

FAIRCHILD TROPICAL BOTANIC GARDEN

Root Top Garden

Roots are a very important part of plants. Roots often help to anchor a plant in the soil and take up the water and nutrients needed for a plant to grow. Roots come in lots of shapes and sizes. Can you think of any roots that we eat? How about carrots, or radishes, or beets?

Did you know that some roots can be planted and will sprout into a whole new plant?

Let's try!

Materials Needed:

Aluminum pie pan

Root vegetables - carrot, turnip, radish, or beet; cut and keep top portion

Soil

Water

1. Punch a few small holes in the bottom of your dish, so that water can drain. You can use a pencil point or a thick needle with the help of your teacher.
2. Add a layer of soil about 2 inches deep.
3. Place tops of roots in the soil, with cut bottoms down. Leave about an inch of the leaf stem on top. To prevent rotting, let cut vegetables dry for 1-2 days before planting.
4. Place your garden dish in a bright window sill. Keep evenly moist but not too wet.
5. Observe your garden every day. Soon, your root top garden will start to sprout new leaves from the top and new roots into the soil.

Extension activities:

Grow a Plant Part Garden:

1. Sprout a stem (potato): A potato is not a root; it is a large, thick underground stem called a tuber. The marks on the skin of a potato that look like scars are called 'eyes', which are actually the buds. Cut a potato into pieces so that each piece has at least one eye. Plant the piece of potato in a pot with dirt approximately $\frac{3}{4}$ of an inch below the soil. Place

pot near a bright window, and keep soil slightly wet. Watch for your potato plant to start to grow!

2. Sprout a seed: Use toothpicks to suspend an avocado seed in a cup of water. The pointed end should face up, and the bottom 1/3 of the seed should be in water. Place in a shady spot and change water weekly. In several weeks, your seed should begin to germinate.

Another fun activity involving seeds is to make a necklace from a small plastic bag by attaching a string (staple or punch holes). Put a moist piece cotton ball into the bag. Then place a few unshelled peanuts or plain popcorn (not microwave) into the bag. When you are not wearing the necklace, hang in a bright spot. If the cotton ball dries out, add a few drops of water. Within days, you should see your seeds begin to germinate.

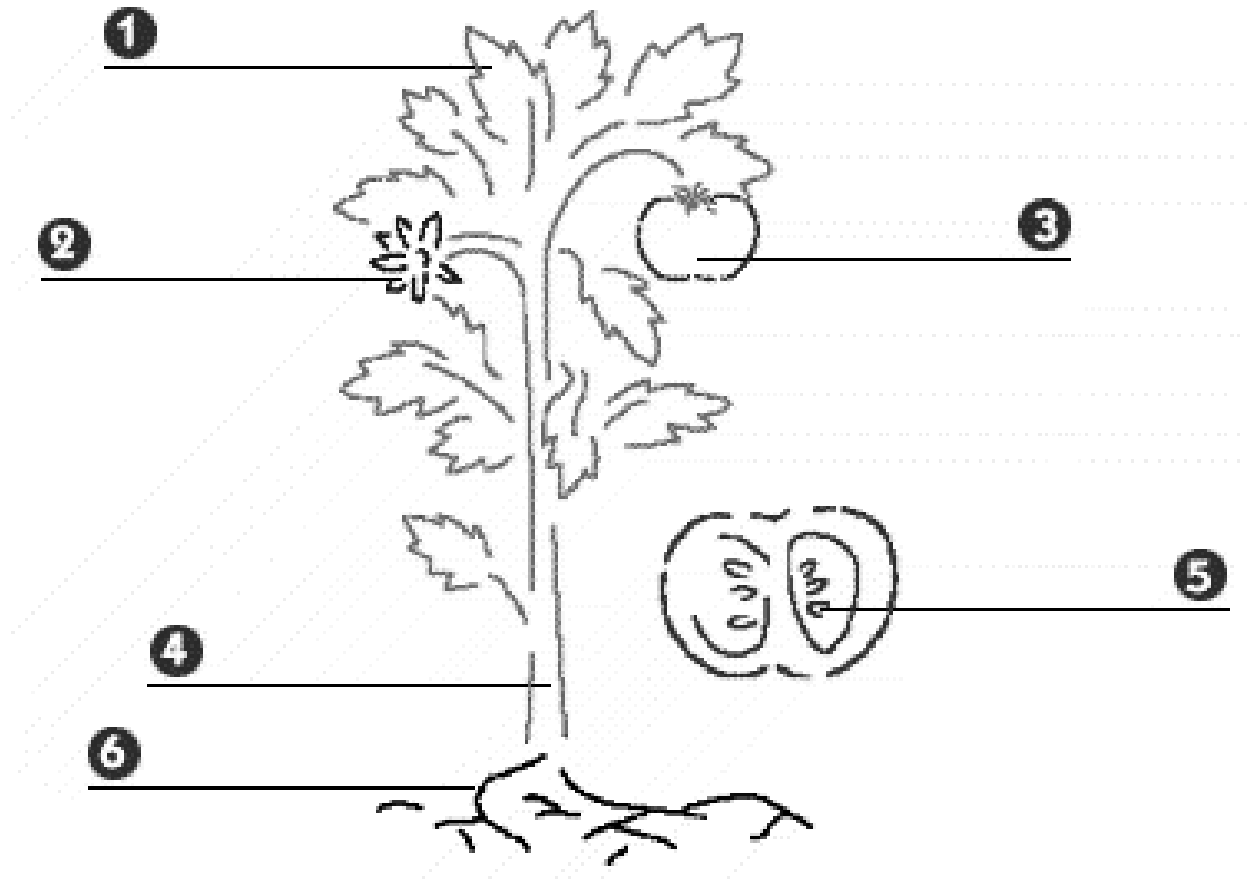
3. Grow a plant from a stem cutting: see attached handout on "How to Take a Cutting".
4. Grow a plant from a leaf cutting: Some plants can be propagated from leaf cuttings. Begonias, African violets, or kalanchoe (and certain other succulents) are good plants to try to grow from a leaf. To take a leaf cutting, use a sharp knife to remove a leaf and its petiole (leaf stalk). You may dip the end of the petiole into rooting hormone (can be purchased at garden supply store) to help aid rooting and prevent rot. Insert the leaf stem into the sand or soil. Leaf cuttings, like stem cuttings, require high humidity. In several weeks, you should see roots start to develop at the base of the leaves.

Supermarket Botany: Have your students make a list of all the plants that they have eaten in the past week. Once they have made that list, have them try to identify which part of the plant each food comes from. Make sure that you find examples of all of the following - roots, stems, leaves, flowers, fruits and seeds.

FAIRCHILD TROPICAL BOTANIC GARDEN

Name: _____

Directions: Fill in the parts to this plant from the list at the bottom of the page. For each plant part, try to think of a food that you eat that comes from that part.



Roots

Flowers

Leaves

Fruit

Stems

Seeds

FAIRCHILD TROPICAL BOTANIC GARDEN

How to take and care for your cutting

1. Cut a growing tip of the plant 3-6" long, with at least one internode. (See diagram below).
2. Remove lower leaves from stem with fingers or clippers, exposing at least one node, and leaving only the top 1 or 2 sets of leaves.
3. Insert the bottom of the stem into rooting hormone, if available (can be purchased at garden supply store). Next, place the stem into the growing medium, either perlite or soil. Be sure that at least one exposed leaf node is in the medium. Gently pack down the medium.
4. Cuttings require high humidity and bright, but not direct, light while developing roots. You may use a plastic dome or container to increase humidity, or you may mist with water daily (or several times daily) with a spray bottle.
5. Keep the cutting in high humidity, between 72-80 degrees Fahrenheit, and in bright but not direct light.
6. Depending on the species, some cuttings will begin to develop roots in as little as one week. Others may take several weeks. You can test if your plant is rooted by gently pulling upwards on the cutting to see if it is anchored, or by looking for roots coming out of the bottom of the pot.
7. Do not worry if leaves turn yellow and drop; that is normal and usually the cutting will recover. Some cuttings may need a dilute solution of fertilizer if they are slow to root.
8. When the cuttings are well rooted, you can transplant them into a pot with soil and nutrients.

Step 1.



Step 2.



Step 3.



Step 4.

