**Environmental Science BM1: Study Guide Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

What is Environmental Science? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Metrics**

|  |  |  |
| --- | --- | --- |
| Basic Unit for Mass | Basic Unit for Length | Basic Unit for Volume |
|  |  |  |

9 m = \_\_\_\_\_\_\_\_\_km 8 cm = \_\_\_\_\_\_\_\_\_\_ mm 7.4 km = \_\_\_\_\_\_\_\_\_\_ m

Would the gymnasium be measured in mm, cm, m, or km? \_\_\_\_\_\_\_\_\_\_\_\_\_ *Review your metric measurements lab.*

**Scientific Method**

1. What is a control group?
2. How many variables should you change in an experiment?
3. What is a Quantitative observation? Give one example?
4. What is a Quantitative observation? Give one example?
5. Provide an example of data that is both qualitative and quantities?
6. What is an independent variable?
7. What is a dependent variable?
8. Why is it important to have repeated trials in an experiment?
9. What is a hypothesis?
10. What is a theory?

Identify a-f in the scientific method scenario below:

Gloria wanted to find out if the color of food would affect whether kindergarten children would select it for lunch. She put food coloring into 5 identical bowls of mashed potatoes. The colors were plain, red, green, yellow, and blue. Each child chose a scoop of potatoes of the color of their choice. Gloria did this experiment using 100 students. She recorded the number of students that chose each color.

1. Question:
2. Hypothesis:
3. Control group:
4. Experimental group:
5. Independent variable:
6. Dependent variable:

Place the following steps of the scientific method in order 1-6.

\_\_\_\_ record and analyze data \_\_\_\_ form a hypothesis \_\_\_\_ make an observation

\_\_\_\_ set up a controlled experiment \_\_\_\_ Communicate Results \_\_\_\_ Identify a problem

**Name 10 Famous Environmentalist and their major contributions:**

**1.**

**2.**

**3.**

**4.**

**5.**

**6.**

**7.**

**8.**

**9.**

**10.**

**What is an ecological footprint?**

**What does an ecological footprint measure?**

**What is earth overshoot day?**

**How much bio-productive land and sea is available globally?**

**On average, how much bio-productive land and sea do humans use?**

**Basic Ecology:**

**1. List the correct levels of ecological organization in order from smallest to broadest and define each.**

**2. Differentiate between an organism’s habitat and niche.**

**3. What are limiting factors in ecosystems?**

**a. Give examples of biotic limiting factors.**

**b. Give examples of abiotic limiting factors.**

**4. Define and give examples of the following interactions:**

**a. Predation- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**b. Mutualism- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**c. Commensalism- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**d. Parasitism- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**e. Competition- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**5. What does the word “trophic” mean?**

**6. Identify the major trophic levels in an ecosystem.**

**7. Construct a food chain of a terrestrial ecosystem.**

**8. Construct a food web of an aquatic ecosystem.**

**9. Which way does the energy flow through an ecosystem?**

**10. Define and give examples of decomposers and detritivores.**

**11. Contrast native and nonnative species and give examples of each.**

**12. Explain the 1st and 2nd Laws of Thermodynamics.**

**13. On average, how much energy is transferred from one trophic level to the next?**

**14. Where does the lost energy go?**

**15. Define and give an example of biomagnification.**

**Biogeochemical Cycles:**

**1. What are biogeochemical cycles?**

**2. What are the 6 essential elements of earth?**

**3. Explain the 4 major process involved in the water cycle:**

**a. Evaporation- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**b. Precipitation- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**c. Transpiration- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**d. Condensation- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**4. The carbon cycle depends on which 2 life processes?**

**5. What happens when there is too much or not enough CO₂ in the atmosphere?**

**6. Explain how producers and consumers help cycle the CO₂ and O₂ gases.**

**7. Most of the atmospheric nitrogen is unusable. How is it converted to a usable form?**

**8. Explain denitrification.**

**9. How is the phosphorus cycle different from the other biogeochemical cycles?**

**10. How does sulfur cycle through the earth?**