



Understanding Plants

Garden Education – Lesson 1 - All Grades

Vocabulary Words

- **PHOTOSYNTHESIS** - The process by which plants convert carbon dioxide into their food, by using the energy derived from the sun. The most essential elements of this process are sunlight, water, carbon dioxide and chlorophyll.
- **FOOD CHAIN** - A sequence of organisms in which each depends on the next and usually lower member as a source of food.
- **SEED DISPERSAL** – Seed dispersal is the movement or transport of seeds away from the parent plant.
- **POLLINATION** – Pollination is the process of pollen being transferred from the anther (a plant part) to the stigma (another plant part) of a flower to fertilize it and make seeds.

Role of Plants in Our Lives

1. Provide us with our habitat
2. Supply us with oxygen through photosynthesis
3. Provide us with nutrients, vitamins, minerals, fiber and water when we eat them
4. Beginning of the food chain for all living organisms

Basic Plant Structure

- Roots
- Stalks (sometimes)
- Stems
- Leaves
- Flowers/Blossoms
- Fruit or Pod
- Seeds

Plant Parts We Eat

- Roots – such as carrots, beets
- Stems – such as asparagus, broccoli stems
- Leaves – such as leafy greens: lettuces, kale, swiss chard, herbs
- Florets and Flowers/Blossoms – such as broccoli florets, cauliflower, squash blossoms
- Fruits and Pods – such as apple, orange, tomato, avocado, peas
- Seeds – such as sunflower, sesame, pumpkin

Plant Function and Lifecycle

- Roots anchor the plant in the ground and take up nutrient-rich water from the soil and transport it up into the stem.
- Stalks and stems create support and structure for the rest of the plant. Within the stem, xylem carries the nutrients to the various plant parts.
- Photosynthesis occurs on the leaf surfaces, converting sunlight and CO₂ into sugar and storing it.

- Plants will produce blossoms to attract pollinators. Blossoms contain the parts of the flower that are used in reproduction (anther and stigma).
- Pollinated blossoms will produce a seed or pod full of seeds, unique to that plant.
- The plant will disperse the seeds which are ready to grow into new plants. Different plants disperse seeds in different ways.
- Many plants, called *ANNUALS*, will die and decompose after seed dispersal. There are also *BIENNIALS*, which take two years to produce before dying, and *PERENNIALS*, which come back year after year.
- Decomposing plants contribute nutrients back into the soil by becoming food for *DECOMPOSERS*, organisms that consume decaying organic matter. They break the plants down, making the nutrients within available for other plants to use.
- Newly planted seeds are self-contained with nutrients to feed the embryonic plant while it's in the early stages of germination. Once they sprout roots and *COTYLEDON*, which are a plant's first two leaves, they can begin photosynthesizing and taking nutrients from the soil.

Put Your Plant Knowledge to Practice

Explore plant parts up close and personal! Select a plant and plant part/s that you want to investigate to see what you can identify based on the video (roots, stem, leaves, petals, blossoms, etc.), using a magnifying lens if you have one, to see greater detail. Draw what you see. Dissect your plant or plant part/s and draw what you find.

Supply List

- “Understanding Plants” student worksheet
- Colored pencils
- Blank paper
- Cutting board
- Plant or plant part/s (as many as you'd like)
- Knife or other cutting tool (parent to determine child's age and level of cutting skills and whether child needs assistance with dissection)
- **OPTIONAL:** Magnifying glass

Preparation

- Print out “Understanding Plants” student worksheet.
- Gather all supplies from the “Supply List” above and set up a workspace with a flat surface, such as a table or tray, that is calm and quiet. Outdoors is a great choice if you have the option.

Directions

- Search for a plant or plant part/s that you will dissect and observe. If desired, you can choose more than one, such as different plant parts of the same plant, or the same plant part of different plants (i.e. various flower heads or fruits.)
- Inspect and discover the plant/plant parts at your workspace, with or without a magnifying lens. The video discussed how plants work (function). Can you see how your plant or plant part/s might function? If you have more than one sample, compare their parts.
- Draw what you see with colored pencils on the blank paper.
- When your drawing is complete, open the plant (if you are using a cutting tool, cut it open) to see what you can discover (i.e. looking at the inside of a stem or a flower, fruit or pod), using a magnifying lens if possible.
- The video talked about how nutrients and water travel on the inside of the plant, where seeds are made and where pollination occurs. Are you able to imagine any of these functions better while you examine your plant?
- Draw what you see after dissecting your plant.
- You can repeat the dissection, examine, draw steps as many times as you like.
- Write down any questions that you came up with during this process (such as, “what is THAT?”)
- Clean up.

