

Plant Reproduction & Processes and Fungi

Life Cycle of Flowering Plants

-When seeds are dispersed from the parent plant they can either lay **dormant** or begin to grow.

- **Dormant** means that nothing happens, the seed stays the same.

1. Germination –When conditions are right, the seed begins to grow roots down while the stems and leaves grow up.

2. Plant Development – The seed grows into a mature plant with the structures necessary to produce more plants.



3. Pollination - When pollen from the stamen (male part) is transferred to the pistil, **pollination** occurs.

4. Fertilization - Then the pollen enters the ovule (female part) where fertilization occurs.

5. Seed Production – The fertilized ovule develops into a seed. A fruit (fleshy like an apple, a pod like a pea, or a shell like a peanut) develops to protect the seed. Seeds are structures that contain the young plant surrounded by a protective covering.

Sexual and Asexual Reproduction in Flowering Plants

Sexual Reproduction requires a sperm cell (in pollen) and an egg cell (in the ovule) to combine to produce a new organism. All flowering plants undergo sexual reproduction.

Asexual Reproduction is a process that only involves one parent plant or a plant part and produces an offspring identical to the parent plant. Many plants can grow new plants asexually from their plant parts. When a plant is damaged, a part of a plant can sprout new growth from damaged stems, roots, or leaves.

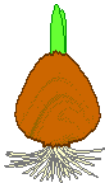
-**Tubers or Bulbs** are underground stems. “Eyes” or **buds** of a tuber (potato) grow into shoots and produce a new plant. **Bulbs** (onions) are big buds made of a stem and special leaves.

-**Runners** are all types of stems that run along the ground. (strawberries, ivy, and some grasses)

-**Stem Cuttings** are a piece of cut stem that is planted and roots develop. The cutting grows into a full plant. (sugar cane and pineapple)

-**Roots** sometimes send up a “sucker” or shoot which grows into a new plant such as some fruit trees or shrubs. Some plants have roots that can produce new plants. (sweet potato)

-**Leaves** on some houseplants can produce a new little plant right on their leaves. African Violets can produce plants from leaves placed on top of the soil.



3 Processes Necessary for Plants to Survive



Photosynthesis
(make food)

Photosynthesis is the process by which plants make their own food, a simple sugar, for survival.

Chloroplasts in the cell contain the **chlorophyll**. The chlorophyll is a **green pigment** that absorbs the light energy from the sun. **Sunlight** provides the **energy** for the process of photosynthesis. **Water** and **carbon dioxide** are used to make the **sugar** and **oxygen**. Oxygen is released through openings in the leaf called **stomata**. Photosynthesis provides the oxygen in the atmosphere that living things need.



Respiration
(break down food)

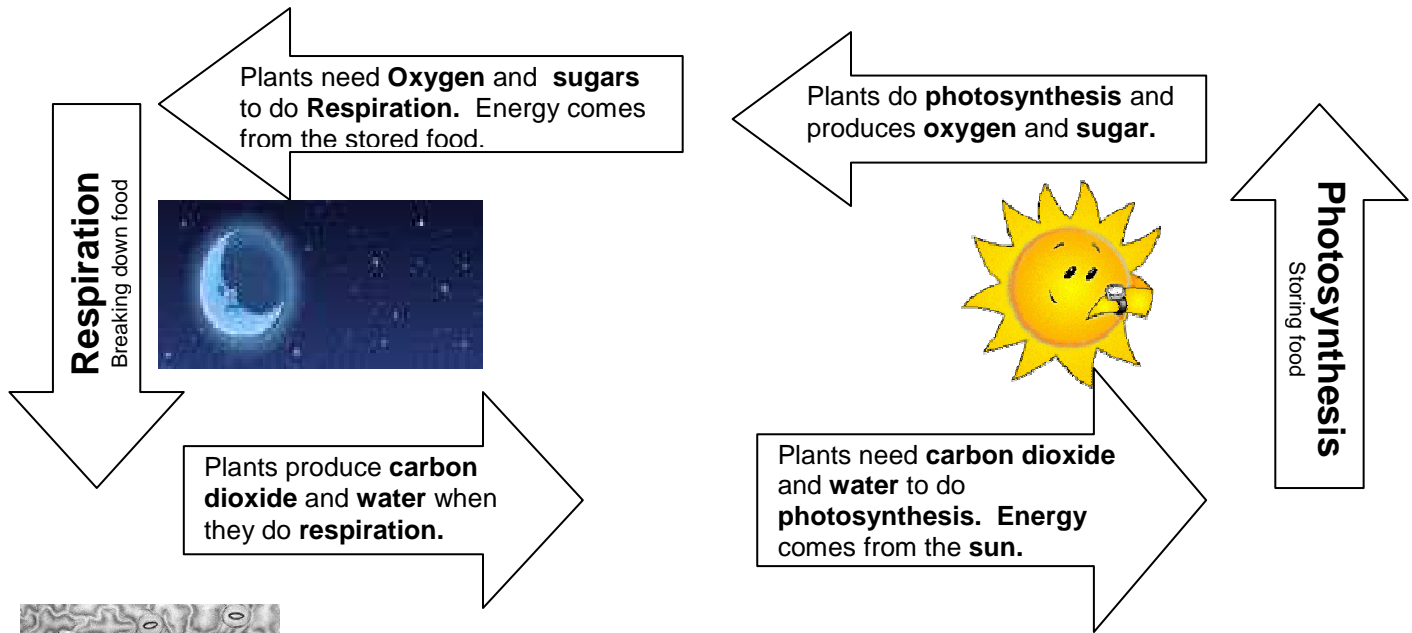
Respiration is when plants or animals break down sugar and use the energy to perform life functions

The food (**sugar**) created through photosynthesis provides the plant with energy to perform life functions. To get energy from the food it produces, plants must **break down the sugar** through **respiration**. **Oxygen** from the air combines with the **sugar** and produces **carbon dioxide and water**. **Energy** is released so it can be used by the plant. Carbon Dioxide and water are given off through the leaves. (This process is the opposite of photosynthesis.)

Transpiration
(save water)

Transpiration is when plants lose water through the leaves.

Plants lose most of their water through their **leaves**, the other water is used in photosynthesis. Plants must **control** the amount of water they lose through leaves or they will **wither and die**. Plants slow down transpiration by closing **stomata (pores)** on the underside of the leaves. **Guard cells** open and close the stomata to keep water from escaping from the leaf. Closed **stomata** keep water from escaping from the leaf.



Stomata are pores found mostly on the underside of leaves. Gasses pass through these pores during photosynthesis and respiration. Guard cells on either side of the pore open and close to prevent the escape of water during transpiration.

Plants respond to changes in their environments.

Environmental Stimulus – A change in the environment that causes a reaction or a response (there is less daylight)

Response – The reply to the stimulus or change in environment (deciduous trees lose their leaves)

Dormancy is an inactive period when a plant or seed prepares for harsh conditions. This allows the species to survive in a particular environments. Seeds germinate when the small seedling can survive. Leaves fall from trees as winter arrives and leaf buds don't open until conditions are favorable in the spring. Change in temperature or amount of water can cause dormancy.

Tropisms – when plants change their growth in response to the environment

phototropism	The way a plant grows or bends in response to light. A plant grows toward light so it can do photosynthesis.
gravitropism (geotropism)	The way a plant grows or bends in response to gravity. Roots grow downward toward with pull of gravity. Stems grow upward against the force of gravity.
hydrotropism	The way a plant grows or bends in response to water. Roots of a plant will grow toward a source of water.
thigmotropism	The way a plant grows or bends in response to touch. A vine will coil around an object it touches.



Thigmotropism

Fungi are not plants. Fungi are a kingdom of organisms that do not make their own food.

They must grow on or in other organisms, such as plants. Grain mold, corn smut, and wheat rust, cause diseases in crops that result in huge losses. Fungi can also affect other crops such as rice, cotton, rye, and soybeans. The fungus can eventually kill the plant.

Even though fungus can be harmful to plants, it is **helpful** as a **decomposer**, and as a source of a medicine called penicillin.