

FIFTH GRADE: PLANTS

Standards Bundle

Standards are listed within the bundle. Bundles are created with potential instructional use in mind, based upon potential for related phenomena that can be used throughout a unit.

5-LS1-1 Support an argument that plants get the materials they need for growth chiefly from air and water. (SEP:7; DCI: LS1.C; CCC: Energy/Matter)

[Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]

Content Overview

This section provides a generic overview of the content or disciplinary core ideas as an entry point to the standards.

Students should gather evidence to support their claim that in order for a plant to survive it must receive its nutrients and material needed for growth from the air and water.

Phenomena

Phenomena can be used at varying levels of instruction. One could be used to anchor an entire unit, while another might be more supplemental for anchoring just a unit. Please remember that phenomena should allow students to engage in the SEP and use the CCC/DCI to understand and explain the phenomenon.

- Plants growing on water (Hydroponic and Aeroponic)
- Moss growing on trees or rocks
- Changes in weight of soil and a plant in a pot overtime
- Variables of growing environment (air, water, sun)
- The difference of space in rings of a tree trunk.
- Christmas tree starts to lose its needles.

Storyline

This section aims to decode not only the DCI connections, but also the SEP and CCC in a detailed account of how they possibly fit together in a progression for student learning, including both rationale and context for the bundle.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Engaging in Argument from Evidence <ul style="list-style-type: none"> Support an argument with evidence, data, or a model. 	LS1.C: Organization for Matter and Energy Flow in Organisms <ul style="list-style-type: none"> Plants acquire their material for growth chiefly from air and water. 	Energy and Matter <ul style="list-style-type: none"> Matter is transported into, out of, and within systems.

Plants have many parts that perform different functions. They work together to capture energy from the sun and utilize it along with material from the air and water during a chemical process (photosynthesis) to support growth. Students should gather evidence to support a claim that in order for a plant to survive it must receive its nutrients and material needed for growth from the air and water.

Formative Assessment

Formative assessment is crucial because all learners benefit from timely and focused feedback from others. It promotes self-reflection, self-explanation, and social learning. It can also make learning more relevant. Each of the questions below might be used throughout the formative assessment process. Specific prompts may focus on individual practices, core ideas, or crosscutting concepts, but, together, the components need to support inferences about students' three-dimensional science learning as described in a given bundle, standard or lesson-level performance expectation.

Resources to inform your formative assessment.

- <http://stemteachingtools.org/brief/30>
- <http://stemteachingtools.org/brief/41>
- <http://stemteachingtools.org/pd/sessionb>

SEP Engaging in Argument from Evidence

- Make a claim and provide evidence from where plants get most of their material for growth.
- Engage in an argument using evidence to support that nutrients do not come from the soil.

CCC Energy and Matter

- Where does a plant get its energy?

Performance Outcomes

These are statements of how students use knowledge and are similar to the standards in how they blend DCI, SEP, and CCC, but at a smaller grain-size. These are potential outcomes for instruction as it plays out in lessons and activities in the classroom. It is important to also think of these as smaller outcomes that build toward the larger goal of mastering the standards.

- **Describe** what types of *energy and nutrients* are needed for photosynthesis and how plants make food(matter).
- **Construct an argument** that in order for *plants to function* they only need material from water and air for plant growth.
- **Construct an argument** about what type of *energy is entering, staying, and leaving* the system.