

Name: _____

Period: _____ Date: _____

Spring Break Assignment 2014

Rationale: Remember, when we return from school the HSA will only be ~20 classes away.
We must practice over spring break in order to do our best.

Directions: Answer the following questions on notebook paper and attach to this sheet. This will be graded as a PROJECT for 4th Quarter, and is worth 150 POINTS.

UNIT 0--Thinking like a Scientist (____/10 points)

In this section you will use your scientist skills to conduct an experiment. Choose one of the research questions below to complete the tasks that follow.

Circle the question that you are going to investigate.

- A. Are there more stray cats or dogs in your neighborhood?
- B. Are there more cars or vans on your block?
- C. What kind of trash do people throw on your street the most (potato chip bags, bottles, cans, etc.)?

Answer the following questions for the question that you investigate:

- 1. Write your hypothesis (If....Then...)
- 2. Identify the independent and dependent variables
- 3. List the safety materials that you need.
- 4. Create and fill in a data table.
- 5. Graph the data using the appropriate graph.
- 6. Write a conclusion.

UNIT 1--Chemistry of life (____/5 points)

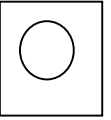
- Imagine you are a responsible father/mother writing an email to your son who is a freshman at Salisbury State University. Choose 3 vitamins or minerals that you will remind your son to eat. Why are these vitamins or minerals important for your son? What food does he need to eat to get these vitamins or minerals?

UNIT 2 (a)—Cells (Complete both)

- Match the Organelles to their function. (____/5 points)
- Create Flashcards for the following cell parts. Be sure to say if they are found in plant, animal or bacteria cells. (____/15 points)
 - 1. Cell Membrane
 - 2. Cell Wall
 - 3. Mitochondria
 - 4. Chloroplast
 - 5. Vacuole
 - 6. Contractile Vacuole
 - 7. Ribosome
 - 8. Nucleus
 - 9. Flagella
 - 10. Cilia
 - 11. Pseudopodia
 - 12. Cytoplasm
 - 13. Lysosome
 - a. Makes ATP by Cell Respiration
 - b. Storage space
 - c. Provides structural support
 - d. Site of protein synthesis
 - e. Holds all organelles in place
 - f. Control center of the cell
 - g. Site of photosynthesis
 - h. Whip-like structure used for movement
 - i. Hair like structure used for movement
 - j. Control what moves into and out of the cell
 - k. Maintains water balance in single cell organism
 - l. Digest Cell Waste
 - m. False feet used for movement

UNIT 2 (b)—Homeostasis (Complete both) (_____/10 points)

- Your mom wants you to make sweet tea. She suggests you heat up the water before adding the sugar and tea bags. She tells you it will be faster. Is your mom right? Why?
- Your grandma has a pot of flowers growing on the front stoop, and asks you to water them. Predict what would happen to the flowers if you water them with salt water. Why? (HINT: Draw a beaker with a cell....)



UNIT 2 (c)—Energy (Complete both) (_____/10 points)

- You are the mitochondria. Write the chloroplast a valentine explaining why you two are such a good match to support one another.
- Create a cartoon of a rabbit getting ready to eat a carrot. Label the processes, reactants and products that the carrot and rabbit use to obtain energy and show how they depend on each other.

UNIT 3—Body Systems (_____/5 points)

- Imagine that you are the excretory system. Tell a BLT sandwich the journey it will go through in the digestive system before it reaches you.

UNIT 4—Reproduction: Mitosis and Meiosis (Choose 1) (_____/5 points)

- You are a Mommy yeast cell, your daughter is turning 12 and you think it's time that she understands where she came from. Send her a birthday card that share the "bird and the bees" of yeast reproduction. (*Remember, yeast reproduce asexually!*)
- You are a zygote with 46 chromosomes. Draw an appropriate life map to teach a sperm cell how he can one day be just like you

UNIT 5- Genetics (Choose 1) (_____/5 points)

- Describe your favorite trait about yourself. Is it inherited or acquired? What will you have to do to pass that trait onto your children?
- Make up your own punnett square problem using a trait that runs in your family.

UNIT 6—Evolution (Choose 1) (_____/5 points)

- When we get back from Spring Break, we will talk about how organisms are classified (named and organized) in Biology. Make a poem that mentions at least 3 things you classify at your house. Think about how your kitchen or closets are organized.
- Write a brief news article about a crime scene and evidence that was found at the scene. How will forensic scientist determine which of the suspects committed the crime.

UNIT 7—Ecology (Complete both) (_____/10 point)

- A "niche" is the role of an organism in its habitat. Pick two animals and describe their niche.
- Describe or diagram the biotic (living) and abiotic (non-living) factors that exist in your neighborhood.

Trivia Questions (____/30 points) Answer the following trivia questions relating to each unit.

- Macromolecules

1. In order for something to be organic, it must contain what element? _____
2. The macromolecule that supplies short-term energy is _____
3. Proteins are made of this monomer, or building block: _____
4. Aquatic (water) birds have a waxy coating on their wings that repels water. This substance is made of mostly what type of macromolecule? _____
5. What are the 3 parts of a nucleotide? _____, _____, _____

- Cellular Respiration

6. What are the products of cellular respiration? _____, _____, _____
7. In what organelle does ATP production take place? _____
8. What is the energy carrier molecule used by the body? _____
9. What two molecules are required to produce ATP? _____, _____
10. If there is no oxygen present, cells undergo what type of cellular respiration? _____

- Photosynthesis

11. Photosynthesis transforms _____ energy into chemical energy.
12. What are the reactants of photosynthesis? _____
13. Organisms that do photosynthesis are considered _____, or “self-nourishers.” Not to be confused with heterotrophs, who cannot make their own glucose.
14. In plants, photosynthesis takes place in what organelle? _____
15. What are the two products of photosynthesis? _____, _____

- Homeostasis

16. What is homeostasis? _____
17. What organelle is maintains homeostasis at the cellular level? _____
18. What process moves oxygen across the cell membrane? _____
19. What process moves water across the cell membrane? _____
20. Molecules move across a membrane from _____ concentration to _____ concentration.

- Organelles

21. What organelle is the control center of the cell and contains DNA? _____
22. Cells moving with “false feet” look like a blob, and are using their _____
23. What organelle makes proteins to be used by the cell? _____
24. What organelle stores food and water in the cell? _____ Is it larger in plant cells or in animal cells? _____
25. What organelle in plant cells converts solar energy to chemical energy? _____

- Reproduction

26. What are the two types of reproduction? _____
27. How many parents are needed for asexual reproduction? _____
28. Asexual reproduction makes new cells through the process of _____, which is also necessary when making new cells for growth, repair, and replacement.
29. How many parents are needed for sexual reproduction? _____
30. Are the offspring of asexual reproduction identical or unique? _____

Summary Day (Complete both) (____/10 points)

- Describe a situation that happened over spring break that had a connection with something that we talked about in biology class this year.
- Think about all of the days that you've spend in Biology class so far this year. What is your most vivid class memory? Why do you think that day sticks out in your mind?

Punctuality (____/25 points)

Your Project was submitted ON TIME.

**DUE DATE: Friday, April 25th,
2014**

Total score: ____/150 points
____%