



Kinder in the Garden Program

The following lesson plans were created by Dr. Jonie Kipling, while working with the kindergarten classes at Ysabel Barnett Elementary School (BES) in Temecula, California. Thanks go to all of the teachers for sharing their classes. The school has five (5) kindergarten classes and Jonie spent ½ hour in the garden with two (2) classes each week. Each lesson plan is designed to last thirty (30) minutes.

Teachers may download these lessons and use them, but they may not be published in any other document without the author's express written consent. The lessons were created for Master Gardeners to use in the classroom and are not meant to be published in any other document. Our goal as UC Master Gardeners working in schools is to help districts realize the benefits of outdoor education and how it can help meet the needs of all learners. This is especially true for nontraditional learners, making educational opportunities more equitable to all students.

Students need to get outside to learn about the Earth, about the web of life that you can only witness and appreciate from being in nature, working with gardens. Our goal is to help schools create stewards of the Earth who will help to protect, support and value our natural resources that we depend on for life.

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Lesson 1: Welcome to the Garden- Good Garden Citizenship

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive

Goal: Students learn the importance of respecting other living things, including those that appear to be very different from you.

Vocabulary: Respect, citizenship

Materials:

The book *Hey, Little Ant* (Preview at <https://www.youtube.com/watch?v=3RXGa1MKq9E>)

Opening:

- Meet students at the gate and invite them to look for lots of living things while they walk into the garden to the story blanket. When children are sitting ask them:
Why do gardens have paths?
What might happen if we walked on the garden beds?
What would happen to a plant if you pulled it up?
- Explain to the children that there are many things living in a garden, some of them plants and some of them animals. Good garden citizens respect and help to take care of all things living in a garden.

Procedure:

- Read the story *Hey, Little Ant* by Phillip and Hanna Hoose. This is a story about a kid who has to make a decision about respecting someone who is very different from himself.
- Discuss:
What would a good garden citizen do?
How are ants different from people? How are ants like people?
How should we behave when we see funny critters in the garden?
- Teach the children the “listen to me” sound (such as clapping hands together, a whistle, a quick chant such as “class, class and students respond “yes, yes”) so they know when they have to listen.
- Send the kids out into the garden to see if they can find ants or other little critters living in the garden. Remind them to behave respectfully towards all critters, and don’t touch a critter unless an adult says it is ok.
- Make the listen to me sound when it’s time to come together.
- Teach the song- “Let it Be” sung to the tune of the Beatles “Let it Be”
A garden is full of living creatures, butterflies, worms, and bugs and bees,
But if you see a critter, Let it be.
These living creatures help our plants to meet the many, many needs,
So if you see a critter, Let it be.
Let it be, let it be, let it be, let it be.
If you see a critter, Let it be.



Lesson 2- Seeds

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive

Goal: Students understand that plants grow from seeds.

Materials:

- Collection of seeds,
- large butcher-block paper, sentence-strips,
- markers for teachers to write student's comments on strips,
- radish seeds to plant in beds or egg cartons
- The book – *A Place to Grow* by Stephanie Bloom (Preview at <http://imgkids.us/lgeg/childrensbooks/> for synopsis and scroll down for video)
Or *From Seed to Plant* by Gail Gibbons (Preview at <https://www.amazon.com/Seed-Plant-Gail-Gibbons/dp/0823410250>)

Opening:

- Practice raising hands outside so all can hear what you need to say. Practice listening to each other.
- Place butcher paper on blanket in the center so kids can sit around it. Place the seed collection in the center.
- Ask children to raise their hand if they can explain what the items in the center are and what do they know about it.
- Record children's responses on the sentence strips- include their names. Place strips around the center like spokes. (These strips will eventually be glued to the paper so it can be hung in the room or hallway). This will help us know what kids know and what they still need to know about seeds.

Procedure:

- Read the story and ask students if anyone would like to add a new strip to the paper that shows something new that they have learned about seeds.
- Explain to the students that they are going to plant seeds in the garden that will grow and be ready around the time of Halloween.
- Teach the Garden Song:
<https://fawesome.tv/kids-edutainment/10149886-the-gardener-plants-the-seeds-song-best-preschool-learning-songs>
The gardener plants the seeds
The gardener plants the seeds
Hi, Ho, and Cheery-O
The gardener plants the seeds, etc.
- Bring students to class bed and have them line up around the bed. Invite each student to plant a seed and place a little water on the seed. Or, if beds are not ready, have the students plant radish seeds in cardboard egg cartons filled with soil and lightly watered.)



Lesson 3: Shapes in the Garden

Standards: LS1.C: Organization for Matter and Energy Flow in Organisms ♣ All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)/ K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more”/”less of the attribute, and describe the difference. (K-PS2-1)

Goal: Students use squares and circles to help them plant carrots and radishes in the garden

Materials:

- 4 squares cut from newspaper (about 1 ft sq.) to plant carrots with 16 dots drawn on the square
- 4 circles cut from newspaper with 6 holes cut out for radishes that classes have already germinated.
- Flour and water paste, germinated radishes, and carrot seeds.

Opening:

- Teach the children the following 2 songs:
(<http://www.canteach.ca/elementary/songspoems82.html>)

The Rolling Circle Song

(to the tune of "Have You Ever Seen A Lassie?")

Have you ever seen a circle, a circle, a circle?
Have you ever seen a circle, which goes round and round?
It rolls this way and that way, and that way and this way.
Have you ever seen a circle, which goes round and round?

Sammy Square

Sammy Square is my name.
My four sides are just the same.
Turn me around, I don't care.
I'm always the same.
I'm Sammy Square.

- Have students compare squares and circles – how are they different?

Procedure:

- Show the students the newspaper squares and circles. Explain that these shapes will help them plant seeds and seedlings in their garden bed. The circles will hold the radishes right in the bed, and the squares will help them plant carrot seeds in their garden bed.
- Break into 2 groups. Explain to students that each group will be able to take turns and do both activities.
- One group will put flour paste on the dots on the squares and then put carrot seeds on each dot while the second group will take the circles and their radish seedlings and plant them right into the garden.
- Give each group about 10 minutes to work on their shapes. Then switch groups. Take the carrot squares and place them in the garden bed, placing some soil right on top of the newspaper square. (The newspaper square will decompose and the flour paste will dissolve, leaving the carrot seeds to grow)
- If the students need to keep their hands busy while waiting to plant or paste their seeds, have them draw circles and squares in the soil in the garden. You can also ask them to find things in the garden that are squares and circles.



Lesson 4: Harvest- What parts do we eat?

We look at our beds for what might be ready to Harvest.

Standards: LS1.C: Organization for Matter and Energy Flow in Organisms ♣ All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

Goal: Students learn that some plants produce edible parts below the ground, while others produce edible parts above the ground. Students also learn to try different plants as food.

Materials:

- Book *Tops and Bottoms* by Janet Stevens
(Preview at <http://imgkids.us/lgeg/childrensbooks/> for synopsis and scroll down for video)
- Radishes, carrots and lettuce cut up for students to try
- Also have uncut versions so students can see what plant will probably look like in the ground if their garden beds aren't ready yet.

Opening:

- Read the story *Tops and Bottoms* by Janet Stevens to the students.
- Discuss why the bear wouldn't help with the work in the garden and if he deserved to share the produce.

Procedure:

- Take students to their class's garden bed and look at what is growing in the garden. If the plants are ready, show students how to harvest the plants. If the plants still need time to grow, show them the store bought versions and tell them they will keep looking in the garden until their plants are ready to eat.
- Show them the platter of cut up veggies and explain that they will taste the plants that are growing in their garden bed. Explain to them that you understand that tasting new food can be a challenge, but the students are to do two things:
- Try a small tasting only of each vegetable.
- If they don't like it, they are to say "I don't think I like it yet." But no one is allowed to say "Yuck!" Explain to them that we have to train our tongues to get familiar with different tastes, and if their tongue is not ready yet to like something, they have to give it more tries. Invite students to try to veggies on the platter.
If there is time invite the students to help pull some weeds around the trees. Explain to them that a weed is just a plant that is growing where you don't want it to grow. Be sure to show them how to pull a weed from the roots.
- Look for different types of roots: fibrous roots – many short roots growing together or Taproot – one larger and longer root with little ones growing out of it. Our bottoms veggies are called storage roots.



Lesson 5: Parts of a plant- Leaves, stem and roots

Standards: LS1.C: Organization for Matter and Energy Flow in Organisms ♣ All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

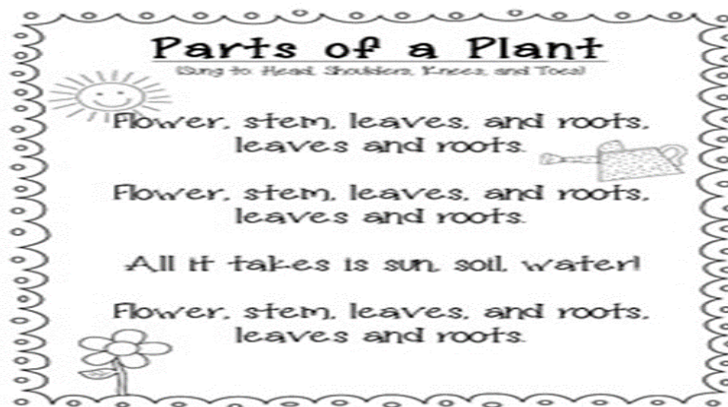
Concept: Students learn that vascular plants are made of roots, stems and leaves, and that all plants have different parts.

Goal: Students make leaf rubbings to compare shape and structure.

Materials:

- The book Leaf Man by Lois Ehlert (Synopsis available https://www.goodreads.com/en/book/show/696340.Leaf_Man)
- White paper 8.5 x 11"
- Crayons with the paper removed so the side can be used
- Collection of a variety of leaves-different sizes and shapes

Opening:



- Teach the students the Plant Parts song sung to the tune “*Head, Shoulders, Knees, and Toes*”
- Discuss imagination with the children. What is it? What can it do? Imagination lets us see things that might not be right in front of us.

Procedure:

- First, demonstrate how to make a leaf rubbing by taping a leaf to the board and placing a piece of paper over the leaf. Using the side of the crayon, color over the entire leaf. Ask the students if they can see the shape of the leaf.
- Show the children how to make the sides of the leaf darker by pressing harder on the crayon. Do they notice the leaf veins or stems? Point them out and ask students what they know about them.
- Provide paper and crayons to the students and let them choose a leaf to rub.
- As children are rubbing, invite them to describe their leaves- are they ragged, round, long, etc.? Ask them to describe the lines on the leaves.
- In class, students can sort the leaf rubbings by shape- round, ragged, long or however the students describe them. Collect the leaves the students used and have them match the leaves to the rubbings.



Lesson 6- Parts of a Plant- Stems

As we are back to the garden for the first time in the new year, take the children around the garden to observe and comment on what they see. In our garden, we had serious frost over the break and many of our plants, like nasturtium, lettuce, and radishes didn't survive. The children need to see this and understand that plants, like people, need protection from the elements. We can discuss with the children how to help our plants stay healthy and grow strong, even over a Southern California winter.

A few days before the class, place 2 stalks of celery in a glass of red food coloring, and 2 stalks of asparagus in a glass filled with blue food coloring. Hopefully the colored water will be absorbed into the celery and asparagus so that the children can see how water flows through the stems of these plants. Also, cut up asparagus, celery and broccoli into small chunks for the children to taste and try at the end of the lesson.

Standards: LS1.C: Organization for Matter and Energy Flow in Organisms ♣ All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

Concepts: The stems connect the plant's roots to its leaves. The xylem carries nutrients and water from the roots to the other plant parts, while the phloem carries food from the leaves to the rest of the plant.

Materials:

- 2 stalks of celery and 2 stalks of asparagus in glasses with food coloring
- Examples of stem snacks- asparagus, broccoli, celery.
- In a bag have a variety of products made from stems- aspirin (from willow bark) bamboo, cork, maple syrup, rubber bands, paper, pencil, cinnamon stick, etc.

Opening:

- Sing the parts of the plant song from the last lesson.
- Review what leaves do for a plant (they use sunlight to cook food for the plant).
- Read the book *Stems* by Vijaya Khisty Bodach. (Preview at <https://www.amazon.com/Stems-Plant-Vijaya-Khistry-Bodach/dp/1515742474>)

Procedure:

- Show the children the celery and asparagus in food coloring and talk about how stems help pull water from the ground up to the leaves and food from the leaves to the rest of the plant.
- Discuss with students that tree trunks are also stems and invite students to think about things that we use in our lives that come from tree trunks.
- When students are done thinking and sharing share with them the items made from stems from the bag. Invite students to raise their hands if they have used the items.
- Finally, share the stem snacks with the students



Lesson 7- Parts of a Plant- Roots

Standards: LS1.C: Organization for Matter and Energy Flow in Organisms ♣ All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

Concepts: Roots anchor the plant to the ground, and they provide moisture and nutrition from minerals to the rest of the plant. There are two basic types of roots- 1) Fibrous roots that are found on grasses and clover, and 2) Taproots which are found on dandelions and have a large central root. A carrot is a taproot that is also a storage organ that is edible.

Materials:

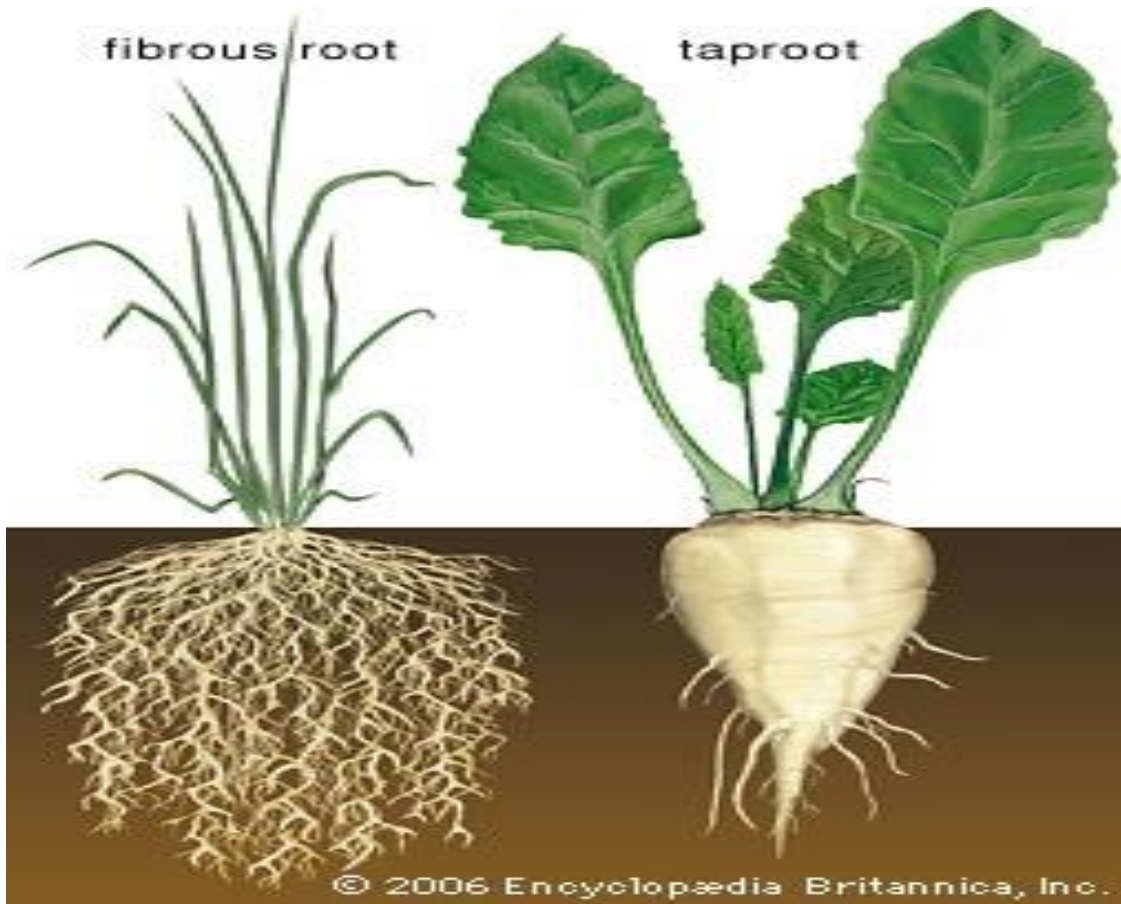
- *Roots* by Kathleen V. Kudlinkski
(Preview at <https://www.youtube.com/watch?v=OOER1fz9akw>)
- or by Vijaya Khisty Bodach
(Preview at <https://www.amazon.com/Roots-Plant-Vijaya-Khisty-Bodach/dp/1515742458>.)
- Pictures from the internet of fibrous roots and taproots (See samples on next 3 pages), or collect real roots from the ground- grass roots are fibrous and dandelions have taproots. Adhere the roots to cardboard stock and label the fibrous roots- “Fabulous Fibrous Roots” and the taproot “Tremendous Taproots”. Cover with a laminate sheet if possible. Also find a picture of a tree toppled over because of weak roots.
- Different root vegetables to taste like carrots, beets, jicama, radishes, sweet potatoes.

Opening:

- As students walk into the garden, ask them to look for any roots they may see growing above the ground.
- When you get to the garden rug, read them the story *Roots*.
- Invite students to share what they learned about roots from the book.

Procedure:

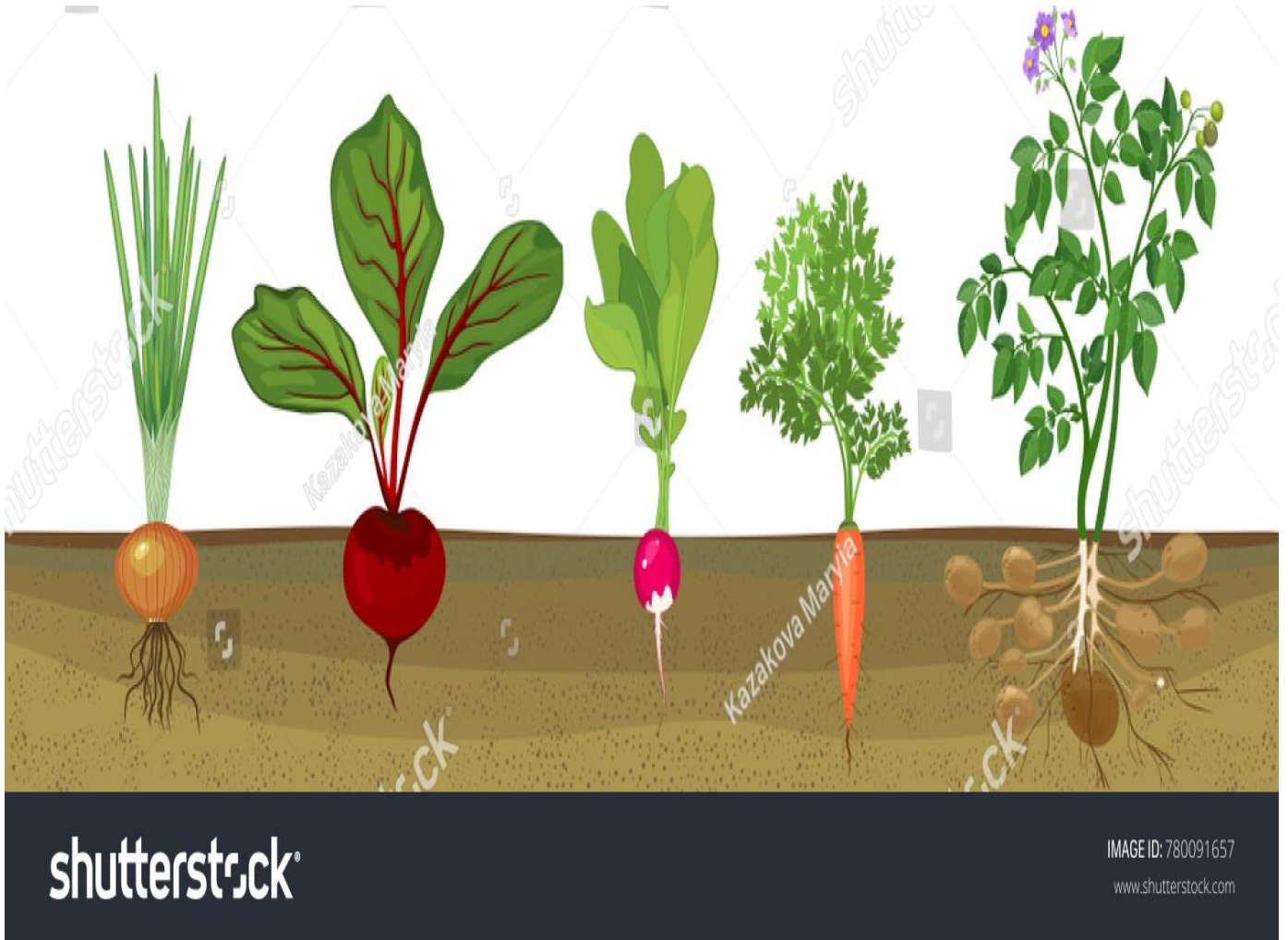
- Ask students if they have ever seen a tree that toppled over either in real life or on TV. Show the picture of a toppled tree and discuss again the importance of roots.
- Invite students to suggest roots we eat.
- Bring out plates of root snacks and let students taste. Remind them to say “I don’t think I like it yet,” if they don’t like the way it tastes.
- Show the students the pictures of taproots and fibrous roots. Invite the students to take the pictures or real roots back to class to try to draw the different roots.



**Taproot System:
Dandelion**



**Fibrous Root
System: Grass**



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Lesson 8- Parts of a Plant- Flowers

Standards: LS1.C: Organization for Matter and Energy Flow in Organisms ♣ All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)

Concepts: Introduce the concept of pollination. Pollination is how a plant reproduces to make more plants. Since plants can't move, they need help pollinating. The parts of the plant that are part of pollinating are the stamen and pistil. Insects and birds are attracted to the nectar and color in the flower and rub against the stamen and the pistil. This helps to move the pollen to the right parts of the plant.

Materials:

- Samples of different flowers. I'm bringing calendula because I want to make calendula tea and show the children what the flower that makes the tea looks like. I'm also bringing violets. I made tea from dried calendula (found at Organic Roots).
- Of, you can make tea from chamomile tea bags and bring in an example of chamomile plants to put in the garden. I made the tea ahead of time so it would be cooler for the kids to drink.
- Sweeten the tea slightly with monk fruit and agave to avoid sugar.
- Small paper cups for each child to try the tea.

Vocabulary: Pollen, pollinators, petals, stamen, pistil, nectar.

Opening:

- Sing the "Parts of a Plant" song and review the different part of the plant we have learned about so far, and ask the students what each part does for the plant.
- Read the story "*Flowers*" by Vijaya Khisty Bodach.
(Preview at <https://www.amazon.com/Flowers-Plant-Vijaya-Khisty-Bodach/dp/1515742431>)

Procedure: Ask the students questions about how a flower works:

- Why do plants have flowers?
- What types of critters do you see around flowers? (bees and butterflies)
- Why do they visit flowers- What draws them to the flowers? (color, nectar)
- Look at the shape of the petals, why do you think they are shaped that way? (act as a runway for critters)
- Serve the tea to the students.



Lesson 10- Garden Scavenger Hunt

Goal: Helping children to observe and work together to find different things that can be found in a garden.

Materials:

- Clipboards, pencils, list of items to find in the garden- (Kidsgardening.org has a great downloadable scavenger sheet that has pictures and words:
<https://kidsgardening.wpengine.com/wp-content/uploads/2017/05/KGN-ScavengerHunt-2.pdf>)
- Stories to read about gardens include:
Jack's Garden by Henry Cole
(Preview and synopsis at <https://www.amazon.com/Jacks-Garden-Henry-Cole/dp/068815283X>)
Up in the Garden and Down in the Dirt by Kate Messner (Preview video at <https://www.youtube.com/watch?v=w5qhb1Jpow4>)

Opening:

- When children are seated on the garden rug, let them know they are going to do a scavenger hunt in the garden.
- Discuss what a scavenger hunt is if they don't know, and ask them "What things might we find in a garden?"
- List their answers on the board or on a sheet.
- If there is time, read to them one of the stories listed above to help them think of ideas.

Procedure:

- Inform the children that they will be working in pairs to find items in the garden. Remind students that we are all friends and ask, "How do friends work together?" Encourage them to think about how to greet each other when they find out they are working together (I always find it is best to role model with a student behavior that is expected)- "I am happy to work with you."
- Invite them to think of ways they can share the work – Maybe one student can hold the clip board and pencil to find 3 items and then pass it to the partner for the next three items. Show them your list or the scavenger sheet from Kidsgardening.org. Ask them to put a check on the box or next to the item when they find it in the garden. Have the teacher help the students get into pairs and hand out the clip boards with the sheet and a pencil. Let them explore!
- It is a good idea to have baskets of crayons or colored pencils ready for children who get done quickly. They can color the pictures on the scavenger sheet. If you made your own sheet with just a list, they can draw items on the back.



End of Year Garden Celebration- The Friendship Salad

When I first did this lesson there was just me and the teacher present with the kindergarten class (Thanks Mrs. Bradshur for your support and patience!) It was clear that extra hands would be helpful, so make sure you have parents or friends to help.

Goal: Children will work together in groups to harvest food from the garden and create a friendship salad.

Materials:

- 3 basins or small tubs to wash the greens harvested in the garden and a bowl. I also bought distilled water to wash the greens in the tubs. Greens coming from a garden are washed three times to ensure dirt and bugs will be removed. Set the basins in a row and number them 1, 2, and 3. You will explain to the kids that when they have lettuce they will dip and rub the lettuce in each basin starting with basin 1 and moving down the row. When they are done with basin three, they will tear the lettuce into small pieces and place it in a bowl placed at the end of the table.
- 1 basket to put the harvested radishes and carrots or any root veggie (and then take them to the sink or trough to wash.)
- plates to serve the salad, and I also bought ranch dressing and raspberry dressing for the kids (almost all of them chose the ranch.)
- small sharp knife so we could sliced the root veggies for the kids.
- A tablecloth to cover the table on which we served our salad.
- A book on working together to accomplish a task. Suggested titles:
The Enormous Potato by Aubrey Davis (Preview video at <https://www.youtube.com/watch?v=1nvKMD9SSOg>), or
The Great Big Enormous Turnip by Alexie Tolstoy (Synopsis at <https://www.amazon.com/Great-Big-Enormous-Turnip/dp/0434966800>)
or by Anna Award (Preview and synopsis at <https://www.amazon.com/Great-Big-Enormous-Turnip-Traditional/dp/184135192X>)
Grandma Lena's Big Ol' Turnip by Denia Hester (Synopsis at https://www.goodreads.com/book/show/266495.Grandma_Lena_s_Big_Ol_Turnip)

Opening:

- Discuss with the kids the importance of working together when you need to get a job done in a short amount of time.
- If you have time, read one of the stories before the kids are sent to harvest in the garden. If time is tight, split the kids into 2 groups right away- the above the ground group (harvesting greens) and the below the ground group (harvesting carrots and radishes and any other root vegetable you have grown) and read the book while the kids are eating.
- Instruct each group in the importance of washing the harvest before eating and explain each group's job.

Procedure:

- Send each group out into the garden to gather their harvest. Give them a set time to complete their harvest and then meet at the serving table.
- Prepare plates for students with lettuce leaves, carrots, and radishes (and any other root veggie you have). Have the kids stand in a line and have them walk past the dressing person who will put a dab of dressing on their plate.
- If you haven't read one of the stories, read it while the children sit and eat.