Science 3-5: Plant Parts and Reproduction

Intended Audience: Students with significant cognitive disabilities

# **Standards:**

SC.3.L.14.1 Describe structures in plants and their role in food production, support, water and nutrient transport, and reproduction.

SC.4.L.16.1 Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.

SC.5.L.14.2 Compare and contrast the function of organs and other physical structures of plants and animals, including humans, for example: some animals have skeletons for support- some with internal skeletons, others with exoskeletons- while some plants have stems for support.

# **Learning Objectives:**

1. Students will identify the parts of a plant.
2. Students will recall the function of each of the parts of a plant.
3. Students will describe how seeds are produced.

# **Vocabulary:**

1. seed: a baby plant
2. root: the underground part of the plant that helps to absorb nutrients/food
3. stem: the backbone of the plant and supports the growth
4. leaf: provides nutrients/food to the plant
5. flower: the most beautiful part of the plant, produces seeds
6. dispersal: spread (seeds) from one place to another

**Materials:**

* [Plant Life Cycle video (with subtitles)](https://www.youtube.com/watch?v=mZ3fRX1yqyM) : Plant Parts and Function 2:35-4:11
* Flowering plant(s) in soil
* A flowering plant removed from the dirt with the roots showing
* [Flowering Plant Time Lapse](https://www.youtube.com/watch?v=Z-iPp6yn0hw) : 00:00-1:45
* Prepare prior to instruction: Teacher-created visual supports for vocabulary and content
* Prepare prior to instruction: Anchor chart with plant illustration (you’ll add to it later)
* Text: [Readworks: Plants and Their Seeds](https://www.readworks.org/article/Plants-and-their-Seeds/56ad383b-c195-44f0-8305-8bc54f877ec3%22%20%5Cl%20%22%21articleTab%3Acontent/contentSection%3Ad30389ee-779f-4904-b2be-0af7f4185462/)
* Copy of the Readworks article
* Highlighters

# **Essential/Guiding Questions:**

1. What are the different parts of the plant?
2. What is the function of each of the major parts of a plant?
3. Why is seed dispersal so important in the reproductive process of plants?

**Lesson Presentation:**

**Activating Prior Knowledge:**

1. Outside on your school campus, identify plants and flowers that you and your students see on a daily basis. This can occur naturally as you walk to the playground, PE field or the cafeteria for lunch. Ask some “Wh” questions: What do you see? What is the most important part of the plant? Tell students that you have a wondering: How did all of these plants get here?

**Modeled instruction:**

1. Show students the plant planted in soil, and tell them that this plant has the same parts as the plants that they saw on their outdoor walk. Play the video [Plant Life Cycle video (with subtitles)](https://www.youtube.com/watch?v=mZ3fRX1yqyM). Cue the video to 2:35 and play through 4:11.

2. Define vocabulary related to parts of the plant (seed, roots, stem, leaves, and flower). Use the teacher-created visual supports/images and the plant in soil to support students’ understanding. Add vocabulary to the anchor chart as an overall visual support for the parts of the plant.

1. Read the article, [Readworks: Plants and Their Seeds](https://www.readworks.org/article/Plants-and-their-Seeds/56ad383b-c195-44f0-8305-8bc54f877ec3%22%20%5Cl%20%22%21articleTab%3Acontent/contentSection%3Ad30389ee-779f-4904-b2be-0af7f4185462/). Display article on the Smartboard or provide students with copies, depending on your group.

**Supported/Guided instruction:**

1. Replay the video above, pausing as each part of the plant is described.

2. Re-read the article, [Readworks: Plants and Their Seeds](https://www.readworks.org/article/Plants-and-their-Seeds/56ad383b-c195-44f0-8305-8bc54f877ec3#!articleTab:content/contentSection:d30389ee-779f-4904-b2be-0af7f4185462/) . Provide students with a copy, as appropriate. Identify the main idea and underline it; identify key details and circle them. Highlight vocabulary words. Check for comprehension and encourage students’ discussion.

3. Show students the flowering plants in soil. Have students identify parts that they know. Review all parts of the plant with students.

**Independent Work/Small group suggestions:**

1. Students work independently or in small groups to show what they know about parts of the plant and their functions.

2. Students can play a matching game, matching the plant parts to the function.

3. Students can watch additional videos or read additional text to dig deeper into content.

4. Students can plant seeds or beans to watch the growth process. Additional plans are available on multiple internet sites.

5. For enrichment, students can read another article, How Plants Work (see additional resources), identifying main idea and key details.

**Assessment:**

1. Students will show their understanding of the parts of a plant and identify the function of each.

2. Teachers should utilize district created rubrics to score student work.

**UDL:**

**Multiple means of representation:**

1. Students can use an image of a plant and label it with the parts and their functions.

2. Students can use a plant as a prop and orally tell an adult the parts and their functions.

3. Students can write a story or informational article about plants and their parts.

4. Students can draw pictures to show the plant and label its parts.

5. Students can match pictures and functions to labels on a plant image.

6. Students can work individually, in pairs, or in a small group.

7. Students can work independently with peer or adult supports.

**Multiple means of expression:**

1. All students should have access to expressive language/technology that is appropriate for their specific need.

2. Expression may come in the form of verbal responses, signed responses, pointing/gestures, eye gaze, or through the use of a low or high tech device.

3. Text to speech options are available for computers on the Word app, iPads and other hand held devices. Google Chrome offers free extensions, such as Selection Reader and Select and Speak-Text to Speech, and apps, such as Text to Speech, Text to Speech with Google Drive, and TTS Reader- Unlimited Text-to-Speech.

4. Speech to text options are also available from Google. Extensions include Voice Note II-Speech to Text, Online speech recognition, and Co: Writer Universal. Voice Note II is also available as an app; Speech notes-Speech to Text Notepad is available as well. Microsoft Word also has speech to text options.

5. Additional information about text to speech and speech to text options are available through your district Assistive Technology Department.

**Multiple means of engagement:**

1. Provide students with choices of how to interact with materials.

2. Provide students or small groups with various places in the classroom in which to work, i.e. floor, desks, at the board.

3. Limit distractions in the work areas.

4. Encourage collaboration with peers in partners or small groups.

5. Allow students to work independently.

6. Allow students to be positioned for maximum learning engagement.

7. Provide students with additional materials, if necessary.

8. Provide supervision to students when working with plants, flowers and dirt.

**Assistive Technology Recommendations:**

1. All students should have a means of expressive communication and a way to be actively engaged in learning.

2. Response modes may include, but are not limited to: eye gaze, gesturing or pointing to pictures/words/phrases, signing, low tech devices (GoTalks, etc.), or dynamic devices (iPad, etc.)

3. Lesson vocabulary, photos/pictures and graphic representations should be created and/or printed prior to the lesson to provide all students with an opportunity to be engaged in discussion.

4. When possible, provide students with text to speech options. Articles and passages from Readworks.org have this option.

5. If students are writing in response to text or writing as a means of sharing information, provide students with alternates to pencils. Speech to text and alternative pencils should be considered. Find more information about alternative pencils here: [Alternative Pencils](http://alternativepencils.weebly.com/)

**Technology Needed:**

* Smartboard
* Doc camera (if needed to project the Readworks article)

**Additional Resources:**

* Text: [Readworks: How Plants Work](https://www.readworks.org/article/How-Plants-Work/d30389ee-779f-4904-b2be-0af7f4185462#!articleTab:content/)
* Plants available on your school campus
* Book: The Dandelion Seed, by Joseph Anthony, illus. by Cris Arbo
* Video read aloud for The Dandelion Seed: [The Dandelion Seed](https://www.youtube.com/watch?v=N8qsCtsOHf8)
* Book: National Geographic: Seed to Plant, by Kristin Baird Rattini
* Video read aloud for National Geographic: Seed to Plant: [Seed to Plant](https://www.youtube.com/watch?v=Cgf8TMb8KcA)
* District-provided science resources