

**Virginia Essentialized Standards of Learning (VESOL)
Instruction Resource
Grade 5 Science Sample Activities**

Grade 5 Science: Living Systems and Ecosystem Interactions (LSEI)

| VESOL Code | VESOL Reporting Category | VESOL Text | Complexity Continuum |
|------------|--|--|--|
| S-5 1 | Living Systems and Ecosystem Interactions (LSEI) | Recognize that plants need light, air and water to grow. | Using simple pictures, diagrams, or representations, concepts could range from: <ul style="list-style-type: none"> • recognizing plants (e.g., plants, trees, and flowers) need light, air, and water to grow <i>to</i> • identifying simple parts (e.g., roots, stems, leaves, flower, fruit) of plants that help them get light, air, and water <i>to</i> • comparing growth of plants when given appropriate or inappropriate amounts of light, air, and water |

Instructional Example

Objective: Recognize that plants need light, air, and water to grow.

Vocabulary: plants, light/sun, air, water, trees, flowers, roots, stems, leaves, yes, no

Materials: *Sample activities range across a continuum of complexity and may include materials such as:* recycled student milk containers or small pots, seeds, watering can or pouring vessel, water
 3D objects/pictures, picture symbols for vocabulary listed above
 Distractor 3D objects/pictures, picture symbols choices, such as bicycle, swimming pool, book, pizza, ice cream, dog, cat, binoculars, flashlight, umbrella, sunglasses etc.
 Diagram will movable words to label parts of a plant

Procedures for Instruction:

These instructional activities can be used at various points on the complexity continuum, depending upon student ability. Many possibilities exist for lesson creation between the examples presented here. It is important to start instruction where the student is currently functioning and implement the appropriate instructional strategy with them. Once data indicate that the student is ready for the next level of instruction, proceed to it after reviewing the level the student has mastered. Let the data be your guide.

Sample Activity 1

Provide explicit instruction on what plants need through [story](#) or [video](#) or [song](#).

Provide core vocabulary instruction using student's effective communication system, such as: **Sun/Light**-gives plants energy to grow, **Water**-gives plants drinks to grow and **Air**-lets plants breathe.

Complete classroom experiment to demonstrate all three elements are necessary or plants will die.

Model and use least-to-most prompts for students to:

- plant a seed in soil in a milk carton or cup
- repeat procedure so each student has two planted seeds
- place one planted seed on the window sill
- place other planted seed in one of three conditions:
 - No light: place in the closet with a paper bag over it
 - No water: place on desk or windowsill but do not water
 - No air: put the planted seed in a clear plastic bag, compress all air from the bag, seal tightly, and place in a light traffic area

Create and maintain class pictograph of science experiment displaying "yes/no" or healthy/wilted plant results. Students select "yes" or "no" to answer the daily question, "Is the plant growing?" for three weeks.

| Condition | Day 1 | Day 3 | Day 5 | Day 7 | Day 10 | Day 12 | Day 14 |
|------------------|-------|-------|-------|-------|--------|--------|--------|
| Sun + light+ air | | | | | | | |
| No light | | | | | | | |
| No water | | | | | | | |
| No air | | | | | | | |

Students count to see which condition was best for plants to grow, then generalize that knowledge by selecting that condition in picture or written form from a field of three choices. Students practice selecting what a plant needs to grow from a field of three choices

Sample Activity 2- [Discrete Trial Teaching](#)

Phase 1

- Place a 3D sun/light model on the table/student desk. Touch and say "light"
- Give direction, "show me sun/light." Use [least-to-most prompts](#) to ensure the student touches "light."
- Repeat massed trials (sets of 5-10) until the student touches light with minimal prompts 80% of trials. Each time the student responds correctly, provide feedback, "Yes, sun/light gives plants energy to grow."
- Introduce distractor. Place the bicycle beside the sun. Touch and say "sun/light."

- Give direction, “show me sun/light” Use least to most prompts to ensure the student touches sun/light.
- Repeat massed trials (sets of 5-10) interchanging placement of bike and sun in the two fields until student touches sun/light with minimal prompts 80% of trials. Each time the student responds correctly, provide feedback, “Yes, sun/light gives plants energy to grow.”
- Introduce an additional distractor, such as ice cream, to create a choice field of 3. Touch and say “sun/light” to model correct choice selection.
- Give direction, “show me sun/light.” Use least-to-most prompts to ensure the student touches sun/light.
- Repeat massed trials (sets of 5-10) interchanging field placement of sun, bike and ice cream until student touches sun/light with minimal prompts 80% of trials. Each time the student responds correctly, provide feedback, “Yes, sun/light provides energy for plants to grow.”

Phase 2:

- Repeat above procedure, substituting “water” for sun and using dog, cat, and binocular distractor items, until the student touches water with minimal prompts 80% of trials. Each time the student responds correctly, provide feedback, “Yes, water gives plants drinks to grow.”

Phase 3:

- Randomized trials: Place three items on the desk/table, one of which is sun/light and one is water. Give direction, “Show me sun/light” or “show me water.” Use least-to-most prompts to ensure the student touches “sun/light” or “water” 80% of trials. Provide affirming feedback each time the student selects correctly, either “Yes, the sun gives plants energy to grow,” or “Yes, water gives plants drinks to grow.”

Phase 4:

- Repeat phase 2, substituting “air” for water. Place three items on the table/student desk. Model successful task completion: Give instruction, “Show me air” then select the picture symbol for air/breathe. Provide verbal model, “Air lets plants breathe”
- Randomized trials: Place three items on the desk/table, one of which is air and one is water. Give direction, “Show me air” or “show me water.” Use least-to-most prompts to ensure the student touches “air” or “water” 80% of trials. Provide affirming feedback each time the student selects correctly, either “Yes, air lets plants breathe,” or “Yes, water gives plants drinks to grow.”

Phase 5: Maintenance

- Randomized trials: Place three items on the desk/table, one of which is either sun, air or water, and two non-related distractors. Give direction, “Show me sun/light,” “show me water,” or “show me air.” Provide affirming feedback each time the student selects correctly, either “Yes, the sun gives plants energy to grow,” “Yes, water gives plants drinks to grow,” or “Yes, air lets plants breathe.”

Phase 6: Generalization:

- Use discrete trial/massed trial instruction to teach student to select correct grouping of objects symbolizing what plants need to grow
 - Use Velcro to create 3 choice cards with sets of 3 objects
 - one card that displays air, water and sun
 - one card that displays bike, ice cream and pizza
 - one card that displays bike, book and ice cream

- Use [least-to-most prompting](#) to teach student to select the choice card with air, water and sun from a field of 2 choices with 80% accuracy 4/5 trials
- Repeat above, expanding field choices to three

Notes: Encourage student communication with each trial. Example, when the student selects the sun correctly, let them hold it, say “Yes the sun gives plants energy” then ask, “What is this?” so that the student can verbalize or use a communication system to express the word “sun” and/or ask the student to supply the word energy in this sentence, “Yes, the sun gives _____ to plants so that they can grow.”

Sample Activity 3

Same as above, using real objects or picture symbols, and additionally teaching discriminations between types of plants (flowers, trees, plants) from other household items or living things. Consider using distractor picture symbols with related attributes to sun, air and water, (such as sunglasses, an umbrella or bubbles).

Sample Activity 4

Use match-to-sample teaching procedure to create a flower and match words to plant parts (roots, stem, petals, leaves)

- Brown yarn for roots
- Straw for stem
- Green cut-outs for leaves
- Cupcake holder for flow

Use [backward chaining](#) to teach student to label parts of a plan

Additional Resources:

Evidence-Based Instructional Practices:

[Evidence-Based Practices for Students with Significant Cognitive Disabilities](#)

[Discrete Trial Teaching AFIRM module](#)

[Discrete Trial Teaching Implementation Checklist](#)

[Least-to-Most Prompting](#)

[Task Analysis Step-by-Step Guide](#)

[Chaining](#)

What Plants Need and Parts of a Plant Instruction Resources:

[Plant Basic Needs](#) (Tar Hill Reader Story)

[Parts of a Plant for Kids](#) (Video)

[Plants need water, light and sun video](#) (Video/song)

[Parts of a Plant](#) (Video/song)

[Seed Jar Science Experiment for Kids](#)

Communication:

- [36 Location Universal Core Board](#)
- Core Vocabulary and Science: Core words that can be modeled and targeted during lessons:
 - Up (Plants grow up)

- More (water, soil)
- In (put seed in)
- get (seed packet, water, soil)
- See/look
- Not see (We do not see air)