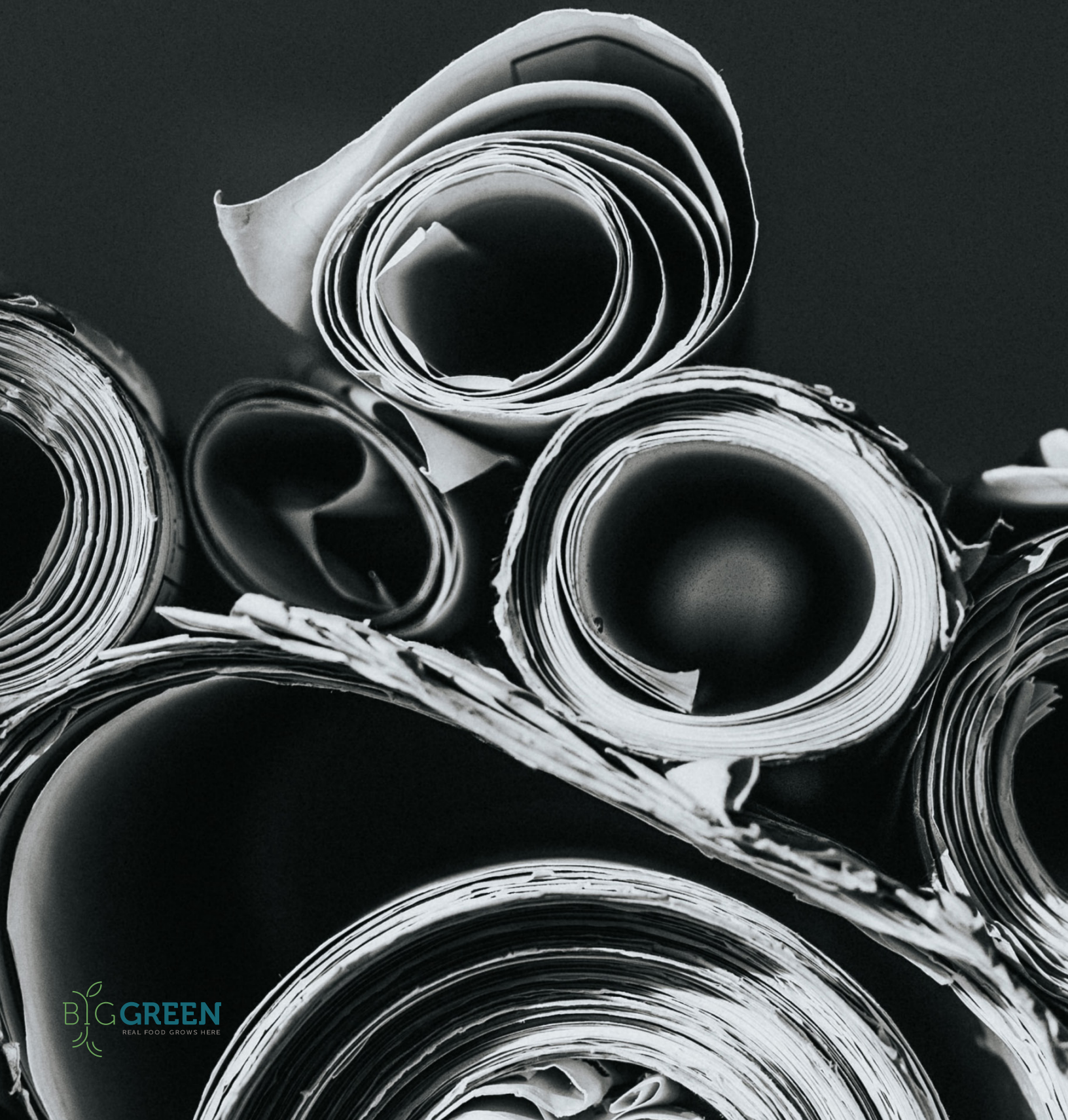
GARDEN THYMES

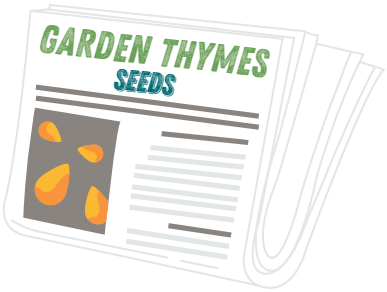
ARTICLES FOR THE YOUNG GARDENER

3-5



BIG GREEN
REAL FOOD GROWS HERE

ARTICLES FOR THE YOUNG GARDENER



Lesson Vocabulary

- Seed
- Embryo
- Cotyledon
- Seed coat
- Germinate

Academic Vocabulary

- Structure
- Function
- Lifecycle

WHAT IS A SEED?

Seeds are living things and all plants have them! The seed is the beginning of the plant's lifecycle. A seed contains all that is necessary to become an adult plant! When the conditions are right, a seed will sprout and produce a baby plant. Seeds need certain things to **germinate**, or begin growing into a plant, such as:

- Water
- Correct temperature
- Ideal environment (like soil)
- Specific light conditions (usually dark!)

WHAT STRUCTURES DO SEEDS HAVE?

All seeds have some structures, or special parts, that are always the same, although sometimes they look a little different from seed to seed. These structures help the seed fulfill its function. The function of a seed is to create new plants that are the same as the parent plant. Some of these structures include:

- **Seed coat**: The outer part of the seed that protects it from insects, disease, and moisture
- **Cotyledon**: The seed leaf
- **Embryo**: The structure that contains all that is needed to become an adult plant

ARE THERE SEEDS PEOPLE CAN EAT?

Yes! There are many types of seeds that people can eat and that are very healthy for us. Some examples include:

- Beans
- Peas
- Quinoa
- Corn
- Rice/wild rice
- Wheat
- Sunflower seeds
- Pumpkin seeds
- Nuts

WHY SHOULD WE EAT SEEDS?

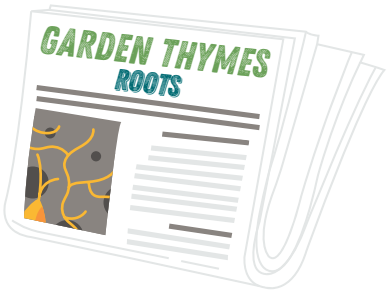
Seeds are part of the protein food group. Some seeds, like beans and peas, are also part of the vegetable food group.

PROTEINS ARE GOOD FOR YOUR BODY BECAUSE THEY:

- Help your muscles grow and repair themselves.
- Keep you full longer because it is harder for your body to digest protein.
- Help deliver and store oxygen in your muscles, which helps give you energy.

VEGETABLES ARE GOOD FOR YOUR BODY BECAUSE THEY:

- Have fiber which is great for your digestive system.
- Contain many nutrients that are good for your heart and can help prevent some serious diseases.
- Deliver all that goodness and are also low in calories.



Lesson Vocabulary

- Roots
- Soil
- Absorb (absorption)
- Anchor
- Taproot
- Fibrous root

Academic Vocabulary

- Structure
- Function
- Classify

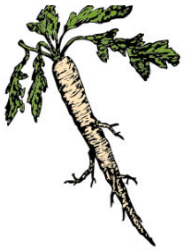
WHAT IS A ROOT?

A **root** is the first part of a plant that grows out of the seed. Its function is to **absorb**, or take in, water and nutrients from the soil. This allows the plant to continue to grow. Another function of the root is to act as an **anchor** in the soil. It holds the plant in place and provides a structure to support the entire plant.

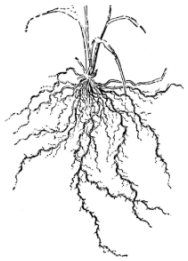
WHAT STRUCTURES DO ROOTS HAVE?

Since each plant needs different things, roots can look different. Scientists classify roots into two main types: **taproots and fibrous roots.**

Taproots grow down and are the main root for the plant. They have much smaller roots, or root hairs, growing off of them. A taproot is usually thick because it also stores food for the plant. Many of the roots we eat are taproots. Some examples are beets, carrots, and dandelions.



Fibrous roots are made of many small roots that branch out underground. The roots are usually the same size. They grow closer to the surface and spread out. Some plants that have these roots are grasses, corn, wheat, and onions.



ARE THERE ROOTS PEOPLE CAN EAT?

Yes! There are many types of roots that people can eat and that are very healthy for us. Some examples include:

Carrots
Beets
Rutabagas
Radishes
Turnips
Parsnips
Rutabaga

Roots are good for your body because:

- Roots can be a healthy source of carbohydrates.
- They are low in calories.
- They are full of vitamins and minerals your body needs to be healthy and fight disease.

Lesson Vocabulary

- Stem
- Xylem
- Phloem
- Transport (transportation)
- Nutrients

Academic Vocabulary

- Structure
- Function
- Classify
- Edible

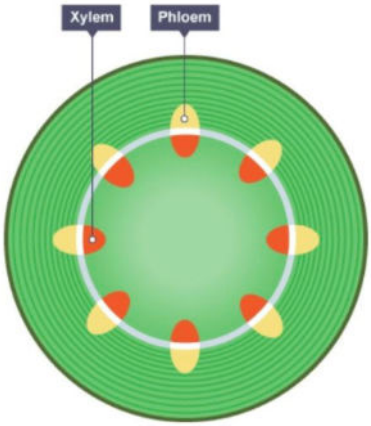
WHAT IS A STEM?

Stems are a special part of a plant and usually start growing after the roots form. The main function of a **stem** is to support the growth of the plant. There are two ways this happens. One way is that the stem itself holds up the plant. The most important function of the **stem** is to **transport** (or move) water, food, and nutrients to all parts of the plant. **Nutrients** are absorbed by the roots and transported to the rest of the plant by the stem. Water, nutrients, and food are what allow plants to grow.

WHAT STRUCTURES DO STEMS HAVE?

There are two important structures that support transportation in plants. These two structures are called the xylem and the phloem.

The xylem and phloem are like a team that works together to transport things the plant needs. The **xylem** transports water and nutrients from the roots to the leaves. Plants make their own food in the leaves! We will learn more about that soon. Once the leaves make food, the **phloem** transports the food to the rest of the plant. The xylem and phloem are a great example of how plant parts work together to make sure the plant survives and can produce new plants.



ARE THERE STEMS PEOPLE CAN EAT?

Yes! There are many types of stems that people can eat. Some edible stems grow above the ground such as:

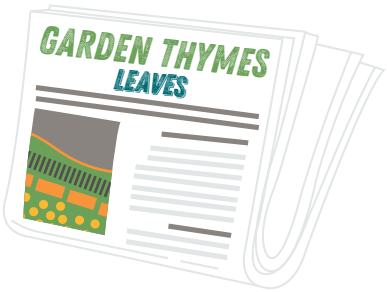
- Celery
- Asparagus
- Rhubarb
- Broccoli stems

There are also plants stems that grow below ground. Sometimes people call these stems "roots", but they are actually stems. Some edible examples of these stems include:

- Potatoes
- Onions
- Yams
- Garlic
- Cassava

WHY SHOULD I EAT STEMS?

As you can see from the list of edible stems, there are a wide variety of stems that can become part of a healthy diet and many that grow in the Learning Garden. Usually stems are easy to prepare. For example, celery and rhubarb can be washed and eaten raw. Other stems like asparagus or leeks are tasty when sautéed in a pan. Potatoes and yams can be excellent sources of healthy carbohydrates. Stems like onions and garlic are often used to add flavor to other foods. Both are in recipes from around the world. In addition to these benefits, stems provide many valuable vitamins and minerals that our bodies need. Since they are packed with nutrients and generally low in calories, stems can be enjoyed often as part of a delicious and healthy diet!



Lesson Vocabulary

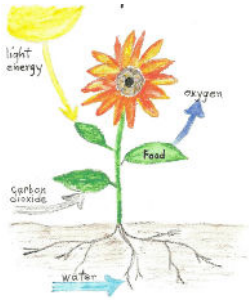
- Leaf
- Photosynthesis
- Carbon dioxide
- Absorb (absorption)
- Blade
- Vein

Academic Vocabulary

- Structure
- Function
- Classify
- Edible

WHAT IS A LEAF?

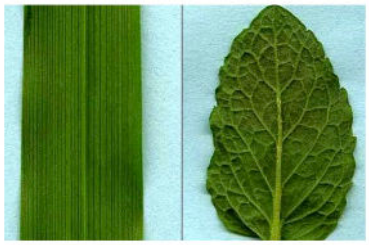
A **leaf** is the part of the plant that makes the plant's food. Yes, plants can make their own food through a process called photosynthesis. This happens when leaves absorb sunlight and carbon dioxide, a gas found in the air. Carbon dioxide is naturally present in the air and is actually something humans add to the air when we breathe out. A chemical reaction takes place inside the leaves during which the sunlight and carbon dioxide are changed into sugar, or food for the plant. This is an amazing process that we see happen all over the the plant world.



WHAT STRUCTURES DO LEAVES HAVE?

There are many things about the structure of a leaf that help it fulfill its function for its plant. Because plants grow in many different environments, leaves have different shapes so that photosynthesis can happen. One way leaves are different is with their blades and veins. The **blades** are the broad, flat part of the leaf. The size of the blade will change based on how much sunlight a plant gets or needs. Some leaves are very large and absorb a lot of light. Others are much smaller, but often plants with small leaves have many more leaves than plants with large leaves.

Another way leaves can be different is with their veins. **Veins** contain the xylem and phloem we learned about in the lesson on stems. Some leaves have veins that are parallel, and others have veins that look more like a web or net. The Learning Garden is full of leaves that have different shapes. However, all leaves serve the same role in plants.



ARE THERE LEAVES THAT PEOPLE CAN EAT?

Yes! There are many types of leaves that people can eat. Some edible leaves grow in the garden. Some examples are:

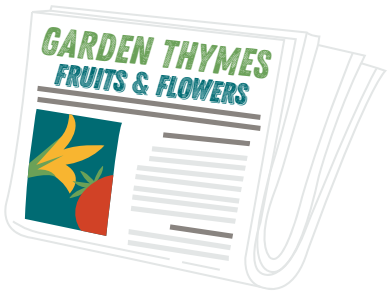
- Kale
- Spinach
- Collard greens
- Swiss chard
- Cilantro
- Basil
- Cabbage
- Brussels sprouts

WHY SHOULD I EAT LEAVES?

As you can see from the list of edible leaves, there are a wide variety that can be part of a healthy diet and many that grow in the Learning Garden.

Leaves, like stems, are easy to eat. Sometimes, they are referred to as “greens”. Leaves are green because of chemicals in the photosynthesis process. Most of the time they can be washed and eaten raw, but they are also delicious cooked. Some people use leaves as a way to eat other foods like in a lettuce wrap or veggie bowl. Many people also eat a variety of greens, such as spinach, kale, and Swiss chard, in salads and smoothies. Leaves are often added to soups or cooked with other vegetables such as onions or beans. Certain leaves that are especially flavorful are used as herbs. Basil and cilantro are examples of those that can be found in most gardens.

The nutritional benefits of eating leaves are many. Leaves are very low in calories and deliver excellent nutrients your body needs. Most leaves also contain a lot of fiber which helps you feel full longer. Some people even call certain leaves, like spinach and kale, “superfoods” because they are so good for you. Vitamins K, A, and C are found in most edible leaves, as is folate which is important to the cells in your body.



Lesson Vocabulary

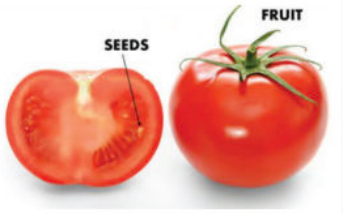
- Flower
- Fruit
- Stamen
- Pistil
- Petal
- Ovary
- Pollination

Academic Vocabulary

- Structure
- Function
- Classify
- Edible

WHAT ARE FLOWERS AND FRUITS?

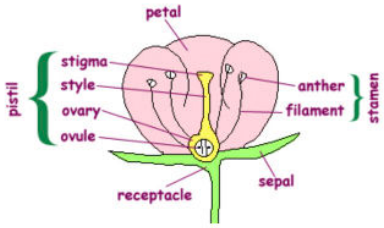
Plants make flowers and fruits to reproduce. **Reproduction** is the name of the process that plants use to make new plants. **Flowers** are the part of the plant that contains the reproductive parts that need to be pollinated to make new plants. Flowers come in many shapes, sizes, and colors, but even though they look different, their function is the same.



All fruits start as flowers. Flowers need to be pollinated to produce **fruit.** After pollination, the plant will begin to produce fruit and seeds will grow. The function of the **fruit** is to protect the seeds. **Fruit** is the environment in which the seeds will be able to grow and ultimately be dispersed, or spread, creating a new plant.

WHAT STRUCTURES DO FRUITS AND FLOWERS HAVE?

There are structures that allow plants to create new plants. **Pollination** is the process of taking pollen grains from the male part of a flower, the stamen, to the female part of the flower, the stigma. This process ultimately allows seeds to start growing. **Pollination** usually happens with the help of animals, like bees or butterflies, or wind.



Flowers have specific structures that allow for reproduction to occur. Their colors and smells are pleasing to us and to the animals that the flower needs for pollination. Flowers contain two main parts, a male structure called the **stamen** and a female structure called the **pistil**. These big structures, the stamen and pistil, have smaller parts that are important to the process of reproduction. The stamen contains the pollen. The pistil contains the ovary which will become the seed and form the fruit.

ARE THERE FRUITS AND FLOWERS THAT PEOPLE CAN EAT?

Yes! There are many types of flowers and fruits that people can eat. Edible fruits and flowers grow in the garden.

EDIBLE FLOWERS:

- Broccoli
- Squash blooms
- Nasturtium
- Calendula
- Cauliflower
- Bachelor buttons
- Hibiscus

EDIBLE FRUIT:

- Peppers
- Squash
- Watermelon
- Green beans
- Tomato
- Cucumber
- Pumpkin
- Zucchini
- Berries

WHY SHOULD I EAT FLOWERS AND FRUITS?

Like most other plant parts, fruits and flowers offer many benefits for people as part of a healthy diet. Sometimes, people talk about fruits and flowers as if they are vegetables. Examples of these are broccoli, cauliflower, beans, and peppers. These are actually flowers and fruits, but their taste isn't as sweet as others so they end up being called vegetables. The sweeter fruits, such as melons and berries, are what we often think of as fruits. Whatever they are called, flowers and fruits are both delicious and full of nutrients. According to the chef's plate, fruits and vegetables should make up half of each meal.