PLANT PHYSIOLOGY 101

Exploring Plant Parts through Plant Physiology
Lesson Plan

Objectives:

1. Students will gain an understanding of plants physiology by identifying plant parts and recognizing their functions.

Preparation Time: 5–10 minutes 5-7 days prior to the lesson; 5–10 minutes on the day of the lesson
Teaching Time: 25–30 minutes
Clean-up Time: 5–10 minutes

Materials:

- ☐ Plain paper
- ☐ Crayons or markers
- ☐ 1 celery stalk
- ☐ Blue food coloring
- ☐ Red food coloring
- ☐ 2 clear cups or beakers
- ☐ Water
- ☐ Plastic cup or container
- ☐ Cotton balls
- ☐ Grass seeds
- ☐ Plant Parts Scramble worksheet (optional)
- ☐ Pencils

Methods:

I. Plants have parts that work for them just like we have body parts that work for us.
II. What parts do plants have? Roots, stems, leaves, flowers, and seeds.
III. Where are the parts located?
    a. Roots – below the ground
    b. Stems – the center of the plant where leaves and flowers are attached
    c. Leaves – on stems
    d. Flowers – at the end of stems
    e. Seeds – inside the flowers
IV. Help the students draw a generic plant with roots extending below the soil, a stem, leaves, and a flower (sunflowers are great examples because most students will be able to recognize a sunflower plant).
V. What does each plant part do?
    a. Roots – hold the plant in the ground, suck up water and nutrients
        i. There are two kinds: taproots which are single thick roots, and fibrous roots which are made of many thin branched roots
    b. Stems – hold up the leaves and flowers, help transport water and nutrients around the plant

        i. There are two types of transporters in the stems: xylem which carries water up from the roots, and phloem which carries food down from the leaves; xylem and phloem are much like our blood vessels because they transport blood all over our body all the time
    c. Leaves – make food for the plant using chlorophyll
    d. Flowers – make seeds
    e. Seeds – make new plants
VI. Some of the food we eat is a particular plant part.
    a. Carrots are whole taproots
    b. Celery is a plant stem
    c. Cabbage and lettuce are plant leaves
    d. Fruit is actually a plant's flower; many fruits have seeds inside and we said seeds are inside of plant flowers
    e. Peanuts are plant seeds
VII. If celery is actually a plant stem, then it must contain xylem and phloem, right? Observe the xylem of celery by slicing the bottom half to three-fourths of a celery stalk lengthwise. Place half of the celery stalk in blue colored water and half in red colored water. At the top end of the stalk where it is not cut in half, the students should be able to see half blue xylem and half red xylem. Celery has very large, rigid xylem tubes making observation fairly easy.
VIII. Seeds make new plants, right? Observe new plants grown from seed by looking at grass seeds. 5-7 days prior to the lesson, line the bottom of a plastic cup or container with cotton balls. Completely soak the cotton balls with water, but do not allow standing water. Sprinkle grass seeds over the cotton balls and place near a window. Wet the seeds and cotton each day to aid in seed germination. On the day of the lesson, the student should be able to see green grass leaves coming from the seeds or seed hulls.

Evaluation Questions:

1. Where are the flowers located on a plant?
2. Where can you find plant seeds on a plant?
3. What plant parts hold a plant in the soil?
4. What is the function of plant leaves?
5. What plant part transports water around the plant?

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PLANT PARTS SCRAMBLE

1. MTSE
   I hold up the plant. This makes sure that the leaves and flowers reach the sunlight.

   Which part am I? _____

2. ROWLFE
   I am a colorful part where the plant makes it seeds. I have petals.

   Which part am I? _____

3. TORO
   I slurp up water and minerals from the soil. I also hold the plant in place.

   Which part am I? _____

4. AFLE
   I make food for the plant from air, water, and sunlight.

   Which part am I? _____

5. DESE
   I am the part with a hard outer covering. A baby plant is inside of me.

   Which part am I? _____