**CH. 2: PRINCIPLES OF ECOLOGY OUTLINE QUIZ 3A**

1. Essential nutrients are cycled through \_\_\_\_\_ processes.
2. The law of conservation of mass states that matter is not be \_\_a\_\_\_ or \_\_\_b\_\_.
3. Matter is anything that has \_\_a\_\_ and takes up \_\_b\_\_\_.
4. A nutrient is a chemical substance that an organism must obtain from \_\_\_\_\_\_ to sustain life and to undergo life processes.
5. \_\_\_\_\_ breaks down large rocks into particles that become part of the soil used by plants and other organisms.
6. A(n) \_\_\_\_\_ studies water found underground, in the atmosphere, and on Earth’s surface.
7. Water is constantly \_\_\_\_\_ into the atmosphere from bodies of water, soil, and organisms.
8. Water in the atmosphere, called \_\_a\_\_\_, rises and begins to cool – then condenses into droplets forming \_\_b\_\_\_.
9. Water falls from clouds as \_\_\_\_\_ in the form of rain, sleet, snow, or hail, transferring water to the Earth’s surface.
10. \_\_a\_\_\_ and runoff from land surfaces flow into streams, rivers, lakes, and oceans, where they evaporate into the \_\_b\_\_\_ to continue through the water cycle.
11. Approximately 90% of water vapor evaporates from \_\_\_a\_\_; about 10% evaporates from the surfaces of \_\_b\_\_\_ through a process called \_\_\_c\_\_\_.
12. About 31% of all freshwater is available for living organisms – the remaining 69% is \_\_a\_\_\_ (and found in \_\_b\_\_\_, which makes it unavailable for use by living organisms).
13. Atoms of \_\_\_\_\_ form the framework for important molecules such as proteins, carbohydrates, and fats.
14. \_\_\_\_\_ often make up molecules essential for life, including carbon dioxide and simple sugars.
15. During a process called photosynthesis, green plants and algae convert \_\_a\_\_\_ into \_\_b\_\_\_ (which are used as a source of energy for all organisms in the food web) and release \_\_c\_\_\_ back into the air.
16. Carbon dioxide is recycled when \_\_a\_\_\_ release it back into the air during \_\_b\_\_\_.
17. Carbon enters a long-term cycle when organic matter is buried underground and converted to \_\_a\_\_\_ - where it might remain as fossil fuel for millions of years (until it is released from them when they are \_\_b\_\_\_).

**CH. 2: PRINCIPLES OF ECOLOGY OUTLINE QUIZ 3B**

1. Nitrogen is an element found in \_\_\_\_\_.
2. The largest concentration of nitrogen is found in \_\_\_\_\_.
3. Plants and animals cannot use nitrogen directly from \_\_\_\_\_.
4. Nitrogen gas is captured from the air by \_\_\_\_\_ that live in water, the soil, or gown on the roots of some plants.
5. Nitrogen fixation is the process of \_\_a\_\_\_ of nitrogen into a form that is usable by \_\_b\_\_\_.
6. Nitrogen is added to the soil when \_\_\_\_\_ are applied to lawns, crops, or other areas.
7. Nitrogen enters the food web when \_\_a\_\_\_ absorb nitrogen compounds from \_\_b\_\_ and convert them into \_\_\_\_\_.
8. \_\_a\_\_\_ get nitrogen by eating plants or animals that contain nitrogen and reuse it to make their own \_\_\_\_\_.
9. Because the supply of nitrogen in a food web depends on the amount of nitrogen that is \_\_a\_\_\_, it is often a factor that limits the growth of \_\_b\_\_\_.
10. Nitrogen is returned to the \_\_a\_\_\_ when an animal urinates and is reused by \_\_b\_\_\_.
11. When organisms die, \_\_a\_\_\_ transform the nitrogen in proteins and other compounds into \_\_b\_\_\_ (which will be converted by organisms in the soil into nitrogen compounds that can be used by \_\_c\_\_\_).
12. In a process called \_\_\_\_\_\_, some soil bacteria convert fixed nitrogen compounds back into nitrogen gas, which returns it to the atmosphere.
13. Phosphorus is an element that is essential for the \_\_\_\_\_\_ of organisms.
14. In the short term cycle, phosphorus is cycled from the soil to \_\_a\_\_\_ and then from the producers to \_\_b\_\_\_.
15. When organisms die or produce waste products, \_\_a\_\_\_ return the phosphorus to the \_\_b\_\_\_ where it can be used again.
16. In the long term cycle, \_\_\_\_\_ of rocks that contain phosphorus slowly adds phosphorus to the cycle.
17. Because phosphorus might be present only in small amounts in soil and water, it is a factor that limits the growth of \_\_\_\_\_.