Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Answer Key\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_

Lesson **1 Assessment MOD**

**Part 1:Fill in the Blank (10 points)**

Complete each statement by filling in the blank with the best vocabulary term. Words may be used once, more than once, or not at all.

**WORD BANK**

\*\*Observation \*\* Hypothesis \*\*

\*\* Data \*\*Quantitative \*\* Qualitative \*\*Several

This first thing a scientist does when engaging in the scientific method is to make a(n) 1. \_\_\_Observation\_\_\_\_\_\_**.** Next, the scientist comes up with a question and then develops a 2. \_\_\_Hypothesis\_\_\_\_\_\_\_\_\_\_ or a possible testable answer to their scientific question. A scientist will then begin to plan their investigation so they can collect valid

3. \_\_\_\_\_\_\_\_Data\_\_\_\_\_\_\_\_\_\_ which can be a measured **numerical** value 4.\_\_\_\_\_\_\_\_\_Quantative\_\_\_\_\_\_\_\_\_ or 5. \_\_\_\_\_\_\_\_\_\_\_Qualitative\_\_\_\_\_\_\_\_\_\_\_ which is based on qualities or **characteristics**.

\*\*Dependent Variable \*\*Scientific Theory\*\*

\*\*Independent Variable\*\*One\*\* Model \*\*

To create a valid experiment the scientist should test 6.\_\_\_One\_\_\_ variable(s) at a time. The variable being **manipulated** by the scientist is called the 7.\_\_\_\_independent variable\_\_\_\_\_\_\_\_\_\_\_. While the variable being **measured** is called the 8.\_\_\_\_\_\_\_\_\_\_\_\_\_\_dependent variable\_\_\_\_\_\_\_\_\_\_\_\_. Once a scientist performs the investigation, they can use the information they collected and create a 9.\_\_\_\_\_model\_\_\_\_\_ which can be a physical or mathematical representation of a structure or system. If the scientists’ hypothesis is well tested and widely accepted it can become a 10. \_\_\_\_\_\_\_scientific theory\_\_\_\_\_\_\_\_\_\_.

**Matching: 10 points**

11.\_\_\_C\_\_ Tipping Point

12.\_\_\_D\_\_ Control group

13.\_\_\_B\_\_ Compounds

14.\_\_\_A\_\_ Dependent variable

15.\_\_\_E\_\_ Potential Energy

16.\_\_J\_\_\_ Chromosome

17.\_\_G\_\_\_ Renewable Energy

18.\_\_\_H\_\_ Macromolecules

19.\_\_\_F\_\_ Nucleic Acids

20.\_\_\_I\_\_ Organic Compounds

1. The variable that is being measured to determine the effect of the independent variable
2. Combinations of two or more different elements held together in fixed proportions. Water: H2O
3. The point at which a fundamental shift in the behavior of a system occurs. e.g. stretching a rubber band... and then stretching it until it breaks.
4. serves as a comparison for evaluating the effect of the treatment. The standard for comparison of normal
5. stored energy and potentially available for use
6. Complex macromolecules that store and transmit genetic information, DNA and RNA
7. Energy gained from resources that are replenished by natural processes in a relatively short period of time.
8. Large complex organic molecules essential to life. Proteins, Carbohydrates, Lipids, Nucleic Acids
9. Sugar, vitamins, and most chemicals in your body are called these because they contain at least two carbon atoms combined with other atoms.
10. Long, continuous thread of DNA that consists of numerous genes and regulatory information

**Multiple Choice: 10 points**

1. Energy gained from resources that are replenished by natural processes in a

relatively short period of time. e.g. solar, firewood, wind, moving water, geothermal is

1. Electrical energy
2. Kinetic Energy
3. Renewable energy
4. The total kinetic energy of all the moving atoms, ions, or molecules in an object can also be referred to as
5. Nonrenewable Energy
6. Heat (Thermal) Energy
7. Electrical Energy
8. Students wondered if the rainwater in their region was acidic. They decided to gather some rainwater and test the pH. After testing the pH, they determined that their rainwater was acid rain. What is most likely the pH reading the students obtained?

A. 4.0

B. 7

C. 10

1. Law of conservation of energy (can't be created or destroyed) is
   1. The First Law of Thermodynamics
   2. Kinetic Energy
   3. Positive Feedback
2. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shows the number and types of each atom in a compound.

A. Chemical Reaction

C. Atomic Number

D. Physical Change

1. Measure of how acidic or basic something is based on how many ions of either hydrogen ions (H+) or hydroxide ion (OH+).
2. pH
3. Atom Number
4. Acidity
5. When sea ice melts during the polar spring the air temperatures increase, the sea ice begins to melt, with the result that the bright white, highly reflective surface of the ice is slowly replaced by open water, which is darker in color and absorbs more energy (heat). The heat absorbed by the water raises ocean and air temperatures further, leading to more rapid melting of the remaining sea ice. This occurrence is an example of
6. A Negative Feedback Loop
7. A Positive Feedback Loop
8. Quantitative Data
9. What is the correct order of the steps of the scientific method?
10. Questions, hypothesis, experiment, making conclusions and interpreting results
11. Observations, experiment, hypothesis, interpreting results and making conclusions
12. Observations, questions, hypothesis, experiment, interpreting results and making conclusions
13. When energy is converted from one form to another in a physical or chemical change, we end up with lower quality energy. Which choice best matches the statement above?
14. Second Law of Thermodynamic
15. Independent Variable
16. First Law of Thermodynamics
17. Energy travels in the form of a wave because of changes in electrical and magnetic fields. Gamma rays, X-rays, Radiation, Ultraviolet, Radio waves are best characterized as
    1. Renewable energy
    2. Nonrenewable Energy
    3. Electromagnetic Radiation

**Critical Thinking**

 Use the diagrams below and your knowledge of acids and bases to answer the questions A - G. (6 pts)

beaker #1 beaker #2 beaker #3 beaker #4 beaker #5

1. Which **beaker number** (1-5) does H3O+ = OH-? \_\_#3\_\_
   * What do we call this solution?\_\_\_Neutral\_\_\_\_
2. Which **beaker number** (1-5) has the most alkaline (basic) solution?\_\_\_#5\_\_
   * Does it contain more H3O+ or OH- ions?\_\_\_\_OH-\_\_\_
3. Which **beaker number** (1-5) has the most acidic solution? \_\_\_#1\_\_
   * Does it contain more H3O+ or OH- ions? \_\_\_ H3O+ \_\_\_\_

Identify the following statements as either a Theory (T), Law (L) or Hypothesis (H). You can write the letters (T) for Theory, (L) for Law or (H) for Hypothesis.

1. \_\_H\_\_ Corn growth is limited by available nitrogen.
2. \_\_T\_\_ all living things are composed of one or more cells; the cell is the basic unit of life; and new cells arise from existing cells.
3. \_\_\_L\_ For every action, there is an equal and opposite reaction.
4. \_\_\_H\_\_ Decomposers replenish the nutrients in the soil.
5. \_\_\_L\_\_ Force=Mass x Acceleration

Characterize the following as either an element (E) or a compound (C). You may write the letter E or C.

1. \_\_E\_\_ O
2. \_\_C\_\_ C6H12O6
3. \_\_E\_\_ N
4. \_\_\_C\_ CO2
5. \_\_E\_\_ C