LESSON PLANS FOR 2011-12 SCHOOL YEAR     Grade 2

Planting a Healthy Garden

Lesson six: How do we plant a garden?

“How Planting” and “Nutrition Super Heroes” from SEED TO SALAD, Cornell University Garden-Based Learning and Ithaca Children’s Garden

How do you successfully plant a garden with twenty second graders? This lesson will help students mark and plant their gardens. They will be garden heroes for starting healthy gardens and they will be nutrition super heroes for running through obstacle courses, identifying nutrients and tasting fruits and vegetables that can grow healthy bodies.

Content objectives: Identify and use special tools and techniques to mark and plant a garden; Identify garden crops and match them to their nutritional contributions for good health.

Life skill objectives: Learning to learn, Critical thinking, Problem solving, Decision making, Communication, Citizenship, Leadership, Healthy living

Core and STEM concepts and skills:
Science: Earth and space, Life science
Math: Operations and algebraic thinking, Measurement and data
Language Arts: Reading for information, Vocabulary, Sequencing, Inferring, Interpreting, Viewing, Speaking, Listening

Healthy snack: Vegetable sampling from the garden or from those used in the Super Hero game

Additional and supporting resources: Square foot gardening template (provided in lesson and garden resource toolkit) GROWING IN THE GARDEN: LOCAL FOODS AND HEALTHY LIVING, Lesson 5A, “Planting Our Food Garden”; Iowa State University Extension and Outreach
LESSON PLANS FOR 2011-12 SCHOOL YEAR  Grade 2

BEFORE THE LESSON

1. Grade 2, Lesson 6:
This document contains all the curriculum items and resources you need for this lesson. All lesson downloads are located on the www.peoplesgarden.wsu.edu Educational Toolkit.


3. Schedule additional help to plant in the garden: parents, Master Gardeners, etc.

4. Assemble necessary ingredients and materials for the selected vegetable sampling.

THE LESSON

1. Planting the Garden and Nutrition Super Heroes can be taught over two or more days.

AFTER THE LESSON

Have students draw pictures of the garden or describe their experience planting the garden in their garden journal.

RECIPE

Select veggies from the garden or from those used in the Nutrition Super Heroes activity: beets, carrots, green beans, corn, peppers, cucumber, lettuce, tomato, radish, peas, zucchini.
USDA FNS People’s Garden School Garden Pilot Project:  
Healthy Gardens, Healthy Youth  

Tips for Working with Kids and the Garden

The following tips are from HGHY Master Gardeners and site leaders and are based on their experiences gardening with kids. These are tips for both school and the summer programs. A sample in-garden lesson outline can be found at the end of this document.

Be Prepared

- Send home information about the garden program including the details about who is leading the program, what the kids will be doing, where the gardens are located, when the kids will be gardening, what is happening with the garden produce, and expectations of the young gardeners. All gardeners should be wearing close-toed shoes and have sun protection. They will not be allowed to work in the garden or with food if they are sick or have been sick within the last 24 hours.

- Every time you go to the garden, take supplies such as a first aid kit, wet wipes, water jug with cups (or have kids bring their own water) and water for washing the produce.

- Use lesson plans and educational resources to prepare for each session. Play a game, sing a song, act out a play, read a book, or make a garden-based craft each session. Remember to have fun! See the Sample Garden Session outline at the end of these tips.

Working With the Kids

- Make sure the young gardeners know the 3 R’s garden rules: Respect, Responsibility, Readiness.

- Be fully prepared before heading to the garden so there will be little down time for the kids. The tools and any supplies should be easy to access and ready to go. Break large groups into manageable sizes. Have more than one activity and rotate them. Keep every child busy and on task or their attention will shift and they will drift. Have enough adult supervision to make this happen.

- Always demonstrate before letting the kids work on their own. The more adult helpers you have to float around and guide the kids, the better. Do not do things for the kids, show them how and have them show you how back.

- Check their work. Don’t take their word for it when they say they have completed a task. You might find that things were missed.

- Take frequent shade and water breaks. Break times are good times to introduce healthy snacks, books, garden journals, or other hands-on activities.

- Every child will appreciate some one-on-one time with instructors while working in the garden. Let them tell their stories and show you the weeds they found and pulled, etc.
Planning the Garden

- Use the hands-on, deeply aligned classroom lessons to help the students plan their gardens. The kids will have fun learning and taking ownership of the garden. They will get excited about choosing what to plant and how much they need to plant by doing these lessons. A Master Gardener or an experienced gardener is a valuable resource to help kids discover what crops can be grown in the climate and in the amount of space they will have to garden. Start a Garden Journal or Garden Records right away.

- Young students are not able to prepare the site for gardening. Master Gardeners and others can provide leadership for that. FFA students, parents, Ameri-Corps, Food Corps, garden clubs, retired teachers, neighbors and others have been instrumental in preparing the gardens and helping the youth in the planning stages.

- For the young children, have the sections of the garden already measured out and marked according to the garden plan. For the older youth, help them measure and mark the garden sections.

- Kids like to use garden tools, but they LOVE to use child-sized tools such as kid-sized rakes, hoes, shovels, watering cans, and gloves. The type of garden tools they need depend on the type of garden they will be working with and how it is planted – square foot vs. rows. They can share tools. Older students have been using adult-sized tools and even tools that have been loaned by Master Gardener groups.

- Master Gardeners and FFA members are using their green houses to start seeds and grow transplants for the school gardens.

Help the students start a compost bin and get the whole school involved.

Planting

- Go over tool safety rules for hoes, trowels, and rakes. A tool safety game is part of the gardening curriculum.

- Go over ways the plants in your garden are going to be planted: seeds, sets, transplants, seed pieces.

- Plant fast growing (cool season) crops like radishes and spinach for early satisfaction. Try to stagger your crops for constant harvest opportunities. Make sure the students will have something to harvest when they return to school in the fall.

Maintaining

Watering

- Watering is extremely important, especially in raised bed gardens. If you are meeting just once a week, you may have to make plans for additional watering. Families, youth groups, organizations, neighbors can sign up for times. Someone will need to be responsible to make sure the watering plans are carried out.

- Using a watering wand is a good way to water the garden. Show how to water at the base of the plant. Teach the kids to count how long it takes to water a plant.
Weeding
- Help the kids distinguish the difference between weeds and garden plants. Show them how to pull weeds so that the garden plants are not disturbed. Tell them where you want them to put the weeds. Have challenges such as finding the biggest weed, most unusual weed, most weeds, etc. Talk about why some parts of the gardens have more weeds than other parts, etc.

Insects and pests
- Insects intrigue and scare children. They enjoy doing the lessons about pests and going on hunting missions to find and eradicate them. Getting to show everyone the squash bug they found – and sometimes their eggs – is a joy in and of itself!
- Use the lessons from Grades 2 and 4 to identify “good guys” and “bad guys” in the garden and to figure out what to do about them. Then help the kids take the next steps to protect their garden from unwanted pests.

Harvesting, Preparing and Eating the Produce!
- Kids get excited when they see fruits/vegetables growing on the plants. Make sure that they show everyone by pointing and not picking! Describe what to look for to determine when the fruits/vegetables are ready to harvest.
- Show kids HOW to harvest produce gently. For example, gently hold a bean plant before pulling off the bean, cut the lettuce with scissors, etc.
- Kids love to harvest and taste the bounty. Try to include this in every lesson.
- Include in the lesson, ideas for how the food can be eaten. Simple recipes such as cucumber-flavored water, radish or veggie sandwiches, veggies with dip, cucumbers and onions in vinegar, etc. are the best. Get a large bottle of Ranch dressing because the kids will try anything they can dip! There are several ideas in the lessons.
- Show the whole vegetable before cutting it open. Have them find the seeds.
- Plastic plates and knives can be used for cutting and preparing produce.
- Help the kids put their gardens to bed.
Seed to Salad: Nutrition Super Heroes

Overview
Nutrition Super Heroes is a game that gets young people on their feet and moving to learn about nutrition in the garden. Each participant assumes a Nutrient Super Hero “secret identity” such as calcium or vitamin C and must complete the obstacle course if a vegetable their nutrient (secret identity) is found in is called.

Materials
- 12-15 wooden stakes (outside) or a roll of masking tape (inside)
- hula hoops, 5 gallon buckets, dish pans, garden gloves, jump ropes, etc: anything you can find to create reasonable obstacles
- vegetable cards & nutrient tags
- hat or basket for vegetable cards
- super hero capes (optional)

Preparation
Create Nutrient Tags and Veggie Cards
Use the templates provided or develop your own. You’ll need a nutrient tag for each participant (if you have a big group, feel free to have 2 of each nutrient). Choose vegetable cards that reflect the vegetables you grow in your garden or vegetables that participants have mentioned as their favorites.

Set Up the Obstacle Course
If you’re working outside, use wooden stakes to create an outline of the human body in a level open area. Lay a garden glove at the end of each arm. Alternatively, you can use athletic field pant. Chalk the outline if the only open space is paved. If you’re working inside, use masking tape on the floor of a hallway or gym.

Add any obstacles you can think of such as buckets, hula hoops, create squiggly lines with jump ropes. Use obstacles to create major parts of the body: muscles in arms and legs can be buckets. The heart and stomach can be hula hoops. Use jump ropes to create arteries or intestines. Smaller dishpans can be other major organs.

Rules of the game
The group leader will choose a vegetable out of a hat, read the name of the veggie and the nutrients (i.e. secret identities/super powers) that vegetable has. If your secret nutrient identity is among those listed for that vegetable you enter the obstacle course through the head, making sure to hit all the obstacles (i.e. all the parts of the body) before exiting through a foot.

Super heroes must keep their identities secret. Ask youth to keep track of how many times they run through the body. Also encourage them to pay attention to when the body is most full of super heroes. In a discussion at the end of the game you can ask questions that reveal what nutrients are the most readily available in foods and which are harder to get. By noticing when the body is very full versus very empty you can judge how nutrient rich a vegetable is.
1. Hand out secret identity nutrient tags, and capes if desired, to each participant.

2. Explain the rules of the game and demonstrate running through the course to reach each obstacle.

3. Pull veggie cards out of a hat or basket one at a time.

4. Read the name of the veggie and the list of nutrients.

5. Wait until all super heroes are back at the head before reading the next vegetable card.

6. After all the veggie cards are read, have the group gather. It’s time to reveal secret identities. Have each participant read the description of their nutrient “fights infections; heals bones/wounds,” and see if other participants can guess what nutrient they were.

7. Ask who ran through the course a lot, who only once or twice. What does that mean about your nutrient? Are you easy to find in foods?

8. What about how full the body was? What veggies had the most super heroes in the body? Which the least? What does that mean about how nutritious certain veggies are compared to others?

9. You can follow the activity with sampling veggies from the garden or from those used in the game.

Adapting the game

When working with younger youth (pre-K, K, 1st and even 2nd grade) consider making the super hero identities the vegetables rather than the nutrients. Each youth assumes the role of “Captain Carrot” or “Powerful Peas.” When the leader draws out of the hat, they call the nutrient (Calcium), defines it (helps build strong bones) and then lists all the veggies (super heroes) that contain these nutrients.
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<td>Courageous Cucumber</td>
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Printed with Permission, February 2012
Brainy Beets

Courageous Cucumbers

Zippy Zucchini

Captain Carrot

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Awesome Onion

Lucky Lettuce

Pow Wowzie Peppers

Totally Cool Tomatoes
Vitamin E
Heals and maintains skin

B Vitamins
Helps body use food energy

Iron
Carries oxygen

Potassium
Helps nerves and muscles
Phosphorus
Builds strong bones

Calcium
Builds strong bones

Vitamin A
Fights infection and helps eyesight

Vitamin C
Fights infections Heals bones/wounds
Seed to Salad: Planting Tips

Many salad garden vegetable seeds are tiny. They can be hard to handle and plant, and they easily blow out of a cupped hand with even a slight breeze. To deal with this, reuse empty plastic spice containers. If you put the word out early to parents and volunteers, you can often accumulate a good amount.

**Step by step**
- Label each spice container with the name of the seed and the number code you assigned it during the design phase.
- For seeds that will be used a lot, such as lettuces, consider having two or three shakers available.
- If you’re working with younger children, have an extra adult or older youth volunteer on the sidelines to help fill up shakers. This way you can add just enough seed to each shaker for a single plot, avoiding spills or dumping too much seed in one place.

**Other tricks of the trade**
- If you have the space, consider having a “test plot” to demonstrate planting techniques before youth head off to plant their own plots.
- You can use a design everyone worked on together or make one up on the spot.
- Start by identifying the edges of the plot, and orienting the plan on the ground nearby.
- Along the way, give a demonstration and then have youth take turns outlining and planting different areas of the “test plot.”

**Three ways to outline your design in the soil prior to planting:**
- Use a twig, stick, or small branch to “draw” the design in the soil.
- Draw the design by sprinkling white play sand.
- Use carefully placed pebbles, gravel, or small stones to create the outlines of your shapes.
**Demonstrate**
- Show the angle to hold the shaker so that seeds come out easily.
- Demonstrate different kinds of shaking and have a conversation about what appears to be too light, too hard, and just right.
- Show how to take handfuls of spare soil and sprinkle it over newly planted seeds.
- Some seeds need to be planted rather than sprinkled on top of the soil. Show how to lay seed, such as nasturtiums, spaced on top of the soil, then push them gently into the soil.

**Watering tips**
- Watering a newly planted salad garden can be tricky. Lots of tiny seeds are sitting on or just below the soil surface. A gush of water will send them cascading far from where they were planted. You may want to do a demo on a spare patch of bare soil.
- Avoid using watering cans until seedlings begin to emerge.
- Use an adjustable water wand on the gentlest setting.
- Demonstrate holding the wand high enough and slowly moving it back and forth to avoid “mudslides” and “puddles.”

**Experiment**
- Plant a few seeds in each area of two trial areas, water one gently and the other too vigorously. How does it effect growth?
Lesson Instructions

These lesson instructions were developed by Growing in the Garden, Iowa State University Extension and Outreach to enhance the Seed to Salad: Planting Tips from Ithica Children's Gardens and Cornell University Department of Horticulture, New York.

These instructions and the Seed to Salad Planting Tips lesson have been prepared to meet the needs of younger gardeners. Extension Master Gardeners, students' families that have experience with gardening, high school horticulture students, and other garden experts from the community would be great help before, during, and after planting your garden. Here are the steps to make this lesson successful for everyone involved.

Garden Helpers and Teachers

1. Watch the “Garden Basics Webinar” and refer to the “Implementation and Beyond” gardening resource in the Educational Toolkit, Extension or School Educators pages on the www.peoplesgarden.wsu website. Your state leader has additional information pertaining to the Healthy Gardens, Healthy Youth gardens in your area.

2. As soon as it is possible to plant cool season crops where you live, build the gardens and prepare them for planting. If you are using container gardens inside, the students can help prepare the container on the same day that they plant. For this age group, use the students’ garden plans from the Planning Our Food Garden lesson and go ahead and mark out the raised beds and tilled gardens to indicate the boundaries for the square foot sections or rows and what should be planted in those spaces. The plans should include cool season crops first and then plans for warm season crops.

3. Use the students’ garden plans from the Planning Our Food Garden lesson for their cool season and then warm season plant choices and acquire the appropriate types and numbers of seeds, sets, transplants, or seed pieces. The plants should yield enough produce for the class to have a salad party by the end of the school year and to have some crops to harvest and eat when they return to their classrooms in August or early September. This may involve multiple plantings.

4. Make sure that all the tools have been gathered and are ready for the students to use.

5. Watch the Grade 2, Unit 3 Curriculum Webinar from the Educational Toolkit on the www.peoplesgarden.wsu website. The webinar, including the video, will help you understand what the students might be doing as they plant their gardens.
6. **Prepare the square foot gardening templates** using both of the ¼ square foot patterns found on the attached Square Foot Gardening Template. These can be used with container, raised bed, and tilled garden spaces. You can choose one or both of the following suggestions.

**Poster board:** Use poster board and make at least two of each pattern for small and medium-sized plants. Be sure to use permanent markers and write the names of the plants on the templates. You may choose to laminate them. These templates can be used for several seasons of gardening – remember that when you feel challenged to cut out all the holes!

When you use these in the garden, place the template in one corner and have the students work together to plant the appropriate seeds in each hole. After planting in all the holes, move the template to the adjoining empty space and plant in each hole. Continue the process to plant each designated area for square foot gardening.

Another option is introduced in the Seed to Salad Planting Tips. You can mark each hole with a little sand, flip the template over, sprinkle the holes with sand and continue to cover the space designated for that crop. Use temporary or student garden markers to designate the type of crop that should be planted in each area.

**Newspaper:** Newspaper is biodegradable and can be left in the garden as decomposing mulch. If you choose this method, use the attached patterns and make as many squares as you need for the types and numbers of plants in your garden. Instead of cutting out the holes, use a marker and draw where the holes should be. Be sure to use permanent markers to write the names of the crops on each newspaper template. When you place the newspapers in the garden space, use small sticks or the garden markers as stakes to hold the corners and sprinkle some soil over the top so the newspapers do not blow away.

When it comes time to plant, the students can poke a hole in each of the marked circles or dots and plant the seeds.

8. **Prepare the seed shakers or pinch cups for the seeds.**

**Seed shakers:** Look at the size of the seeds and find old spice or cheese shaker containers that can be used to shake seeds into the garden. Wash the containers, dry them completely, fill them with seeds, and label the container. Make sure to save the seed packet so that you can use the instructions on the packages.

**Pinch cups:** Label plastic bathroom-sized cups according to the crops you will be planting. Dump the seeds into the appropriate cup. When it comes time to plant, one student can hold the cup while the other student uses his or her thumb and another finger to pinch out some seeds and drop them where they are to be planted in the garden. Be careful not to tip over these cups or let the wind blow them over.

9. **Plan to help with all the indoor and outdoor classroom activities.** Your expertise will be appreciated and it will be easier to work with all the supplies and the excited students.

TEACHERS Please be sure to watch the Grade 2, Unit 3 Webinar on the www.peoplesgarden.wsu.edu website. It will help you to be prepared for this lesson. The video shows how much fun the students had preparing and planting their EarthBox™ container garden and how to prepare for planting a raised bed garden. Here are the steps to put everything together.
INDOORS

1. **Show the seeds, sets, transplants, and seed pieces** that represent the crops the students chose to plant from the Planning Our Food Garden lesson. Read the packages to identify special characteristics of the crop, how long it will take to grow, and how deep to plant it.

2. **Help the students to make creative garden markers.** The classroom in the video used cut-up slats taken out of old vinyl mini blinds. You may choose wooden spoons, large craft sticks, laminated index cards on sticks, or anything else you have found. Permanent markers are essential. Make sure you have assigned all the crops. The small and medium sized crops will probably need at least two stakes to mark the area where they are planted. Everyone should have the opportunity to make a garden marker with the name and a picture of the crop.

3. **Show them the tools they will be using in the garden.** See if they can identify each tool and tell what they are used for. Do the attached Tool Safety Game.

4. **Before planting the gardens,** review the following garden rules.

GARDEN RULES

1. **Start gardening activities** by standing around the outside of the garden or garden container. When you are done working in the garden, return to your original spot around the garden.

2. **Listen to all the instructions** and carefully watch the demonstrations.

3. **Take turns working in the garden as instructed.** When you are done with your turn, go back to where you were standing and watch as everyone has an opportunity to plant your garden. Make sure everyone has followed the instructions as they plant your garden.

4. **Make sure everyone has an equal opportunity to enjoy working in the garden.**

OUTDOORS

*(Or indoors with container gardens on a sheet of plastic)*

This may be a separate day.

1. **Move your necessary supplies** to the gardening site and use them to conduct the planting activities.

   **Necessary supplies include, but are not limited to,** the following:
   - Your garden plan
   - Instructions and supplies for the container gardens
   - Hoes and rakes for the raised bed or tilled gardens
   - Two or more trowels
   - What you are going to plant (seeds, transplants, etc.)
   - Seed shakers and/or pinch cups
   - A couple rulers or tape measures
   - Scissors
   - Square foot gardening templates
   - Garden markers
   - A bucket will help you manage your small garden supplies.

2. **Final preparation before planting**

   **Container gardens** Put the casters on your container garden and then have the students take turns reading the steps as you assemble the container gardens. Have the students take turns in groups to smooth out the soil in several of the steps. Make sure the students
3. **It's finally time to plant the gardens.** Crop by crop follow these steps then have students take turns planting that crop.

   a. Show the seed packet and seeds, sets, transplants, or seed pieces that are going to be planted. Read or tell how deep they need to be planted.

   b. Use the seed shakers, pinch cups, trowels and measuring devices (ruler, finger tips, trowel) to demonstrate how to plant the crop. One student can help measure the appropriate depth for planting while another student plants. One shake of the seed shakers per hole is sufficient, then carefully cover it up with a little soil. One person holds the pinch cup while another uses two fingers to pinch out a small amount of seeds and releases them in the hole, covering it with a little soil. One person uses the trowel as the other person drops in the transplant. Students work together to measure and make a shallow furrow in a row in the tilled garden. When each group of students is done, they need to move back from the garden to give room for the next students and to watch and learn how to grow each crop. The students will also be checking to see if their classmates are using the right planting methods and planting their seeds in the right spot.

   c. Everyone can make one last inspection of the garden before cleaning up the area before watering. Remove all the poster board templates and tools from the garden. Make sure that everything is cleaned up as much as possible. Move the tools and clean and store them good tool safety practices.

   d. Demonstrate how to water the garden using the appropriate watering equipment and techniques so that seeds won’t be washed out of place and that you use the appropriate amount of water. Take turns watering the garden.

   e. Be sure to wash your hands with soap and water and dry them thoroughly.

**Time to be patient as the garden grows!** Provide the garden with the right amount of water and protect it from animals and insects that like it just as much as you do. There are more lessons to help you grow a successful garden.
1. Make a copy of this page.
2. Cut around the 4 inch squares and cut out the circles.
3. Place one template on one corner of a poster board.
   Draw around the outside of the square and around the circles.
4. Use the same template four times to make a square foot gardening guide.
5. Cut around the square foot and cut out the circles.
6. Write the names of the crops in the center of the guide.
7. It is best to laminate these guides to keep them in good shape from year to year.

onions, carrots, radishes, beets, lettuce, spinach
SQUARE-FOOT GARDENING

TEMPLATE 2

peas, bush beans
I am going to show you some right ways and wrong ways to use and store our tools. If you think I’m showing you the right way, clap. If you think I’m showing you the wrong way, stomp your foot.

- **Lift the hoe so that the blade is over your head like you are swinging a hatchet.**
  - **STOMP.**
  - I have lifted the hoe too high. I am not chopping the soil. I am hoeing it. It doesn’t work very well this way. Also, you may hit someone who is nearby if you swing the hoe this high in the air.

- **Lift the hoe so that it is about 1 foot off the ground and bring it down in a gliding motion through the surface of the soil.**
  - **CLAP.**
  - This is the correct way to use the hoe to cut through crusty soil and remove weeds.

- **Repeat the same motions with the rake.**

- **Lay the rake down, teeth up.**
  - **STOMP.**
  - You should never set a rake or a hoe on the ground like this. What do you think would happen? You may want to demonstrate what would happen if someone stepped on the teeth of the rake or blade of the hoe. Be careful to stand to the side so the handle doesn’t smack you in the face.

- **Stand the rake and hoe, handles up, against a wall or hang them.**
  - **CLAP.**
  - Rakes and hoes should be stood against a wall or in the shed or garage when they are not being used.

- **Walk with the trowel blade up.**
  - **STOMP.**
  - Always carry your tools such as this trowel with the sharp blade facing down.

- **Run a short distance holding a hoe and a trowel.**
  - **STOMP.**
  - Never run with tools in your hands.

- **Pretend to wash dirt from the trowel, hoe, or shovel.**
  - **CLAP.**
  - It is always a good idea to clean the soil off your tools before you put them away. This shows you are responsible for taking care of your tools.

- **Pretend to fight with a student over a trowel or hoe.**
  - **STOMP.**
  - Show respect by taking turns.