BUL 1044

Tool Kit for Establishing an Indoor Container Garden Program

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Contents

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Introduction

THE INDOOR CONTAINER GARDEN—SEED (Science, Education, Environment, Dietary) program brings gardens into the classroom, providing youth with an experiential, hands-on learning environment about the process of growing foods. Through gardening activities and nutrition education classes, the program helps students to gain basic knowledge about gardening and subsistence and the satisfaction that comes from its accomplishment; plus, students get the chance to try new food, learn healthy behaviors, and build greater environmental awareness. This is a challenging (though fun!) program to implement. As a result, this tool kit serves as a primer, providing a list of program objectives, materials needed, a garden setup description, planting procedures, and other educational activities that will help you to successfully establish one for your organization.

Note: While the publication is designed to be used by Extension educators/agents, the program can also be led by Master Gardeners, coordinators, teachers, staff, or even community members who want to use it to replicate it in their settings.

The Basics

For the best results, review the program objectives as you identify the target audience, support staff, and supplies needed.

Objectives:

1. To engage youth in gardening and to teach them the science of growing their own food.
2. To create awareness of and appreciation for the environment.
3. To increase knowledge about healthy eating and to promote healthy behavior.

4. To improve fruit and vegetable consumption and encourage a greater willingness to try new foods.
5. To increase access to healthy, affordable food grown in a garden.
6. To increase levels of physical activity and to reduce mental stress.

Target audience: Students (kindergarten through the fifth grade)

Key Players: School principals, teachers, staff, and students

Supplies:

Table 1. List of suggested program supplies with estimated cost.

	Description	Estimated Cost
1	Planter (15 gal or 24" x 8")	$15.00–$20.00
2	Drain pan (20"–24")	$30.00–$35.00
3	Grow light	$25.00–$35.00
4	Watering can (0.5 gal or 1 gal)	$20.00
5	Potting mix (50 qt)	$20.00
6	Garden seeds	$20.00–$30.00
7	Other optional supplies and materials:	
	Coin envelopes to pack seeds	$5.00
	Wood craft sticks (garden signage to label plants)	$5.00
	Soil thermometer	$10.00–$20.00
	Soil heat mat	$20.00–$50.00
	Total Estimated Cost	$170–$240 per setup

Note: Estimated cost for the supplies is around $170.00–$240.00 per setup (Table 1). There are many funding source opportunities and in-kind support available. Here are a few suggestions:

1. Local community grants
2. Local garden centers or agricultural industry businesses
3. Local businesses and entities
4. Seed Your Future, a service that promotes horticulture, provides a handy list of garden project funding sources and grants for educators (https://www.seedyourfuture.org/educator_grants).

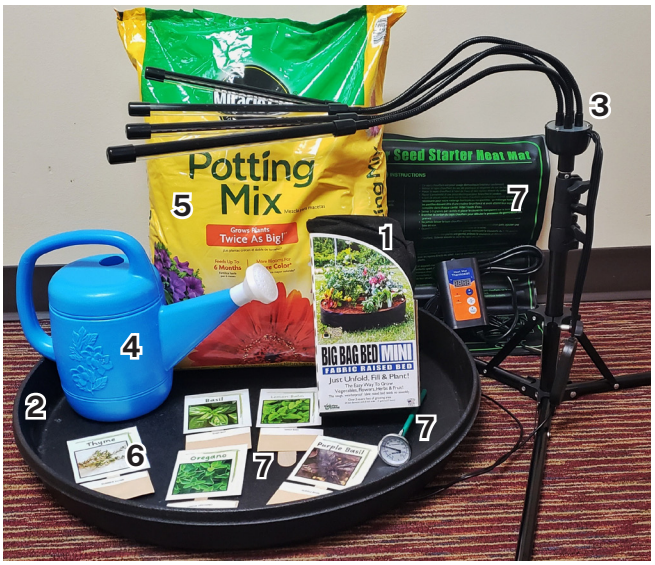

Figure 1. Suggested program supplies. Numbers correspond to supply items listed and numbered in Table 1.

Implementation

The following list outlines the steps needed to set up and maintain a thriving garden program.

1. Contact school principals and/or teachers to determine interest.
2. Schedule a meeting time with teachers and/or the principal who are interested in the program.
3. At the meeting, demonstrate the garden setup and supplies (Figures 1 and 2). Answer any questions. Determine the school's point of contact for communication and schedule planting dates and times.
4. Determine which classrooms will participate and subsequent spatial needs, based on the following setup:
    - One (1) planter per classroom
    - One (1) grow light

- » Access to an electrical outlet to operate the grow light
- » Planter placement: teachers may choose to place a planter on the floor or a table, although it's best to place it by a window

5. Determine what plants to successfully grow from seed in a classroom setting. Examples include
   - » vegetables: greens mix, lettuce mix, kale, baby bok choy
   - » herbs: basil, thyme, parsley, oregano, mint

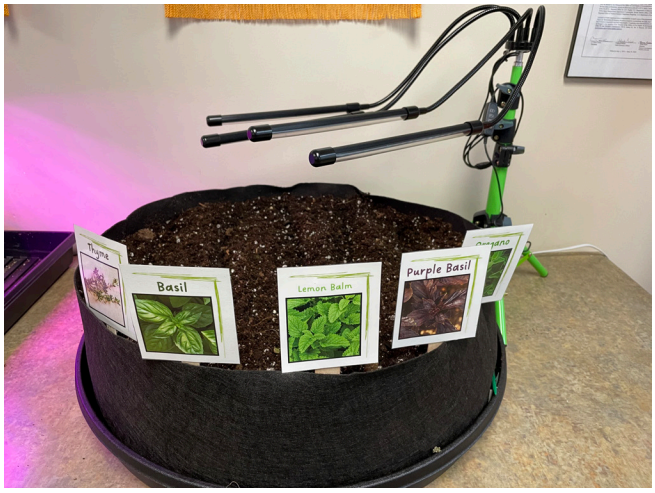

Figure 2. The Indoor Container Garden–SEED program setup.

Planting Procedures

- Prior to planting,
  - » assist students with filling a planter with potting mix;
  - » show students and teachers how to set up a grow light and select the mixed-spectrum setting;
  - » discuss with/present to students related topics, such as their experience with growing plants, what plants need to grow (sun, water, soil, seeds, temperature, etc.), and/or why these gardens cannot be planted outdoors in the winter; and
  - » identify the vegetables to be planted and what to expect for germination, harvest, care, etc.
- During planting,
  - » teachers assign small groups of students per planter (container) to meet with the instructor to plant the seeds;
  - » instructor discusses with teachers and students what seeds they are going to plant and how to plant them, including the depth at which to plant them;
  - » depending on the number of different vegetables planted, instructor divides the planter into sections for each vegetable type (make sure all students are involved in the process);
  - » students place the garden signage in the planter to identify the plants; and
  - » instructor explains to teachers and students how to oversee and to take care of the gardens after planting, including the operation of the grow light, watering schedule, and the temperature.
    - * Grow light—adjust the lights so that they are about 2 inches above the plants. Keep the lights on for 12–16 hours per day.
    - * Proper watering using room-temperature water—make sure the soil is moist (not too wet or too dry).
    - * Temperature—while most crops grow well in consistent room-temperature conditions, most vegetables and herbs germinate and sprout faster when the soil temperature is around 65°F–70°F. If the seeds don't germinate with enough light and proper watering, check the soil temperature with a soil thermometer to see if it is below the ideal temperature. If needed, place a soil heat mat under the planter to warm the soil.

Figure 3. An indoor herb garden from weeks 1 to 6 after planting.

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Suggested Activities for Instructors

While installing a SEED program, work with the teachers to coordinate horticulture and nutrition education activities to enhance the students' learning experience. For example,

- help them to teach students about germination by having them soak beans overnight and dissect them afterward so they can see the distinct parts of a seed and appreciate what happens during germination;
- after the plants germinate, help the teachers to instruct students about photosynthesis and how a plant grows by comparing plants to how a human body grows (depends on eating certain foods and getting enough exercise);
- encourage teachers to have students taste the food they've cultivated and cast a vote for their favorites;
- if multiple classrooms are involved in the project, suggest to teachers to work with their school nutrition director and lunchroom staff to prepare a taste-testing activity;
- incorporate tasting activities in nutrition education lessons and promote healthy behavior; and
- encourage teachers and students to practice food-safety techniques:
    - » Always wash hands in warm water with soap for 20 seconds after working in the garden and before tasting activities
    - » Rinse the harvested plants in cool running water before handling and preparing the plants without using soap, detergent, or bleach

For more activities and information see "Further Reading."

Figure 4. A successful garden planter should look bountiful yet behaved..

Keys to Success

Make your SEED program a winner by fulfilling some of the following (and adding your own):

- Name a school champion: Indicates which teacher or school staff is not only excited and willing to work with students but also able to allow them the opportunity to maintain a garden themselves.
- Good communication and support: Ensure teachers or other school staff have contact information for whom to get in touch with (i.e., the instructor, local Extension office, or Master Gardeners) when they have questions and/or need assistance.
- Take weekly photos: Teachers send in weekly photos to the instructor to monitor the progress of their gardens. This is also a way to catch problems early due to over- or underwatering; and it functions as a planning tool, helping the instructor to determine when plants are ready for harvest and taste-testing activities.
- Establish a control: Set up an identical container (same plants and growing conditions) in the Extension office as a control. Compare both gardens based on germination time, plant growth, and overall health. If the classroom gardens don't perform well, the instructor can use that as an opportunity to help the teacher and students learn about identifying the cause and its correction.

Wrapping It Up

At the end of the semester or school year, follow up with teachers and students:

- Find out what they learned from the program and discuss how they can do better
- Help teachers and students harvest any remaining plants from the garden and clean up the rest of the garden
- For garden cleanup, do the following:
  - » Remove all plants from the garden.
  - » If soil can be saved in the garden until next semester, leave it in the container. If the school requires a garden's removal from a classroom during school break, dump the soil out of the planter either in a compost pile or dumpster, depending on what is available in the area.
  - » After dumping the soil, fold up the planter and store it with the pan and light for next semester's use.
  - » Take down any garden light fixtures and store them with other gardening supplies.

We hope you enjoy implementing the SEED program in your school system. Designed to be an ongoing part of the learning experience in a classroom, this setup can be used for multiple years at little additional cost (including new soil, fertilizer, and seeds).

Further Reading

Agenbroad, A., S. Greenway, J. H. Kim, and J. Peutz. 2019. *Growing Food Safely in Idaho School Gardens* (BUL 937). Moscow, ID: University of Idaho Extension. 9 p.

Agenbroad, A., S. Love, S. Parkinson. 2014. *Start Seeds Indoors with Success* (CIS 1209). Moscow, ID: University of Idaho Extension. 2 p.

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