

K-3 Activities Which Soil is the Best Home for Carrots? —



Target Standards:

- Kindergarten
 - SKE2. Students will describe the physical attributes of rocks and soils.
 - a. Use senses to observe and group rocks by physical attributes such as large/small, heavy/light, smooth/rough, dark/light, etc.
 - b. Use senses to observe soils by physical attributes such as smell, texture, color, particle/grain size.
 - c. Recognize earth materials— soil, rocks, water, air, etc.
- 1st Grade
 - S1L1. Students will investigate the characteristics and basic needs of plants and animals.
 - a. Identify the basic needs of a plant.
 1. Air
 2. Water
 3. Light
 4. Nutrients
- 2nd Grade
 - S2L1. Students will investigate the life cycles of different living organisms.
 - c. Investigate the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.
- 3rd Grade
 - S3E1. Students will investigate the physical attributes of rocks and soils.
 - S3L1. Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.

Materials:

- Carrots with greens (different colored varieties if possible)
- Different soils: loam, clay, sand (can be purchased at local garden supply stores)
- 3 identical containers (containers should be deep enough to accommodate length of carrots and have equal size and quantity of drainage holes - recycled containers are best, such as 2-liter bottles cut in half)

Engage (Whole Group): 15 minutes

Scientific Method: Make an Observation

Observe carrots with greens (different colored varieties if possible)

- Look: Describe color
 - Orange roots contain betacarotene which is converted into Vitamin A and helps our eyesight
 - Green leaves due to the chlorophyll in the chloroplasts that carry out photosynthesis
- Touch: Describe texture of carrot and greens
- Smell: Describe the smell of raw carrots
- Sound: Describe sound of the break (crunch)
- Taste: Describe the taste with adjectives!



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GA Standards

🕒 55 min

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Scientific Method: Research

Determine what you already know about growing carrots

- Watch a Video about Carrots: <https://www.youtube.com/watch?v=bxkU00SIAss>
- Ask a Farmer: Contact a local farmer with questions about how and when to grow carrots, along with any experiments they have done. Search the [Local Food Guide](#) to find the contact information for local farmers in your area.

Explore (Small Group): 10 minutes

Scientific Method: Ask a Question

- Review prior knowledge: Plants need water, air, sun, and soil.
- Pose the question: What type of soil will carrots grow longest in?

Scientific Method: Make a Hypothesis

- Review or introduce soil types (with examples for hands-on exploration)
 - Loam: soil with equal parts of sand, silt, and clay
 - Clay: soil with the smallest particles; water does not pass through easily
 - Sand: soil with the largest particles; water passes through easily
- Gather student hypotheses on which soil type will grow the longest carrot

Explain (Whole Group - Modeling): 20 minutes

Scientific Method: Conduct an Experiment

- Plant carrot seeds in 3 labeled containers: soil, loam, and clay (containers should be deep enough to accommodate length and have equal size and quantity of drainage holes - recycled containers are best, such as three 2-liter bottles cut in half!)
 - If you need some carrot planting tips, watch the How to Plant Carrots video or review How-to Grow Carrots resource on Rooting for Carrots Resources webpage: www.georgiaorganics.org/for-schools/rooting-for-carrots/resources
- Place containers by the window or in the garden and water them regularly and equally for at least 2 months

Extend (Small Group - Guided Practice): 10 minutes

Scientific Method: Draw Conclusions

- After at least 2 months, harvest the carrots from each type of soil and measure to see which soil type grew the longest carrot.
 - Not sure how to harvest carrots? Watch How to Harvest Carrots video on the Rooting for Carrots Resources page: www.georgiaorganics.org/for-schools/rooting-for-carrots/resources
- Analyze results attempting to explain the results of the experiment given your prior knowledge about the pros / cons of each type of soil.

Evaluate (Independent - Independent Practice): Length varies

Scientific Method: Share Your Conclusion

Students can create a “How to Grow Carrots” guide based on what they learned from their experiment, from the seed pack, and from any further research they conduct.



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#rootingforcarrots