Name:	_ Date:	Period:
Lesson 2 Assessment		
Part 1:Fill in the Blank (10 points)		
used once, more than once, or not at all		
used once, more than once, or not at an.		
**Independent Variable **Observatio	n ** Model '	** Hypothesis **
** Data **Dependent Variable**Quantitative ** Qualitative		
**Several**Scientific Theory** One**		
WORD BANK		
This first thing a scientist does when engaging in the s	cientific met	hod is to make a(n) 1.
. Next, the scientis	st comes up v	with a question and then
develops a 2 or a j	possible testa	ble answer to their scientific
question. A scientist will then begin to plan their investigation so they can collect valid		
3 which can be a r	neasured <b>nu</b>	merical value that is
4 or the data could	be 5	which
is based on qualities or <b>characteristics</b> . To create a valid experiment the scientist should test		
6 variable(s) at a time. The v	ariable being	manipulated by the scientist
is called the 7 While the variable being measured is called the		
8 Once a scientist pe	rforms the in	vestigation, they can use the
information they collected and create a 9		_ 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		

## Matching: 10 points

- 11.\_\_\_\_ Tipping Point
- 12.\_\_\_\_ control group
- 13.\_\_\_\_ Compounds
- 14.\_\_\_\_\_ dependent variable
- 15.\_\_\_\_ Potential Energy
- 16.\_\_\_\_ Chromosome
- 17.\_\_\_\_ Renewable Energy
- 18.\_\_\_\_ Macromolecules
- 19.\_\_\_\_ Nucleic Acids
- 20.\_\_\_\_ Organic Compounds

- A. Energy gained from resources that are replenished by natural processes in a relatively short period of time.
- B. The variable that is being measured to determine the effect of the independent variable
- C. Combinations of two or more different elements held together in fixed proportions. Water: H2O
- D. sugar, vitamins, and most chemicals in your body are called these because they contain at least two carbon atoms combined with other atoms.
- E. Complex macromolecules that store and transmit genetic information, DNA and RNA
- F. Large complex organic molecules essential to life. Proteins, Carbohydrates, Lipids, Nucleic Acids
- G. serves as a comparison for evaluating the effect of the treatment. The standard for comparison of normal
- H. 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.
- I. long, continuous thread of DNA that consists of numerous genes and regulatory information
- J. stored energy and potentially available for use

## **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. Electromagnetic radiation
  - D. 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. Organic Compounds.
  - C. Heat (Thermal) Energy
  - D. 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 D. 1

- 24. Law of conservation of energy (can't be created or destroyed) is
  - A. The First Law of Thermodynamics
  - B. The Second Law of Thermodynamics
  - C. Kinetic Energy
  - D. Positive Feedback

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

- A. Chemical Reaction
- B. Chemical Formula
- 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. Mass Number

D. 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
  - D. Inputs

- 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
  - D. Predictions, observations, questions, 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
  - D. Thermal Energy
- 30. Energy travels in the form of a wave because of changes in electrical and magnetic fields. Gamma rays, X-rays, radiation, ultraviolet rays and radio waves are best characterized as
  - A. Renewable energy
  - B. Nonrenewable Energy
  - C. Macromolecules
  - D. Electromagnetic Radiation

## **Critical Thinking**

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



A. Which beaker number (1-5) does  $H_3O^+ = OH^-?$ 

• What do we call this solution?\_\_\_\_\_

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

• Does it contain more H<sub>3</sub>O<sup>+</sup> or OH<sup>-</sup> ions?\_\_\_\_\_

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

• Does it contain more H<sub>3</sub>O<sup>+</sup> or OH<sup>-</sup> ions?

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. \_\_\_\_ Corn growth is limited by available nitrogen.
- 2. \_\_\_\_\_ 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. \_\_\_\_\_ For every action, there is an equal and opposite reaction.
- 4. \_\_\_\_Decomposers replenish the nutrients in the soil.
- 5. \_\_\_\_ 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. \_\_\_\_0

- 4. \_\_\_\_\_CO<sub>2</sub> 5. \_\_\_\_\_C