

What Plants Need

Greenhouse Gate with Sproutling

Learning target

Explain plant needs using observations rather than treating soil as plant food.



Before you begin

Use the reference page and discussion prompts on their own, or open the optional browser adventure. No earlier lesson or physical kit is required.

For online play: use an internet-connected current browser with local storage enabled. Read the three-part Gemling briefing, answer the quick check, and apply the evidence at three checkpoints. Retry feedback supports review; results are not a secure test or gradebook.

Use for teacher-led review, science centers or partner practice. Independent readers may need support with the vocabulary below. The design target is grades 3-5; choose support based on the learner.

Vocabulary and concepts to discuss

Living things; water; light; air; space; suitable conditions

Open Greenhouse Gate - direct lesson link

Scan the QR code or use the clickable link. This guide is usable offline; the adventure runs on an external educational website.



What Plants Need - key ideas

1. The first clues

Plants are living things. Most green plants need light, water, air and suitable conditions to grow. Different plants have different needs.

2. How the clues connect

Plants make sugars using light, water and carbon dioxide from air. Soil supports roots and supplies minerals; it is not a bowl of ready-made plant food.

3. Our evidence record

Our record compares similar watered seedlings: one in light grows well, while one kept in darkness becomes weak. Changing the light condition addresses the recorded difference.

Keep the science accurate

Plants make food using light, air and water; soil supplies support/minerals, not ready-made plant food. No photosynthesis equation required.

Apply the evidence

Use a specific observation from this lesson to explain one choice. Point to a clue, then connect that clue to a scientific idea.

Curriculum reference: <https://www.nextgenscience.org/dci-arrangement/4-ls1-molecules-organisms-structures-and-processes>

Talk through the evidence

1. What can green plants use to make food?

Expected answer: Light, air and water

Reasoning: Plants make sugars using light, water and carbon dioxide from air. Soil supports roots and supplies minerals; it is not a bowl of ready-made plant food.

2. What does soil provide?

Expected answer: Support and minerals

Reasoning: Plants make sugars using light, water and carbon dioxide from air. Soil supports roots and supplies minerals; it is not a bowl of ready-made plant food.

3. Which care change fits our dark seedling?

Expected answer: Provide suitable light

Reasoning: Our record compares similar watered seedlings: one in light grows well, while one kept in darkness becomes weak. Changing the light condition addresses the recorded difference.

4. Do all plants need identical conditions?

Expected answer: No, needs vary

Reasoning: Plants are living things. Most green plants need light, water, air and suitable conditions to grow. Different plants have different needs.

Guide the discussion

Ask learners to name the evidence that supports their answer. If an answer differs, revisit the matching key idea on page 2 and invite a revised explanation.

Online rewards: this lesson grants one fixed digital Expedition Discovery. Five saved digital Gemling friends become available only after all six distinct subject lessons are complete, in any order. Digital rewards do not establish physical ownership.