



# Unit: Life Cycles

## Lesson 2 What are Plant Cycles?

<b>Enduring Value:</b> Cause and Effect	<b>Essential Question(s):</b> Why do plants have life cycles? How do plant life cycles support their survival?	<b>National Science Education Standards (NSES, 1996)</b> Content: Life Science K-4 Characteristics of organisms Life cycles of organisms Organisms and environments 5-8 Structure and function of living systems Populations and ecosystems Diversity and adaptation of organisms
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### Engage and Increase Background Knowledge:

- The following are three ways to start this lesson. The teacher can blend any two or all three. Using all three would support different types of learners.
  - The teacher and students can bring in different types of seeds and also seed dispersal mechanism plant parts from their area.  
Example: As some seeds are dispersed by animals, the teacher can bring in the part of the plant (i.e., stem) that holds the seeds up, and show students how the seeds would attach to the fur of passing animals. In addition, these seeds often have hooks to attach to fur, which the teacher can also have the students examine.
  - Have pictures of different types of seed dispersal mechanisms.
  - Use: [http://www2.bgfl.org/bgfl2/custom/resources\\_ftp/client\\_ftp/ks2/science/plants\\_pt2/](http://www2.bgfl.org/bgfl2/custom/resources_ftp/client_ftp/ks2/science/plants_pt2/) with a projector and computer or take students to the computer lab to explore the site.
- Have students record and label drawings of the seeds and dispersal mechanisms in their journals.
- Have students design novel seed dispersal mechanisms or redesign one of those they just learned about. Take the students outside and walk around your area and note examples of different methods of seed dispersal.
- Students then have a contest to see which seeds in the same category will go the farthest.

Category	Distance in cm: Trial 1, 2, 3	Average Distance
Wind		
Water		
Drop and Roll		
Shakers		
Bursting		
Catching a ride		

5. Plant Cycle Phase: Seed Growth

Growing seeds can be easy. Corn, peas, or beans work well and can be grown in plastic cups with wet paper towels. Measurements of both roots and stems can be easily taken through the plastic or by carefully removing the growing plants and then replacing them in the plastic cup. Seeds can also be placed in all directions. Students can note and draw which way the roots and stems grow, even if seeds are placed upside down. Use a light source if light from a window is not available.

This site is very helpful:

[http://www2.bgfl.org/bgfl2/custom/resources\\_ftp/client\\_ftp/ks2/science/plants\\_pt2/growth.htm](http://www2.bgfl.org/bgfl2/custom/resources_ftp/client_ftp/ks2/science/plants_pt2/growth.htm)

Seed Growth	Root Growth in mm	Shoot Growth in mm	Drawing
Seed 1: Tip is pointed up			
Seed 2: Tip is pointed downward			
Seed 3: Tip is pointed to the left			
Seed 4: Tip is pointed to the right			

6. Plant Cycle Phase: Flowers

This lesson may depend on the age of the students. With older students a flower dissection using scissors with a flower that has all the male and female parts would work well. With younger students drawings and a demonstration in small groups of a dissection by the teacher may work best. In addition, on the site listed above, there is a simulation that students can complete if there are enough computers available. Students may also work with the teacher to complete the simulation using a computer and projector.

7. Students can use books and other resources to create a final poster of the Life Cycle of Plants to display in the room or hallway.

**Materials:**

Internet, computer, projector, pictures of seeds, seeds, lights or sunlight, plastic cups, paper towels, flowers, journals, small springs, safety pins, balloons, feathers, paper, scissors, paper clips, items from home, poster paper, whiteboards, markers, crayons

**Explore (Investigate):**

1. Using the rubric to support success, students **investigate the seed dispersal mechanisms in their area** with teacher scaffolding learning as needed.
2. The teacher uses questioning to move the students forward.
3. Students are given time to explore their new observational and data collection skills.

**Get Ready to Present:**

Using the rubric to support success, students work in collaborative groups to create reports to present to

the class. The reports will be on whiteboards or poster paper and include final posters. The categories should support the Big Idea and reflect the Evidence from their experiments and flower dissection. Scaffold and support students as needed.

**Present:**

Students self-grade and hand in the rubric. Student groups present, and the audience asks questions and writes a response for each presentation that will be handed in as part of the project.

**Build Class Consensus of the Big Idea to Post in the Classroom:**

Facilitate discussion with students to determine a consensus about the importance of the plant life cycle. See example **Student Group Big Idea** and **Example Class Consensus** below. *Does this rule affect the earlier rule or stand on its own?* Have students discuss and determine this.

**STEM Vocabulary:**

flower part names  
seed dispersal mechanisms  
roots  
shoot  
growth  
seed and plant growth needs  
native plants  
weeds  
noxious plants

**Example Group Presentation:**

1. Group posters
2. Student Group **Big Idea**: *Plants have a life cycle that includes seed dispersal, seed growth, and flowering.*
3. Evidence: Research and observation of seeds, flowers, and growth.

**Example Class Consensus:**

*In order for plants species to continue on, they need to reproduce, grow new plants, and the seeds must find new places to grow.*

**Connections:**

germination  
directional growth of roots and shoots  
tropism

