Name: _____ Period: _____ Date: _____

Biology Mid-Year Review: Intro and Biochemistry

Topics:

- Scientific Method
- Characteristics of Life
- Levels of Organization
- Atoms
- Water
- Acids and Bases
- Enzymes
- Macromolecules

Scientific Method

SpongeBob noticed that his favorite pants were not as clean as they used to be. His friend Sandy told him that he should try using Clean-O detergent, a new brand of laundry soap she found at Sail-Mart. SpongeBob made sure to wash one pair of pants in plain water and another pair in water with the Clean-O detergent. After washing both pairs of pants a total of three times, the pants washed in the Clean-O detergent did not appear to be any cleaner than the pants washed in plain water.

a. What is the control group? _____
b. What is the experimental group? _____
c. What is the manipulated (testing) variable? _____
d. What is the responding (measuring) variable? _____
e. What should SpongeBob's conclusion be? _____

Characteristics of Life

Use the following word bank to complete the descriptions of the Characteristics of Life:

Homeostasis	Adaptation	Reproduce	Cells	Growth
Stimuli	Development	Energy	DNA	Response

A. _____ results in an increase in height (ex: you get taller). _____ results in a change (ex: a caterpillar becomes a butterfly)

B. All organisms keep stable internal conditions by a process called _____ (ex: your body temperature stays at 98.6. If your body temperature goes up, you start to sweat to get your temperature back down to 98.6.)

C. All living things have _____ inside their cells to give them their traits such as hair color and eye color.

D. _____ are inherited changes that occur over time that help a species survive. (ex: over many generations, polar bears changed to having white fur to survive in the arctic)

E. All organisms are made of one or more _____. (ex: this is the most basic unit of life)

F. Organisms _____ to pass along their genes from one generation to the next. If they don't do this, then the species will eventually become extinct

G. All organisms need _____ to survive. (ex: we get it from food, plants get it from the sun)

H. Organisms respond to their environment. For example, a plant called the *Mimosa* closes its leaves when something touches them. The touch is an example of a _____, and the plant's reaction of closing its leaves is called a _____

Levels of Organization
What are the 6 levels of organization?

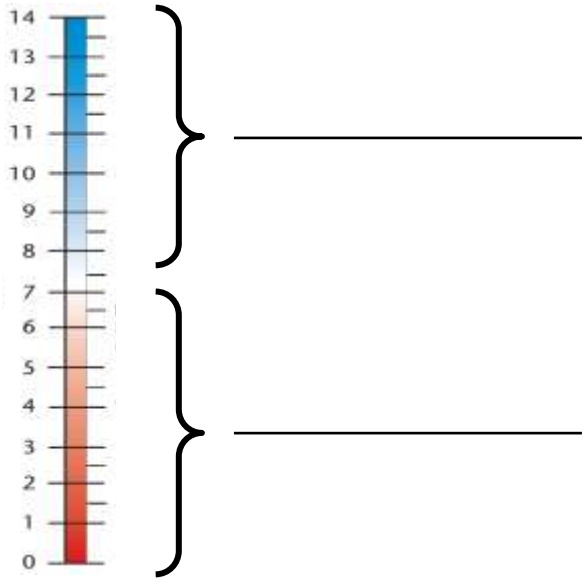
Atoms
Fill-In-the-Blank
Fill in the blank with "protons", "electrons", or "neutrons". The words may be used more than once.

1. _____ and _____ are located in the nucleus of an atom
2. _____ are located in energy levels (shells) outside of the nucleus
3. Mass number = _____ + _____

Water
Sketch a water molecule (label the hydrogens and oxygen) and show that water is polar by labeling which atoms of a water molecule are positive and negative.

What's the difference between cohesion and adhesion?

Acids and Bases
1. Water is neither an acid nor a base. It is neutral. What is water's pH? _____
2. On the picture of the pH scale below, label which end is acidic and which end is basic



Enzymes

1. Enzymes _____ (choose one: **speed up** OR **slow down**) chemical reactions by _____ (choose one: **lowering** or **increasing**) the activation energy needed to start the reaction.
2. What are some factors that affect enzymes (*hint: think about the Toothpickase lab)* – list 3.

Macromolecules

1. What is the monomer of carbohydrates? _____
2. What are 3 functions of carbohydrates?
3. What is the monomer of lipids? _____
4. What are 2 functions of lipids?
5. What are 4 examples of lipids?_____
6. What is the monomer of proteins? _____
7. What are 3 functions of proteins?
8. What is the monomer of nucleic acids? _____
9. What is the function of nucleic acids? _____
10. What are 3 examples of nucleic acids? _____