Planting a Healthy Garden

Lesson six: How do you plant a garden?

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

Students play games about seeds, sets, transplants, seed pieces, tools and tool safety to prepare them to plant their gardens. Then they mark their garden and plant it in an organized and fun way that involves everyone.

**Content objectives:** Identify and implement efficient and productive methods to prepare the soil for gardening;
Mark a garden;
Plant seeds, sets, or transplants; and water the garden for the first time

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

**Core and STEM concepts and skills:**

**Science**
Earth and space, Life science, Science as inquiry

**Math**
Operations and algebraic thinking, Measurement and data, Number and operations; Geometry, Mathematical problems

**Language Arts**
Reading for information, Listening, Vocabulary, Viewing, Speaking, Listening

**Healthy snack:** Water and a juicy fruit or vegetable

**Additional and supporting resources:** Extension Master Gardeners
BEFORE THE LESSON

1. Grade 4, 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.

2. Prepare flash cards at end of lesson.

3. There is no recipe for this lesson. Serve water or a tasting of a juicy fruit or vegetable.

THE LESSON
Planting Our Healthy Garden will be conducted both in the classroom and garden, and may be done over several days.

AFTER THE LESSON
Have students record what they planted in their journals.
Make a plan for watering and monitoring the garden.
# Planting Our Healthy Garden

## Unit 5  Lesson 5B

### CONTENT OBJECTIVES

Plant a garden using “Our Healthy Garden Plan” from Lesson 4B and the most appropriate planting methods according to the type of garden and the plants that have been chosen for the garden.

### LIFE SKILL OBJECTIVES

Critical thinking, decision making, cooperation, communication, citizenship, leadership, healthy living

### INDICATORS

Students will make appropriate decisions and work together to successfully plant their gardens.

### EVALUATIONS

**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:** Behavioral sciences, Geography

**Literacy:** Reading, Speaking, Listening, Viewing

### SUBJECT STANDARDS

**Core Concepts and Skills**

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

### MATERIALS

- Our Healthy Garden Plan *(This is the students’ garden plan from lesson 4B.)*
- Garden Challenge flash cards *(found at the end of the lesson)*
- Paper clips
- Get Ready, Get Set, GROW! Worksheet *(one per student, found at the end of the lesson)*
- Pencils
- **Optional:** Samples of seeds, transplant or seedling, onion set, potato seed piece
- Seed packets and plant labels *(from the seeds or transplants that will be planted in your garden)*
- Garden tools *(see Reflect and Apply to determine what you will need)*
- Know Your Garden Tools *(copy one per student, or do together on an interactive board or screen, found at the end of this lesson)*
- Garden Tools Crossword Puzzle *(copy one per student, found at the end of this lesson)*
- Craft sticks *(one per student)*
- Rulers *(one per student)*
- Fine-tipped permanent marker or ink pen *(one per student)*
- Square foot garden template *(found at the end of this lesson or use the one from Lesson 4B)*
- Newspapers or poster board *(see Reflect, Activity 4: Square-foot garden templates)*
- Scissors
- Garden Rules sign *(see Apply)*

*Materials continued on the next page.*
MATERIALS CONTINUED

Garden Markers *(from Lesson 4B)*
Garden(s) *(The garden spaces should be built, filled with soil and ready to mark and plant.)*
Paper towels or rags to use near the garden
Soap and water to wash hands
Water *(one bottle or cup per student, see Apply – Wrap Up)*
Fruit and or vegetable samples with dip *(see Apply – Wrap Up)*

**TEACHER’S NOTE:** Display a copy of Our Healthy Garden Plan from Lesson 4B and keep it posted where everyone can see it throughout this lesson. The responses to the questions in this section will vary and are intended to engage the students’ thinking without being right or wrong. Therefore there are no responses written after many of the questions.

If you are ready to plant the vegetables (or fruits) in Our Healthy Garden Plan, stand near your chairs and use hand motions to pretend you are planting a garden. Give them a minute to start planting their pretend gardens. Then ask one side of the room to keep planting while the other side watches. Then reverse the process. Then have everyone sit down.

Did everyone plant their gardens the same way?
What different methods did you see?
What methods could we use to plant our garden and why?
What will we need to plant our garden?
We will need seeds, tools, markers, soil, water, sunshine, air, and each of us.

Raise your hand if you have planted a garden before.
For those of you who have planted a garden, have you always planted crops starting with seeds?
What did you use?
You may have used small plants called transplants, sets that look like the beginning of a vegetable such as onions, seed pieces that could be pieces cut from a potato, or seeds that come from the same kind of plant that you wanted to plant.

Are we planting container, raised bed or traditional in-the-ground tilled gardens?
What kind of tools do you think we will need to plant that kind of garden and why?

Pull on your ear lobes if you think we need to listen and learn in order to figure out a few more things before we jump into our gardens and start planting.
For those of you that are ready to plant, you can help the rest of us to make the best decisions for our plants, tools, and gardens.
TEACHER’S NOTES: Copy the Garden Challenge flash cards (found at the end of this lesson) so that you have three or four sets, depending on the number of students in the class (one set for every seven students). Cut them apart. Paper clip the sets of TEAM 1 flash cards. Repeat with the TEAM 2, and TEAM 3 cards. Copy the Get Set, Get Ready, GROW! worksheet, one per student. Students can take their completed worksheet home and teach their families how to plant different garden plants.

We just discovered that some plants can be started as seeds, but some plants will grow better in our garden if we start them in another way.

Why would it be a good idea to start some of our crops as small plants or transplants instead of direct seeding them in our garden?

A transplant is a small plant that is started from a seed and grown in a greenhouse until it is ready to be moved or transplanted into another container or the garden. By planting transplants or small plants called seedlings, the plants can get a few weeks head start and we can harvest them earlier than if they were planted by seed. Some crops don’t sprout well when direct seeded in the garden and do better when started as seed in a greenhouse and planted in the garden as transplants.

Have you ever planted a small transplant or seedling?
What kind of plant did you plant?

Did you have to be careful when handling and planting the seedling and why?
Small transplants or seedlings are fragile. You have to be careful so that you don’t damage the root system or break the stem.

Besides seeds and transplants, what is another way in which crops are planted in the garden?
Some crops are started as parts of plants. For example, onions are planted as small onion bulbs that were started from seed the year before. They are called sets. Sometimes onions are planted as little plants and sold in bundles that were also started earlier.

Potatoes are planted from pieces of a cut-up potato called a seed piece. Each piece has a bud on it that will grow. (If possible, show a potato that is starting to sprout. Point out the eyes or sprouts.) A potato is actually a swollen, fat underground stem. Each one of those sprouts is like a bud that will grow into a shoot that grows up and above the ground. We plant potatoes from pieces of the potato with an “eye” or two on it. Each piece is planted in the garden about 4 inches deep.

Do you think it makes a difference which way the piece is put in the ground?
Not really, but they emerge from the ground sooner when the sprout is on top.

How do you know how deep a seed should be planted?
The planting depth depends on the size of the seed. Typically, seeds are planted two to three time the diameter of the seed. Small seeds are planted shallow, larger seeds are planted deeper.

What could happen if the seed is planted too deep?
It won’t germinate.

What could happen if the seed is planted too shallow?
It might sprout then dry out and die. It might get washed away when it rains, blown away in the wind or eaten by an animal.
GET READY, GET SET, GROW!

Distribute the Get Ready, Get Set, GROW! activity sheets. Go over the instructions and have the students complete it. They should be able to correctly match the crop with the way in which it is planted. You may want to display one large copy of the worksheet on the interactive board, flip chart or some other way so that students can take turns drawing the lines between the categories as a way to check everyone’s answers.

GARDEN CHALLENGE MATCHING GAME

Divide the class into groups of seven. If there isn’t the right number per group, increase the size of the groups. Then divide each group into three teams of at least two students each. Choose one student to be the moderator for his or her group. Give each team a set of flashcards for the game and give the moderator the key with the answers.

Team 1 in each group will have the cards with pictures of the crops. Team 2 will have cards showing the planting depths. Team 3 will have cards that list the different ways crops are planted (seeds, sets, transplants, and seed pieces). The game begins with Team 1 holding up a picture for Teams 2 and 3 to see. Teams 2 and 3 quickly decide the match for that crop and hold up the appropriate card. The moderator decides whether the answers are right or wrong by following the answer key. The moderator says “ding” if the team is correct or “buzz” if the team is incorrect. The teams should use the process of elimination to determine whether they have guessed correctly. Play the game three times to give all teams a chance to use each set of cards.

Have the students gather the flash cards, paper clip each team’s cards together and put them in a set. One person from each group can bring their set of cards to the front of the room.

<table>
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<th>ANSWER KEY</th>
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<tr>
<td><strong>Pumpkin</strong></td>
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<td><strong>Onion</strong></td>
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<td><strong>Tomato</strong></td>
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<td><strong>Squash</strong></td>
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<td><strong>Sweet potato</strong></td>
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**TEACHER’S NOTE:** In this section, you will need the students’ Our Healthy Garden Plan, the completed Get Ready, Get Set, Grow worksheets, seed packets or plant labels from the plants you will plant in your garden, Know Your Garden Tools (one copy for everyone to work on together), Garden Tools Crossword Puzzle (one copy per student), the tools you will use to plant your garden, craft sticks, rulers, permanent markers or ink pens, and scissors. Read Activity 4 in the Choosing Tools and Learning How to Use Them section and choose which type(s) of square foot garden template(s) you will need and be ready with the supplies. If possible, use the interactive board, a screen, or a large copy of the Get Ready, Get Set, Grow activity sheets so that everyone can work from the same sheet.

Distribute the seed packets or plant labels from the plants that you will be planting in your garden.

**CHOOSING THE BEST METHOD AND TIME FOR PLANTING CROPS**

We are ready to figure out how we are going to plant the crops we chose for Our Healthy Garden Plan.

Look at Our Healthy Garden Plan and the Get Ready, Get Set, Grow! activity sheet and circle the crops that we will be planting on the activity sheet.

Are there any other plants that we will be planting that aren’t on the activity sheet? What are they? Add them to the list and decide how they should be planted. Refer to the seed packets or plant labels for more information.

Some of you have seed packets or plant labels from the plants we will be planting. Look at the packets and labels and tell us the answers for these questions. We will write them on the Get Ready, Get Set, Grow next to the crop on the activity sheet.

What is the name of the crop? When is the best time to plant it? How deep should we plant it? How far apart should we plant it? How far apart should the rows be? How many days until it should be ready to harvest and to be eaten?

Pass the packets or plant labels around so the students can see the pictures and read the information while you continue to discuss the following questions.

What vegetables are cool-season crops that can be planted as soon as the ground has thawed and harvested before the end of the school year and again in the summer for a late summer or early fall harvest?

What plants can we start inside now and transplant to the garden when it is warmer?

What tools will we need to grow these crops in the types of gardens we plan to plant? Have the students guess and then proceed to the next activity.
CHOOSING TOOLS AND LEARNING HOW TO USE THEM

Put the Know Your Garden Tools sheet on the interactive board, a screen, or make copies that everyone can see. Have the actual tools ready to show and use. Proceed with the following four activities.

ACTIVITY 1: TOOL IDENTIFICATION

Work through the Know Your Garden Tools sheet together, showing some of the actual tools, discussing the answers, and applying them to your garden space.

Use the Garden Tools Crossword Puzzle as a take-home follow-up activity sheet. They can have their families help them finish the puzzle. Then have them bring the completed puzzle back and turn it in to see if they are ready to use the tools properly in the garden.

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Answer Key

Across

4. Rake
5. Labels
6. Water breaker
7. Hoe
10. Tiller
12. String
13. Tape measure

Down

1. Trowel
2. Watering can
3. Mulch
8. Hose
9. Fork
11. Shovel
ACTIVITY 2: TOOL SAFETY

Do the following Tool Safety Game.

TOOL SAFETY GAME

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.
ACTIVITY 3: DIBBLES

Since Roman times, long before Christopher Columbus discovered America, people made dibbers or dibbles, which are pointed wooden sticks that helped them make the right sized hole for planting seeds. One person would use the dibble for making the holes and another person would follow and plant the seeds. We are going to make our own dibbles and use the same process to plant the seeds in our garden. We will use craft sticks, rulers, and permanent markers or ink pens to make our dibbles.

Distribute the supplies. You might want to display the illustration on this page in a place for everyone to see. You may want to make your own dibber along with the students.

Line your craft stick up with the zero inch mark at the start of your ruler. Find ¼ inch on your ruler and make a little line from ¼" on your ruler onto about a fourth of your craft stick. Do the same at ½", ¾", 1", 1½", 2", 3", 4", 5". Then move your rulers to the other side of the stick and do the same thing. In between your two lines, mark the measurements using the number and the inch symbol.

Write your name on the back of your new dibble and store it where you can find it when we are ready to plant our gardens.

Katie Jones
**ACTIVITY 4: SQUARE-FOOT GARDEN TEMPLATES**

If you are using the square foot gardening method, use the square foot garden templates found at the end of this lesson and have the students work in groups of three or four to make one full-size template for small plants and one for large plants. You can make them out of newspapers. If you do that, you can stake the templates in the garden using small sticks or your dibbles. Throw some soil over the top to keep them in place. You can make re-usable templates with poster board and laminate the poster board once the circles have been marked and the plant names have been added.

(Time the length of time required for this activity depends on types and sizes of gardens. You may want to start seeds indoors for late-summer or early-fall harvest crops. You can plant the seedlings or transplants in the garden once you have harvested the cool-season crops.)

**TEACHER’S NOTES:** Collect the Garden Tool Crossword Puzzle activity sheet and check for understanding. If you find that they aren’t familiar with the tools, you may have to do a review. This section could be much easier with the help of Extension Master Gardeners or members of your community who are familiar with gardening. Make sure that they have read over this section to know how to include all the students in the gardening process.

Choose the activities in this section that best match the type of garden and garden methods you will be using to plant your gardens. Regardless of the type of garden you will be planting, please be sure to do the Garden Rules and Wrap-Up activities.
GARDEN RULES

Establish the ground rules for the garden. You may want to write these on a re-usable poster board that can be creatively posted every time the class goes to the garden. Have the students repeat the three R’s – Respect, Responsibility, Readiness and give examples of how each of them applies to the garden.

RESPECT

Yourself – Wear shoes that cover your entire foot and clothes that protect your skin from the sun and from being too cold or too hot, practice safety

Your gifts – Share your energy, use your skills and knowledge to help others.

Other people – Be a good listener, consider others’ ideas, share tools, say please and thank you, ask questions rather than assuming things, do not get into each other’s spaces, practice safety

Other people’s things – Do not bother or borrow things without asking, keep things clean and undamaged, practice safety

The environment – Take good care of the garden and the space around it and remind others to do the same

RESPONSIBILITY

Be on time and stay where you are suppose to be
Listen and follow instructions
Use garden tools and supplies safely, clean them, and put them away correctly
Share in the work and the fun of the garden (Remember the Little Red Hen?)

READINESS

Be ready to listen, learn, have fun, work hard, share, and most of all grow healthy food!

Establish a “Gardeners Go” cue with a clap or noise to indicate that gardeners can start their tasks and a “Gardeners Stop” cue with two claps or a noise to indicate when gardeners should stop what they are doing and look at you for more directions. Have students practice going and stopping while they pretend to be hoeing or digging with trowels. Explain that this will make it easier to work with so many people in the garden, it will give everyone a chance to garden, and it will help to get the garden chores done in a limited amount of time.

CONTAINER GARDENS

You will need Our Healthy Garden Plans, garden markers from Lesson 4B, trowels, rulers, dibbles, seeds, transplants, watering can, extra soil and possibly other garden supplies and watering equipment according to the type of container gardens that you are working with and where they are located. Have the students help to place the supplies near the container and then have them sit or stand near the container as you proceed with the following steps.
1. Checking container placement
   Do you think our container(s) are sitting in the best place to get the most sunlight?
   Look at your light sources and have the students move the containers if needed.

2. Checking the soil
   Most container gardens are filled with specially prepared soil.

   Why do you think we should not use soil dug from the ground in our containers?
   Although it may grow plants well outside, it becomes very packed in a container and
   the plant’s roots will not be able to get the air and water they need. Potting soils contain
   the right blend of materials to allow for good drainage while holding water in the soil
   for the plants. Some potting soil already contains fertilizer to help the plants grow.
   The white pieces in the mix are called perlite which is actually a volcanic glass that
   softens and expands when heated. It helps to prevent water loss and soil compaction
   so that the plants have a better chance to grow.

   Why do you think specially prepared soil for container gardens is lighter in weight
   than garden soil?
   That makes it easier to move the containers outdoors in the summer or to move them
   around indoors.

   Do you think we have enough soil in this container? Why or why not?
   If the plants are surrounded by the sides of the container, they won’t get enough light
   and air to grow. If the soil is right at the top of the container, it may overflow when
   you water it. The soil should be within 1 inch from the top edge of the container. We
   may need to add a little soil after watering because it will settle.

   Have the students check the soil level with their dibbles. If you need to add some soil,
   you should do it now.

   Have the students take turns turning the soil or smoothing the soil with a trowel.

   The students can feel the potting soil and look for the different ingredients in the soil
   mix. Have them describe what they feel and see. Compare it to the soil outdoors.

   Using a watering can filled with warm water, have a few students lightly water the
   soil in the containers. (This step can be skipped if using self-watering containers such
   as EarthBoxes®.)

   Why do you think we are watering the soil before we plant?
   Watering the soil before planting makes it ready for the seeds and plants. Watering
   now will settle the soil and we can add more soil if we need to. If we watered the
   soil for the first time after planting, the seeds may be washed out of position in the
   lightweight soil mix.

   Should we water the soil before we plant outdoor gardens?
   That is not necessary because outdoor tilled gardens have some moisture present in
   the soil from rains or melted snow.
3. **Marking your container for more than one crop**
   If you are planting more than one crop in a container garden, help the students to use the plans, rulers, and the edge of their dibbles to mark out the sections. The students can then put the garden markers in the sections or containers to identify what they will be planting.

4. **Planting the seeds, sets, or transplants**
   a. Have the students hold up the right number of fingers as they number off as 1-dig, 2-plant, and 3-cover. After the students have numbered off, have the 1-dig students pretend to dig a hole with their dibbles, the 2-plant students pretend to plant a seed, and the 3-cover students pretend to cover the seed with soil.

   b. Demonstrate how to dig a hole \( \frac{1}{4} \)" deep using a dibble. Then use the edge of the dibble like a ruler to measure 3" from the first hole and make another hole \( \frac{1}{4} \)" deep. Have the students refer to the plans and seed packets or plant labels to help the 1-dig students use their dibbles to make the right size and depth of the holes and to measure the distance between seeds. All the 1-dig students should have an opportunity to dig and measure.

   c. Demonstrate how to take a seed out of the seed packet (or a small bowl or cup) and plant it. Have the 2-plant students plant the seeds, sets, or transplants in the holes.

   d. Using your dibble or your fingertips, demonstrate how to carefully cover a seed. Have the 3-cover students use their dibbles or fingertips to carefully cover the seeds, sets or transplants with soil.

5. **Watering the seeds, sets, and transplants**
   Water the seeds according to the method that comes with the kit; or, one student can be delegated (per container) to gently water the seeds with a watering can.

6. **Cleaning up**
   Have everyone help to clean off the trowels, wipe off the dibbles, and put them in the proper place for storing. Then have everyone wash their hands thoroughly.

### RAISED BEDS AND TILLED OR TRADITIONAL GARDENS

You will need Our Healthy Garden Plan and garden markers from Lesson 4B, Garden Rules sign, hoes, trowels, square foot garden templates, dibbles, two balls of string, garden stakes (from a garden store; or, wooden spoons or large craft sticks), two or three tape measures, watering can, garden hose – according to the type and size of garden. The raised beds should be constructed and the soil should be evenly filling the beds to within an inch from the top edge of the bed. The tilled gardens should be tilled, amended and ready to plant. You may want to take the Garden Rules to review at the garden.

1. **Moving out to the garden**
   Have the students bring their dibbles, garden gloves (optional), and at least one of the items they will be using to plant their gardens and go stand around one of the raised beds or at one end of the tilled garden. Have the students put their supplies on the ground behind them and have all eyes on you.
What are the three basic garden rules that start with the letter “R”?  
Respect, Responsibility, Readiness

What cues are we using to start and stop what you are doing in the garden?  
Practice the cues.

2. Preparing the soil  
Why should we hoe and rake our garden(s)?  
Hoeing and raking loosens up the soil so that water can pass through the pore spaces and reach the seed and the roots and the sprouts can grow through it. It will also make it easier to plant the seeds.

Demonstrate how to use the hoes and rakes to carefully work and level the soil. Have the students form lines to each use a hoe to work the soil, get back in line, and then use a rake to smooth out the soil. If you have more than one garden space, divide the students into groups to prepare each space. Limit each student’s time by counting to 10 in thousands. Start the hoeing and raking with the “Gardeners Go” and “Gardeners Stop” cues.

3. Marking the garden  
Use Our Healthy Garden Plan to decide where and how to plant the garden. Remind students that in raised bed gardens, they will be working from the outside edges of the garden and not walking into the garden. Therefore they won’t have to make walkways in the raised bed gardens.

a. If you are using the square foot gardening method throughout the raised bed, have the students lay down and stake (with their dibbles, extra craft sticks, or broken twigs) as many of the corresponding newspaper templates as they can in each section. Label the sections with the appropriate garden marker. You may want to write or circle the name of the crop you are planting right on the square foot templates.

b. If you are using just a few re-usable square foot templates, use them as measuring devices. Have students stand along the edges of the garden to measure out each section using the templates and the corner edge of a hoe to make trenches designating each section. Place the garden markers so that everyone knows what to plant in each section. A tilled garden should have walkways between each section so you can easily work in each section.

c. If you are planting rows in the tilled garden, you can have students make a Human Grid. Instructions follow in sections c1 through c3. It will keep everyone occupied and in place, especially when there are more than twenty students. It will also sharpen their math skills.

c1. Have four students stand at the four corners of the garden. Have two students hand one end of the tape measure to the corner students standing across from each other on the short end of the garden and stretch the measuring tapes to the corner students standing at the other end of the long sides of the garden. Have the corner students lock the tape measures and lay them on the ground along the longest sides of the garden.

Everyone but the four corner students should count off by threes so that there will be students standing across the garden from each other at the 3’, 6’, 9’, 12’, 15’, 18’
markings on the measuring tape. If your garden is less than 20 feet, you may want them to count off by twos and stand at the 2′, 4′, 6′, 8′ markings.

If your tilled garden has a center walkway, use a third measuring tape and have two students stretch it across the short end of the garden. From your garden plan, determine where the walkway will go. Then have two more students each take a stake to mark out the walkway. Repeat this process at the opposite end of the garden. Then have two more students each take a ball of string, wrap and tie one end of the string to the garden stakes, stretch it across the garden to mark the edges of the walkway, and wrap, cut, and tie it on the opposite stake.

Any students who haven’t participated in these tasks will help with the rest of the marking tasks.

c2. Stand with the remaining students somewhere that everyone can see and hear. Show the garden plan and determine where each row or section of the garden will be. Starting at one end of the garden, determine where the first row or square foot section will go. Have the students standing nearest that measurement on both sides of the garden (for example, 3′) squat down and touch that measurement on the tape measure. Give a student a ball of string and two stakes and tell them to take it to one of the students pointing to the measurement. The student pointing to the measurement puts the stake securely into the ground. He or she may need help from the students standing nearby. The student with the string wraps and ties the string to the stake. Then she or he stretches it across the garden to the other student pointing to the measuring tape and repeats the same procedure. Take the scissors over to the students and have them cut the string before they tie it.

Have another student find the garden markers that match the crop to be planted in each row or section and stick it in the ground at the each end of the row or in a corner of a square foot garden section. This will tell the students what to plant in each row or section. Have students take turns marking out the garden until all rows or sections are marked. Everyone can participate by helping one another find the right measurement, sticking in stakes, tying and cutting the string, finding and putting in the garden markers. Repeat this procedure to mark all the rows or sections. Remember to leave walkways around square foot gardening sections in tilled gardens, but not raised beds.

c3. If you are using newspaper square foot templates, have the students put them in the garden according to the plan and stake them with little sticks or craft sticks. If you are planting the same day, you may get by with staking just two corners of each template. If you are using poster board square foot templates, put them in the sections of the garden where they are to go according to the plan.

Have the students remain in place to start planting the garden.

3. **Planting the garden**
For raised bed gardens and tilled gardens using the square foot planting method: 
*Using the holes in the right-sized square foot templates, demonstrate how to use the dibble to make and measure a hole according to the planting instructions on the packet.*
Then carefully use your fingertips to plant one seed and cover it with soil. Show them how tiny the seeds can be and tell them that they can easily blow away so keep a hold of the seed packet and use fingertips to retrieve a few seeds out of the packet at a time.

Have students work in pairs to plant the seeds in all the holes of one or two square foot garden templates (according to the number of students and the size of the garden so that everyone has an opportunity to plant). One student can use their dibble to make the holes and the other can plant the seeds and carefully cover it with their fingertips. Then they can trade tasks. Use the “Gardeners Go” and the “Gardeners Stop” cues.

For rows in a tilled garden:

a. Hand hoes to the students standing on the sides that didn’t have an opportunity to mark the garden. Have another student read how deep to plant the seeds for that particular row. Have another student put their dibble right next to the string at the end of the row to measure how deep the furrow or shallow planting ditch should be. Then the student with the hoe can carefully put one corner edge of the hoe close to the dibble and next to the string to start the furrow by dragging the hoe half way across the garden. She or he should take the hoe to the student across the garden from him or her and that student can complete the furrow for the other half of the garden. In many cases, you may be stopping at the each edge of the center walkway.

b. The two students standing on either side of the person making the furrow can work together to plant the seeds in the furrow on their half of the garden. Students can use their dibbles to make sure they plant the seeds at the right depth and that the seeds are planted the right distance apart.

c. Use the trowels to dig holes for the transplants. The measuring tapes will help the students determine the distance between the plants.

d. The students that weren’t standing along the side of the garden can help with the supplies and making sure that everyone is following the garden plan by planting the right seeds or transplants in the right places. They can also help the person planting by removing the transplant carefully from the cell pack or small container that it came in. If necessary, loosen the roots of the transplant.

4. Watering the garden

Make sure the tools are out of the garden before watering. You can leave the newspaper templates in the garden because they will decompose and prevent weeds from germinating. Water the entire garden area to make sure that everything is well watered. Use a hose with a water breaker to thoroughly water the garden. Do not spray directly down on the garden and the seeds or it may wash away the seeds. Make it rain on the garden. Take turns watering sections of the garden.

You will need to water the garden weekly unless it rains an inch or more during the week or the ground is already too wet.

5. Cleaning up

Make sure the hoes, rakes, trowels and dibbles are scraped free of soil or wiped clean with paper towels or rags. Put them away according to tool safety rules. Have everyone wash their hands.
STARTING SEEDS INDOORS
At least four weeks before harvesting cool-season crops, you may want to start some of your seeds inside so that you can transplant them in your open garden spaces. Have each student make and plant their own pots. Make a few extra.

PAPER POTS
1. Wrap a 4 inch strip of newspaper around an empty frozen juice can or a water bottle with about 1½ inches hanging over the bottom of the can.
2. Fold the excess paper up around the bottom of the can or bottle to form the bottom of the pot. Press it down on the tabletop or pinch around the bottom edges to secure the paper pot and remove the can or bottle.
3. With one hand under the bottom of the pot, completely fill the pots with potting soil.
4. In the center of the pot, use a dibble to make a hole the right depth of soil for the seed you are planting.
5. Plant the seed and cover it with soil.
6. Place the pots close together on a flat or tray.
7. Water gently with a small watering can, a squirt water bottle.
8. To encourage faster growth, cover the tray with a large, clear plastic bag, such as a dry cleaner’s bag.
9. Set it in a location that receives bright, indirect light.
10. Keep the soil moist.
11. Remove the plastic bag immediately after the seeds germinate or start to grow.
12. When the plants are 2 to 3 inches tall, use a trowel and plant the entire newspaper pot into your garden. Make sure the top edge of the newspaper is covered with soil so that it won’t act like a wick and pull the water away from the soil around the plant’s roots. The newspaper will decompose.

EGGSHELL PLANTERS
1. Tap the smallest end of an egg on a hard surface and peel it away. Poor the egg contents into a clean container. (If you are using clean hands, surfaces and equipment, you can cook the eggs into scrambled eggs – eggs are packed with complete proteins to nourish and energize our bodies. You can use an electric skillet, surface spray, add a little water to make fluffy eggs, and add salt and pepper – or salsa and cheese.)
2. You may want to wash out the eggshell planter and then put it back into the egg carton or tray.
3. Using a plastic teaspoon, carefully fill the eggshell with soil. Lightly pat the soil down and add more to fill the egg. Add a teaspoon or two of water to the soil.
4. Follow instructions 4 through 12 from Paper Pots above. When you transplant the pots outside, gently crush the eggshell before planting it in the ground. The eggshell will provide plant nutrients to the soil.
You may also choose to use peat pots purchased at local garden stores. You can plant the entire peat pot in the garden.

If you use small paper cups, gently take the plant out of the container or peel off the sides and bottom of the cup before you transplant the plant into the garden.

WRAP-UP

After the tools have been put away and everyone has washed their hands, it is time to re-energize with a healthy snack.

The healthy snack should be water and fruits or vegetables and dip. As the students eat and relax from the gardening experience, ask the following question and share possible answers. Conclude that maybe they will discover more about the answers as their garden grows.

Are we eating or drinking anything that we grew or used in our garden?
We are drinking water like we sprayed on our garden. (Discuss any of the snacks that you may have planted. If there aren’t any snacks that were planted from your garden, talk about whether the snacks grew in a garden, berry patch, vineyard, or an orchard.)

Why do seeds, sets, seed pieces, transplants, and growing plants need water?
They need water to start or continue to grow. While the plants are growing, they will need water to grow and produce the leaves, fruit and other edible parts of the plants.

Why do you need water?
We need water just as much as plants need water. Our bodies need water to stay alive and to help all parts of our bodies to work like they should. Our bodies are made up mostly of water, so it is important to keep our water levels up. Water helps us clean our bodies inside and out.

Look at the fruits and vegetables you are eating. How can you tell they have water in them?
They are firm and not shriveled; the skin looks shiny and not wrinkly. You can see and or taste the juice.

How do you know that you aren’t getting enough water?
You may have dry skin and hair, poor skin complexion, dull eyes, dry throat, get sick more often, don’t go to the bathroom regularly, you might pass-out, you don’t feel good, or you can’t think clearly.

We get vitamins and minerals that help our bodies to be healthy from eating vegetables and fruit. How do the vegetables and fruits get the vitamins and minerals that they pass on to us when we eat them?
The plant takes up nutrients from the soil. The plant uses water, carbon dioxide from the air, and sunshine or light to makes its own nutrients or plant food that becomes the food we eat, such as carrot roots, lettuce leaves, tomatoes, and strawberries.

Raise your hand if you are trying a new fruit or vegetable today.
What is it and what do you like about it?
**GARDEN CHALLENGE**

- **TEAM 1**
  - potatoes
  - peas
  - carrots

- **TEAM 1**
  - tomato
  - onion
  - lettuce
GARDEN CHALLENGE

TEAM 1  pumpkin  TEAM 1  pepper

TEAM 1  broccoli  TEAM 1  cabbage

TEAM 1  spinach  TEAM 1  beets
GARDEN CHALLENGE

TEAM 1  green beans  TEAM 1  corn

TEAM 1  cucumber  TEAM 1  radish

TEAM 1  squash  TEAM 1  sweet potatoes
**GARDEN CHALLENGE**

**Team 2**  
**Shallow**  
(¼" deep)

**Team 2**  
**Medium**  
(½" to 1" deep)

**Team 2**  
**Not seed**  
transplant, set, seed piece  
(½" to 1" deep)

**Team 2**  
**Deep**  
(½" to 1" deep)
**GARDEN CHALLENGE**

*Team 3*  
**seed pieces**  

*Team 3*  
**sets**

*Team 3*  
**transplants**  

*Team 3*  
**seeds**
**Get Ready, Get Set, GROW!**

**Our Healthy Garden Plan**

**Instructions:**
Draw a line from the plant to how it is usually started in the garden.

Put a star by the plants that you would like to grow sometime.

- pumpkins
- onions
- peas
- sweet potatoes
- cabbage
- squash
- lettuce
- carrots
- tomatoes
- beans
- broccoli
- peppers
- potatoes
- cucumbers
- corn
- radishes

Name:

- transplants
- seeds
- sets
- seed pieces
# Know Your Garden

## Our Healthy Garden Plan

<table>
<thead>
<tr>
<th>Tools</th>
<th>Garden Tool Use</th>
<th>Tilled Garden</th>
<th>Raised Bed Garden</th>
<th>Container Garden</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves</td>
<td>Gloves protect hands and keep them clean.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rake</td>
<td>The short, stiff teeth on a garden rake are strong so that it can break up clods and make the soil smooth for seeds and plants.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fork</td>
<td>A garden fork loosens the soil and turns it over. It also can be used to harvest underground crops such as carrots and potatoes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hose</td>
<td>A hose is used to take water from the water spigot to the garden. Several hoses can be connected so that the garden can be watered a fairly long distance from its source.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trowel</td>
<td>A trowel looks like a small shovel.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shovel</td>
<td>A shovel is used to dig larger holes for planting larger things in the garden and landscape, like trees and shrubs. It also can be used to turn soil over. Gardeners use shovels to add things, such as compost and manure, to their garden.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiller</td>
<td>A tiller is a machine that a gardener walks behind to turn over the soil.</td>
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</tr>
</tbody>
</table>

**Instructions:**
The right tools make gardening much easier and more fun. Here are some of the tools commonly used for gardening.

Put an “X” in the box under container garden, raised bed garden, and tilled garden if you think the tool is needed for that type of garden.
### Tools and Their Uses in Gardening

<table>
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<tr>
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<tr>
<td><strong>Tape measure</strong></td>
<td>A tape measure that is long enough to stretch the length of the garden is important to have when it comes to determining where crops should be planted and giving them enough room to grow.</td>
<td></td>
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</tr>
<tr>
<td><strong>Labels</strong></td>
<td>Garden labels or markers are important to identify the crops and know where everything is planted. Using the tape measure and your garden plan, the labels can be put in just before the garden is planted.</td>
<td></td>
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</tr>
<tr>
<td><strong>Watering can</strong></td>
<td>A watering can holds one to two gallons of water and has a spout that allows you to gently water plants by hand. It is ideal for small gardens, but not very efficient for large, tilled gardens.</td>
<td></td>
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</tr>
<tr>
<td><strong>Water breaker</strong></td>
<td>A water breaker is typically attached to the end of a hose to “break up” the flow of water into fine spray or forceful spray. On the “shower” setting, it wets the soil gently without washing the soil away from the roots or damaging the plants.</td>
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</tr>
<tr>
<td><strong>String</strong></td>
<td>A string is used to stretch from a stake on one side of the garden to one on the other side. It is used as a guide to keep seeded and transplanted crops in a tidy straight row.</td>
<td></td>
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</tr>
<tr>
<td><strong>Mulch</strong></td>
<td>Mulch comes in many different forms – grass clippings, straw, leaves, newspaper, black plastic, etc. It is laid over the soil to help conserve soil moisture. It also blocks light from reaching the soil so it prevents weed seeds from sprouting and growing.</td>
<td></td>
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<td></td>
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</table>
Garden Tools Crossword Puzzle

Read the handout, “Know Your Garden Tools” to find the answers to the crossword puzzle.

Name

ACROSS

4. A tool used to smooth the soil to make a fine seed bed
5. Tools used to mark where crops are planted
6. A tool that fits on the end of a hose to gently water garden plants (two words)
7. A tool used to lightly cultivate the soil and remove weeds from the garden
10. A motorized tool used to prepare the garden soil for planting
12. A tool that is stretched down the row to assist with planting row crops
13. A tool used to accurately determine plant and row spacing (two words)

DOWN

1. A tool used to plant small plants in the garden
2. A tool used to water plants by hand (two words)
3. A tool used to cover the soil to reduce weed growth and conserve soil moisture
8. A tool used to move water from the source to the garden
9. A tool used to turn the soil over or dig underground crops, such as carrots and potatoes
11. A tool used to dig and add things to the garden, such as compost
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**

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

TEMPLATE 2

peas, bush beans