Unit 1 Test

STEM Biology/Biotechnology

Take Home Portion

**Chapter 1**

1. (Take home)Many people add fertilizers to house or garden plants. Make a hypothesis about whether you think adding fertilizers helps plants grow. Design an experiment to test your hypothesis. Include what variable(s) you will test and what variables you will control. Include steps in the procedure and materials. Note: There are many different types of fertilizers and they usually have both nitrogen and phosphorus in them at different ratios depending on the types of plants they are used for.

**Chapter 2**

1. (Take home)At a yearly convention individual atoms describe their recent experiences. Assume you are an oxygen atom that started out as an O2 molecule, spent some time in a water molecule, then in a carbonic acid molecule then finally in a molecule of CO2. Write a speech describing the chemical reactions you experienced and the other molecules you met along the way.

**Chapter 8**

1. (Take home)Imagine that you are an oxygen molecule and two of your friends are hydrogen atoms. Together you make up a water molecule. Describe the events and changes that happen to you and your friends as you journey through the light dependent reaction and Calvin Cycle of photosynthesis. Include illustrations with your description.
2. (Take home)Design an experiment that uses pond water and algae to demonstrate the importance of light energy to pond life. Include independent and dependent variables, steps of procedure and materials.

**Chapter 9**

1. (Take home)Would individuals who carry out regular aerobic exercise suffer less muscle discomfort during intense exercise than other individuals? Outline an experiment that could answer this question.
2. (Take home)Use an analogy (like bank deposits and withdrawals) to explain cellular respiration
3. (Take home)Make one or more diagrams, drawings or cartoons with labels or captions to show how two athletes get energy. The first athlete runs for 30 seconds, the second runs for 20 minutes. Be sure to show what type of respiration is occurring.