THE UNIVERSITY OF ARIZONA
Cooperative Extension

az2063 September 2023

Gardening with Children in Early Care and Education Centers and Classrooms

Hope Wilson, Katherine E. Speirs, Rhegan Derfus, Dominique Garcia

Gardens provide a hands-on learning environment for engaging young children. While they do require some planning and resources to build and maintain, incorporating gardening activities into your early childhood classroom or center can be rewarding for teachers and children. Below we provide suggestions for planning a garden, gardening activities and how to use gardening activities to promote learning and development.

There Are Many Benefits of Gardening with 3-5-Year-Old Children[1, 2]

- ✓ Growing plants teaches children about the lifecycle of a plant and what plants need to grow.
- ✓ Plants and tools can be used to teach about shapes and colors.
- ✓ Tending to plants and waiting for them to grow can teach responsibility and patience.
- ✓ Shared work and efforts in the garden allow children to practice cooperation and develop a sense of community contribution.
- ✓ Carrying tools, planting seeds, pouring water, weeding, and harvesting fruits and vegetables can promote fine and gross motor development.
- ✓ Growing, learning about, and eating fruits and vegetables can promote healthy eating.
- ✓ Learning to grow food can equip children with beneficial, lifelong skills.

Planning Your Garden[3]

What kind of garden do you want to grow?

Container Gardens: Grow plants in small or large containers or planters. Container gardens can be grown outside or inside near a window. You don't need to purchase planters. You can use old milk cartons, pails, or even plastic cups.

Raised Bed Gardens: Larger boxes or containers that sit on top of the ground are filled with potting soil. Many garden centers and hardware stores sell kits that include everything you need to build raised beds.

In-Ground Gardens: Plant right into the ground after any grass or ground cover has been removed. You can start with a small space and make the garden bigger the next year.

Where will you plant your garden?

- Make sure the garden is easily accessible for all young children including those with physical disabilities.
- Make sure the garden is close to a water source. If planting on a school campus, consider coordinating with the maintenance staff/groundskeeper for support.
- Take note of how much shade and sunlight your garden will get.
- Consider planting near a shaded area where children can cool off.
- If space is limited, a container garden inside of a wagon can be easily moved indoors and outdoors as needed.

What will you plant?

- If you plant fruits and vegetables, you can teach about healthy eating and cooking.
- Research which plants grow well in your climate and during the time of year when you want to use the garden. Your local Cooperative Extension office can help you!
- Consider using seeds from a local seed library.
- Planting seeds and potted plants will allow for immediate and delayed gratification.

How will you pay for your garden?

- Ask parents or community members for donations of money or time.
- Hold a garden-related fundraiser, such as selling a cookbook with student recipes or stones displaying donor names to go around the garden.
- Ask local businesses to donate supplies.
- Look for a small grant to support the garden. Check out this list of grants https://kidsgardening.org/grant-opportunities/

Who will care for your garden?

Consider having a small team take responsibility for watering, weeding and other basic upkeep, especially on the weekends or other times when children will not be in the garden.

Which materials do you need?

In addition to actual garden supplies, make sure there are tools and gardening gloves in children's sizes.

How will you promote safety in the garden?

- Ask parents or caregivers about and record children's allergies to insects, plants, fruits or vegetables.
- Require that children wear closed toe shoes to protect their feet.
- Plan for adequate supervision at all times in the garden.
- Avoid planting toxic plants, using fertilizers or chemicals.
- Make sure sharp or mechanical garden tools are kept away from children.

Gardening Activities

Watch Seeds Sprout

Materials: Clear plastic cups or food containers, paper towels, zip top bag, water, seeds, and construction paper.

Description: Help children completely saturate the paper towel with water, place the paper towel on the bottom of the cup or food container, add a few seeds (try to place them so that they are not touching), cover the cup or container with a zip top bag. The seeds should start sprouting in about a week. Check the seeds every day and help the children track the changes that they see.

Grow Plant People

Materials: Terracotta or plastic planters in a light color, grass seed, water, and markers or paint.

Description: Children decorate the planters with the markers or paint with a face. Plant the grass seeds in the planters and watch "hair" grow above the faces.

Bug Hunt

Materials: Hand lenses and a camera.

Description: Take the children on a hunt for bugs in the garden or to anther outdoor space. Don't forget to look under rocks and on leaves. Observe bugs using hand lenses. Take pictures of the bugs you find and post them around the classroom, help the children count and describe the bugs you find.

Use Gardening Activities to Promote Development and Learning

Gardening activities provide a great setting to support young children's development and learning in several of the domains described in Arizona's Early Learning Standards.[4] A few examples are provided below:

Social Emotional: Help children develop self-awareness by encouraging them to share their preferences (e.g., ask them which part of planting a seed they liked the best). Learning to grow plants local to the area or connected to a culture can support a sense of belonging and identity.

Approaches to Learning: The garden is a great place to help children develop problem solving skills (e.g., if a pot overflows when watered, help children think about why it overflowed and how to avoid it next time. Test their solutions when watering another plant).

Language and Literacy: Teach children that answers can be found in books and other written materials. When you have a question about gardening (e.g., How often does a plant need to be watered?) show the children how you look up the answer in a book or using other written materials.

Mathematics: Encourage children to count out loud while working in the garden (e.g., lead them in counting the number of seeds you plant, the number of leaves on a branch, the number of steps they can take from one side of the garden to the other).

Science: Make and test hypotheses while gardening (e.g., ask children to predict what will happen after planting seeds, check them each day to see how they have changed or plant one seed in the sun and another in the shade and ask children to predict what will happen to each one, check back each day and talk about the differences).

Social Studies: Use the garden to teach about rules. Explain the rules of the garden and help children understand the reasons behind the rules. Ask them to explain the rules and the reasoning behind them to you. The garden can also be a useful example of the food system. Explore with children where food comes from, who grows it, and how it ends up on their tables.

Physical Development, Health, & Safety: Use the garden to teach about personal health and hygiene (e.g., talk about the importance of washing your hands after working in the garden and washing food before eating it).

Fine Arts: Use the garden to help children connect with the visual arts (e.g., encourage them to draw, paint, or make a collage of things they see in the garden; or create visual art with plants, rocks, flowers, leaves or other materials from the garden).

Learn and Play in the Garden: Tips for Success

- Use circle time to explain garden rules and behavior expectations prior to using the garden. These rules could include: only use tools from the "kid" bucket, be gentle/kind with plants, and use listening ears.
- Involve children in all parts of the garden development and learning. Can children vote on what kind of container to use or where to place the garden?
- Share challenges or successes with the children, modeling problem solving and resilience.
- When visiting the garden, consider taking small groups of children at a time rather than the whole class. Depending on the size of the garden, smaller groups allow for better activity management and opportunity for hands-on experiences.
- Balance loosely guided garden experiences with structured activities. For example, once children know how to weed or water the garden, allow them to do so freely during their garden time. Other times, structured activities such as picking ripe vegetables or planting new seedlings can be closely guided.
- Consider beginning garden time with a physical activity to exert energy and prime children's brains for learning and paying attention. Physical activity may be especially useful prior to teaching a new skill or component of gardening.

- Like classroom roles, e.g., line leader, weekly garden roles support children's learning/responsibility in the garden. Some roles to consider are: Waterer, Weeder, Line Leader, Wagon Puller, Tool Washer, Glove Collector, or Garden Progress Reporter.
- Allow time for children to lead garden learning, follow their lead on what stimulates their curiosity in the garden.
- Have alternative activities prepared for children with sensory processing disorders, physical disabilities, or other challenges to participating in garden activities. For example, children may choose to work in the dirt with their hands or use a small shovel to scoop or instead of kneeling to pick fruit/vegetables, hold the basket in your lap that others can drop pickings into. There are opportunities to participate in the garden for all developmental stages and physical abilities.

For More Information

The University of Arizona Cooperative Extension System has several publications that can help you successfully grow a garden at your early childhood education center or home. You can search all available publications here: https://extension.arizona.edu/pubs. Below are a few to get you started.

- DeGomez, T. & Oebker, N., & Call, R. (2015). Ten Steps to a Successful Vegetable Garden, https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1435-2015.pdf
- McDonald, D., Oebker, N., & Call, R. (2018). Diez pasos para un jardín de vegetales exitoso, https://extension.arizona.edu/sites/extension.arizona.edu/

files/pubs/az1435S-2018.pdf

- Young, K. (2016) Container Gardening In The Southwest Desert, https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1713-2016.pdf
- Young, K. (2022). Jardinería en contenedores o macetas en el desierto del suroeste, https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1713S-2022.pdf

References

1. Bergeron, D. Gardening to Enhance Early Childhood and Help Children Grow. Head Start Early Childhood Learning & Knowledge Center. 2019. https://natlheadstart.medium.com/gardening-to-enhance-early-childhood-and-help-children-grow-1f075f420674
2. Savoie-Roskos MR, Wengreen H, Durward C. Increasing fruit and vegetable intake among children and youth through gardening-based interventions: a systematic review. J Acad Nutr Diet. 2017;117:240-250. https://www.sciencedirect.com/science/article/abs/pii/S2212267216312965
3. Let's Move. School Garden Checklist. https://letsmove.obamawhitehouse.archives.gov/school-garden-checklist
4. Arizona Department of Education, Early Learning Standards, 4th Edition. May 2018. https://www.azed.gov/sites/default/files/2018/04/ELS%202018%20DRAFT%20FOR%20COMMENT.pdf?id=5acd475b3217e1183c539fa5

THE UNIVERSITY OF ARIZONA
Cooperative Extension

AUTHORS

Hope Wilson, MPH, RND
Area Associate Agent, Family, Consumer and Health Sciences

Katherine E. Speirs, PhD
Associate Specialist, Early Childhood/Childhood Development

Rhegan Riane Derfus, MSW, IBCLC
Program Coordinator, Senior, Supplemental Nutrition Assistance Program-Education (SNAP-Ed), AZ Health Zone

Dominique Garcia
Research Assistant, Human Development and Family Science

CONTACT

Hope Wilson
hopewilson@arizona.edu

This information has been reviewed by University faculty.
extension.arizona.edu/pubs/az2063-2023.pdf

Other titles from Arizona Cooperative Extension can be found at:
extension.arizona.edu/pubs