BIODIVERSITY:

CHAPTER 6.3

BIODIVERISTY (Define): **The sum of all genetic variations of all organisms in the bioshpere**

TYPES OF BIODIVERISTY:

- ✓ The variety of habitats, communities, and ecological processes in the biosphere is…..
- ✓ The number of different species in the biosphere or in a particular is…

Ecosystem Diversity

Species Diversity

- ✓ Refers to the sum total of all different forms of genetic information carried by a given species, or by all species on Earth…..

Genetic Diversity

VALUING BIODIVERSITY: Briefly describe three (3) different ways that biodiversity benefits society:

1. **Medicine….. Many plants, animals and microorganisms do/can hold medical value. (penicillin)**

2. **Agriculture. Preserving genetic diversity in crops allows for better resistance to pests, drought and disease.**

3. **Ecosystem Services…. Diversity in any ecosystem will help in its stability and productivity as a habitat**.

THREATS TO BIODIVERSITY:

- ✓ There are many ways in which biodiversity can be threatened, such as
- ✓ What are two (2) reasons that habitats may be altered:
  - ○
  - ○

Altering habitats
Hunting
Invasive Species
Pollution
Driving Climate Change

- ✓ Looking at all of the threats to biodiversity, what /who is the main cause for all of them? **HUMANS**

CONSERVING BIODIVERSITY: Give a brief description of the following…..

1. Protecting Individual Species: **Identifying and working to preserve a single threatened or endangered species. Done through captive breeding programs, public awareness and such**

2. Preserving Habitats and Ecosystems:
   - ➢ Define "Ecological Hotspot" **a place where significant numbers of species and habitats are in immediate danger of extinction.**

3. Considering Local Interests:

MEETING ECOLOGICAL CHALLENGES:

CHAPTER 6.4

ECOLOGOCAL FOOTPRINTS (Define): The amount of total energy and resources needed to support an individual or population. Also included are the wastes produced for said resources.

List the different aspects that are taken into account when calculating an ecological footprint:

See footprint diagram on back side of spiny water flea reading

- ✓ What are the limitations to calculating a "footprint"?

  Many factors are VERY difficult to quantify. (CO_2 emissions.)

CHAPTER 6.3 AND 6.4 PRACTICE……

For Questions 1–5, write True if the statement is true. If the statement is false, change the underlined word or words to make the statement true.

1000 **1.** The current rate of species loss is 10 times the typical rate of extinction.

smaller **2.** The smaller a habitat "island," the larger the number of species that can live there.

T **3.** Habitat fragmentation increases the impact of hunting on endangered species.

Introduced **4.** Endangered species can become invasive and threaten biodiversity.

Warmer **5.** The increased concentration of carbon dioxide in air is making oceans more acidic and putting stress on coral reefs.

6. What are five ways that human activity reduces biodiversity?

Altering habitats, hunting, introducing invasive species, releasing pollution into food webs, and contributing to climate change

7. Identify three reasons why endangered species are hunted.

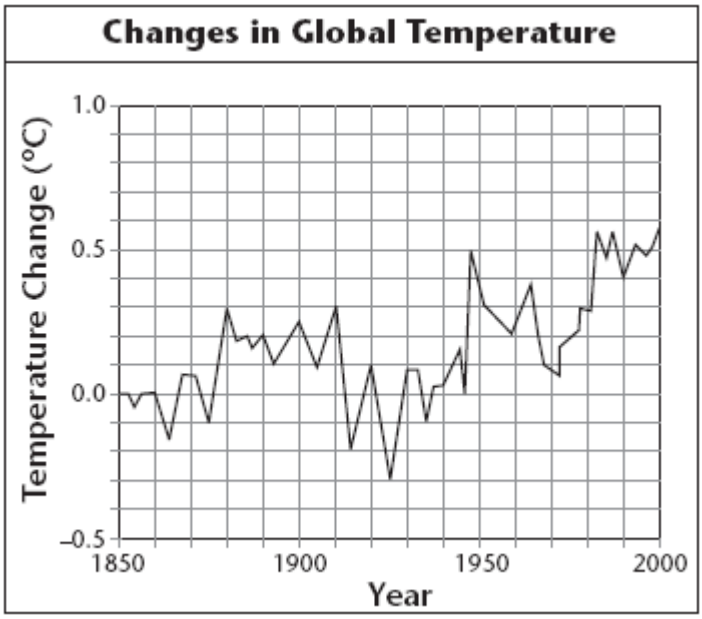
Meat, valuable hides or skins, valuable "medicinal" parts, pets

8.How can introduced species lead to economic losses?

Pests destroy crops, plants can out compete crops or harm cattle/animals

9.How does climate change threaten biodiversity?

Temperature is an abiotic factor that many animals are sensitive to



How does the change in global temperature between 1850 and 2000 compare with the change that occurred between 1850 and 1880?

10. Not as much of an increase

11. List three factors that may have contributed to the trend shown in the graph.

Industrialization, transportation, deforestation

12. Suggest three possible effects of global warming on the future of the biosphere.

Rise in ocean levels, change in ocean currents, ice age

Examples of Ecology in Action		
Environmental Change	**Cause**	**Behavior Change Needed**
Hole in the ozone layer	CFCs	REGULATIN OF CFCs OR ALTERNATIVE MATERIALS USED IN PLACE OF CFCs
Declining numbers of fish in the oceans	OVERFISHING	REGULATIN OF FISHING INDUSTRY
Global warming and climate change	INCREASING AMOUNTS OF GREEENHOUSE GASSES	REDUCTION OF EMMISIONS OF THESE GASSES, OR USE OF ALTERNATIVE ENERGY SOURCES SUCH AS SOLAR

Table I. How Many Species Are There?

Groups of Species	Number
Plants	250,000
Roundworms	more than 15,000
Mollusks	50,000–200,000
Crustaceans	40,000
Spiders, mites	75,000
Insects	more than 1,000,000
Vertebrates	60,000

Table II. Organisms Listed as Endangered in the United States

Type of Organisms	Number of Endangered Species
Mammals	63
Birds	78
Reptiles	14
Amphibians	10
Fishes	70
Snails	20
Clams	61
Crustaceans	18
Insects	33
Spiders	12
Flowering plants	565
Conifers	2
Ferns and other plants	24

14. Which group in Figure 6–2, Table I is the most diverse?

INSECTS

15 Which group in Figure 6–2, Table II has the most endangered species?

FLOWERING PLANTS

16 Which table in Figure 6–2 tells you about the numbers of species whose population size is declining in a way that places it in danger of extinction?

TABLE 1

17 After 10 years, if conservation efforts to protect entire ecosystems succeed, how would Table II in Figure 6–2 likely change?

THE NUMBERS WILL DECREASE

18. Discuss the importance of biodiversity to the field of medicine. Give an example of a medicine derived from a plant.

LOSS OF BIODIVERSITY COULD POSSIBLY MEAN LOSS OF NEW MEDICINES AND TREATMENTS FOR DISEASE AND AILMENT. PENICILLIN IS A GRET EXAMPLE OF THIS.

19. What is the difference between captive breeding programs and ecosystem preservation in terms of conservation biology? Describe how conservation groups are working to protect biodiversity.

CAPTIVE BREEDING PROGRAMS ARE REACTIVE, WHICH HELP TO FIX THE PROBLEM AFTER IT HAS OCCURRED, WHEREAS ECOSYSTEM PRESERVATION IS PROACTIVE AND PREVENTS THE PROBLEM FROM OCCURING.