

Environmental Science Mid Term Review

I. Chapter 1 - Understanding our environment

- A. Define environmental science**
- B. Timeline of environmental change**
- C. Main environmental problems**
 - 1. resource depletion**
 - 2. pollution**
 - 3. loss of biodiversity**

II. Chapter 2 - Scientific Methods

- A. The Scientific Method steps**
- B. Toilet Paper Lab - what do we learn?**
- C. Statistics**
 - 1. mean, median, mode, probability**
 - 2. Models**
- D. Informed Decisions**
 - 1. decision making model steps**

III. Chapter 3 - The Geosphere

- A. Earth's interior**
 - 1. earth structure**
 - 2. Plate tectonics**
 - 3. Earthquakes**
 - 4. Volcanoes**

B. Atmosphere

- 1. Composition**
- 2. Layers**
- 3. Energy in atmosphere**
 - a. heat transfer**
- 4. Greenhouse effect**

C. Hydrosphere & Biosphere

- 1. Water Cycle**
 - a. all steps**
- 2. Oceans**
 - a. Statistics**
 - b. salinity**
 - c. Temperature and Currents**
- 3. Fresh Water**
 - a. Polar ice**
 - b. River systems**
 - c. Groundwater**
 - (1) aquifer**
- 4. Biosphere**
 - a. requirements for life**
 - b. energy flow in biosphere**
 - (1) open system**

(2) closed system

IV. Chapter 4 - Ecosystems - everything is connected

A. Ecosystem and components

1. biotic factors
2. abiotic factors
3. organisms, populations, communities
4. habitat

B. Evolution

1. Natural Selection
 - a. adaptation
 - b. heredity
 - c. evolution, coevolution
2. Artificial selection
3. Resistance

C. Diversity of Living Things

1. bacteria
 - a. eubacteria
 - b. archaeobacteria
2. Fungi
3. Protists
4. Plants
 - a. lower plants

b. gymnosperms

c. angiosperms

5. Animals

a. invertebrates

b. vertebrates

V. Chapter 5 - How Ecosystems Work

A. Energy Flow in Ecosystems

1. Energy source - The Sun

a. photosynthesis

b. producers

c. consumers

d. deep sea hydrothermal vent communities - the exception

2. What eats what?

a. herbivore

b. carnivore

c. omnivore

d. decomposer

e. Population lab - what do we learn?

3. Cellular Respiration

a. burning energy - reverse of photosynthesis

4. Energy Transfer Through Ecosystems

a. Food Chain vs. Food Web

- b. Trophic Levels**
- c. Energy Pyramids**
- d. Energy Loss in ecosystems**

5. Owl pellets - what do we learn?

B. The Cycling of Materials

1. carbon cycle

- a. all steps**
- b. human impact**
- c. carbon sinks**

2. Nitrogen cycle

- a. nitrogen fixing**
- b. role of decomposers**

3. phosphorus cycle

- a. slow cycle**
- b. all steps**

4. Human impact

- a. fertilizers**
 - (1) algal bloom**
- b. acid rain**

C. How Ecosystems Change

1. Succession

- a. primary**

(1) role of lichens

b. secondary

(1) pioneer species

(2) climax community

(3) role of fire

2. Old-Field Succession