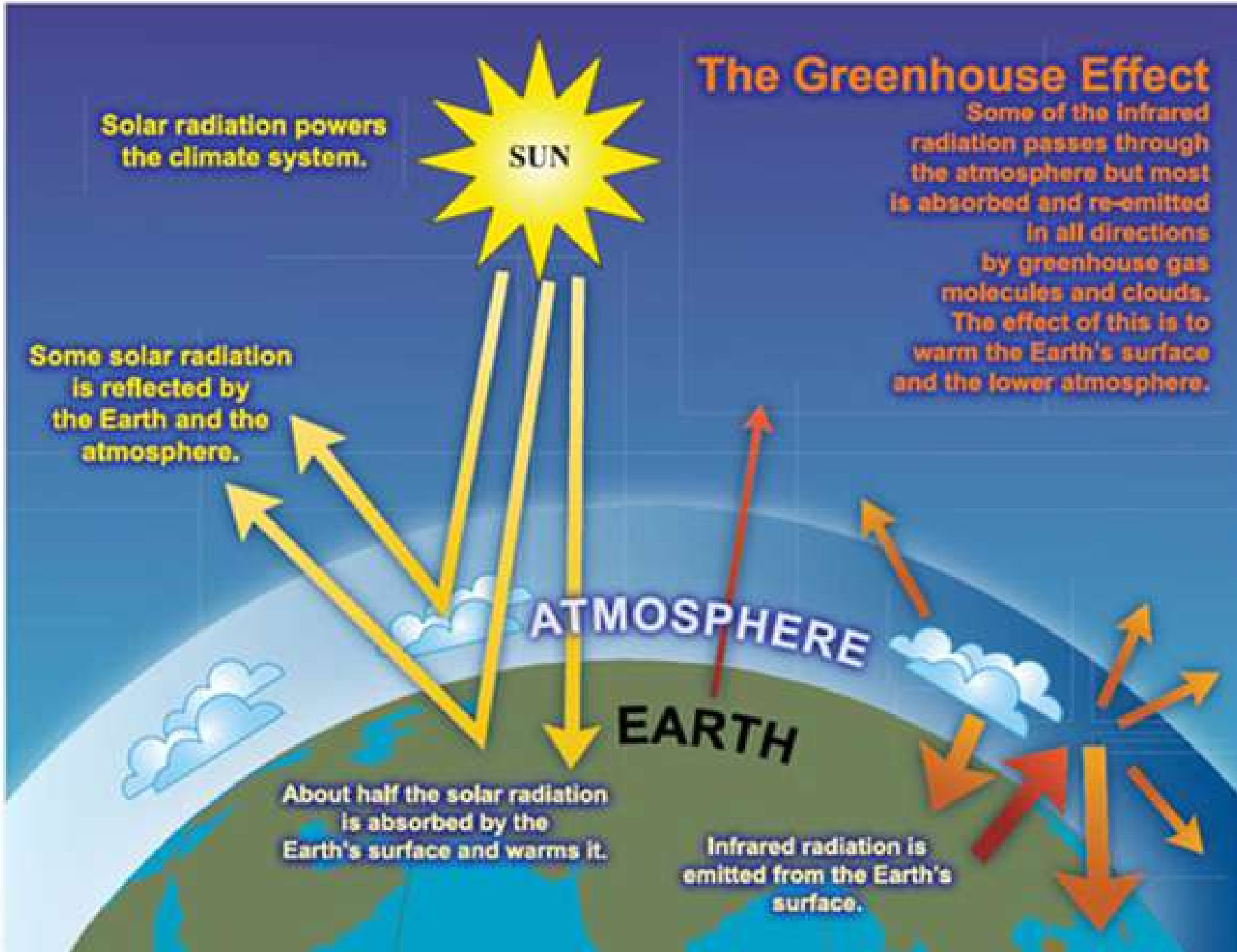
1. What is Global Warming?
2. How does the Carbon Cycle play a role (if any) in Global Warming.
3. Explain the Greenhouse Effect
4. Page 128 in Biology Book

Global Warming

1. Global Warming is the gradual increase in temperature for the planet, due to an increase in CO_2.
2. The carbon cycle plays a role in taking CO_2 into plants in the process of photosynthesis. However, if there is deforestation, then there is not the availability of plants (trees) to take in CO_2 and it stays in the atmosphere.
3. The greenhouse effect is how the gas CO_2 traps solar radiation at the lower atmosphere and reradiates it back to the surface, warming the planet in general. However, we see radical severe events in weather instead of just a gradual increase, increased melting of glaciers, polar bears swimming farther in their hunting grounds.

Greenhouse Effect

We need it, but too much…



NOAA, NASA, .edu. .org

- Where/ How to find reliable information about Climate Change?

The Day WHO Parachuted Cats into Borneo

- Place the events in chronological order
- Aerial view of Borneo:

Parachuting Cats in Borneo

p. 35 NB

Biomagnification

- Human activity with the best of intentions can have untended consequences.
- Map of Borneo

The Day WHO Parachuted Cats into Borneo

Some time ago, World Health Organization sent supplies of DDT to Borneo to Fight mosquitoes that spread malaria among the people. The mosquitoes were quickly wiped out. But billions of roaches moved into the villages and they simply stored the DDT in their bodies. One kind of animal that fed on the roaches was a small lizard. When these lizards ate the roaches, they also eat a lot of DDT. Instead of killing them, DDT only slowed them down. This made it easier for the cats to catch the lizards, one of their favorite foods. About the same time, people also found that hoards of caterpillars had moved into feed on the roofing materials of their homes. They realized the lizards that previously had kept the caterpillars population under control had been eaten by the cats. And now, all over North Borneo, cats that ate the lizards died from DDT poisoning. Then rats moved in because there were no cats to control their population. With the rats came a new danger, THE Plague,. Officials sent out emergency call for cats. Cats were sent in by airplane and dropped by parachute to control the rats.

Chapter 5 Assessment p.115,116, 120,128
9/7 Obj. Stds. Will understand how humans impact biodiversity by completing their warm up questions & participating in classroom activities about biodiversity.
P. 36 NB

1. Explain the difference between a threatened and an endangered species.
2. What is the danger of introducing an Exotic species into an area?
3. How do you predict Global Warming will affect biodiversity in the future, why?

Parks generate jobs

2007 visits to Utah's seven largest national parks brought big visitor spending.

PARK	RECREATIONAL VISITS	SPENDING BY NONLOCAL VISITORS	JOBS SUPPORTED BY NONLOCAL SPENDING
Zion	2,657,281	$132,966,000	2,843
Glen Canyon	1,742,585	$119,645,080	2,407
Arches	860,181	$86,376,000	2,093
Bryce Canyon	1,012,563	$54,609,000	1,089
Capitol Reef	554,987	$28,141,000	561
Canyonlands	417,560	$20,944,000	418
Cedar Breaks	514,871	$19,677,000	392

*Utah portion of park only

SOURCE: National Park Service

DESERET NEWS GRAPHIC

WU 9/7

1. Threatened means that in your lifetime it will likely become endangered unless measures are taken to reverse the threat.

Endangered means the species will be extinct in your lifetime unless measures are taken to reverse the threat.

2. Exotic species typically do not have natural predators and therefore exploit resources that native plants and animals need, and decreasing Biodiversity.

3.Global Warming will effect Biodiversity by decreasing available resources to native species.

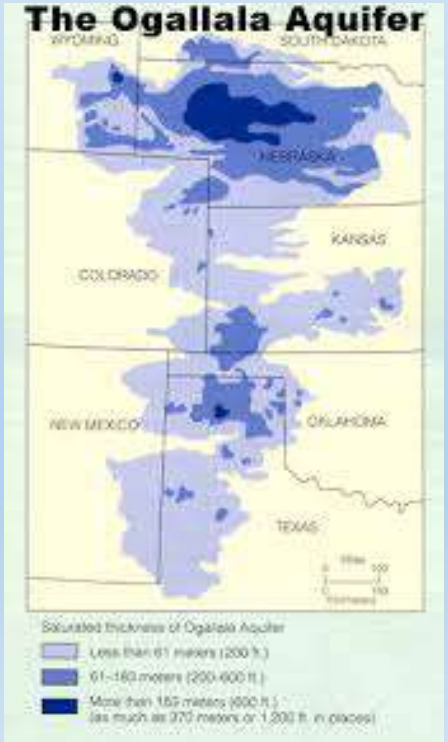
The Greenhouse Effect on Natural Systems p. 39 NB

- Consider how climate has changed in the past and the fact that climate is continuing to change. How could life be different in the future? What are some of the issues people need to consider when examining climate change?
- Use the article you just read and the Graph of the Greenhouse Effect to answer your question.

Here is a picture of America's

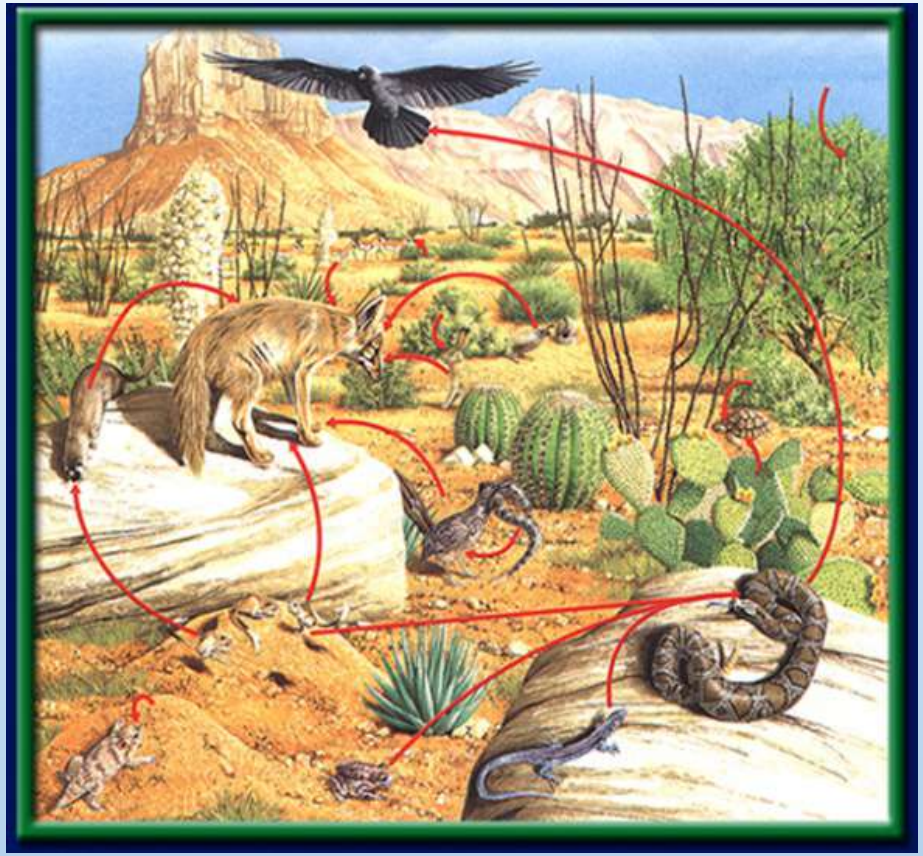
Largest Aquifer – underground

Body of water.



9/8 Standards Practice Countdown p. CA17, CA22

Obj. TSW demonstrate their knowledge & understanding of Ecological concepts by playing jeopardy. P. 38NB



Page 51 Bio Book

http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/

1. The diagram to the side shows a food _____, If environmental pollution, and hunting were to decrease the number of rattle snakes in the desert, how might that affect the other organisms? P. 51BB
2. Which organism in the figure at the side is a 1st order consumer? P.51BB
3. Correctly sequence the Ecological levels of organization in nature from smallest to largest. P.40BB

Warm up Answers

1. The picture shows a Food Web.
2. Kangaroo Rat
3. Organism ->Population-> Community->Ecosystem-> Biosphere.

How Wolves Change Rivers

- The need for Keystone Species in ecosystems p.33 NB NOTES
- Kahoots
  - CH 2 & 3 Ecology