Planning a Healthy Garden

Lessons Three & Four: How do we make a garden plan and a garden calendar?

“Our Healthy Garden Plan” from GROWING IN THE GARDEN: LOCAL FOODS AND HEALTHY LIVING, Iowa State University Extension and Outreach

Students decide what cool season and warm season crops they want to grow by making and eating Lettuce Wraps and Fresh Garden Salsa. Using science and math concepts, they create their own Healthy Garden Plan, markers to go with it, and a calendar.

Content objectives: Identify and select locally grown fruits and vegetables to plant, grow, harvest and eat;
Use a variety of mathematic and science concepts and skills to create local garden plans and calendars.

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

Core and STEM concepts and skills:
Math Operations and algebraic thinking, Number and operations, Measurement and data, Geometry, Mathematical practices
Science Science as inquiry, Earth and space, Life science
Language Arts Reading, Speaking, Listening, Viewing
Social Studies Economics, Geography

Healthy snack: Lettuce Wraps and Fresh Garden Salsa

Additional and supporting resources:
“How do you plan a garden?” General Information for planning unit in GROWING IN THE GARDEN: LOCAL FOODS AND HEALTHY LIVING; The Vegetables We Eat by Gail Gibbons (book available from libraries or for purchase); Extension Master Gardeners
BEFORE THE LESSON

1. Grade 4, Lesson 3 and 4:
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](http://www.peoplesgarden.wsu.edu) Educational Toolkit.

2. Check your school or local library for a copy of *The Vegetables We Eat* by Gail Gibbons, *Too Many Pumpkins* by Linda White.

3. Assemble necessary ingredients and materials for the selected recipe(s).

4. Potential local partners who can provide expertise, time, energy, supplies and/or funding to assist you include: other school staff, volunteers, and older students (from classrooms, foodservice, maintenance, administration, high school organizations); Extension staff, volunteers, and organizations (such as Master Gardeners, 4-H Club members, nutrition programs such as EFNEP or SNAP-Ed, specialists or agents); local foods producers; gardeners; farmer’s market vendors; local foods restaurants; grocery store produce managers; local organizations, businesses, and interested and knowledgeable individuals of all ages and cultures. These people can help you use this lesson and apply the activities to where you live and your garden program.

THE LESSON

1. Our Healthy Garden Plan is meant to be taught over two or more weeks.

AFTER THE LESSON

This is a good time for students to start a gardening journal. They will be able to record various facts about the garden that they plan, plant, grow and harvest.
# Recipes

**GARDEN CHOICES THROUGH TASTE TESTING**

Make sure that everyone washes their hands and that the demonstration table is washed. Set up the table with the Lettuce Wrap ingredients (see Lettuce Wraps recipe), cutting board, knife, gloves, paper plates, paper towels, and napkins. Have the student volunteers put the paper plates out on the table so that they can place one sample of each vegetable on each plate. When the other students are done washing their hands, have them pick up their sample plates and take them back to their seats. Instruct them not to eat anything on their plate until they are told.

## Lettuce Wraps

Makes 24 samples

1. **Wash all produce before starting.**

2. **Prepare the ingredients.**
   - 1 Bundle of Romaine or leaf lettuce (*tear into 24 pieces*)
   - 12 Large (*tear in half*) or 24 small spinach leaves
   - 6 Radishes (*slice thinly*)
   - 6 Green onions (*slice the white part and 1½ inches of the green part into thin rings, discard the roots and the tops*)
   - Squirt bottle of ranch dressing

3. **Have each student do the following.**
   - Lay the lettuce leaf on the paper plate.
   - Lay the spinach leaf or leaves on top of the lettuce leaf.
   - Put the radish slices on the spinach.
   - Put the onion slices on the radish slices.
   - Squirt a line of ranch dressing across the layer of veggies. (*Adult should help.*)

   After teacher demonstrates how, roll up the wrap or fold one side over the other.

   **EAT IT!**
**Fresh Garden Salsa**

- 3 large tomatoes, seeded and coarsely chopped
- 1 small fresh jalapeno chile seeded and minced (optional)
- 1 clove garlic, minced
- ¼ cup finely chopped onions
- 2 tablespoons finely chopped cilantro
- 2 tomatillos, husks removed, finely chopped
- Juice from 1 small lime
- ¼ teaspoon salt
- ¼ teaspoon freshly ground black pepper

In a large bowl, combine all the ingredients. Stir together until well blended.
Cover and chill for 30 minutes or more before serving.
Keeps for up to 4 days in the refrigerator.
Makes about 2 cups.

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*Healthy People, Environments, Economies.*

4-H Youth Development
4H-605, FHL, August 2011
# Our Healthy Garden Plan

## Content Objectives
Identify and select locally grown fruits and vegetables to plant, grow, harvest and eat. Use a variety of mathematic and science concepts and skills to create local garden plans and calendars.

## Life Skill Objectives
Critical thinking, Problem solving, Decision making, Healthy living, Communication (listening, asking and responding to questions), Citizenship (teamwork), Leadership (sharing an idea to improve something)

## Indicators and Evaluations
Students will develop a productive garden plan that will demonstrate how much healthy food can be grown in a limited amount of space.

## Subject Standards
### Core Concepts and Skills

- **21st Century Skills:** Employability skills, Health literacy
- **Science:** Science as inquiry, Earth and space, Life science
- **Mathematics:** Operations and algebraic thinking, Numbers and operations, Measurement and data, Geometry, Mathematical practices
- **Social Studies:** Economics, Geography
- **Literacy:** Reading, Speaking, Listening, Viewing

## Learner Types
Linguistic-words, Logical-mathematical, Spatial-visual, Bodily-kinesthetic, Interpersonal, Intrapersonal, Natural

## Materials
- Too Many Pumpkins by Linda White
- Garden Grid (*This is a two page worksheet. Make one copy, front and back, per group. See the Introduction and Reflect sections. These pages are found at the end of this lesson.*)
- Pencils
- Rulers
- Seed Catcher (*one per student, found at the end of this lesson*)
- Lettuce Wrap ingredients and Ranch dressing (*See the TEACHER’S NOTES following this Materials List and at the beginning of the Do section.*)
- Lettuce Wrap preparation supplies (*See the TEACHER’S NOTES at the beginning of the Do section.*)
- Small plates (*one per student*)
- Napkins (*one per student*)
- Salsa ingredients and chips (*See the TEACHER’S NOTES following this Materials List and at the beginning of the DO section Fresh Garden Salsa recipe is found at the end of this lesson*)
- Salsa preparation supplies (*See the TEACHER’S NOTES at the beginning of the Do section.*)

Materials continued on the next page.
**MATERIALS CONTINUED**

- Square-foot gardening templates and 1 poster board (Use the poster board to make one example of each template found at the end of this lesson.)
- Plant Spacing for Square-foot Gardening (see REFLECT section, found at the end of this lesson)
- Plant Spacing for Rows in the Garden (see REFLECT section, found at the end of this lesson)
- Paint sticks, wooden spoons, recycled plastic, used vinyl blind slats, or any creative re-usable materials for garden labels (2 per crop, see APPLY/EXPAND section)
- Thin or medium line permanent markers in various colors
- Garden Calendar (copy and post where everyone can see it, see APPLY/EXPAND section, found at the end of this lesson)

**TEACHER’S NOTES:** Here is a list of potential local partners who can provide expertise, time, energy, supplies and/or funding: School staff, volunteers, and older students (from classrooms, foodservice, maintenance, administration, high school organizations); Extension staff, volunteers, and organizations (such as Master Gardeners, 4-H Club members, nutrition programs such as EFNEP, specialists or agents); local foods producers; gardeners; farmer’s market vendors; local foods restaurants; grocery store produce managers; local organizations, businesses, and interested and knowledgeable individuals of all ages and cultures. These people can help you use this lesson and apply the activities to where you live and your garden program.

The Do/Explore section includes taste-testing activities with Lettuce Wraps and Fresh Salsa. You will need cool season crops such as lettuce, spinach, radishes, and onions for the Lettuce Wraps. Garden fresh salsa may be purchased in the produce department at your local grocery store, or you can have your class make salsa using the Summer Garden Salsa recipe found at the end of this lesson. See the TEACHER’S NOTES at the beginning of the Do/Explore section.

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**INTRODUCTION**

**ENGAGE**

**SET THE STAGE**

30 MINUTES

**TEACHER’S NOTE:** Plan to have students work with a partner or small group for this activity.

Raise your hand if you have seen a carpenter or construction worker building a home or other building.

Do they have a plan for what they are building?
Yes

**What is the plan called?** Hint: It starts with a color.
Blueprint

**Why do you think they need a blueprint plan?**
So several people can work together and know where to build the walls, add plumbing and electricity, etc.

**Could they build the structure without a blueprint?**
Maybe, but it may not turn out as it was intended and there may be a lot of mistakes. It will probably take them longer, too.

Planting a garden is a bit like building a house. A good plan will make the job easier and will result in a productive garden.
What kind of help would a plan provide a gardener?

Write the answers on the board. A garden plan will:

• help the gardener determine what kind of and how many plants or seeds to buy
• assure the plants have plenty of room to grow
• help determine what supplies and how much are needed
• help a gardener determine how much produce to expect from the garden
• help a gardener know when the crop will be ready to eat

We are going to read *Too Many Pumpkins*, by Linda White, a story about a woman who doesn’t plan what grows in her yard.

*Read the story,* *Too Many Pumpkins* by Linda White, and ask the class the following questions:

**Rebecca Estelle grew a little bit of everything in her garden except what?**
*Pumpkins*

**Why?**
She was tired of pumpkins because that is all she ate when she was young.

**Did Rebecca Estelle have a plan for her pumpkin patch?**
No, she didn’t intentionally plant the pumpkins.

**Did the pumpkins grow well?**
Yes, very well.

**What was the problem with the pumpkins?**
There were too many and they took over the entire yard.

**How did she solve the problem?**
She made pumpkin treats and jack-o-lanterns and shared them with neighbors and friends.

**Do you think she will include pumpkins in her garden plan next year?**
Yes

**How do you know?**
She saved some of the seeds.

Let’s plan Rebecca Estelle’s garden for next year. I am going to assign each of you a partner or group. Your group will have 5 to 7 minutes to plan Rebecca Estelle’s garden for next year.

*Assign partners or groups, distribute one Garden Grid per group. Have the students take out their pencils and rulers.*

**What vegetables did Rebecca Estelle plant in her garden?**
Let’s go back to the story and list the crops that Rebecca Estelle plants in her garden and add pumpkins. (*These are found on the first page of the story.*) “Every year at springtime, Rebecca Estelle planted just enough seeds in her garden to grow vegetables for the long winter. She planted carrots, beans, tomatoes, peas, corn, and rutabagas.” (*Write the crops on the board.*)
Please write these vegetables in the empty space on the right hand side of your garden grid. Work with each other to draw a plan for Rebecca’s garden on your garden grid. You may use any plan you would like but be sure to include all the vegetables on your plan. You will have five to seven minutes. Do it any way you like. (Avoid telling students how to make their plan. Let them come up with their own garden plan as kind of a pre-test.)

It’s time to share your garden plans. How did your group do?
Give each group one minute to show and tell about their garden plan. Or, use the “garden gallery” method by having students hold up their plans at the same time so everyone else can see. Ask them to look for similarities and differences.

What problems did you have while you were designing Rebecca’s garden?
Possible answers include:
- Couldn’t agree with partner
- Didn’t know how much space each plant needed in the garden
- Didn’t know how many plants we needed to grow
- Didn’t know how to use the garden grid
- What is a rutabaga anyway?

How could we figure out how to resolve these problems before we make our own garden plans?
Possible answers include:
- Use some of the good ideas from the plans we just made.
- Find people to help us who know what they are doing.
- Look at plant seed packages or plant labels.
- Do an online search for information on the crops.
- Look at someone else’s garden plan and garden.

Have the students put their names on their garden grids and collect them. Explain that they will be using them again.

Do explore investiage concepts 20 minutes possibly another day

TEACHER’S NOTES: Copy the Seed Catcher pattern and instructions found at the end of this lesson, one per student. See the Lettuce Wraps and Fresh Garden Salsa activities and recipes in “Garden Choices Through Taste Testing”. Wash and precut samples and store them in bags. Save a whole lettuce leaf, spinach leaf, radish, and green onion to show the students and to demonstrate how to prepare or cut it. Invite a few students to help distribute the samples. You may want them to wear gloves or use tongs to put the samples on one paper plate per student.

SEED CATCHERS

Distribute the Seed Catcher patterns and have the students use their scissors to cut them out. Follow the instructions and make the seed catchers together, step by step. Give the students time to take turns using their new seed catchers and reading the tips about gardening.

What was your favorite gardening tip?
Ask three or four students to share the tip from their seed catchers.
What did you learn by making and playing with your seed catchers?

Possible answers include:

• You have to follow step by step instructions before you can make the seed catcher work.
• There were lots of steps and decisions to make before you could read the garden tip. They might repeat the tips.

What was the first decision you had to make to start playing with your seed catchers?
Someone had to choose a food that grows in a garden.

What was the first decision Rebecca made about gardening?
She chose what food she wanted to grow in her garden.

We will start our own garden plan by first deciding what we want to grow and eat.

GARDEN CHOICES THROUGH TASTE TESTING

Make sure that everyone washes their hands and that the demonstration table is washed. Set up the table with the Lettuce Wrap ingredients (see Lettuce Wraps recipe), cutting board, knife, gloves, paper plates, paper towels, and napkins. Have the student volunteers put the paper plates out on the table so that they can place one sample of each vegetable on each plate. When the other students are done washing their hands, have them pick up their sample plates and take them back to their seats. Instruct them not to eat anything on their plate until they are told.

**LETTUCE WRAPS**

Makes 24 samples

1. Wash all produce before starting.

2. Prepare the ingredients.
   1 Bundle of Romaine or leaf lettuce *(tear into 24 pieces)*
   12 Large *(tear in half)* or 24 small spinach leaves
   6 Radishes *(slice thinly)*
   6 Green onions *(slice the white part and 1½ inches of the green part into thin rings, discard the roots and the tops)*
   Squirt bottle of ranch dressing

3. Have each student do the following.
   Lay the lettuce leaf on the paper plate.
   Lay the spinach leaf or leaves on top of the lettuce leaf.
   Put the radish slices on the spinach.
   Put the onion slices on the radish slices.
   Squirt a line of ranch dressing across the layer of veggies. *(Adult should help.)*

   **After teacher demonstrates how, roll up the wrap or fold one side over the other.**
   **Eat it!**

We are going to make Lettuce Wraps so we can taste some early, cool season vegetables.
Why are some vegetables called “cool season crops”?

Possible answers from students could include:

• They are neat or awesome
• They don’t like heat
• They grow best when it’s cool outside
• They like to be in the refrigerator

Cool season crops grow best when they are planted outside as soon as the soil can be worked. These crops tend to dry up and die when hot summer weather arrives. They could also be planted inside our classroom in containers.

Have the students read the crops on the chart that grow best in the spring and are called cool.

We are going to taste some cool season vegetables that grow near where we live and that we might be able to grow in our garden. I grew/bought these at ____________. I kept most of these in the refrigerator to keep them fresh until we needed them. Then I washed them and cut them into sample sizes. Before we make our lettuce wraps, let’s see if you can identify the vegetables on your plates.

Show one vegetable at a time. Start with the largest lettuce leaf. Have students tell what it is. Continue naming the other vegetables. As vegetables are identified, have students stack them on their lettuce leaf. Give each student a squirt of ranch dressing, if desired, then show how to roll everything up into their own Lettuce Wrap.

How did you like your Lettuce Wraps?

Raise your hand if you tried a vegetable that was new to you.

Have the students name the ingredients in the lettuce wrap. Write them on the board or a large sheet of paper, leaving space for tally marks. Have them vote for their top two favorite vegetables in the wraps. The most popular choices could be the cool season crops they grow in their garden.

Have the students save their plates for the salsa activity.

TEACHER’S NOTES: As time allows, you can continue with the warm season crops and salsa tasting or save this activity for another day. You need to allow 20-30 minutes extra if you make the Summer Garden Salsa recipe with your class. If you choose to make salsa, students can participate by cutting up ingredients on plastic plates using plastic knives. A teacher or adult helper should cut and clean out the peppers. Mix ingredients in large bowl or ice cream pail.

Now we are going to taste test some warm season crops.

Using what we learned about cool season crops, why might these foods be called warm season crops?

Possible student answers include:

• They like warm weather.
• They taste hot and spicy.
• They don’t grow well in cool weather.
• They grow best during warm weather.
Warm season crops thrive in warm, sunny summer weather. These crops could also be planted inside in containers, then transplanted outside when the temperatures warm up. Some local producers are planting warm season crops in greenhouse-type buildings, called high tunnels, so their crops will be ready to eat earlier. Consumers enjoy eating summer vegetables early because they have waited a long time for the vine-ripened, just-picked flavor.

Put a little salsa in small 3 ounce cups and put a cup on each student’s plate. Pour two or three chips on each plate.

Fresh garden salsa contains many warm season vegetables. I will put a serving of salsa on each of your plates. Put a small portion of salsa on each plate.

You have fresh garden salsa on your plates. We can also buy salsa at the store in jars. Salsa can be processed so it can be stored on shelves for long periods of time.

Raise your hand if you have eaten fresh salsa.

Raise your hand if you have eaten processed salsa.

Is it one of your favorite foods?

What are the ingredients in our fresh salsa?
Tomatoes, onions, peppers, not sure

We can read the ingredient label if we aren’t sure. Let me show you what each ingredient looks like. We will list the ingredients on the board.

Show uncut examples of each of the vegetables in the salsa. You may want to cut up small samples to taste.

How do we usually eat salsa?
On tacos, with chips

Raise your hand if this is the first time you tried salsa.
How did it taste?

List the vegetables from the salsa and the “Too Many Pumpkins” book on the board or a large sheet of paper. Have the students vote for their top two choices. Put a star by the four to six crops that received the most votes. These are the crops they could plant in their garden.

Which vegetables had the most votes? Which ones had less?

Class could make a bar graph plotting the results of the tally voting.

We will want to remember our favorites when we plant our garden. It is also important to plant a variety of crops so we can harvest in spring, summer, and fall.
TEACHER’S NOTES:

- Select the Garden Grid, found at the end of this lesson that best suits the type of garden you will grow – tilled, raised bed, or container such as EarthBox™. Copy one per student or pairs of students and one or two as working copies for the entire class. Have the same pairs or small groups of students that worked on Rebecca’s garden from the Introduction section, work together on these garden plans.

- Everyone will need to see the list of crops that they chose to plant from the DO/EXPLORE section. They will also need to see the “Plant Spacing for Rows in the Garden” and the “Plant Spacing for Square Foot Gardening” charts found at the end of this lesson. Use poster board to prepare an example of each of the square foot garden templates found at the end of the lesson.

- It would be best if students measure the actual gardens they will be planting. If not, have the measurement available.

- With help from garden experts in your community such as Extension Master Gardeners, local producers, garden store employees, local gardeners such as parents and grandparents; use the list of crops you want to grow and discuss what varieties are their favorites and how much they typically harvest from the crops on the list. Although you can find the information you need online, you miss the connection with the community and their local experiences growing fruits and vegetables.

Now that we have identified what we want to grow in our garden, we are going to make a plan.

*Redistribute the Garden Grids with another copy of the 10’ x 15’ grid or the raised bed and container gardens on the back of the sheet. Have the students write the crops they will be planting in the margins of the new grids.*

Take another look at your plans for Rebecca’s garden and think about what you learned about the fruits or vegetables we want to plant in our garden.

**What information do you think you need to help you make new plans for our actual garden?**
Discuss answers with your partner or group and be ready to share them with the rest of us.

*Give them three minutes for discussion then have each group share one thing they need to know. Have all the students raise their hands if they feel that information would also help them. Then write it on the board. Possible answers include:*

- How many plants will we need?
- How much space do we have?
- How big will the plants grow?
- How do you arrange the crops in the garden – rows, sections, mounds or small hills, etc.?
- Could we grow an early crop, harvest it, and then plant something else in the same spot?

Let’s start with finding out how much space we have in our garden.

Look at the Garden Grid and how each square equals 1 square foot. Measure one square foot on the floor as an example of what it will be in the garden.

**How many feet long is the garden grid?**
The length of the garden grid depends on which one you will be using. The large grid is 15 feet, the raised bed is 4 feet, and each container has 14 inches of space to plant things.

**How many feet wide is the garden grid?**
The width of the garden depends on which one you will be using. The large grid is 10 feet, the raised bed is 8 feet, and each container has 29 inches of space to plant things.
Use one copy of the appropriate garden grid to work with the students to identify the type and sizes of the gardens they will be planning and growing. If possible, measure your actual gardens and make sure the grids will work for your plans.

NUMBER OF PLANTS

Unless you have large gardens, you probably won’t have enough room to grow large amounts of crops for each of the students and their families to try. So, you may want to help them figure out how many plants they will need for everyone to have a sample. Encourage them to grow more at home or in a community or neighborhood garden.

Discuss each of the crops you will be planting. Have the students provide their knowledge and experiences to figure out how many fruits or vegetables come from one plant. Offer what you discovered from local gardeners. Upon consensus from the group, record the numbers of the plants you will need next to the crops on the main list and have the pairs or groups write them next to the crops on their garden grids.

AMOUNT OF SPACE PER PLANT

If you are using large container or raised bed gardens, you will want to use the Plant Spacing for “Square-foot Gardening” chart. If you are using a traditional tilled garden in the ground, you will want to use the “Plant Spacing for Rows in the Garden” chart, or both charts. When talking about square foot gardening, show the square foot gardening guides.

Select small, medium, and large sample crops and work together on the sample size grids and use the charts to mark the plants on the grid. You may use dots and label them or draw a picture of the fruit or vegetable to mark them on the grid. Point out that the squares on the chart are the same as the squares on the garden grid, they both represent one-foot squares. Leave one foot between rows or follow the space guides on the row guide. Square foot gardens are planted with square foot grids. Raised bed gardens are usually planted in square feet and don’t require walkways because gardeners are working from outside the bed. If the plants you chose do not appear on the grid, help the students to find a plant on the chart that grows similarly to that one and requires about the same amount of space in the garden.

OPPORTUNITY TO DOUBLE CROP

Discuss what they learned about the cool season and warm season crops they tasted. Put a “C/F” for “cool” and “fast” in front of the crops you chose that can be harvested and the space can be used to grow something new in the same space.

CREATE GARDEN PLANS

Creating a garden plan is similar to putting a puzzle together. The pieces of the puzzle are the crops that you want to plant in the garden. The outside edges or the puzzle are the edges of the shape and size of the garden grids. Be sure you start lightly with pencil so that you can erase.

If you use dots to represent plants, you will have to label them with the name of the crop written nearby. If you can draw a picture of the fruit or vegetable to represent each plant, you don’t have to label them. You can use both dots and labels, and pictures depending on how much space you have.
Allow 10 minutes for this activity and walk around to help them out. If they aren’t completely done after 10 minutes, assure them that everyone will help each other out to come up with the best plan.

Select a group who believe they have figured out the garden plan or puzzle using all the crops. Have them show their plan to the rest of the group. Compare their garden plan with others. Identify the best qualities of the students’ plans. Combine those qualities together on a new garden grid to use when the students mark and plant their real garden.

TEACHER’S NOTES:
1. Prepare garden labels ahead of time. If you are using vinyl blind slats, use heavy scissors to cut vinyl blind slats into 8-10 inch sections. Cut points at one end of the blind slats and paint sticks. Each garden row or section of square foot gardening space will need two garden labels. Write crop names on paper strips and place them in a bowl or envelope so students can draw out their crop. For example, if you are planting lettuce, you should write lettuce on two strips of paper.
2. In the upper left hand corner of each day on the working copy of the Garden Calendar, write the date. You may want to do that on just the months when you will be planning, planting, maintaining, and harvesting your garden. Everyone will be working together to mark significant gardening dates on the calendar, so enlarge it on the wall or larger sheets of paper.
3. You may want to show examples of commercially-available garden calendars from the Internet or from your local extension office or garden store.

GARDEN LABELS

Now that we have our garden puzzle/plan put together, we need to make garden labels for each crop.

Why do we need garden labels for our garden?

• So we remember what we planted
• So we can show people where each crop is located if we don’t have our garden plan

How many garden labels will we need for each row or section?
Two – one at each end of the row or two per section

Distribute garden markers, one per child, depending on number of crops. Each child will also need a thin line permanent marker.

I have given each of you sticks to make garden markers. Will these be good for outdoor use?
Yes
Why?
Wood is somewhat waterproof and plastic is very waterproof.

What did I make at one end of each stick to help us push it into the ground?
Points
I will walk around and let each of you draw out a name of a fruit or vegetable crop for your garden label.

Using permanent markers, draw a picture of your fruit or vegetable at the top of the label (not the pointed end) and then neatly print the crop name below the picture. *(If you are using wooden spoons, draw on one side of the spoon and print the name on the other side.)*

**Why did I give you permanent markers?**
Because the plant labels will get wet and the names could wash off if the marker wasn’t permanent.

Please place your garden markers in my tub *(or box, bucket, envelope)* so we have them on garden planting day.

**GARDEN CALENDAR**
Put the Garden Calendar up so that everyone can work with it. Show examples of garden calendars and have students read what is written on them. Think about some of the activities that are done in the garden. Find planting dates for the different crops, tips for maintenance, and harvest dates. Use your seed packets, planting guides, or help from local garden experts to start writing dates about your garden on the master Garden Calendar. Throughout the planting season, the class can write gardening tips in the calendar squares. This would be a good whole group activity once a week. Log items like planting dates, weeding times, watering days, harvesting, weather, temps, and tasting. If students have gardeners in their families, they might get fun garden tips from them to add to their calendar pages.

**SHARING YOUR ABILITY TO CREATE GARDEN PLANS**
*Where can you use your new garden planning knowledge and skills?*

*Possible answers include:*
- For a garden next year
- At home
- Neighborhood or community garden
- Help with gardens at community centers, senior living homes, residential facilities, etc.
- To write up the steps and put it in your school news, in a local newspaper, etc.
- To share with beginning gardeners
Garden Grid

**OUR FOOD GARDEN PLAN**

### 4' x 8' RAISED GARDEN

- Grid with coordinates labeled from 0 to 4 on the y-axis and from 0 to 8 on the x-axis.
- Each square represents 1 square foot.

### 15” x 30” EARTHBOX™ CONTAINER GARDENS

- Two separate 15” x 30” containers are illustrated with dimensions marked.
- Each container is 14” tall and 29” wide.

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1. Cut along the solid dark lines and place face down.
2. Fold the square in half diagonally, corner to corner, to form a triangle. Crease the fold firmly. Unfold and repeat this in the opposite direction to leave an "X" fold through the center.
3. Fold each corner point into the center of the "X" to form a smaller square.
4. Flip the square over so you don’t see any of the cut edges and fold each corner into the center of the "X" to form a smaller square.
5. Fold the square in half to form a rectangle. Unfold and repeat the process the other direction.
6. Put your thumbs and first or index fingers into the four pockets left by your folds. Try moving your fingers to move the four pockets in two directions.
7. Ask someone to select one of the four garden crops on the pockets. Move the seed catcher back and forth as you spell out the crop. Ask them to choose a number. Move the seed catcher back and forth as you count out the number. Ask them to choose another number. Take your fingers out of the seed catcher, open the flap, and read the garden tip under the number they chose.

SEED CATCHER

- **Corn**: Plant seeds outdoors at the right time because the soil has to be warm enough for the seeds to grow.
- **Zucchini**: One plant will produce all the zucchini you will need!
- **Tomato**: Two cherry tomato plants will produce hundreds of tomatoes!
- **Pumpkin**: Don't plant seeds too deep or they won't grow.
- **Peas**: The Native American Three Sisters Garden contains: corn, beans, and squash. One for the corn, one for the beans, and one for the squash. That’s “one in each corner.”

Grade 4 Lesson 3 & 4

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**FRESH GARDEN SALSA**

- 3 large tomatoes, seeded and coarsely chopped
- 1 small fresh jalapeno chile seeded and minced *(optional)*
- 1 clove garlic, minced
- ¼ cup finely chopped onions
- 2 tablespoons finely chopped cilantro
- 2 tomatillos, husks removed, finely chopped
- Juice from 1 small lime
- ¼ teaspoon salt
- ¼ teaspoon freshly ground black pepper

In a large bowl, combine all the ingredients. Stir together until well blended.

Cover and chill for 30 minutes or more before serving.

Keeps for up to 4 days in the refrigerator.

Makes about 2 cups.

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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.
SQUARE-FOOT GARDENING

TEMPLATE 2

peas, bush beans

GROWING IN THE GARDEN: LOCAL FOODS AND HEALTHY LIVING
INTRODUCTION TO LOCAL FOODS AND HEALTHY LIVING

IOWA STATE UNIVERSITY
Extension and Outreach
Healthy People. Environments. Economies.

4-H Youth Development
4H-905LPFL | August 2011

Printed with Permission, February 2012
### PLANT SPACING FOR SQUARE-FOOT GARDENING

Use the following key to plan how much space plants need when they are planted in squares.

<table>
<thead>
<tr>
<th>CROP</th>
<th>NUMBER OF PLANTS in each square</th>
<th>NUMBER OF SQUARES for each plant</th>
<th>EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>onions</td>
<td>16</td>
<td></td>
<td><img src="example" alt="onions" /></td>
</tr>
<tr>
<td>lettuce</td>
<td>16</td>
<td></td>
<td><img src="example" alt="lettuce" /></td>
</tr>
<tr>
<td>spinach</td>
<td>16</td>
<td></td>
<td><img src="example" alt="spinach" /></td>
</tr>
<tr>
<td>peas</td>
<td>9</td>
<td></td>
<td><img src="example" alt="peas" /></td>
</tr>
<tr>
<td>cauliflower</td>
<td>4</td>
<td></td>
<td><img src="example" alt="cauliflower" /></td>
</tr>
<tr>
<td>cabbage</td>
<td>4</td>
<td></td>
<td><img src="example" alt="cabbage" /></td>
</tr>
<tr>
<td>broccoli</td>
<td>4</td>
<td></td>
<td><img src="example" alt="broccoli" /></td>
</tr>
<tr>
<td>radishes</td>
<td>16</td>
<td></td>
<td><img src="example" alt="radishes" /></td>
</tr>
<tr>
<td>carrots</td>
<td>16</td>
<td></td>
<td><img src="example" alt="carrots" /></td>
</tr>
<tr>
<td>sweet corn</td>
<td>1</td>
<td></td>
<td><img src="example" alt="sweet corn" /> (must be planted in a block at least 10' x 5' for good pollination)</td>
</tr>
<tr>
<td>potatoes</td>
<td>2</td>
<td></td>
<td><img src="example" alt="potatoes" /></td>
</tr>
<tr>
<td>zucchini</td>
<td>9</td>
<td></td>
<td><img src="example" alt="zucchini" /></td>
</tr>
<tr>
<td>squash</td>
<td>9</td>
<td></td>
<td><img src="example" alt="squash" /></td>
</tr>
<tr>
<td>pumpkins</td>
<td>9</td>
<td></td>
<td><img src="example" alt="pumpkins" /></td>
</tr>
<tr>
<td>bush beans</td>
<td>9</td>
<td></td>
<td><img src="example" alt="bush beans" /></td>
</tr>
<tr>
<td>peppers</td>
<td>1½</td>
<td></td>
<td><img src="example" alt="peppers" /></td>
</tr>
<tr>
<td>tomatoes</td>
<td>9</td>
<td></td>
<td><img src="example" alt="tomatoes" /></td>
</tr>
<tr>
<td>cucumbers</td>
<td>9</td>
<td></td>
<td><img src="example" alt="cucumbers" /></td>
</tr>
</tbody>
</table>
### PLANT SPACING FOR GARDEN ROWS

The following key will help you plan how much space your crops will need in rows and between rows. Use a string stretched along the row as a guide to make straight rows.

\[= 1 \text{ foot}\]

<table>
<thead>
<tr>
<th>Crops</th>
<th>Early Planting Spacing (between plants)</th>
<th>Early Planting Spacing (between rows)</th>
<th>Mid-May Planting Spacing (between plants)</th>
<th>Mid-May Planting Spacing (between rows)</th>
</tr>
</thead>
<tbody>
<tr>
<td>onions</td>
<td>3”</td>
<td>1 foot</td>
<td>pumpkins</td>
<td>3 seeds / hill 36”</td>
</tr>
<tr>
<td>sets or plants</td>
<td></td>
<td></td>
<td>squash</td>
<td>3 feet</td>
</tr>
<tr>
<td>lettuce</td>
<td>Thin to 2”</td>
<td>1 foot</td>
<td>bush beans</td>
<td>3”-4”</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td>2 feet</td>
</tr>
<tr>
<td>peas</td>
<td>3”</td>
<td>2 feet</td>
<td>zucchini</td>
<td>3 seeds / hill 36”</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td>3 feet</td>
</tr>
<tr>
<td>broccoli</td>
<td>18”</td>
<td>2 feet</td>
<td>sweet potatoes</td>
<td>24”</td>
</tr>
<tr>
<td>cabbage</td>
<td></td>
<td></td>
<td></td>
<td>3 feet</td>
</tr>
<tr>
<td>cauliflower</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>radishes</td>
<td>Thin to 2”</td>
<td>1 foot</td>
<td>peppers</td>
<td>18”</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td>2 feet</td>
</tr>
<tr>
<td>carrots</td>
<td>Thin to 1”-1½”</td>
<td>1 foot</td>
<td>tomatoes</td>
<td>36”</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td>tomatillas</td>
<td>3 feet</td>
</tr>
<tr>
<td>sweet corn</td>
<td>6”-8”</td>
<td>2 feet</td>
<td>cucumbers</td>
<td>3 seeds / hill 36”</td>
</tr>
<tr>
<td>seeds</td>
<td></td>
<td></td>
<td></td>
<td>3 feet</td>
</tr>
<tr>
<td>beets</td>
<td>Thin to 1”-1½”</td>
<td>1 foot</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Garden Calendar

<table>
<thead>
<tr>
<th></th>
<th>SUN</th>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THU</th>
<th>FRI</th>
<th>SAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>JULY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUGUST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEPTEMBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCTOBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOVEMBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DECEMBER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grade 4 Lesson 3 & 4**
### COOL- AND WARM-SEASON CROPS

#### COOL-SEASON CROPS*

<table>
<thead>
<tr>
<th>VEGETABLE</th>
<th>DAYS TO HARVEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beets</td>
<td>60 - 80</td>
</tr>
<tr>
<td>Broccoli (transplants)</td>
<td>60 - 80</td>
</tr>
<tr>
<td>Carrots</td>
<td>60 - 80</td>
</tr>
<tr>
<td>Cabbage (transplants)</td>
<td>60 - 80</td>
</tr>
<tr>
<td>Cauliflower (transplants)</td>
<td>60 - 80</td>
</tr>
<tr>
<td>Collards</td>
<td>50 - 60</td>
</tr>
<tr>
<td>Kale</td>
<td>50 - 60</td>
</tr>
<tr>
<td>Kohlrabi</td>
<td>50 - 60</td>
</tr>
<tr>
<td>Lettuce</td>
<td>30 - 40</td>
</tr>
<tr>
<td>Mustard greens</td>
<td>40 - 60</td>
</tr>
<tr>
<td>Green onions (sets or transplants)</td>
<td>35 - 45</td>
</tr>
<tr>
<td>Peas</td>
<td>50 - 75</td>
</tr>
<tr>
<td>Potatoes</td>
<td>110</td>
</tr>
<tr>
<td>Radish</td>
<td>30 - 35</td>
</tr>
<tr>
<td>Spinach</td>
<td>35 - 40</td>
</tr>
</tbody>
</table>

*These cool-season crops can be planted as soon as the soil can be worked in early spring so that they can be harvested before school dismisses in May and June. Plan to harvest the these crops a week or two before school is out so that you can plant warm-season crops that will be ready for harvest when the students return to school in August or September. To determine if you have enough time to harvest a crop from your garden, count backwards on the calendar from a potential harvest date. If possible, plant early-maturing varieties.

The cool-season crops listed above, except for potatoes, can also be grown successfully in the fall. Plant the broccoli, cabbage, cauliflower, and kale so that they mature around the average first frost date in your area; count back from that date for the appropriate planting time. Wait until the daytime temperatures average no higher than 80 and the evening temperatures are in the 60's or below.

#### WARM-SEASON CROPS*

<table>
<thead>
<tr>
<th>VEGETABLE</th>
<th>DAYS TO HARVEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snap beans</td>
<td>50 - 60</td>
</tr>
<tr>
<td>Sweet corn</td>
<td>65 - 110</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>50 - 70</td>
</tr>
<tr>
<td>Eggplant</td>
<td>75 - 80</td>
</tr>
<tr>
<td>Muskmelon or cantaloupe</td>
<td>90 - 120</td>
</tr>
<tr>
<td>Onions, dry (sets or transplants)</td>
<td>90</td>
</tr>
<tr>
<td>Okra</td>
<td>70 - 90</td>
</tr>
<tr>
<td>Peppers</td>
<td>70 - 75</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>140 - 150</td>
</tr>
<tr>
<td>Pumpkins</td>
<td>90 - 120</td>
</tr>
<tr>
<td>Summer squash and zucchini</td>
<td>60 - 75</td>
</tr>
<tr>
<td>Winter squash</td>
<td>90 - 120</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>70 - 80</td>
</tr>
<tr>
<td>Tomatillos</td>
<td>70 - 80</td>
</tr>
<tr>
<td>Watermelon</td>
<td>85 - 120</td>
</tr>
</tbody>
</table>

*Warm-season crops are planted after the threat of frost is past in the spring. For most parts of the country, they will not be ready to harvest until after school has dismissed for summer. However, if you plant it just before summer recess or a few weeks later, they will be ready for harvest when the students return and later into the fall. You may want to count back from the day school begins to determine the optimum planting time. Remember, if you plant these crops to grow through the summer, you will need someone to be responsible for the general care and watering of the garden.