

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. Quantitative or 5. Qualitative which is based on qualities or **characteristics**.

Dependent Variable **Scientific Theory

Independent VariableOne** 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 | A. The variable that is being measured to determine the effect of the independent variable |
| 12. __D__ Control group | B. Combinations of two or more different elements held together in fixed proportions. Water: H ₂ O |
| 13. __B__ Compounds | C. 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. |
| 14. __A__ Dependent variable | D. serves as a comparison for evaluating the effect of the treatment. The standard for comparison of normal |
| 15. __E__ Potential Energy | E. stored energy and potentially available for use |
-
- | | |
|-----------------------------|--|
| 16. __J__ Chromosome | F. Complex macromolecules that store and transmit genetic information, DNA and RNA |
| 17. __G__ Renewable Energy | G. Energy gained from resources that are replenished by natural processes in a relatively short period of time. |
| 18. __H__ Macromolecules | H. Large complex organic molecules essential to life. Proteins, Carbohydrates, Lipids, Nucleic Acids |
| 19. __F__ Nucleic Acids | I. Sugar, vitamins, and most chemicals in your body are called these because they contain at least two carbon atoms combined with other atoms. |
| 20. __I__ Organic Compounds | J. Long, continuous thread of DNA that consists of numerous genes and regulatory information |

Multiple Choice: 10 points

21. 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

- A. Electrical energy
- B. Kinetic Energy
- C. Renewable energy

22. The total kinetic energy of all the moving atoms, ions, or molecules in an object can also be referred to as

- A. Nonrenewable Energy
- B. Heat (Thermal) Energy
- C. Electrical Energy

23. 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

24. Law of conservation of energy (can't be created or destroyed) is

- A. The First Law of Thermodynamics
- B. Kinetic Energy
- C. Positive Feedback

25. A _____ shows the number and types of each atom in a compound.

- A. Chemical Reaction
- C. Atomic Number
- D. Physical Change

26. Measure of how acidic or basic something is based on how many ions of either hydrogen ions (H^+) or hydroxide ion (OH^-).

- A. pH
- B. Atom Number
- C. Acidity

27. 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

- A. A Negative Feedback Loop
- B. A Positive Feedback Loop
- C. Quantitative Data

28. What is the correct order of the steps of the scientific method?

- A. Questions, hypothesis, experiment, making conclusions and interpreting results
- B. Observations, experiment, hypothesis, interpreting results and making conclusions
- C. Observations, questions, hypothesis, experiment, interpreting results and making conclusions

29. 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?

A. Second Law of Thermodynamic

B. Independent Variable

C. First Law of Thermodynamics

30. 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

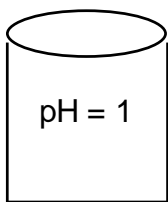
A. Renewable energy

B. Nonrenewable Energy

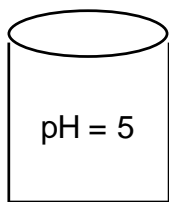
C. Electromagnetic Radiation

Critical Thinking

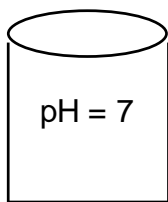
Use the diagrams below and your knowledge of acids and bases to answer the questions A - G. (6 pts)



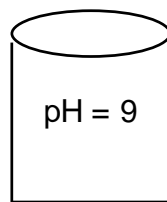
beaker #1



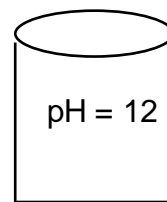
beaker #2



beaker #3



beaker #4



beaker #5

A. Which **beaker number** (1-5) does $\text{H}_3\text{O}^+ = \text{OH}^-$? #3

- What do we call this solution? Neutral

B. Which **beaker number** (1-5) has the most alkaline (basic) solution? #5

- Does it contain more H_3O^+ or OH^- ions? OH^-

C. Which **beaker number** (1-5) has the most acidic solution? #1

- Does it contain more H_3O^+ or OH^- ions? H_3O^+

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__ $\text{Force} = \text{Mass} \times \text{Acceleration}$

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__ $\text{C}_6\text{H}_{12}\text{O}_6$
3. __E__ N
4. __C__ CO_2
5. __E__ C