GROW EAT THRIVE

Growing Gardens for Health

A Nutrition Education Curriculum for K-5 Elementary Schools

Lee Stiffler-Meyer, M.P.H. • Erika J. Edwards, B.S. • Mary Klein Buller, M.A.
Andrea L. Dunn, Ph.D. • Myra A. Keeble, M.A. • Carol A. O'Meara, M.S.

ABSTRACT:

The need for healthier school environments and effective health education tools in schools is well-established. Childhood obesity rates continue to rise, putting children at risk for a variety of chronic diseases as they enter adulthood. Developing educational curricula that target behaviors related to fruit and vegetable consumption and physical activity is one strategy to improve childhood health through the school environment. Gardening is a unique context in which to link nutrition education because the process of growing, tending, and harvesting food provides numerous opportunities for children to understand the origins of food, taste food and develop a sense of appreciation for authentic and nutritious food. The aim of this project was to develop an age-appropriate garden-enhanced nutrition and physical activity curriculum to improve student nutrition and activity behavior. The Grow, Eat, Thrive – Growing Gardens for Health elementary curriculum was created as a series of lessons that connected the concepts of planting a garden to healthy living. Its aim was to provide students with a connection to gardening and allowing them to grow, harvest and taste their own food, through simple container gardening methods, in order to make students more willing to try fruits and vegetables, adopt healthy eating behaviors and become more physically active. The curriculum aligns with recommendations for fruit and vegetable consumption endorsed by the USDA, Produce for Better Health Foundation and National Cancer Institute. Behavioral objectives, content and activities are based on principles of Social Cognitive Theory. Five major concepts are addressed in the lessons: fruits and vegetables are essential to health; connecting the garden to health; goal-setting in healthy habits; daily physical activity; and incorporating fruits and vegetables into the everyday diet. Three versions of the curriculum (K-1, 2-3 and 4-5) were created to accommodate developmental differences across grade levels. Each version includes lesson plans, worksheets, handouts, parent newsletters, assessment rubrics, a matrix of content standards, teacher resources, and a container gardening kit developed by an expert from the Colorado Extension Service. Lessons are devoted to planting the container gardens, asking for fruits and vegetables at home, setting goals to eat more fruits and vegetables, learning to prepare a simple healthy snack, harvesting and tasting the food from the garden, and physical activity. The curriculum was evaluated and shown to be effective in six Colorado schools in the 2006-07 school year.

This project was supported by United States Department of Agriculture grant # 2005-33610-16469.

TEACHER BACKGROUND:

Each lesson begins with a teacher background to prepare the teacher with all information needed to teach the lesson and facilitate a discussion.

LEARNING OBJECTIVES:

Clear learning objectives are stated for each lesson.

PATH TO THE GARDEN:

To emphasize the connection to gardening, many lessons contain an extension activity to be done in a garden at home.

PREPARATION SIDEBAR:

This section of each lesson shows teachers the time necessary to complete the lesson, the supplies provided in the curriculum, the supplies needed to teach the lesson and any preparation the teacher should complete ahead of teaching the lesson.

DISCUSSION:

Each lesson contains a discussion section with talking points and examples for the teacher to lead a meaningful, age-appropriate discussion of the lesson topic.

GRADES 2–3 LESSON 5

Growing Greens Galore

Teacher Background:

The goal of this lesson is to have students experience the taste of fruits and vegetables in the form of a salad and report on their preferences.

For children to gain a true appreciation for wholesome, nutritious food, it is important that they understand the source of their food. In modern society, food is highly accessible and convenient at supermarkets and convenience stores. Because of this, we fail to appreciate the origin of our food. Growing fruits and vegetables is something that everyone can do and is a way to reconnect with the sources of our food.

Providing opportunities to taste new foods is another way for students to learn to appreciate food. Some research has shown that it takes multiple exposures to a new food for children to develop a preference for the food. The more opportunities that a child is given to try new foods, the more likely they are to develop a wide variety of preferences.

In this lesson, students will have the opportunity to not only harvest the food they have grown, but also to taste a mixed salad made in part from these ingredients.

Depending on the types of lettuce you chose to plant in the classroom container, you should supplement this lesson with other greens like spinach and arugula that can be found at the supermarket.

Students will write a brief and simple food review after tasting two mixed salads.

Note: This lesson should be broken into two parts. In the first part, students will harvest their vegetables from the container garden. This will take some time, including time to wash the lettuce and/or herbs they harvested. In Part 2, they will actually taste the food.

LESSON OBJECTIVES
- Taste and describe new foods
- Identify preferences for fruits and vegetables

PATH TO THE GARDEN
- Encourage students to talk to their parents about planning a garden of their own at home

SUGGESTED LITERATURE
- The Garden That We Grew by Joan Holub
- A Harvest of Color: Growing a Vegetable Garden by Melanie Eclare

45

LESSON 5 GRADES 2–3

Growing Greens Galore

LESSON TIME
Part 1: 30 minutes
Part 2: 1 hour

SUPPLIES PROVIDED
- ☐ Worksheet 5.1
- ☐ Salad Recipe Cards

SUPPLIES NEEDED
- ☐ Small paper plates or napkins
- ☐ Plastic forks
- ☐ Supplemental lettuce greens
- ☐ Various cut fruit and vegetables for two different salads

PREPARATION
- ☐ Make copies of Worksheet 5.1 and 5.2 for each student
- ☐ Place salad greens in large bowl (this includes a mixture of what was harvested and washed and supplemental greens provided). Make two versions of a salad:
  1) a salad with lettuce, fruit and cheese
  2) a salad with lettuce, vegetables and cheese

PART 1:

Gather students around container(s) and ask 1-2 students to harvest the lettuce and radishes. Ask 1-2 students to wash the lettuce that was harvested, dry it, bag it, and set it aside (or refrigerate if possible) for Part 2. This should take about half an hour and could be done in the morning, with Part 2 of the activity in the afternoon.

PART 2:

Discussion

1. Discuss the origin of food. Discussion points include:
   - All food comes from the soil.
   - Food has become extremely convenient to access.
   - Food does not only come from the grocery store.
   - Food can be grown and harvested in your backyard or your community.
2. Discuss the evolution of your classroom's container garden. Note the process the plant went through in order for the seeds to be ready to harvest.
3. Lead a discussion with students about eating salads at home. Guiding questions may include:
   - Do you eat salad at home?
   - What is the main ingredient of a salad?
   - Have you ever eaten a salad that has different types and colors of lettuce?

Teacher Tip

When assembling the salads, either assemble it with students watching you or take volunteers to help with adding ingredients, tossing the salad, and serving the salad.

46

GRADES 2–3 LESSON 5

Growing Greens Galore

Activity

1. Assemble the two different salads as a class. See recipe cards in Appendix.
2. Serve each student a small plate of salad with a fork. As they taste the salad, ask students to rate the salad using the four star system at the top of Worksheet 5.1.
3. After students taste and rate the salads, discuss the components of a food review. Read the example food review provided or read another example that you have found. Students' food reviews should answer the following questions:
   - Did you like the salad? Why or why not?
   - How would you describe the taste? (sweet, salty, bitter, sour)
   - How would you describe the texture? (crunchy, mushy, juicy)
   - How would you describe the appearance? Was it colorful?
4. Have students finish Worksheet 5.1, which will help them write their own food review.

47

LITERATURE CONNECTIONS:

Each lesson includes suggested literature that complements the lesson and can be used as an extension.

WORKSHEETS & HANDOUTS:

Appropriate worksheets and handouts accompany each lesson to reinforce lesson concepts.

PARENT NEWSLETTERS:

Four parent newsletters are provided at each grade level. Newsletters inform parents of what their child is learning in the unit and also provides them with ideas and strategies for incorporating the unit concepts at home.

HEALTHY SNACK COLLAGE

THE GARDEN OF HEALTH

SPECIFIC AIMS OF PROJECT:

- Develop a complete theoretically-based nutrition, 5 A Day and physical activity curriculum to extend and enhance the reach of science-focused gardening curricula to address health.
- Evaluate the effectiveness of the curriculum at increasing students' fruit, vegetable and physical activity knowledge, attitudes & behaviors.
- Evaluate enjoyment of the curriculum by elementary school students.
- Evaluate satisfaction with the curriculum by elementary school teachers and community/school gardening organizations.

CURRICULUM DEVELOPMENT:

- Curriculum was developed using concepts primarily from the Social Cognitive Theory including increasing self-efficacy through skill building, modeling and role playing.
- Study staff conducted focus groups with both classroom teachers and after-school education providers prior to developing the curriculum to ensure that the curriculum met a wide variety of needs.
- Curriculum connected the concept of gardening to eating fruits and veggies and being active through planting and harvesting from a container garden.
- Unit includes many skill-building lessons and taste education lessons that provide students with strategies for eating more fruits and vegetables and for being more physically active to increase self-efficacy for these behaviors.
- Lessons incorporated a variety of content areas (writing, math, science, etc.) in addition to health to be linked to content standards.
- Unit aimed to meet the needs of schools implementing School Wellness Policies, required beginning in the 2006-2007 school year.

ADDITIONAL FEATURES:

- An overall background and introduction that outlines the lessons and gives background information on the topic of nutrition and physical activity education.
- Matrix of National and State Standards for each lesson.
- Resource list that includes additional literature selections and a variety of resources related to the topics of nutrition, gardening and physical activity.
- Evaluation rubrics for each lesson.
- A unit project wraps up each of the grade level curriculum units.

LESSONS LEARNED:

- Teachers see value in teaching health education in their classrooms but are also limited by time and testing pressures.
- Lessons should be presented in 30-40 minute segments.
- Teachers appreciate health education lessons that incorporate multiple subject areas and are linked to content standards.
- Teachers liked the hands-on nature of the lessons.
- Most teachers would prefer to implement this unit in the spring semester.
- This unit has potential for use both in the classroom and in after-school education programs by school and community groups.