**Aerobic and Anaerobic Respiration, Photosynthesis and Cycles Test Review**

Name: Period:

**Aerobic Cellular Respiration:**

1. Write out the balanced formula for aerobic cellular respiration:
2. Where in the cell does aerobic cellular respiration take place?
3. Where in the cell does glycolysis take place? Does it require oxygen?
4. What molecule is made that is used for immediate energy by the cell?
5. What gas is produced as a product of aerobic cellular respiration?
6. What types of organisms do aerobic cellular respiration?
7. Does aerobic cellular respiration add or remove carbon from the atmosphere?
8. Where in a plant would aerobic cellular respiration take place (leaves, stem, roots, or all cells)
9. How is energy transformed in aerobic cellular respiration? (Where is it in the reactants? Where is it in the products?)

**Anaerobic Cellular Respiration/Fermentation**

1. What reactant is MISSING in anaerobic respiration?
2. Which process produces more ATP- aerobic or anaerobic respiration?
3. What type of fermentation takes place in animals?
4. What is a symptom of lactic acid fermentation?
5. What type of fermentation takes place in bacteria/yeast?
6. What step is the same in both aerobic and anaerobic respiration?

**Photosynthesis:**

1. Write out the balanced equation for photosynthesis:
2. Where in the cell does photosynthesis take place?
3. What types of organisms can do photosynthesis?
4. What is the energy source for photosynthesis? How is energy transformed in photosynthesis?
5. What are the 2 stages of photosynthesis?
6. What is the reactant of the light reactions and what is produced?
7. Where in the chloroplast does the light reactions take place?
8. What is the reactant of the Calvin cycle and what is produced?
9. Where in the chloroplast does the Calvin cycle take place?
10. What gas does photosynthesis produce?
11. Where in the plant does photosynthesis take place? (leaves, stem, roots)
12. Does photosynthesis add or remove carbon from the atmosphere?
13. Identify 2 uses for the sugar that is produced in photosynthesis in plants and animals

**Plants**:

1. What is the name of the hole in the leaves where plants exchange gases and release water?
2. Where in the plant does water enter? How does it travel through the plant?
3. What 2 tissues are used for transporting water and sugar in a plant?
4. What process do plants do to release energy from sugar?
5. What process do plants do to build up larger molecules to build the plant biomass?
6. How do plants take in carbon dioxide?
7. How do plants take in nitrogen?
8. What gas does plants release the most during the daylight hours?
9. What gas does plants release the most during night hours (when it is focused on releasing energy)?

**Animals**

1. How do animals take in sugar (carbon), water, and nitrogen?
2. What process do animals do to build up bigger molecules from the sugar and other atoms that they consume?
3. What process do animals do to release energy from sugar?
4. What system in the body transports water, sugars, gases and waste to and from cells in the arteries and veins?
5. What system in the body breaks down large food molecules into smaller ones that can be used for energy or for biosynthesis? (includes the stomach and intestines)

**Cycles**

1. What is the name of the process in the water cycle where water evaporates from the leaves of plants?
2. What process removes carbon dioxide from the atmosphere?
3. What processes add carbon dioxide to the atmosphere?
4. What is the concern about adding carbon dioxide that was contained in the geosphere into the atmosphere?
5. What type of organism does nitrogen fixation and lives in the root nodules of legumes?
6. Are carbon dioxide gas, nitrogen gas, and oxygen biotic or abiotic?
7. Which process stores carbon- biosynthesis or cellular respiration?
8. What is the role of decomposers in the carbon and nitrogen cycle?

Trace 2 different carbon atom from when they enter a plant. Take both carbon atoms through photosynthesis and then one will go into cellular respiration in the plant and the other will be a part of biosynthesis. Explain how the carbon atom that is in the plant can end up in the animal. Explain how that carbon atom can be used for either cellular respiration or biosynthesis in the animal. Explain how the carbon atom could end up back in the atmosphere from the animal and be available to the plant again.

