

Chapter 14

Environmental Awareness

Using small groups of 4-5 individuals, work on completing the following exercise. Satisfactory completion of each section will depend upon your pooling all of the ideas from your group. Each functioning ecosystem must contain a recognizable set of non-living or abiotic factors that include: living space; atmospheric gases; moisture; soil or edaphic medium; and, energy (including heat and light). Each organism must be adapted to the abiotic facets within its particular ecosystem for survival. These abiotic factors then constitute where plants and animals ultimately survive (ie. a moss in a wet area of a mountain forest or a cactus in a dry environment). Too much or too little of any one combination of abiotic factors could well mean death for an individual or population.

Remember that each ecosystem contains four basic structural levels.

1. abiotic (non-living components just mentioned)
2. autotrophic organisms (green plants involved in photosynthesis.
3. heterotrophic organisms (animals)
4. decomposers (including microorganisms-bacteria, fungi).

The energy flow in an ecosystem is cyclic. Thus, plants and animals eventually die and decompose. The abiotic products released through decomposition are then ready to be taken up by plants and to begin another possible cycle.

Today you will be answering questions that relate to four different objects: an oak tree in an oak woodland; a rainbow trout in a Rocky Mountain stream; a human being living in Orange County; and, a Ford station wagon. Each of these objects have uniquely different relationships relative to several important abiotic and biotic features. Fill in the appropriate spaces below for each of the four objects listed. Give us a few words or a brief statement that explains each part. Carefully think about each statement and discuss it with your group before you jot anything down.

A. **OAK TREE:**

What does the tree need (or take away from) of these items?

1. space
2. air/atmosphere
3. water/precipitation
4. soil
5. energy
6. other plants
7. animals
8. microorganisms

What does the tree return (give back) to each item below?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other plants
7. animals
8. microorganisms

How is the tree negatively impacted by the items listed below (this might be too much or too little of something)?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other plants
7. animals
8. microorganisms

B. RAINBOW TROUT:

What does the fish need (or take away from) the items listed?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other animals
7. plants
8. microorganisms

What does the fish return (give back to) the items below?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other animals
7. plants
8. microorganisms

How is the fish negatively impacted by the items listed below (note that this includes too much of or too little of something)?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other animals
7. plants
8. microorganisms

C. HUMAN BEING:

What do people need (or take away from) the items listed?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other animals
7. plants
8. microorganisms

What do people return (give back to) the items listed below?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other animals
7. plants
8. microorganisms

How can humans be negatively impacted by the items listed below

(note that this might be too much of or too little of something)?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. other animals
7. plants
8. microorganisms

D. FORD EXPEDITION (fully loaded yuppy yacht for negotiating even the most rugged shopping mall parking lots):

What do automobiles need (or take away from) the items listed?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. animals
7. plants
8. microorganisms

How does the automobile negatively impact the following?

1. space
2. air/atmosphere
3. water
4. soil
5. energy
6. animals
7. plants
8. microorganisms



Rare photo of sport utility vehicle actually off road. This is the vehicle of choice for those hazardous trips to the grocery store and soccer practice.