

Parts of a Plant



Alabama Wildlife Federation Outdoor Classroom Field Journal Activity

To use this interactive PowerPoint with your students:

1. Click on "**Enable Editing.**"
2. Click the "**Slide Show**" tab at the top of the screen.
3. Then choose "**From Beginning**" from the menu.

What do plants need to survive? What do they need to grow and reproduce?

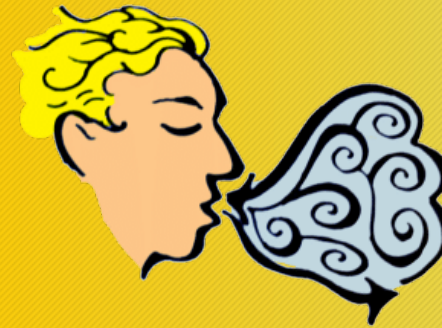
Just like us, they need food, water, air, and sunlight to survive, grow, and reproduce.



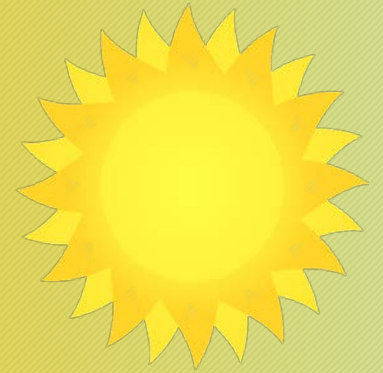
Plant food can be in the soil and is referred to as minerals in the soil.



Water can fall as rain or be provided by us.



Air is made of gases that are all around us but we cannot see them.



Sunlight comes to us from the sun and it provides the energy that plants use to grow.

How do plants get food?

Do they go to the store?

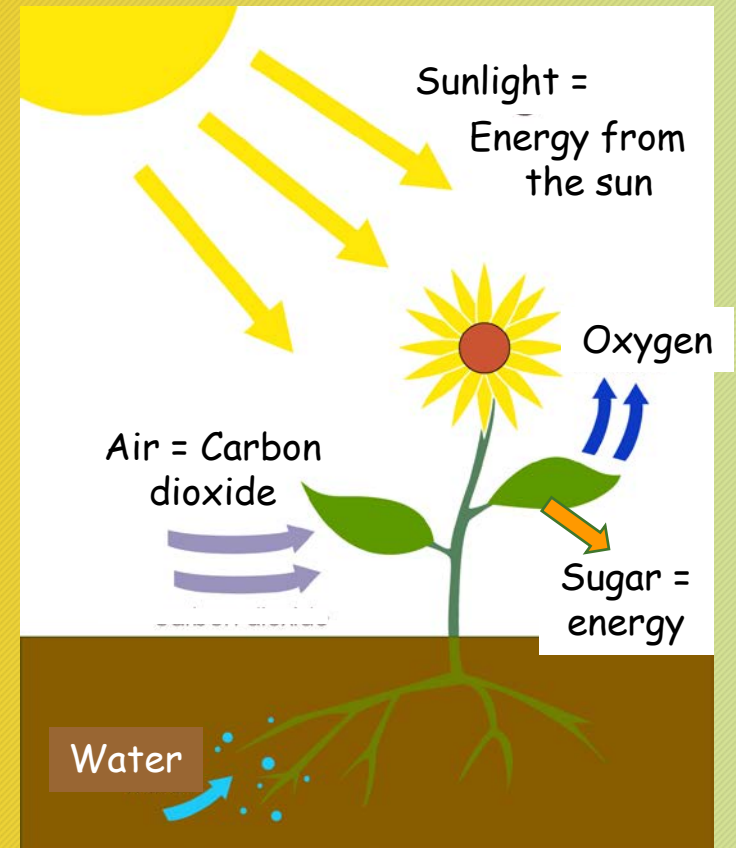
Plants can actually produce (or make) their own food.

Plants receive and store energy from sunlight in their leaves.

Then the cells inside their leaves convert the energy into sugar using water from the soil and carbon dioxide from the air.

Then the leaves release oxygen into the air.

This process is called photosynthesis.



How do plants get the water from the soil? What are other ways that roots help plants?

The roots of a plant grow under the ground and absorb water as well as minerals.

Roots help in other ways too:

- ✓ provide an anchor or support system in the soil to keep the plants from washing away or blowing over.
- ✓ help store plant sugars (food) that are made through photosynthesis.



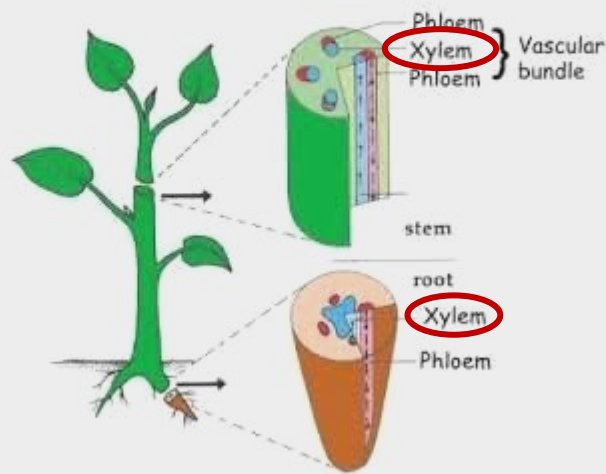
Fibrous Root
Many branching roots



Taproot
One main root

How does the water get from the roots to the rest of the plant?

The Structure of the Stem and the Root

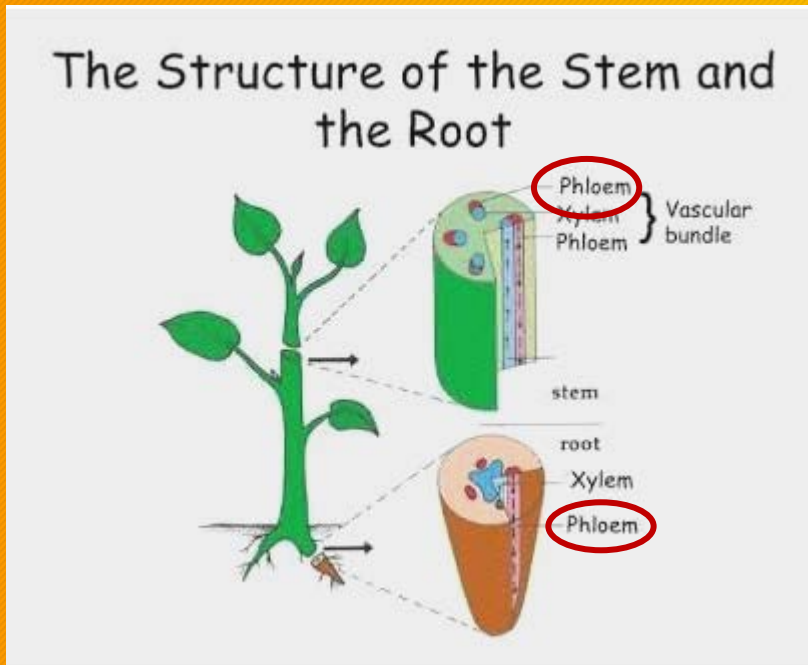


Vascular tubes/capillaries (like straws) in the trunk, stems and roots called xylem help transport the water.

As water evaporates from the leaves other water molecules are pulled up through the tubes, causing the roots to absorb more water.

Transpiration is the process by which water is carried from the plants' roots to their leaves and then escapes the plant as water vapor.

How is the food transported to the rest of the plant?



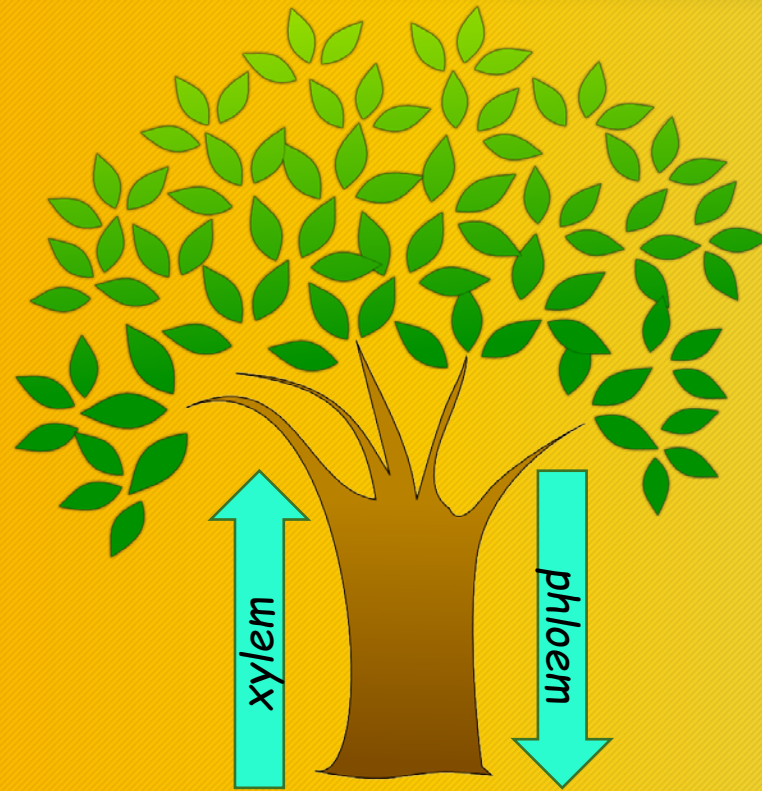
Vascular tubes/capillaries (like straws) in the trunk, stems and roots called **phloem** transport the food produced from photosynthesis in the leaves to other parts of a plant such as the roots and stems.

The phloem carries important sugars and minerals. Sap within the phloem simply travels by diffusion between cells and works its way from leaves down to the roots with help from gravity.

How are xylem and phloem different?

Xylem

- ✓ Carries water.
- ✓ Flows up from roots to stems and leaves.



Phloem

- ✓ Carries sugars and minerals.
- ✓ Flows down from leaves throughout stems and roots.

Mnemonic tool to help you remember: *x***Y**lem goes "high" & *phl***O**em flows "low"

How do plants reproduce? How do adult plants make baby plants?

They use their flowers
to create seeds.

Example: dandelions



The goal of every living organism, including plants, is to create offspring for the next generation. One of the ways that plants can produce offspring is by making seeds. Seeds contain the genetic information to produce a new plant.

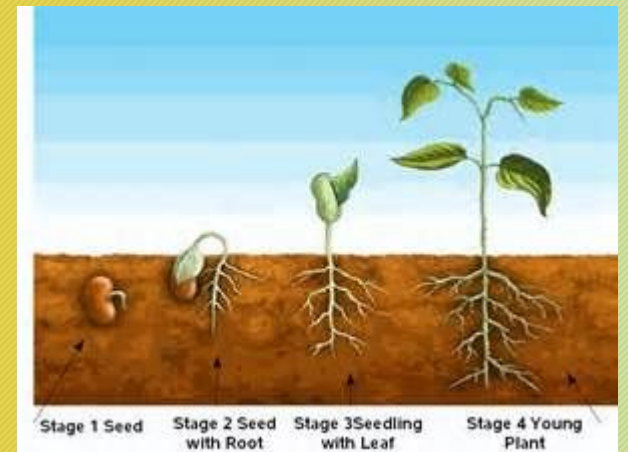
How does a seed become a new plant?



A seed contains:

- ✓ **Genetic Material** - information about "mom" and "dad"
- ✓ **Building Instructions** - to create a new "baby" plant that has the same traits and characteristics as the "parent" plants.

Each seed contains a tiny plant called an embryo, which can grow into a new plant when soil moisture and temperature are good for seed germination.



How does a plant create seeds?



A plant uses its flower(s) to create seed(s).

For example, a sunflower has hundreds of tiny little flowers.

Each tiny flower can produce one seed, so one sunflower plant can produce hundreds of seeds.

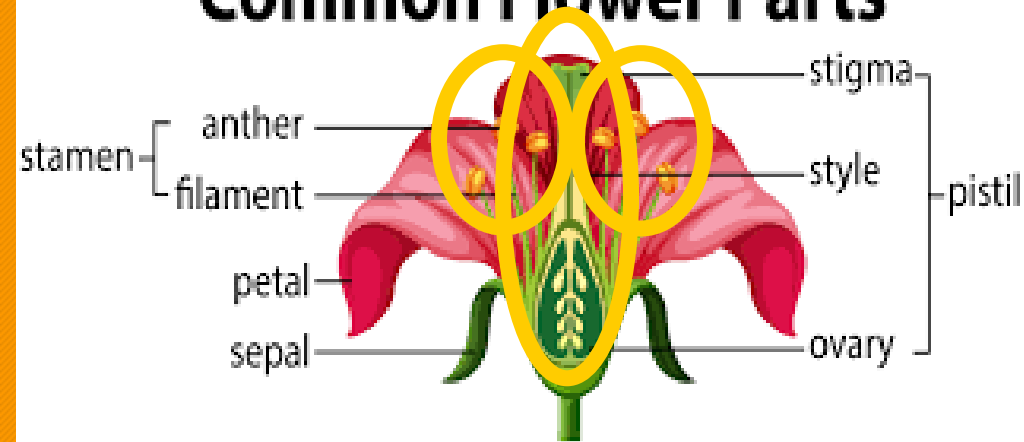


How do the parts of a flower (or flowers) work together to create a seed?

Plants require a male and female of the same species to create a seed...

just like animals need a male and female of the same species to create a baby.

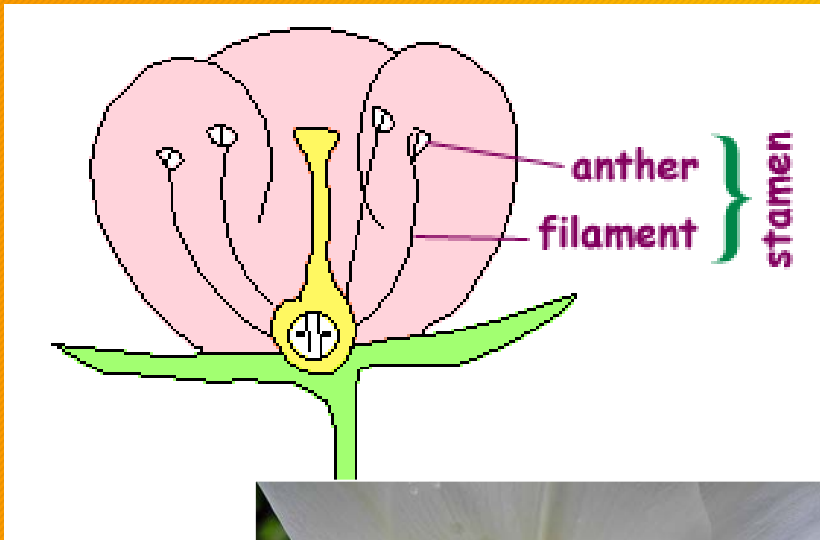
Common Flower Parts



The male part is called the stamen, and it includes the **filament** and the **anther**.

The female part is called a pistil, and it includes the **stigma**, **style**, and **ovary**.

What is the purpose of the stamen?

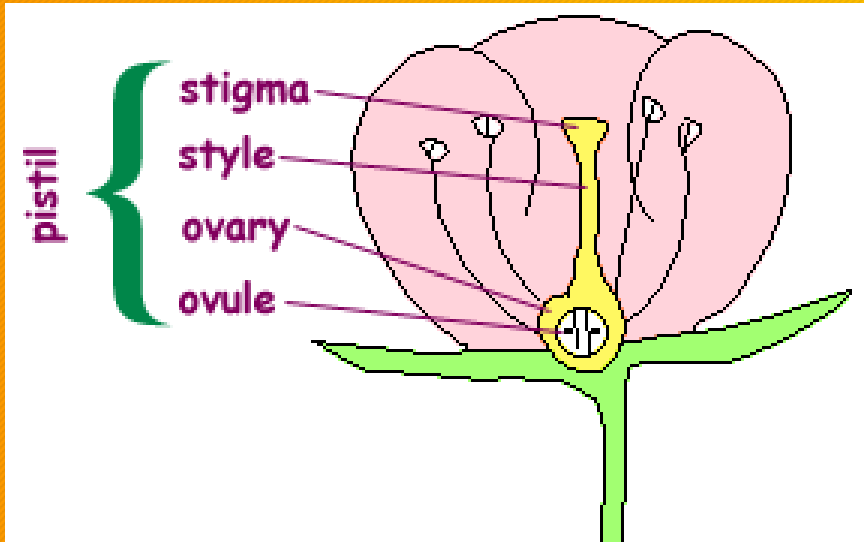


The stamen is the male parts of the flower.

- **Filament** - the long, thin tube that supports the anther
- **Anther** - the oval-shaped structure that produces the pollen

Pollen is the yellowish-orange, sticky powder on the anthers that contains the plants' male genetic material (sperm).

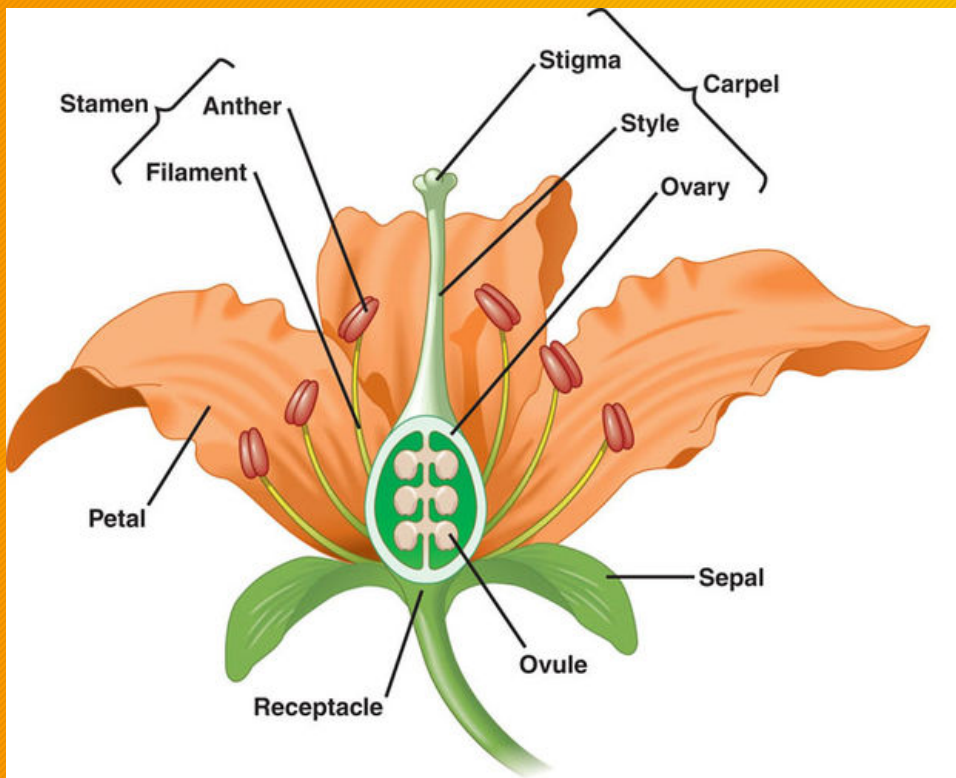
What is the purpose of the pistil?



The pistil is the female part of the flower.

- **Stigma** - the sticky tip that collects the pollen (from the male part)
- **Style** - the tube that the pollen travels down to get to the ovary
- **Ovary** - holds the **ovules** that join the pollen to become seeds, and then the ovary becomes the fruit that holds and protects the seeds

Do all flowers have a stamen and a pistil?



Some plants have flowers with both:

- the male part - stamen
- AND
- the female part - pistil

These flowers can **self-pollinate**.

However, some plants have flowers with only the stamen or only the pistil. These plants must rely on the flowers of another plant of the same species to **cross-pollinate**.

How does the pollen get from the stamen to the pistil?

Plants use the colors, smells and nectar in their flowers to attract animals like bees, butterflies, and other insects to transfer pollen from plant to plant and flower to flower.

This process is called **pollination**.

These animals that help move the pollen are called **pollinators**.



Why do most plants have similar internal and external structures (parts)? What are examples of these structures?

External Structures

- Roots
- Stems (trunk or stalk)
- Leaves
- Flowers

Internal Structures

- Xylem
- Phloem
- Pistil
- Stamen

These structures exist in most plants because they help plants survive, grow, and reproduce.

Over time, plants have adapted to survive, so their external structures may appear different from one plant species to another or from one environment to another.



Where are some potential places in our outdoor classroom to observe different types of plants?



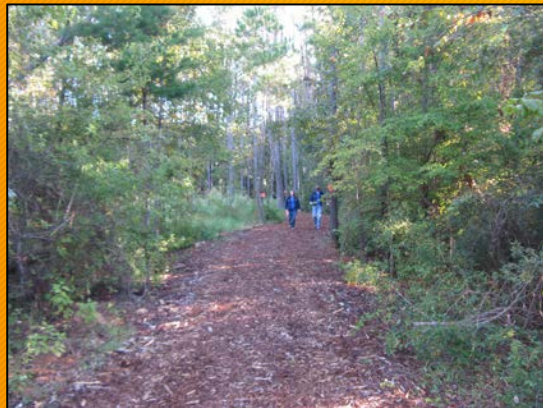
Look at the wildflowers and bushes in the gardens!

Look at the aquatic plants in the pond!



Plants can be found throughout the outdoor classroom!

Enjoy looking for them!!



Look at the trees and vines in a wooded area!

Look at the grasses and plants in a meadow!

