



Lesson: Roots and Leaves

Name:

Teacher:

Date:

Roots and Leaves Lesson Plan

NGSS Benchmark:

SC.3.L.14.1 – Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.

Objective

- Explain the role of roots in absorbing water and anchoring plants.
- Describe transpiration and its importance to plants.
- Observe condensation as evidence of transpiration.

Materials

- PowerPoint: Roots and Leaves
- Reference video (STEM Scholars Hub)
- Assorted plant roots (e.g., carrots, radishes)
- Clear plastic bags
- Tape
- Spray bottles
- Observation sheets
- Access to STEMScholarsHub.net

Procedure (50 minutes)

1. Introduction (15 min)

- Present visuals of roots and leaves and their functions.
- Play a short video explaining water absorption and transpiration.
- Show a real plant or diagram; ask students:
“What do you think roots and leaves do for the plant?”
- Spray water on a leaf and cover it with a plastic bag. Ask:
“What do you think will happen?”
- Distribute observation sheets.



2. Experiment: Transpiration Demonstration (15 min)

- Students tape clear plastic bags over leaves on a plant or cut branch.
- Explain:
“This will help us observe how leaves release water vapor.”
- Provide assorted roots for students to examine and record their functions.

3. Observation (10 min)

- Students record predictions:
“What do you think will happen inside the bag?”
- Observe condensation forming in the plastic bags and note early results.

4. Generalization (5 min)

- Discuss:
 - What did you notice in the bag?
 - How do roots and leaves work together?
- Reinforce how these structures help plants survive.

5. Assessment (5 min)

- Assess learning through quiz performance and participation.

Safety Guidelines

- Handle spray bottles carefully to avoid spills.
- Students should avoid touching their faces during the activity.
- Wash hands after the experiment.
- Monitor material use, especially with younger students.

Accommodations

- **ELL:** Provide dual-language labeled diagrams and vocabulary support.
- **ESE/504:** Pair students with supportive peers; simplify steps; allow extra time; ensure materials are within easy reach.