Roots & Stems

Root Tunnel with Sproutling

Learning target

Connect root and stem structures to their functions.

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

Anchoring; water and mineral uptake; support; transport

Open Root Tunnel - 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.

Roots & Stems - key ideas

1. The first clues

Roots anchor many plants and take up water and dissolved minerals. Root shapes and sizes vary with the plant and its environment.

2. How the clues connect

Stems support parts above ground and transport water and other materials. A stem is more than a pole holding leaves up.

3. Our evidence record

Our cutaway traces water from soil into roots and upward through the stem toward leaves. Arrows show movement through plant structures, not roots eating solid soil.

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. Which structure anchors many plants?

Expected answer: Roots

Reasoning: Roots anchor many plants and take up water and dissolved minerals. Root shapes and sizes vary with the plant and its environment.

2. Which structure supports and transports?

Expected answer: Stem

Reasoning: Our cutaway traces water from soil into roots and upward through the stem toward leaves. Arrows show movement through plant structures, not roots eating solid soil.

3. Which route follows our water model?

Expected answer: Soil to roots to stem to leaves

Reasoning: Our cutaway traces water from soil into roots and upward through the stem toward leaves. Arrows show movement through plant structures, not roots eating solid soil.

4. What do roots absorb from the soil?

Expected answer: Water and dissolved minerals

Reasoning: Roots anchor many plants and take up water and dissolved minerals. Root shapes and sizes vary with the plant and its environment.

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.