LESSON 9: PARTS OF PLANTS

TEACHER GUIDE

BACKGROUND INFORMATION

- Plants are made up of roots, stems, leaves, often flowers, and usually seeds and fruit.
    - The roots absorb water, oxygen and nutrients from the soil, and secure the plant to the ground.
    - The stems transport the water and nutrients throughout the plant, and provide support.
        - Not all plants have stems. Stems are found in vascular plants. Vascular plants have a vein system to transport water and nutrients throughout the plant.
        - Some plants are sprawling, and therefore do not need a stem.
    - Leaves absorb sunlight. The plant then turns this sunlight into sugar for food through a process called photosynthesis.
        - Proteins in the plant's leaves absorb carbon dioxide and covert that carbon dioxide into sugars. The plant releases oxygen as a waste product of photosynthesis.
    - Flowers contain the reproductive parts of the plant (the eggs and pollen).
        - Pollen is found on the stamen of the flower. Pollen is essentially the sperm cells.
        - Pollen is transferred to the female part of a plant called the pistil. This is done by a pollinator such as a bee.

- Seeds house the new baby plant.
    - Seeds are comprised of a shell, which functions as a protective coating, the embryo (the new plant) and often a source of food for that embryo.
- The fruit is the encasement for the seeds. Peppers and avocadoes are examples of fruits.
    - Not all plants produce fruit however. Some plants produce seeds, or go through other forms of reproduction, without the fruit.

LESSON OBJECTIVES

- To understand what a plant does to survive and reproduce in a macro sense.
- To introduce the basic make-up of plants.
- To familiarize the students with how a plant uses each of its parts to perform functions necessary to its survival.
- To be able to successfully identify and represent each part of a plant.

LESSON MATERIAL

- Several small plants which are easy to draw and identify the parts of. You may decide to use plants from your aquaponics system.
- Blank sheets of paper for each student to draw their plant.
- Drawing materials. This may include: pens, pencils, colored pencils, markers and rulers.
- Copies of the assessment.

ASSESSMENT ANSWER KEY

1) The free response questions' answers will depend on the depth of answer you are looking for. Basic answers can be gotten from the "background information" section.

2) The true/false question is **true**

LECTURE AND DISCUSSION

- Begin the class by asking the students: what do you think plants do?
    - Plants take-up water and nutrients, absorb sunlight and reproduce (power point)
- Given the previous brainstorm, ask the students: what are the parts of the plant, and what do each of these parts do?
    - Plants have roots. Roots are used to take up water, oxygen and nutrients from the ground. They also anchor the plant into the ground so it can stay in place. (power point)
- Plants have stems. Stems transport the water and nutrients to the rest of the plant. They also help the plant stay upright. (power point)
- Plants have leaves. Leaves are used to capture sunlight. Plants use sunlight to create their food through a process called photosynthesis. (power point)
- Many plants have flowers. This is where the reproductive parts, the eggs and the pollen, are contained. (power point)
- Most plants have seeds. Seeds are where the new plants are contained. (power point)
- Plants have fruits. A fruit is the casing for the seeds. These can be fruits we normally think of, like peaches or apples, but can also be hard, like for a walnut. The definition for fruits does not just include the common fruits from the grocery store! (power point)

ACTIVITY

- Divide the class into groups of 3-5.
- Give each group a plant to draw, a blank piece of paper and drawing utensils.
- Have the students draw their plant, and label their drawing with all of the parts discussed in class.

CONCLUSION

- Start with a blank board.
- First ask the students to brainstorm all of the parts discussed.
- Once the list is complete, ask the class to recall the functions of each of the parts.
- Fill in anything the class misses, and discuss those oversights once more.

EXTENSION

- Science – Going over the parts of a plant opens an opportunity to discuss plant functioning in greater detail, namely photosynthesis, reproduction and seed dispersal.
- Art – Plants can be used as a model for many different types of art projects such as pottery, painting and sculpting (perhaps out of pipe-cleaners).

Name_____ Date_____

ASSESSMENT 9 – PARTS OF PLANTS

Describe the function of each of the following plant parts:

- Roots –
- Stem –
- Leaves –
- Flowers –
- Seeds –
- Fruits –
- A walnut shell is a fruit: (circle one)
    - o True
    - o False