

Dig 'Em Up

Purpose

The purpose of this lesson is to review the functions of roots and to identify the roots of some plants as edible.

Time

Teacher preparation:

20 minutes

Student activities:

One 45-minute session and three 10-minute sessions over a two week period to measure and record root growth

Materials

For the class:

- ▶ Chart or butcher paper
- ▶ Markers
- ▶ Carrots, radishes, turnips, rutabagas, ginger, or parsnips (*preferably with the tops*)
- ▶ Knife and cutting board (*to be used by teacher*)

For each student:

- ▶ One clear plastic cup
- ▶ One paper towel
- ▶ 3-5 radish seeds
- ▶ Water
- ▶ Centimeter ruler to measure root growth

Background Information

Scientifically speaking, roots help anchor plants in the soil and take up water and nutrients that “feed” the plants and help them to grow. Some roots, such as beets, carrots, radishes, rutabagas, and turnips, also store sugars and starches. People eat these roots to obtain many of the essential nutrients they require for survival.

Procedure

1. Post a large piece of chart paper in front of the room.
2. Check the students’ understanding of the function of roots. Review that roots help hold the plant in place and take up water and nutrients from the soil. Write this information on the chart paper.
3. On the chart paper, brainstorm with the students to come up with a list of edible roots.
4. Display the selection of edible roots that you have brought in for the class to examine and assist the students in identifying them. Add any new edible roots to the list.
5. Using a clean cutting surface and knife, cut the washed roots into bite-sized pieces. Have students wash their hands and taste the vegetables.
6. Experiment: Create planters for observing radish seed growth. Give each student a clear plastic cup. Have students fold up a paper towel and place it inside the side of the cup. Have students pour just enough water into the bottom of the cup so that the water wicks up the paper towel. Once the paper towel is moistened all the way to the top, have students place three to five radish seeds between the paper towel and the side of the cup, about one inch from the top of the paper towel.
7. Observe the seeds daily. Every 4-5 days, measure root growth in centimeters with a ruler and record observations on the sheet provided.



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Content Standards

Grade 2

Science 2a, 2d, 2e, 4b, 4f, 4g

Next Generation Science
2-LS2-1

English Language Arts

- Writing 8
- Speaking and Listening 1a, 1b, 1c, 3

Grade 3

Mathematics

Measurement and Data 4

Science 3a, 3d, 5c

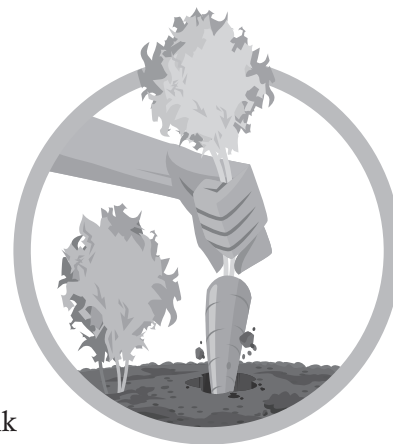
Next Generation Science
3-LS3-2

English Language Arts

- Writing 8
- Speaking and Listening 1a, 1b, 1c

Conclusion

The roots of some plants are edible. Although we can't see them, roots are a vital plant structure. Roots anchor plants in the ground, hold soil in place, and absorb water and nutrients from the soil.



Extensions

- ▶ Have students go on a nature walk and pull weeds from school or home. Spread out and compare the various root types that were collected by the students. Discuss which are tap roots and which are fibrous roots and the differences between the two.
- ▶ As a class, read the book, *Tops and Bottoms* by Janet Stevens

Variations

- ▶ Plant some cups with radish seeds and some cups with carrot seeds. Compare and contrast results.

ELL Adaptations

- ▶ This lesson incorporates hands-on activities. Kinesthetic learning events provide an excellent learning environment for the English learner.
- ▶ Allow students to watch you set up the experiment and any variations prior to having students set up their own experiments. ELL students will benefit from observing the procedures before they get started.
- ▶ Model the *Think, Pair, Share* method: After seeing edible root vegetables, have students turn to a partner and say, “_____ are roots that we eat.”