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Lesson Plan: Plant Detectives

Grades: 4 – 5

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(Lesson edited and formatted by Real Curriculum, Inc.)

Summary	Students learn about structures and functions of the parts of a flowering plant through instruction, observation, and poster presentations.
Topic(s)	• Skills of a Scientist: Observation, collection and presentation of information about specimens • Life Science: Plant structures and functions • Life Science: Reproductive structures of flowering plants
Concepts	• Relatives (explicit) • Morphology (implicit) Note: "Explicit" refers to concepts which are named and discussed in the course of the lesson; "implicit" refers to concepts which students experience in the course of the lesson but which are not named and discussed.
Knowledge and Skills	• Types and functions of roots, stems and leaves • Reproductive structures of flowering plants
Equipment and Materials	• Flowering plant • Smartboard templates (Venn diagram and web) • Attribute circles for classifying activities • Scope on a rope™ (soar) • Examples of each type of leaf, root, and stem • Examples of different flowers • 4 index cards labeled with roots, stems, leaves, and flower • Project process sheet • Poster boards (one per student groups) • Glue, colors, markers, etc.
Duration	2–3 days

Standards (Louisiana Framework):

- Ask questions about objects and events in the environment (e.g., plants, rocks, storms) (SI-E-A1)

- Pose questions that can be answered by using students' own observations, scientific knowledge, and testable scientific investigations (SI-E-A1)
- Use observations to design and conduct simple investigations or experiments to answer testable questions (SI-E-A2)
- Use a variety of appropriate formats to describe procedures and to express ideas about demonstrations or experiments (e.g., drawings, journals, reports, presentations, exhibitions, portfolios) (SI-E-A6)
- Recognize that a variety of tools can be used to examine objects at different degrees of magnification (e.g., hand lens, microscope) (SI-E-B3)
- Explain the functions of plant structures in relation to their ability to make food through photosynthesis (e.g., roots, leaves, stems, flowers, seeds) (LS-E-A3)
- Identify reproductive structures in plants and describe the functions of each (LS-E-B1)
- Sequence stages in the life cycles of various organisms, including seed plants (LS-E-B1)
- Classify examples of plants and animals based on a variety of criteria (LS-E-B2)
- Compare similarities and differences between parents and offspring in plants and animals (LS-E-B3)

Learning Objectives:

- The learner will compare and contrast plants and animals.
- The learner will identify parts of a flowering plant.
- The learner will classify types of leaves, stems, and roots.
- The learner will identify reproductive parts of a flowering plant.

Procedure:

Anticipatory set

The teacher will show students a flowering plant. The teacher will introduce the plant as a "relative".

The learner will identify meaning of the word "relative".

The teacher will lead the students in a discussion on relatives and whether or not they believe that the teacher and the plant are related.

The learner will complete a Venn diagram (Smartboard template or other source) comparing and contrasting plants and animals.

The teacher will tell students that they are about to learn more about plants and plant parts.

Lesson

The learner will brainstorm ideas for the question – what parts make up a flowering plant? (roots, stems, leaves, and flowers)

The teacher will record ideas on a web (Smartboard template or other source)

The teacher will tell the students that just like animals, plants have different parts. They may look different on different plants, but they are important for the survival that plant.

The teacher will divide students into groups and take students around campus to search for plant parts. (Note: Be sure students do not destroy decorative plants around campus!)

The learner will search and collect samples of the plant parts with their groups. (The teacher will have samples of each in case some are not located on campus.)

The learner will return to class and classify examples into the attribute circles labeled with roots, stems, leaves, and flowers.

The teacher will discuss the functions of each plant part and identify different types of each part:

1. Roots
    - The learner will identify the roots on the plant used in the introduction of the lesson.
    - The teacher will use the SOAR to examine the different roots collected.
    - The teacher will and the learner will classify the roots according to their appearance. (tap roots and fibrous roots)
    - The teacher will and the learner will discuss functions of roots.
    - The learner will brainstorm plants with each type of root.
    - The learner will draw an example of each root for future reference.

2. Stems
    - The learner will identify the stem on the plant used in the introduction of the lesson.
    - The teacher will use the SOAR to examine the different stems collected.
    - The teacher will and the learner will classify the stems according to their appearance. (woody and waxy)
    - The teacher will and the learner will discuss functions of stems.
    - The learner will brainstorm plants with each type of stem.
    - The learner will draw and color an example of each stem future reference.
3. Leaves
    - The learner will identify the leaves on the plant used in the introduction of the lesson.
    - The teacher will use the SOAR to examine the different leaves collected.
    - The teacher will and the learner will classify the leaves according to their appearance. (simple, compound, broad, and needle)
    - The teacher will and the learner will discuss functions of leaves.
    - The learner will brainstorm plants with each type of leaf.
    - The learner will draw and color an example of each leaf future reference.
4. Flowers
    - The learner will identify the flower on the plant used in the introduction of the lesson.
    - The teacher will use the SOAR to examine the different flowers collected.
    - The teacher will and the learner will identify the parts of the flowers collected.
    - The teacher will and the learner will discuss functions of these parts.
    - The learner will brainstorm different types of flowers seen around Louisiana.
    - The learner will draw and color an example of a flower and its reproductive parts for future reference.

Guided practice/monitoring

The teacher will divide students into four groups.

Each group leader will pull a plant part from a "hat" (roots, stems, leaves, and flower).

The teacher will take students around campus to search for their assigned plant parts. They are to locate the different types discussed in class.

The learner will return to class and follow a process sheet given to create a poster with their group correctly identifying each type of root, stem, or leaf found. The flower group will create a poster correctly identifying each part of the flower.

Each group will share their posters with the class.

Closure

The teacher will call on students to come up and use the SOAR to locate a specific plant part and correctly identify its importance to the plant.

The teacher will continue until all students have had a chance to use the SOAR.

Independent practice

The teacher will use the SOAR to focus on a specific plant part or flower part.

The learner will record correct plant or flower part on his/her sheet along with its type and function.

The learner will continue this process to cover all types learned in lesson.

The teacher will go over the correct answers when finished.

The teacher will inform students of the following day's lesson – plant adaptations.

Assessment

- Teacher observation
- Classifying activity
- Poster project
- Independent practice activity