

### **READING GUIDE: 3.4 – Cycles of Matter (p. 79-86)**

1) Biogeochemical cycles are influenced by the following processes. Explain each process & provide 1 or more examples of each:

- **Biological processes:** \_\_\_\_\_
- **Geological processes:** \_\_\_\_\_
- **Chemical / Physical processes:** \_\_\_\_\_
- **Human Activity:** \_\_\_\_\_

2) Describe / summarize the following major steps in the **WATER CYCLE**.

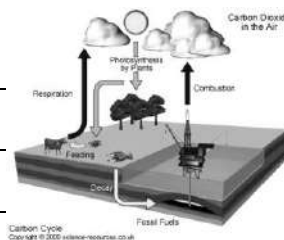
- **Precipitation:** \_\_\_\_\_
- **Condensation:** \_\_\_\_\_
- **Evaporation:** \_\_\_\_\_
- **Transpiration:** \_\_\_\_\_
- **Infiltration:** \_\_\_\_\_
- **Transpiration:** \_\_\_\_\_
- **Runoff:** \_\_\_\_\_



3) Why is life on Earth often described as “*carbon-based life*.”? \_\_\_\_\_

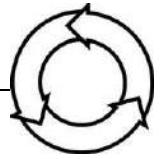
4) **Study figure 3-17** illustrating the **CARBON CYCLE**. Describe one biological, one geological, one chemical, and one human activity that is involved in the carbon cycle.

- **biological:** \_\_\_\_\_
- **geological:** \_\_\_\_\_
- **chemical:** \_\_\_\_\_
- **human activity:** \_\_\_\_\_



5) What percent of the air we breathe is made up of nitrogen gas,  $N_2$ ? \_\_\_\_\_ Can plants use the nitrogen in the air? \_\_\_\_\_ Can animals? \_\_\_\_\_ Which organisms can use this form of nitrogen directly? \_\_\_\_\_

6) How is nitrogen in the air converted into usable forms in the soil? (list 2 ways)



7) All organisms require nitrogen...WHY?

8) Label the following diagram of the **WATER CYCLE**.

