**APES Chapter 3: Ecosystems: What are they and how do they work?**

**Note Taking Focus Questions**

**Directions:** Use the Cornell Method of note taking as you answer the questions below. Your notes must be **hand written** to receive credit for them. Within your notes, use the title for each subsection of notes which is *in italics and underlined.*

**Core Case Study p. 52**

*Tropical Rainforests are Disappearing*

1. Why are tropical rainforests an excellent place for the study of ecosystems?

2. What are some of the reasons why tropical rainforests are being cut down or disturbed?

3. List and describe the 3 reasons why we should care that tropical forests are disappearing?

**Section 3-1**

*4 Components of Earth’s Life Support System*

1. What layers make up the earth’s *atmosphere*? Where is each layer found, what gases does it contain, and what is the importance of each layer (what happens there)?

2. What is the hydrosphere, and what makes it up?

3. What is the geosphere, and what layers make it up?

4. What is the biosphere?

5. List and describe each of the *Three Factors that Sustain the Earth’s Life.*

 **Section 3-2**

 \*Leave about 8 lines in your notebook for notes that I will give you that summarize the processes of photosynthesis and cellular respiration.\*

- Read over section 3-2. All of this information is information that you have had before in biology or the ecology portion of environmental 1. We will just discuss it briefly as a class, but you will be responsible to know the information for your test. Feel free to take some notes as you read over the section if there are concepts/terms that you do not remember.

**Section 3-3**

1. *Energy in an Ecosystem:* Describe the difference between a food chain and a food web.

2. Define the term biomass.

3. *Ecological Pyramids and 10% Rule:* Explain what happens to energy in an ecosystem as a result of the second law of thermodynamics.

 \*Leave 4 or 5 lines in your notebook for some additional notes that I will give you.\*

4. *Productivity of Ecosystems:* What is Gross Primary Productivity, and how is it measured? Why must producers use some of the chemical energy they make?

5. What is net primary productivity? What is it a measure of?

6. Compare the NPP of the oceans and tropical rainforests.

7. Why is the NPP of the planet important?

 \*Leave 5 lines in your notebook for additional notes on *Conservation of Matter and Energy.*\*

**Section 3-4**

1. *Nutrient Cycles in Nature:* What parts of the ecosystem do nutrients move through?

2. What is another name for a nutrient cycle, and what drives nutrient cycles?

3. What is a reservoir in a cycle?

 (over)

4. *The Water Cycle:*

 a. what does the water cycle do?

 b. what powers the cycle?

 c. what processes does the cycle involve?

 d. what 3 things can happen to the water that falls as precipitation?

5. *Importance of Water Cycle:*

a. Describe 2 ways that water is important to ecosystems and the shape of earth’s features.

 b. Discuss several ways that the hydrologic cycle helps to renew water quality.

6. *How Humans Alter the Water Cycle:* List and describe 3 ways that humans alter the water cycle.

\* We will take the notes about the remaining cycles together in class.\*