LIFE CYCLE OF A FLOWERING PLANT

Like humans and other animals, plants have **life cycles**. The life cycle of a plant is like a story that describes the stages a plant goes through from the beginning of its life until the end and how that process starts all over again.

Stages in the life cycle of a flowering plant:

- **Seed**: A seed has a tough coat to protect the plant **embryo** (like a baby plant) that is inside. The seed contains food and everything needed for the embryo to start a new plant. Plants produce seeds of many different sizes and shapes.

Dandelion seeds

Sunflower seeds

- **Germination**: This is when the seed settles into the ground, breaks open, and starts to grow. A seed needs healthy soil, warmth, sunlight, and water to grow. Once a root begins to form, it pushes through the seed coating and heads down into the soil.

Durian seed germinating

Durian fruit cut with seeds exposed

- **Sprout, or seedling**: A seedling or sprout is the first sign of life above the soil. Seedlings are very small and delicate, and they can be easily damaged. Under the right conditions, they grow toward sunlight and eventually become adult plants. Seedlings get nutrition from sunlight, water, and carbon dioxide. To do this, they use a green pigment called **chlorophyll** to produce food and energy in a process known as **photosynthesis**. They also get nutrients, such as nitrogen, phosphorus, and potassium, from the soil.

Seedlings

- **Adult plant**: The seedling grows into an adult plant with roots, stems, and leaves. The roots draw water and nutrients from the soil and are carried through the stem to the leaves. The leaves create food and energy through photosynthesis.

Mature green plant

- **Flowering**: When a plant is fully mature, it will produce flowers. The flower is the part of the plant that is needed for reproduction. Flowers have many different parts for reproduction. Usually, the flower petals are bright, colorful, and sweet smelling to attract insects to help with pollination.

Cornflowers and poppies

- **Pollination**: This process moves pollen from the flower's **stamen** (the pollen-producing reproductive organ) to the **pistil** (the reproductive organ that receives pollen and produce seeds or fruit). Pollination can occur with the help of insects, birds, bats, and even the wind. After a plant has been successfully pollinated, it will develop a new seed and the whole process begins again.

Pollination by a bee

Pollination by a butterfly

- **Dispersion:** Plants release new seeds, which are **dispersed** (spread over a wide area) in different ways. Some seeds are spread by the wind, travelling far from the parent plant and increasing the range where the plant can grow. Some seeds float on water, and others are carried by insects. Seeds can also be spread by sticking to animal fur and later falling off. Some animals eat seeds and spread them around when they defecate (poop) in other areas. Humans spread seeds when they plant gardens. Some plants disperse seeds without any help. They have exploding seed pods that fling the seeds into the air! Once a seed reaches a new destination with suitable conditions, the life cycle begins again.

Fall is a perfect time of year to find all kinds of seeds since it's the end of the growing season for many plants. In this activity you will be a plant detective and see how many different seeds and seed pods you can find.

ACTIVITY: Go on a scavenger hunt for seeds and seed pods

Materials:

- container, like an empty egg carton, to collect your seeds in
- clipboard and paper
- pen, pencil or marker

1. Head outside and see what you can find! Look carefully around your yard or in a park, and see if you can find seeds or pods on plants and trees or on the ground beneath them.
2. Once you do find some seeds or pods, try to identify them and place them in your egg carton. Below are some pictures of seeds that were found in a yard right here in Reno!

3. Name or describe the plant you think your seed came from, writing your answers on the clipboard paper. If you need help, use an online plant identification guide like this one from Dave's Garden or check out a plant identification book from the library.
4. To take this activity a step further, try planting one of your seeds in a container filled with potting soil. Place it in a sunny spot, and water it daily. See if you can grow a new plant like the candytuft sprouts shown below! These will be planted outside when they grow larger next spring.

Candytuft sprouts grown from seeds   **Candytuft in bloom**

Happy hunting! We're sure you discover many different kinds of seeds right in your own backyard!

ADDITIONAL RESOURCES

Books available from the Washoe County Library System:

The ABCs of Plants by Bobbie Kalman

The Amazing Life Cycle of Plants by Kay Barnham

Butterflies: Pollinators and Nectar-Sippers by Adele Richardson

From Seed to Plant by Allan Fowler

Investigating Plant Life Cycles by Lisa J. Amstutz

Life Cycle of a Sunflower by Angela Royston

Life Cycles by Nancy Dickmann

Plant Reproduction by Shelly Buchanan

Plants by Honor Head

The Secret Lives of Plants! by Janet Slingerland

A Seed in Need: A First Look at the Plant Cycle by Sam Godwin

Videos:

BBC Earth Unplugged, "Exploding Cucumbers!, Slo Mo #36" https://youtu.be/wOIHzl2h9a8

SciShowKids, "How Does A Seed Become A Plant?" https://youtu.be/tkFPyue5X3Q

SciShowKids, "Like Fruit? Thank a Bee!" https://youtu.be/txv2k7OoY7U

Websites:

BBC, Bitesize, How do plants spread their seeds
https://www.bbc.co.uk/bitesize/topics/zxfrwmn/articles/z28dpbk

Centennial Parklands, Life cycle of flowering plants https://www.centennialparklands.com.au/learn/living-learning/primary-school-resources/cumberland-plain-woodland/life-cycle-of-flowering-plants

Dave's Garden, Plant Files   https://davesgarden.com/guides/pf/

National Geographic Kids, The Life Cycle of Flowering Plants
https://www.natgeokids.com/za/discover/science/nature/the-life-cycle-of-flowering-plants/