Plant Structures: Grade 1

Lesson Overview

In this lesson, students will demonstrate an understanding of how the structures of plants help them survive and grow in their environments. Students will also understand plants have specific structures that help them survive, grow, and produce more plants. Plants have predictable characteristics at different stages of development.

Alignment

Science Standards

1.L.5 The student will demonstrate an understanding of how the structures of plants help them survive and grow in their environments.

- 1.L.5A.1 Obtain and communicate information to construct explanations for how different plant structures (including roots, stems, leaves, flowers, fruits, and seeds) help plants survive, grow, and produce more plants.

Science and Engineering Practices

1.S.1A.8 Obtain and evaluate informational text, observations, data collected, or discussions to (1) generate and answer questions about the natural world, (2) understand phenomena,, (3) develop models, or (4) support explanations. Communicate observations and explanations clearly through oral and written language.

Crosscutting Concepts (from the SDE instructional unit resources document)

- Patterns
- Cause and Effect
- Systems and systems models
- Structure and Function

https://ed.sc.gov/instruction/standards-learning/science/support-documents-and-resources/elementary-instructional-units/1-life-science-plants-and-their-environments/
(see page 3 of document above)

ELA Inquiry Standards

Standard 2: Transact with texts to formulate questions, propose explanations, and consider alternative views and multiple perspectives.

Additional Resources/Connections

SC Department of Education Links:
https://ed.sc.gov/instruction/standards-learning/science/support-documents-and-resources/elementary-instructional-units/1-life-science-plants-and-their-environments/

https://ed.sc.gov/scdoe/assets/File/instruction/standards/Math/1st_Grade_Support_Document-3_11_27_17.pdf

Other Recommended Resources:
Specific to this lesson:

- From Seed to Flower, https://www.youtube.com/watch?v=dJjNh2pMSB8
- The Great Plant Escape: Plant Parts, http://extension.illinois.edu/gpe/case1/c1facts2a.html

Plants Resources

- Plant Resources for Teachers - *TeacherVision*, https://www.teachervision.com/plants
- USDA Plant Database, https://plants.usda.gov/java/
- Plant Songs and Fingerplays, http://www.angelfire.com/la/kinderthemes/pfingerplays.html
- Story Jumper, Online books on Plants, https://www.storyjumper.com/book/search/q/plants
- Interactive Sites for Education: Plants, http://interactivesites.weebly.com/plants.html
- Growing Plants, Sid the Science Kid, http://pbskids.org/video/sid-science-kid/1568868836

Websites about SC plants – Add these to the resources section.
http://scnps.org/
http://herbarium.biol.sc.edu/scplantatlas.html
https://www.gardenguides.com/89761-native-plants-south-carolina.html
http://scnps.org/wp-content/uploads/2012/04/CoastalNativePlantList.pdf
https://www.state.sc.us/forest/reftree.htm

Connections

Content Area (2 or more) Connections

- Science
- English Language Arts

Content Connections

Literature is used to enhance and engage students in the exploration of plant structures.

Active Learning Strategies (for Purposeful Reading, Meaningful Writing, and Productive Dialogue)

- Popsicle Stick Questioning
  https://www.s2temsc.org/uploads/1/8/8/7/18873120/popsicle_stick_questioning_strategy.pdf
- Focused Listing
  http://www.s2temsc.org/uploads/1/8/8/7/18873120/focused_listing_strategy.pdf
- Elbow Partners
  http://www.s2temsc.org/uploads/1/8/8/7/18873120/motivating_and_engaging_strategies.pdf
- Give Me Five
  https://www.s2temsc.org/uploads/1/8/8/7/18873120/give_me_five_strategy.pdf

Computational Thinking

Students are engaged in computational thinking as they use their senses to investigate the plant system, labeling appropriative parts of a plant, and when they are constructing a plant from construction paper or clay.

Computational thinking (CT) is a problem-solving process that includes (but is not limited to) the following ***characteristics****:*

- Logically organizing and analyzing data
- Representing data through abstractions such as models and simulations

These skills are supported and enhanced by a number of dispositions or attitudes that are essential dimensions of CT. These ***dispositions or attitudes*** *include:*

- The ability to communicate and work with others to achieve a common goal or solution

Lesson Plan

Time Required – 45 minutes

Disciplinary Vocabulary – stems, root, leaf, flower, fruit, seed

Materials Needed:

- Small, leafy plants
- From Seed to Plant by Gail Gibbons
- Plants a complete system from roots to flowers (one handout per group of students) (HANDOUT 2)
- Prepared name cards (HANDOUT 3)
- Pictures of plants and seed – Engage (part 2) (HANDOUT 1)
- Chart paper
- Labels
- Student science notebooks and pencils
- Popsicle Sticks with students' names on them (Active Learning Strategy)
- Sentence strips or adding machine tape

Formative Assessment Strategies: Student dialogue, Give Me Five, Popsicle Sticks, Focused Listing Strategy, Elbow Partners

Misconceptions:

- Children at this young age have difficulty with the idea of living and non-living mainly due to the ability to move. They will often classify plants as non-living.
- Primary age children will often view a young tree as a plant but not a mature tree.
- Seeds are not viewed as living things by children at this age.
- Primary age children view plants such as carrots, green beans and corn as vegetables and not plants

Safety Note(s):

- Remind students that when we make observations we use all of our senses. The sense of taste, however, is used only in those investigations where permission is given by the teacher. Taste is **not** a sense that will be used in this lesson.
- Students should be reminded not to place their hands near their eyes during the investigation.
- Remind students to wash their hands after manipulating the plants during the investigation.

Engage

1. Ask the students to name the parts of the plants that they know. It's possible that they will leave off at least one of the major parts.
   NOTE: Focused Listing Strategy to be used here:
   http://www.s2temsc.org/uploads/1/8/8/7/18873120/focused_listing_strategy.pdf
2. Show prepared pictures of flowering plants and discuss orally the parts that they can see. Also include pictures of seeds and discuss how the plant grew from the seed. (HANDOUT 1) *(Note*: *Students need to know the major structures of plants, stems, root, leaves, flowers, fruits, and seeds.)* As words are introduced, they are placed on a word wall.

Explore

1. Give each group of students a plant to investigate. (If they are potted, tell the children to remove them gently from the soil.)
2. Students will use their senses to investigate the plant system within their table group.
   NOTE: Elbow Partners to be used here:
   http://www.s2temsc.org/uploads/1/8/8/7/18873120/motivating_and_engaging_strategies.pdf
3. Have them draw their plants in their science notebooks.

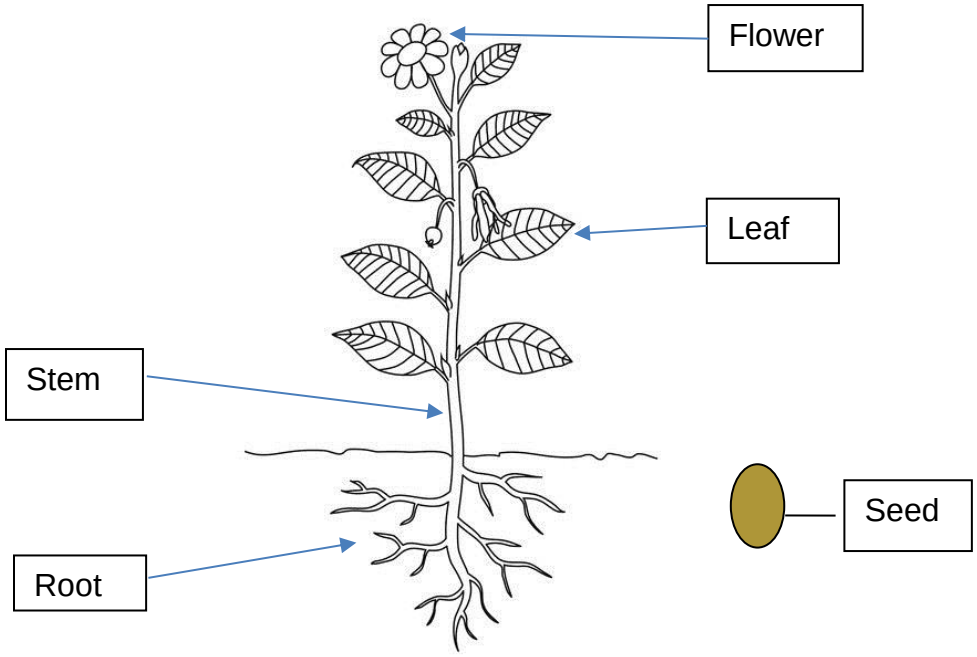
Extensions may include: Take a nature walk and ask students to identify the major structures of different plants and then draw one of the plants labeling its major structures.

Explain

1. Allow the children time to share their observations with the class. NOTE: Give Me Five to be used here:
   https://www.s2temsc.org/uploads/1/8/8/7/18873120/give_me_five_strategy.pdf
2. Display a complete plant system (from flower to the roots) (HANDOUT 2) on chart paper for the class.
3. Distribute pre-made labels/name cards (HANDOUT 3) for the flower parts;

STEM	LEAF	FLOWER
ROOTS	FRUIT	SEEDS

4. Have the students take turns placing labels beside the appropriate plant part, saying the word as this is done. An example is below. NOTE: Popsicle Sticks to be used here: https://www.s2temsc.org/uploads/1/8/8/7/18873120/popsicle_stick_questioning_strategy.pdf



5. Repeat the chart process with a plant that has a fruit. Include the seed in the chart illustration. NOTE: Popsicle Sticks to be used here: https://www.s2temsc.org/uploads/1/8/8/7/18873120/popsicle_stick_questioning_strategy.pdf
6. Read the book, From Seed to Plant by Gail Gibbons.
7. Discuss the book and the different parts of the plant that the students heard mentioned in the story.
8. Have the students return to their science notebooks and label the parts of the plants that they drew in the explore phase of the lesson.
9. Based on the plant model, teacher and students should discuss specific structures that help them survive, grow and produce more plants. Teacher should add notes on sentence strips under each structure label on the class chart – capturing student ideas on how each structure aids in survival, growth and producing of more plants.
10. Students could also construct a plant using construction paper or clay. Students label each plant part individually.

HANDOUT 1

Kernels of Corn/Seed

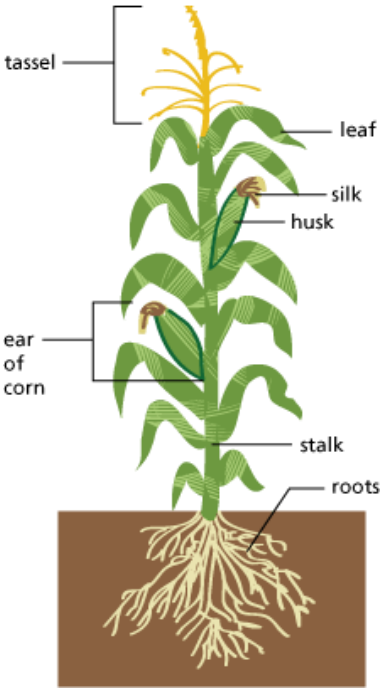
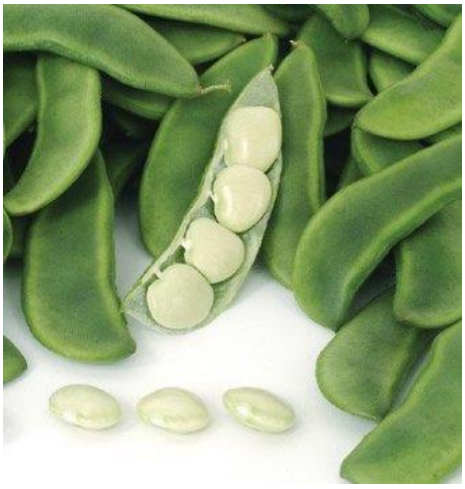


Diagram of a corn plant

Stalks of corn

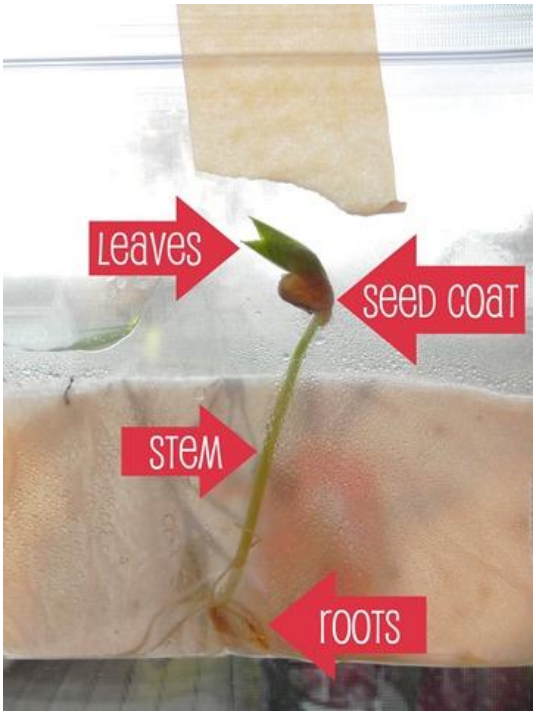
Ear of corn on the stalk

Lima Beans



Lima beans in shell

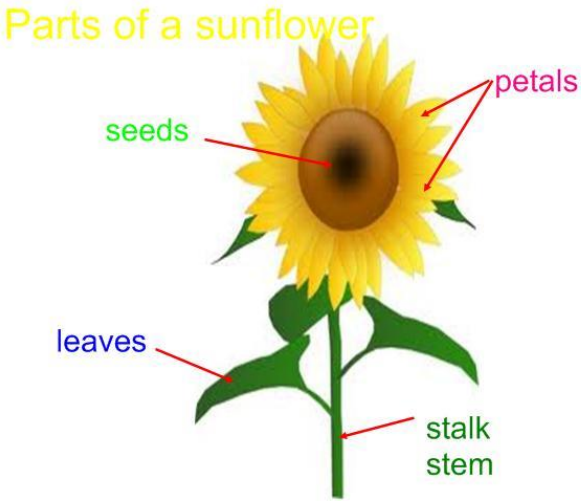
Lima bean plant



Parts of a Lima bean plant

Sunflower Seeds

Field of sunflowers



Parts of a sunflower

Sunflower plant with roots

Apple with seed

Apple growing on a tree with blossoms

An apple

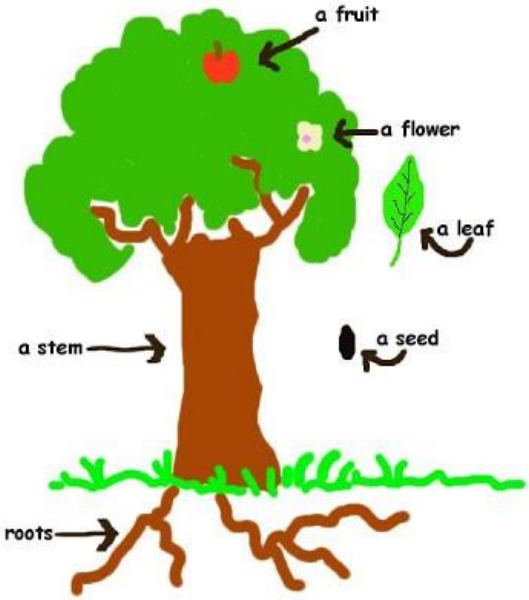
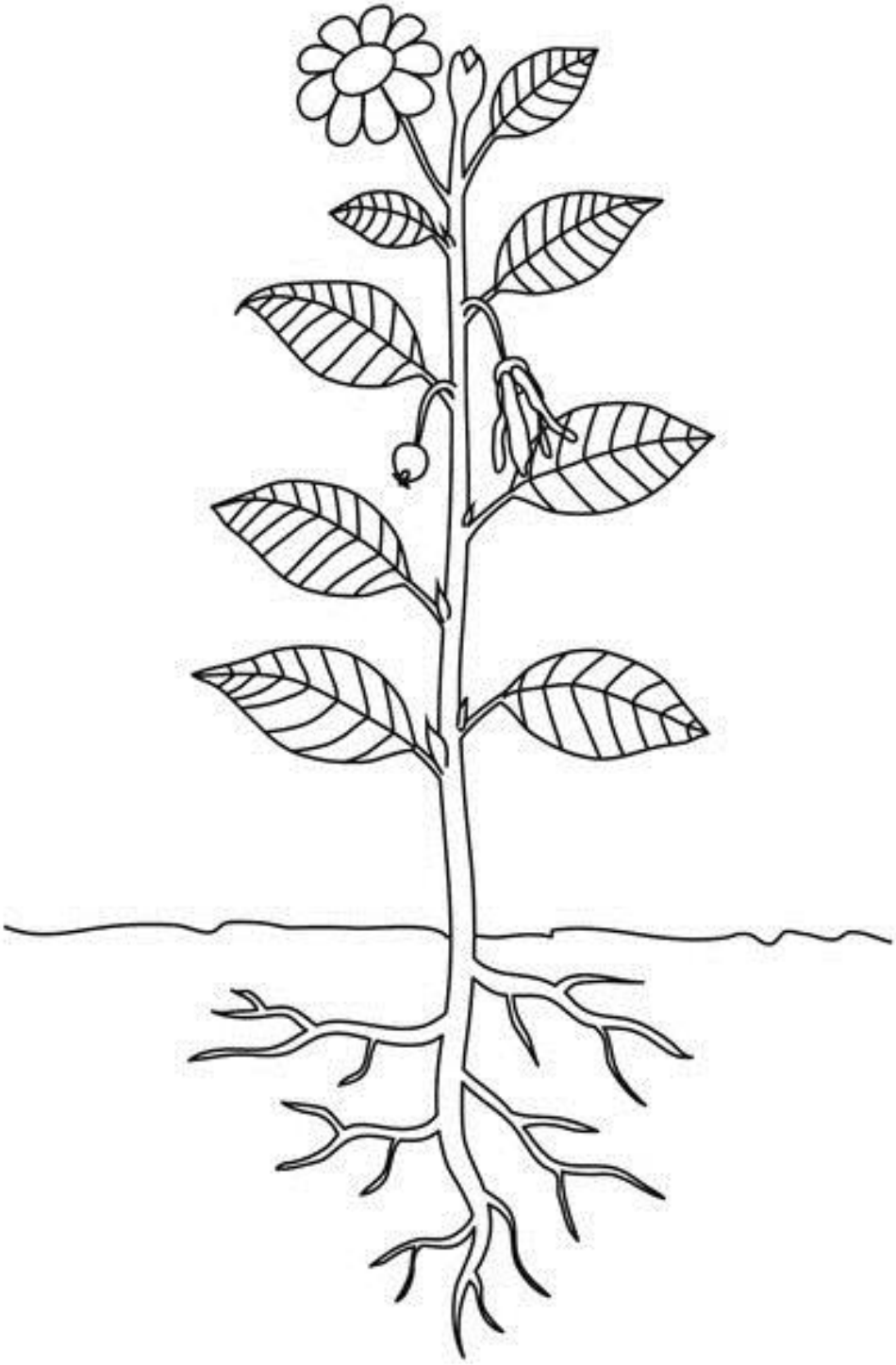


Diagram of a fruit tree

HANDOUT 2: Plant Structures (1.L.5A.1)



HANDOUT 3: Plant Structures (1.L.5A.1)

Labels/Name Cards

flower	**stem**
fruit	**root**
seed	**leaf**