**Science Lesson Plan**

**Lesson Objectives:** this lesson will combine life science, earth science and physical science to give students a basic understanding of life processes.

**Time:** 2 hours or longer

At the end of this lesson students will be able to…

**Depth of Knowledge objectives:**

● describe scientific concepts.

● explain the relationship between facts.

● classify organize or estimate.

● relate ideas among different content areas.

**Scientific Practices**

● integrate content in diverse ways.

● determine details and making inferences.

● analyze structures.

**Life Science Practices:**

● understand the relationship between life functions and energy in-take.

**Earth Science Practices**

● understand the interaction between Earth’s systems and living things.

**Physical Science Practices**

● understand chemical properties and reactions related to living systems.

**Class Starter:** Write this question on the board: What are the different ways Earth supports life? Have students brainstorm answers and write them on the board.

**Introduction:** Today we are going to look at two specific ways Earth supports life: Cellular Respiration and Photosynthesis. First we are going to learn some science vocabulary that will be necessary for our understanding of these two important scientific concepts.

**Assignment 1:**  Tell students they will be working in pairs to identify the definition with each vocabulary word. Give each pair one copy of handout 1 so they are forced to work together. Give students 10 minutes to complete the assignment. Go over answers together as a class.

**Assignment 2:** This time have students work in groups 3 or 4. Distribute the reading on photosynthesis and cellular respiration. Also give each group a copy of a Venn diagram. Assign roles for each student: reader, recorder and presenter. Tell the groups that they are to look for the similarities and differences between the two life processes. Give students 15 minutes to complete assignment and then have each group share what they discovered.

**Assignment 3** Give students a basic understanding of chemical equations for each life process. Explain that this is physical science. Explain the different element symbols for photosynthesis and cellular respiration. Explain that knowing how to read, write and balance chemical equations helps you describe the changes that occur during chemical reactions. Write the equations on the board; circle the different molecules that are part of the life process. Notice how in each equation energy is required to start the reaction. In photosynthesis it is sunlight in CR it is glucose. Give each student a half sheet of pair and have them write a paragraph explaining how plants need animals and animals need plants. Have them read their paragraphs in groups.

**Assignment 4**

In the same groups have student create a colorful visual that shows photosynthesis. Tell students to include in the visual all the things that are necessary for photosynthesis to take place. They also must use the equations in their picture. Put up visuals around the classroom. also require some amount of activation energy, or energy that reactants must have to begin changing. Once the change begins the result is a new product. The product has different chemical and physical properties.

Know how to read, write and balance chemical equations helps you describe the changes that occur during chemical reactions.

**Evaluation:** Assign students to write a paragraph about photosythesis and cellular respiration and a paragraph about how they are interconnected.