

Botany

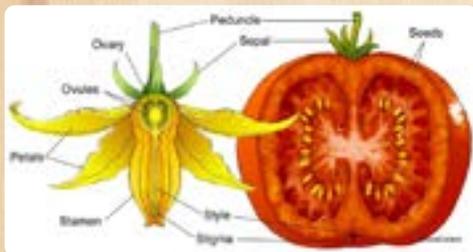
SOUP

Did you know, botanists and chefs have something in common? Botanists explore plants and their importance to the environment, and chefs explore plants and their importance to recipes. Imagine you are both botanist and chef and explore fruits & veggies you might have at home. Then make a soup out of the plants you learned about! You may need an adult to help with a knife and to prepare the soup on the stove.

We'll use some of the fruits and veggies below. Do you have any at home? It's ok if you don't. You can follow along with the pictures!

tomato
pepper
a stalk of celery with leaves
lettuce (any kind)
potato

onion or garlic
dry or canned beans
pepitas (unroasted)
rice (any kind will do)
carrot

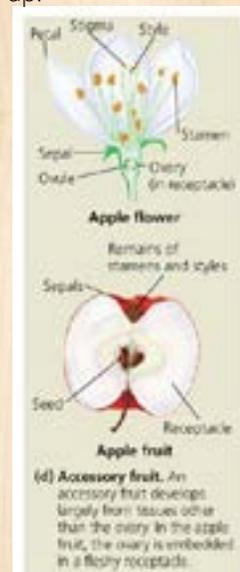


Flowers first!

Flower parts help with pollination: petals attract pollinators, stamens contain pollen, stigmas are sticky to collect pollen and seeds develop in the ovary. Can you find the stamens and the stigma in the picture? Compare the flower to the fruit. Notice how the parts match up.

Seeds second!

These fruits all come from flower parts and have seeds inside. When pollen moves down the style to the ovary, seeds begin to develop. The ovary wall becomes the fruit. Look at the pepper, imagine the stem of the pepper is the peduncle of the flower. The pepper is the enlarged ovary with seeds inside. Some fruits are dry, some fruits are juicy. All fruits are attractive to animals that spread seeds. What is similar about these fruits? What is different? If you have any of these fruits, try to remove a few seeds.



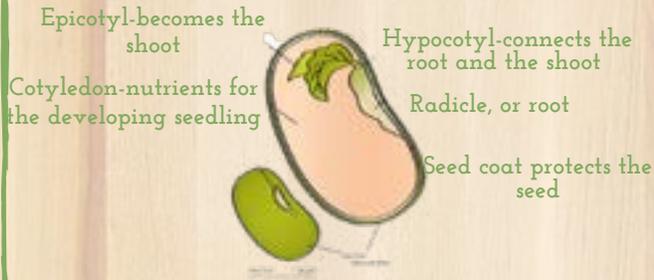
Botany Fun Fact! Apples are special. they're called accessory fruits. The part we eat comes from the receptacle, not the flower parts (carpel). Receptacles hold the flower petals.

Try some of these fruits, which do you like best? Which would you choose for a soup recipe? Write the flavors you tasted here:

- Tomato _____
- Pepper _____
- Cucumber _____
- Peas (or green beans) _____
- Apple _____

Seeds grow into new plants.

Seeds have many parts too. The seed coat protects the seed until it's ready to take in water. Inside the seed, the cotyledons store sugars and protein needed for growth. The radicle is the root of the embryo, it emerges from the seed first and absorbs water and nutrients for the growing seedling. Fruits and seeds taste good to us and other animals because of this stored starch and sugar. The epicotyl becomes the shoot which develops leaves for photosynthesis.



Do you see a white dot on the beans? The hilum is where the seed was attached. Water enters the seed here, and the process of germination begins.

What about other plants that we eat? Vegetables come from other plant parts like roots, stems and leaves. These parts help plants grow.



Carrots are roots. Roots anchor plants in the ground and absorb minerals and water from the soil. What other root vegetables are there?



Can you believe onions are leaves? Cut an onion in half and peel away the layers. Each layer is a leaf. The roots grow below the flat pad at the bottom of the onion.



Think a potato is a root? Think again. A potato is an underground stem that stores sugars for the growing plant to use later. Here's a potato that sprouted!



Celery stalks are something called a petiole that holds the leaves of the celery plant and moves water and sugars through the plant.

Raw veggies and cooked veggies taste different. Try some of these both raw and cooked. Write down how they taste here. Which way do you like them better?

Carrots raw _____ Cooked _____

Celery raw _____ Cooked _____

Onion raw! _____ Cooked _____

Potato raw _____ Cooked _____

(Give your soup a name. Write it below!)

makes about 2 quarts

Ask an adult for help to use a knife and the stove.

Ingredients:

1 medium yellow onion

2-3 cloves garlic

3 tablespoons olive oil

3 medium carrots

2 stalks celery

1 (32 ounce) can crushed tomatoes

10 green beans (or use 1 can of white beans

1 large potato (optional)

1-2 teaspoons concentrated bouillon paste or 3-4 cups canned broth)

Salt, pepper, 1 bay leaf,

1/2 teaspoon each thyme, rosemary, paprika, basil or other herbs that sound yummy to you,

Wash your hands and all the veggies.

- Dice onion, and set aside.
- Heat olive oil in a soup pot on medium low for 3 minutes. Add diced onion and cook until onion is almost clear.
- Dice garlic, add to the onion. Saute for 2 minutes.
- Add spices & stir.
- Chop carrots and add to the pot.
- Dice celery and add to the pot.
- Chop potato and add to the pot.
- Stir, stir, stir
- Chop green beans into thirds and add to the pot.
- Stir and cover for 3 minutes.
- Add tomatoes, and stock (or bouillon and 3 cups water)
- Bring to a boil for 10 minutes, then reduce to simmer.
- Cover and cook for 45 minutes.
- Season to taste.

- OPTIONAL: Add some cooked rice to your soup, sprinkle pepitas on the top for extra color and flavor

- **A Chef makes notes about recipes. What did you like best about this recipe? What do you want to add next time? Share your soup with your family!**
