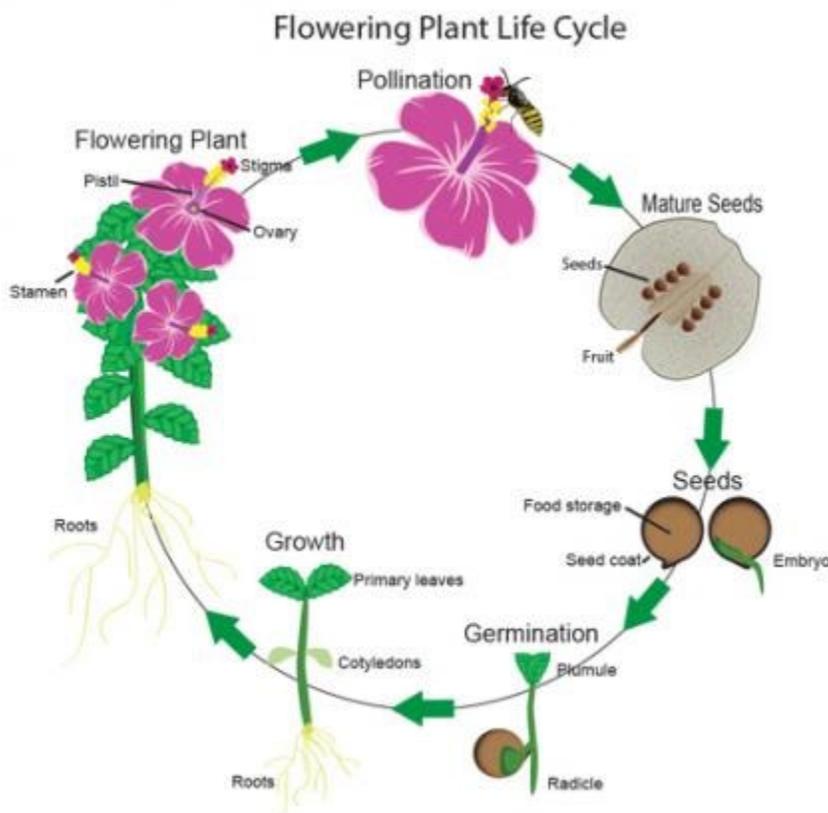


BABY PLANTS FAST FACTS

Sexual and Asexual Reproduction

- The term propagation means to increase the number of plants from existing plants.
- Plants can reproduce sexually or asexually.
- Sexual reproduction combines the genes of two parent plants to produce a new plant. Generally, sexual reproduction = seeds. Examples of sexual reproduction in plants include flowers, fruits, spores on ferns, and pine cones.
- Plants can also reproduce asexually, to produce a “mini me” of themselves. They can send out pieces of themselves as runners, shoots, small pieces called segments, or use tubers or bulbs.
- Seeds are valuable like art work or jewels. There are more than 1,700 vaults that are dedicated to storing seeds in the event that a major natural disaster or nuclear war irreparably damages the world’s food systems.
- Garlic, daffodils, tulips, onions, and radishes are examples of plants that grow from bulbs. Potatoes, yams, and sweet potatoes grow from tubers, which store energy for the plant to grow. These are all forms of asexual reproduction for the plant, but these plants also make seeds/flowers for sexual reproduction.
- Sexual reproduction results in genetic diversity, which can produce plants that are resistant to diseases. When a



plant reproduces asexually, it may take less energy to do so, but all of the baby plants have the same genes as the parent plant. This means that the total population could be vulnerable to a disease. For plants that use both asexual and sexual reproduction, they have both advantages of genetic diversity and easy of repopulation.

- Weeds are plants that people don’t want. Generally, weeds produce lots of seeds and out-compete the desired plants. Dandelions are considered weeds when they are growing in somebody’s grassy lawn. But a rose bush would be considered a weed in a corn field.

- Some plants are considered “native plants”, which means that they evolved in the area they are found and are part of the ecosystem.

- Some plants are considered “exotic” which means they were brought in from another region or country, but they grow in the area. Many exotic plants were intentionally brought for food or flower gardens. Tulips and Daffodils are very common, but they did not originate in North America. They were brought from Europe to America.
- Some plants are considered “invasive species.” Many of these plants were intentionally brought here, or maybe escaped. The reason why they are invasive is because they take over, outcompete native species, and disrupt the ecosystem. Examples of invasive plants are English Ivy and Kudzu, both of which can climb up trees and kill them.

Sexual Reproduction: Flower Description

- The sepal protects the flower.
- Petals attract pollinators.
- The male part of the flower is the stamen, which is made up of the anther that holds the pollen, and the filament, with is the long narrow stalk that the anthers sit on.
- The female part of the flower is the pistil, which is made up of the stigma, which is the opening at top of the female part of the pistil. The stigma sits on top of the style, which is the long tube leading to the ovary, which contains the

female genetic material. Nectar is sugary sticky substance inside the style and ovary that pollinators seek.

- After it is fertilized by pollen, the ovary turns into fruit. Fertilized seeds are found inside the ovary.
- When animals and people eat fruit, the seeds get distributed through their feces.

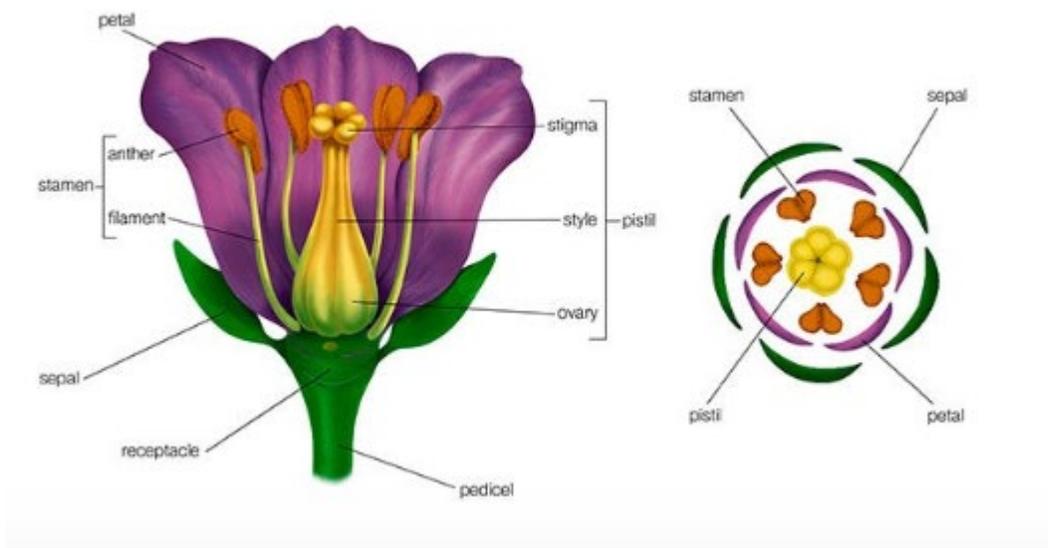


Image from: <https://www.natgeokids.com/za/discover/science/nature/the-life-cycle-of-flowering-plants/>

- Pollen is the male genetic matter of a plant.
- Pollen can cause allergies in some people, which is referred to as hay fever. Many trees, grasses, and weeds rely on the wind to disperse pollen which fertilizes the female parts of other plants.
- Pollinators are bees, flies, beetles, butterflies, moths, and some species of bats and spiders who have symbiotic relationships with the flowering plants. Pollen counts measure how much pollen is in the air to help people with allergies predict how bad their symptoms might be.

Science Vocabulary

- Pollen: the male genetic material of plants.
- Angiosperm: a flowering plant.
- Gymnosperm: a conifer/pine cone producing plant.
- Pollinator: an animal that transports pollen during its activities like eating nectar.
- Anther: the structure that produces pollen inside a flower.
- Stamen: the filament or tube that supports the anther.
- Pistil: the female structure of a flower.
- Stigma: the top opening in the pistil of a flower.
- Style: the tube on the pistil that supports the stigma.

- Ovary: the female genetic structure of a flower.
- DNA: The genetic material of a living organism.
- Propagation: Growing more plants from an original plant.
- Cuttings: Stems with leaves that can be grown into separate plants that are genetically identical to their parent plant.
- Invasive Species: Plants or animals that are introduced to an ecosystem, take it over, and cause harm to the ecosystem. Generally, invasive species have few or no enemies, a high reproductive rate, and outcompete the native species causing harm to the ecosystem. Some invasive species were intentionally introduced by humans for a specific purpose, like kudzu. But the plant or animal quickly escaped and took over the new ecosystem.
- Cotyledon: The first leaf to appear from an embryonic seed.

Printable Handouts

1. Student Handouts parts 1 – 3
2. STEM To-Go
3. A good site for flowering plants: <https://www.natgeokids.com/za/discover/science/nature/the-life-cycle-of-flowering-plants/>

Kid-Tech Spot: Supplemental interactive websites and games

1. University of Utah Learn Genetics website – great online labs, interactive games, and information about inheritance and natural selection.

More Resources, Just in Case

1. A neat article about the “Night of the Radishes” celebration in Oaxaca, Mexico on December 23rd.
<http://www.bbc.com/travel/story/20141217-mexicos-whimsical-night-of-the-radishes>

Resources for Teachers:

1. This lesson plan has clear explanations of how to set up plant cuttings versus seed plantings.
<https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=80>
2. This blog has resources for starting your own strawberry garden via NC Cooperative Extension and Ag in the Classroom. It also contains lesson plans for K-6 on strawberries. <http://strawberrygardenproject.blogspot.com/>

In the News

1. An article about the top six invasive plants in North America, 4 of which are pretty common in NC.
<https://insider.si.edu/2013/04/top-six-invasive-plant-species-in-the-united-states/>
2. An article about goats being used to as a business to eat the weeds from people’s yards.
<https://www.wral.com/news/local/story/3604397/>

On the Road

1. Piedmont:
 - a. SEEDS, Durham, NC: <http://www.seedsnc.org/>
 - b. NC Botanical Garden, Chapel Hill, NC <http://ncbg.unc.edu/>
 - c. Sarah P. Duke Gardens, Durham, NC: <https://gardens.duke.edu/>
 - d. Greensboro Botanical Gardens: <http://www.greensborobeautiful.org/>
 - e. UNC Charlotte Botanical Gardens: <https://gardens.uncc.edu/>
2. Coastal Plain:
 - a. Airlie Gardens, Wilmington, NC: <http://airliegardens.org/>
 - b. Cape Fear Botanical Garden, Fayetteville, NC: <https://www.capefearbg.org/>
3. Mountains:
 - a. Asheville Botanical Gardens: <https://ashevillebotanicalgardens.org/>

Other Lessons and Reference Materials Used to Develop this Unit

<https://www.thetutuguru.com.au/wp-content/uploads/2019/03/Pothos-Jade.jpg>

<https://www.google.com/url?sa=i&source=images&cd=&ved=2ahUKEwjSI5GOy77iAhUjUt8KHYu4CdsQjRx6BAgBEAU&url=https%3A%2F%2Fwww.bhg.com%2Fgardening%2Fplant-dictionary%2Fhouseplant%2Fspider-plant%2F&psig=AOvVaw2FjNSkmULqAwRXi68haiLg&ust=1559145329285509>
<https://sciencing.com/grow-potato-water-science-project-6239373.html>
<https://www.gardeningknowhow.com/houseplants/pothos/propagating-pothos.htm>
<https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=80>