# **Ecology Review-Honors 2016**

1. All pens down in the middle of your circle but notebooks out.
2. One student (the reader) reads the question out loud.
3. All students look through their notebook and discuss possible answers.
4. The checker checks that everyone agrees.
5. Everyone picks up their pens to write the answer in their own words and return pens down.
6. Reader and checker jobs rotate to the next person in the circle on he left.

**Greenhouse Effect**

1. Why is the planet compared to a greenhouse?
2. How is the greenhouse effect related to climate change? What is some evidence that this is related to human activity?
3. What are the main greenhouse gases and their sources?
4. In the greenhouse effect; what form of light enters the atmosphere? What happens when that light reaches the planet?
5. In the greenhouse effect; what type of light is re-radiated from the planet (we also call this light form “heat”), what part of the atmosphere absorbs this light when it tries to leave the planet?
6. What surface of the planet heats up slowest? Quickly? Which color surface absorbs/reflects the most light?

**Food Chains**

1. What is ecology?
2. Define and give an example of each level of ecological study. (organism, population, communities, ecosystems, biomes, biosphere)
3. Organize these organisms into a food chain. Add arrows and energy amounts.
   1. mosquito larvae, blue gill fish, duck weed, alligator, minnow
4. For the food chain above provide as many names as possible to each level.
5. What is the role of mushrooms and other fungi? Draw them into your food chain.
6. What happens to each in a food chain: biomass, numbers of organisms, toxins and energy?
7. Which level determines the productivity of a food web?
8. Why do ecologists say matter cycles and energy flows through food chains?
9. What is the 10% rule? In what form is energy captured? How is it transferred? What is the 90% used for and what does it become?
10. What is the difference between a food chain and a food web? How are food webs more resilient to changes in the habitat?
11. What is biomagnification? Which are most & least affected? Why does this happen only with nonpolar (fat soluable) molecules?

**Succession**

1. What are limiting factors for populations? Give some abiotic and biotic examples.
2. What is the difference between primary succession and secondary?
3. How does disruption of an ecosystem result in succession?
4. How do the abiotic conditions determine which biotic plants will occupy the habitat?
5. How do the pioneer species affect the abiotic conditions (rock/soil) during succession?
6. Which takes less time primary or secondary succession? Why?
7. How are the nutrient requirements of pioneer species different than the species of a climax community?
8. How does biodiversity change during succession?

**Carbon Cycle**

1. What IS photosynthesis/including the chemical reaction?
2. What IS cellular respiration? The chemical reaction is the exact opposite!
3. In what cells, organelles and pigment does photosynthesis occur in?
4. Where are two of the largest reservoir sinks of carbon? How does it get there?
5. What happens to the pH of water when CO2 diffuses into it? Why is that a problem for shelled organisms like plankton, crabs and clams?
6. How could the amount/health of ocean plankton affect the global climate?

**Scientific Method**

1. What is the difference between an independent and dependent variable?
2. What are constants in a lab and what is their job?
3. What is the format for a hypothesis? What goes after each part?
4. What are control and experimental groups
5. Be able to make a claim statement from a graph, identify elements of an experimental design (IV, DV, constants, control and experimental groups), be able to graph data if given-determine the proper type of graph and labels.