

# **How's it Growing?**

**A How-to Guide for Starting a Farm to Preschool Program**



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To see this curriculum in action visit the How's it Growing blog at:

**<http://countrydaygarden.wordpress.com/>**

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-Emily Mehr

## **Overview of How's it Growing:**

How's it Growing was born in early 2013 in collaboration with Children's Country Day School, a Twin Cities (MN) nature-based school for preschool-aged children. The project's goals aimed to establish a farm to preschool pilot program at the school and to integrate a sustainable agriculture curriculum and other food-related experiences into the culture of the school. The main focus of the project revolved around the development of a preschool-aged curriculum focusing on local food systems and healthy food choices. In addition to the hands-on teaching component, parent and community engagement and involvement were also of great importance. This goal was met by sending weekly recipes home featuring locally grown, seasonal foods, through weekly updates of the program on the school's blog( visit: [www.countrydaygarden.wordpress.com](http://www.countrydaygarden.wordpress.com)), and by connecting with a local Community Supported Agriculture farm (CSA) to provide locally grown vegetables to students, families, and the surrounding community.

Throughout the pilot program over 150 volunteer hours were dedicated to the development of the Farm to Preschool program at Children's Country Day School (CCDS). Over 20 lessons were taught with students ranging in age from 3-5 years old. Lesson topics included seeds, plant parts, worms, sprouting, planning, planting, caring for, and cooking from the garden. The range of lessons covered the growing process from seed to plate and allowed students to experience and build relationships with the foods they were eating. A sense of ownership and pride were developed for the plants grown, as students helped to plant, weed, water, and observe the growth of their garden. Willingness to try foods from the garden was heightened as a result of their role in its growth. By sharing in the experience of the plants' growth, children were more intrigued and excited about the chance to harvest, prepare, and eat the produce.

Over the course of the pilot program, nine recipes were prepared using vegetables straight from the garden. Students harvested a variety of items, including edible flowers, greens, herbs, and vegetables and made Flower Petal Salad Dressing, Cilantro Mint Dip, Crazy Boy Smoothies, Sunflower Pesto, Garden Popcorn, Vegetable Necklaces, Kale Chips, Basil-Mint Tea, and Country Day Confetti Salad. Students participated in all aspects of cooking, including harvesting, washing, chopping, tearing, stirring, mixing, and sampling of our foods. Overall, students were eager to try new food and share the recipes with their families. Positive feedback from parents stated that their child was more willing to eat vegetables previously on the "do not eat list" and were eager to prepare weekly recipes sent home.

Another component to the Farm to Preschool program was community outreach and involvement. This goal was accomplished in a variety of ways, specifically through the establishment of a CSA with the school, families of the school, and greater community members. In early July, Children's Country Day School became the drop-site for Crazy Boy Farms, a local CSA farm located within an hour of the school. Through this arrangement, CCDS was able to increase access of fresh, locally grown foods for students, as well as provide an opportunity for families and community members to partake in this delivery option. Ten

families, some connected to the school, some not, picked up weekly boxes of produce at the school. Through this endeavor, it became possible for families picking up their children to also pick up  $\frac{3}{4}$  of a bushel of local vegetables. The introduction of the CSA to the school also served as an opportunity to talk with families about the health benefits of a CSA and the importance of eating local. Overall, CCDS was pleased with this new addition to the school and is likely to continue in some capacity in years to come.

The CSA component of the program also fostered interactions between students and the farmers of Crazy Boy Farm. On delivery days, students greeted the farmers, exchanged old boxes for fresh produce, and helped to set-up the delivery site. This opportunity invited conversations about where food comes from, who grows it, and why it ended up at CCDS. Produce was used in weekly cooking lessons with all students at the school, as well as for snack options throughout the week. Meeting the farmer, seeing the fresh produce being delivered, cooking new foods, and eating the snacks introduced students to new fruits and vegetables, put a face to their food, and helped to make connections with locally grown foods. Comparing Crazy Boy Farm produce with what we were growing in our own garden was another opportunity to engage in fresh conversations with students. By familiarizing students with obtaining local produce, the availability of fresh foods was increased, and a culture of food was established at the school.

Another form of community outreach and involvement was created through a weekly blog chronicling the activities and events of the Farm to Preschool program. The blog, titled *How's it Growing: Gardening, Cooking, Eating, and Learning with Children*, tallied 896 views in a six-month span. Families of the school and community members could view the blog to see pictures of students gardening and cooking, to get weekly recipes prepared by the children featuring locally grown and seasonal foods, and to get information about our CSA. The blog was also used as a platform for community education and featured an interview with the farmers from Crazy Boy Farm to dig deeper into the concepts behind a CSA farm, and to share in the benefits to the environment and local communities through sustainable agriculture practices.

By offering information and updates about the Farm to Preschool program through our blog, students were able to share their gardening and cooking experiences up close with their families through pictures. They were able to narrate what they did that day in the garden and talk about the recipes that were prepared using foods they helped to harvest. Sharing highlights, photos, and resources with families is a key piece to the success of any farm to preschool program. Improving the home-to-school connection strengthens the success of the program and solidifies the content of each lesson in each student's mind.

*How's it Growing* is a curriculum that was designed to be adapted to a variety of schools. It is hoped that the following activities and information can be altered to meet the needs of any audience. The more teachers and educators who are incorporating food education into every day experiences, the more healthy and happy our children will be. By starting seed to plate education in early childhood settings, students will grow up with food as a foundation for their lives, eventually leading to stronger and more sustainable food systems.

# Chapter 1:

## It Starts with a Seed



## Chapter 1: It Starts With a Seed

Ages  
3+

This lesson will get students comfortable with the concepts of what a seed is and its role in the natural world. Whether it is a seed for a garden, or a seed for a tree, each seed has the same basic needs to survive and thrive – sun, soil, water, and air. Students will be exposed to a variety of activities that will allow them to explore and connect with seeds on a whole new level.

### Objectives:

- To learn about the different types of seeds.
- To learn about the needs of a seed: sun, soil, water, air, time, and love.
- To begin to recognize different shapes and sizes of seeds

### Tips for Success:

- Always be aware of any student allergies before doing an activity that involves food.

### Connections to Other Lessons:

- Tops and Bottoms, the Parts of a Plant
- Sprouting the Garden
- Planning the Garden
- Planting the Garden

### Activities:

- *The Tiny Seed*, by Eric Carle
- Spotting the Seeds
- Becoming a Seed
- The Needs of a Seed
- Sprouting a Seed Necklace
- A Seedy Snack
- Seed Exploration
- Seed Mix Investigation
- Seed Safari
- Seed Catalogs
- Seed Art

### ***The Tiny Seed, by Eric Carle***

This is a tale about a tiny seed that goes on an adventure after a gust of wind carries it away. This story provides opportunities to discuss the needs of a seed, the four seasons, and life cycles.

*Reflection:* Discuss what the Tiny Seed needed in order to grow into the giant flower. Why didn't some of the seeds survive? What will happen to the seeds after the giant flower releases them at the end of the story?

### **Spotting the Seeds**

*Supplies: Pictures of fruits and vegetables with their seeds visible*

This activity allows for students to see where seeds are located within different fruits and vegetables. Not all seeds are in the same place. Show pictures of fruits and vegetables then have students find where the seeds are located. Examples of fruits and vegetables used to demonstrate the different sizes and locations of seeds include: strawberries, apples, cucumbers, avocado, peaches, corn, tomatoes, peppers, pumpkins, watermelon, and kiwi fruit.

Discuss the different size of seeds, where the seed is located on the plant/fruit, and if they are edible.

### **Becoming a Seed**

*Supplies: Spray bottle with water, raisins*

Students will have the chance to pretend they are a seed and go through the life cycle of that seed. Teachers will use the following instructions to guide students through the act of "being a seed."

Begin the activity by having students imagine that they are a seed: what seed would they be and why? Next, have students find a comfortable space on the floor to "plant" themselves and then begin by reading the following out loud while the students act out the directions:

- Plant yourself in a comfortable spot. What kind of seed are you?
- Its fall and seeds are getting ready for a long winter's rest (*curl up into a tiny seed*).
- Each seed has its own supply of food inside to help start to grow in the spring (*have students hold one hand out and place raisins (food) in their palm - don't eat yet! Hold on to your food tight!*).
- In order to survive the long, cold winter, the seed must save its food until spring arrives once again.
- Winter has come (*turn off classroom lights*).
- The seed is tucked safely below the ground and snow, resting for the winter (*have a quiet moment*).
- Finally, the days are starting to get longer and warmer and now its spring! The soil is getting warmer and the seeds are *slowly* starting to wake up (*begin to wiggle your toes and fingers, gently rock your body back and forth, but don't get up yet!*)

- The warm spring rains are starting to fall which makes the seeds very happy (*walk around and gently squirt each student with the squirt bottle. Once sprayed, students can poke out a little root (Their leg or arm) to soak up the water and show a big smile*)
- The days are getting warmer and warmer. The soil is getting warmer and the seeds get to use their food that they have been holding on to all winter long. (*students can uncurl and eat their raisins*).
- Now the seeds have the energy to sprout and grow from the ground (*on the count of three, students can stretch their arms upward. Turn on the lights*)
- The seeds have turned into baby plants and are starting to grow taller and taller each day (*students can slowly rise to a standing position*).
- Your leaves are stretching out to gather the sunlight, you begin to gently sway in the breeze and enjoy the sunlight. (*students can slowly rock back and forth, swaying in the breeze*).
- The seasons have changed again and it is finally Summer! The plants begin to form flowers (*students can make a circle above their heads and show off their flowers*).
- The flowers need to be pollinated by bees and other insects (*teacher will buzz around to each student and pretend to pollinate their flowers*).
- Where there was a flower, a fruit begins to grow (*students can widen their arms to show their fruit growing bigger and bigger*).
- The seasons are changing yet again and summer is coming to an end. Fall is in the air now – it is getting cooler. The leaves on the trees are changing and now the leaves on your plant are starting to fall off (*students can flutter their arms to show their leaves falling to the ground*).
- Your fruit also falls to the ground and breaks open (*students can fall to the ground with a “plop”*).
- What do we find inside your broken fruit? Seeds! What will happen to your seeds? They will get ready for a long winter’s rest and the cycle will start again.

### **The Needs of a Seed**

*Supplies: Large piece of paper, markers*

As a group, we will talk about what a seed needs in order to grow. With the group, draw a seed on a large piece of paper and as you discuss the needs of the seed, invite students to draw what the seed needs – sun, soil, water, air, time, love, etc.

### **Sprouting a Seed Necklace**

*Supplies: Mini 2”x3” Ziploc baggies, yarn, scissors, pencil, squirt bottle, cotton balls, and bean seeds*

Students will make a necklace that will mimic the needs of a seed allowing the bean seed to sprout into a plant. This activity gives students a hands-on experience of seeing a seed change from a seed to a plant, and gives them a sense of responsibility to care for their seed.

In a mini Ziploc, students will place a cotton ball (soil) and bean seed. Gently, using the spray bottle, they will each have a turn to moisten their cotton ball (water). With the help of a teacher, students will poke a hole through the top of their bag with a pencil to allow for air flow (air). When worn around their neck, the student’s body will produce heat to help the bean sprout (sun).

Within a few days the bean should begin to sprout if it is properly cared for. The cotton ball should be moist, but not soaking wet the entire time. Students should wear the seed around their neck, or carefully tucked inside their pocket. At night, the necklace should be removed, but can be stored under the student's pillow to make sure that it will stay safe and warm throughout the night. After the beans have sprouted, they can be planted in soil cups and left to grow in the classroom or sent home.

Adaptation: Instead of making seed necklaces, students can tape their seed bags to a sunny window in the classroom and watch them sprout.

### **A Seedy Snack**

Seeds can provide a fun snack for students. There are lots of options for different ways to incorporate seeds into snacks. Cut different fruits and vegetables in half and discover their seeds.

- Apples, cucumbers, peppers, avocados, and strawberries are examples of foods that have visible seeds.
- Sunflower Seeds also work as a great snack, in addition to providing great conversation about seeds.

### **Seed Exploration**

Allow students to touch and feel different seeds in the sensory table. A variety of bean seeds, bird seeds, shelled and unshelled sunflower seeds, or dried corn work well.

### **Seed Mix Investigation**

*Supplies: Magnifying glasses, measuring tapes, binoculars, flat surface for spreading seeds*

Provide students with the opportunity to explore a variety of seeds up close with magnifying glasses, measuring tapes, or binoculars. Encourage students to make patterns or designs using their seeds.

### **Seed Catalogs**

*Supplies: Seed catalogs*

Seed catalogs provide students with the chance to see the abundance of seeds and all the different types of vegetables, fruits, and flowers that grow from them.

- Seed companies are often willing to donate past years' seed catalogs, so reach out to different seed companies and inquire to see if they would be willing to donate any. Families of students might also have old seed catalogs to donate for the project.

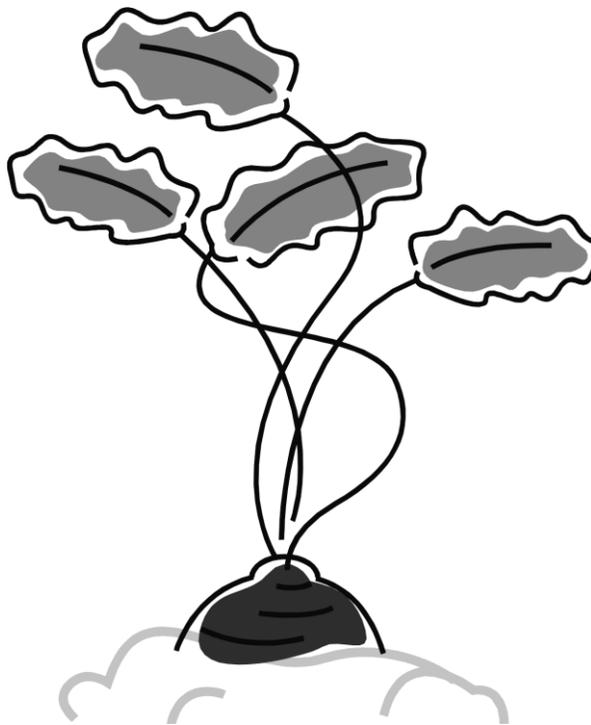
### **Seed Art**

*Supplies: paper/cardboard, glue, mixture of seeds*

Students can create patterns and pictures using a variety of seeds and a little glue.

## **Chapter 2:**

# **Tops and Bottoms: the Parts of a Plant**



## Chapter 2: Tops and Bottoms: the Parts of a Plant

Ages  
3+

The following activities will help students identify the different parts of a plant and what part of the plant we are eating when we eat different fruits and vegetables. On different plants, we eat different parts: roots, stems, leaves, flowers, fruit, and seeds.

### Objectives:

- To identify the six parts of a plant (root, stem, leaves, flower, fruit, and seeds)
- To identify different fruits and vegetables that we eat and what part of the plant we are eating in each case.

### Tips for Success:

- Always be aware of any student allergies before doing an activity that involves food.

### Connections to Other Lessons:

- It Starts With a Seed
- Sprouting the Garden
- Planting the Garden

### Activities:

- Parts of the Plant
- *Tops and Bottoms*, by Janet Stevens
- Plant Part Sort
- Plant Part Art
- Tops and Bottom Experiment
- Plant Parts Snack
- Plant Parts Books

## **Parts of the Plant**

*Supplies: Images of fresh fruits and vegetables*

Begin the discussion with an image of a plant that includes all six parts: roots, stem, leaves, flower, fruit, and seeds. Explain that on different plants, we eat different parts of the plant. Give examples of each type and show a photo:

*Roots:* Carrots, Beets, Radishes

*Stems:* Asparagus, Celery, Leeks

*Leaves:* Lettuce, Spinach, Kale, Collards

*Flowers:* Broccoli, Cauliflower

*Fruits:* Tomatoes, Cucumbers, Bananas

*Seeds:* Sunflower Seeds, Pomegranate, Peas

## ***Tops and Bottoms, by Janet Stevens.***

This book introduces the concept of gardening and what vegetables grow above the ground and below the ground.

*Reflection:* When Bear gets the tops, is he getting food? No.... When bear gets the bottoms, is he getting food? No..... What are some vegetables that we can think of that grow above the ground? Below the ground?

## **Plant Parts Sort**

*Supplies: 6 brown lunch bags labeled with the parts of a plant, plastic vegetables or images of vegetables (for sorting)*

Hold up plastic pieces of fruits and vegetables. Have students identify the fruits and vegetables and then figure out what part of the plant they came from. If you don't have plastic fruits and vegetables, photos will work just fine. As a group, sort the fruits and vegetables into labeled brown lunch bags.

*Variation: For younger groups, sort the different vegetables by what grows above the ground and below the ground.*

## **Plant Part Art**

*Supplies: pipe cleaners, feathers, yarn, etc.*

Students will use art supplies (pipe cleaners, feather, ribbon, etc.) to create their own plant that includes all 6 parts of the plant. Encourage them to be creative and explore different art media when creating their plant. Provide an example to the students when describing the activity.

## **Tops and Bottoms Experiment**

*Supplies: Vegetable/Fruit for re-growth, knife, cutting board, tooth picks, jars filled with water*

Work with students to “re-plant” a variety of vegetables. Make sure water is fresh and keep vegetables submerged. Within a week, roots will begin to sprout and the vegetables will continue to grow. This experiment can show students what our vegetables look like when they are growing in soil. Are the roots big or small? What part of the plant is re-growing? After the vegetables have produced roots, plant in soil and place in a windowsill to observe new growth.

Plants that can be “re-grown” include: potatoes, sweet potatoes, garlic, onions, pineapples, ginger root, celery, romaine lettuce

Adaptation: Food coloring can also be added to the water to show how plants absorb and use water. Depending on the vegetable, stems and leaves may change colors and will show how the plant carries water and nutrients throughout.

## **Plant Parts Snack**

Students can identify where each part of their snack is located on the plant and also create a “super plant” by combining the different fruits and vegetables to include the roots, stems, leaves, flower, fruit, and seed.

Plant parts for snack can include:

*Roots:* Carrots, Beets, Radishes

*Stems:* Asparagus, Celery

*Leaves:* Lettuce, Spinach, Kale

*Flowers:* Broccoli, Cauliflower

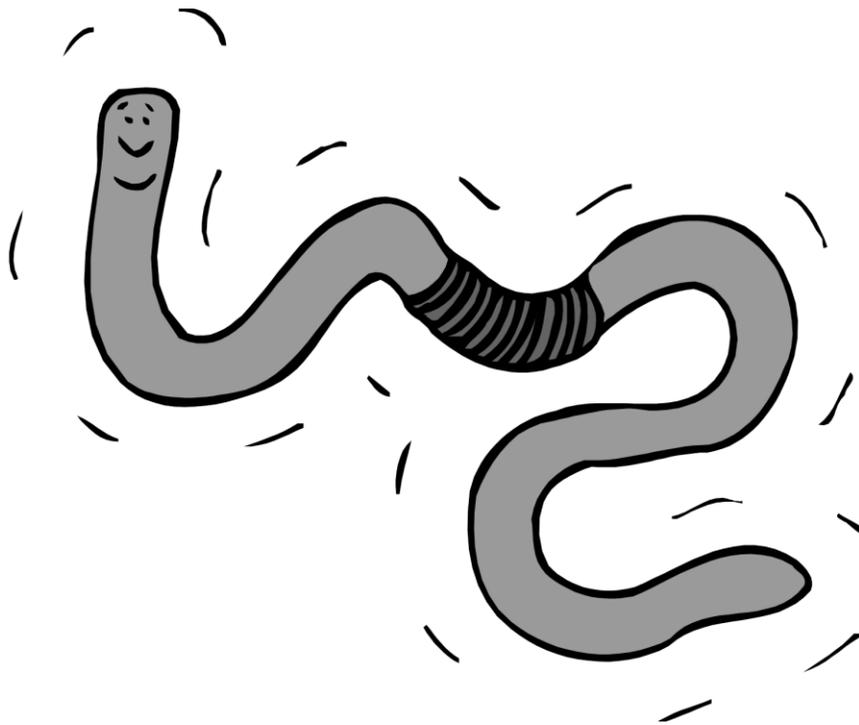
*Fruits:* Tomatoes, Cucumbers, Bananas

*Seeds:* Sunflower Seeds, Pomegranates, Peas

## **Plant Parts Books**

*Pebble Plus: Plant Parts*, by Vijaya Bodach offers six individual books about each plant part. Students can gain an up-close understanding of the different parts of a plant by reading these books.

# Chapter 3: Wiggling Worms



## Chapter 3: Wiggling Worms

Ages  
3+

This lesson will introduce students to worms and the role that they play in creating healthy soils. Students will have a chance to observe worms and design their very own worm through an art project.

### Objectives:

- To understand how worms help the health of the soil
- To learn about worm anatomy, how they move, breathe, eat, and help the soil.
- To understand how worms turn food back into soil and why this is important for a garden.

### Tips for Success:

- Worms can be a frightening thing for some students to touch and see up close. Before bringing the worms out, create a safe space so students feel comfortable in the presence of the worms.

### Connections to Other Lessons:

- Planting the Garden

### Activities:

- *Diary of a Worm*, by Doreen Cronin
- Classroom Worm Bin
- Worms: Up Close and Personal
- Design a Worm
- *Dirt Made My Lunch*, by The Banana Slugs String Band
- Dirt and Gummies
- Fingerprint Worms

### ***Diary of a Worm, by Doreen Cronin***

Learn about the tales and adventures of a worm through his diary entries. Learn about the role worms play in the world and why they are important to have healthy soil.

*Reflection:* How do worms help the soil?

### **Classroom Worm Bin**

*Supplies: Two 8-10 gallon plastic storage boxes, a drill for making drainage and ventilation holes, newspaper to create a start-up worm habitat, and about one pound of red wiggler worms.*

A worm bin is a great chance for students to learn about worms, composting, and healthy soils. A worm bin can be made as a class project and be used for composting food scraps from snacks and lunches. A great resource for how to build and maintain a worm bin is the book *Worms Eat My Garbage*, by Mary Appelhof.

To get started, drill holes in the bottom of your bins to provide drainage and to allow worms to move from one bin to the other when ready. Next, drill holes for ventilation around the top of the bins and in the top of one of the lids.

With students, tear the newspaper into strips and soak in water. Before placing in the bin, squeeze paper of excess water. Fluff paper up and place in bin. If possible, add some dirt, leaves, or grass clippings to help the worms get established in their new home.

Once a home is established in the bin, add the worms. To start off, add a small amount of food to the bin and bury within the newspaper. As the worms get settled over the weeks, you can add more food per week. Cardboard is a great thing to add to the top of your worm bedding to keep fruit flies away from the food. Place the worm bin in a well-ventilated area, checking bin moisture weekly. If the bin is too wet or too dry the worms will either try to escape or die. If the moisture levels are adequate, the worms will be happy inside their new home and contentedly feast on the class's food scraps.

After a few months, once the worm bin is full of compost, add newspaper strips, some dirt, and some food scraps to the second bin and place on the top layer of compost in the first bin. Within a few weeks, most of the worms will have migrated to the second bin, and the compost from the first can be used to boost the growth of indoor plants or mixed into the garden.

It is said that once the worm bin is established, about 1 pound of worms can consume a ½ pound of food per day. As the worms multiply, more food can be consumed daily.

Worms prefer: Breads/grains, coffee grounds and filters, fruits, vegetables, tea bags.

Worms do not prefer: dairy products, meats, oils, fats

*Reflection:* How does the worm bin work? How do worms help the soil? What do worms like to eat? What is compost? Why is composting important?

## **Worms: Up Close and Personal**

*Supplies: Diagram of a worm's anatomy, plate/tray, paper towel, squirt bottle, magnifying glasses, paper, pencil, clipboard, jar/container for worms*

Students will be introduced to worms and their anatomy and then have the chance to find worms in the worm bin and investigate them.

Start off by showing students a picture of a worm's anatomy, identifying their mouth, segments, hearts, tail, etc. and talking about what they can expect to find on their worms. Next, go over the guidelines for how students should hold and touch the worms: gentle! Then have students pair up, sharing their paper plate and paper towel. Each student will have the chance to spray the towel three times – worms like to stay moist! Once completed, have students find a worm from the bin and look for their mouths, tail, segments, eyes (they don't have any), etc. How do worms move and breathe? What do they eat? Allow students the chance to touch them and draw observations on the clipboard.

When they are finished, students can either put their worms back into the worm bin or into a class jar for future observations. Then wash hands with soap!

Interesting worm facts:

- Worms have a brain and a mouth, but do not have teeth or eyes!
- Worms have 5 hearts
- Worms have segments on their bodies and no bones
- Worms create tunnels in the soil which help make room for plant roots and water
- Worm poop, called castings, is found in the soil and is an excellent source of food for plants.

## **Make Your Own Worm**

*Supplies: Play Dough, Floam, or clay, and tools (optional)*

Students can make their very own pretend worms and worm habitats. Where might a worm like to live? What might a worm need in order to make healthy soil? Using the materials provided, students can construct worms and identify their head, tail, segments, etc.

## **Banana Slugs String Band: Dirt Made My Lunch**

Worms are important for healthy soil! Listen to Dirt Made My Lunch and learn about the importance of healthy soil to grow healthful fruits and vegetables. Discuss how (almost) everything we eat grows from the soil and the role worms have.

## **Dirt and Gummies**

*Supplies: Gummy worms, soil*

Let 2-4 students at a time explore the sensory table full of dirt and gummy worms. Make sure to tell the students not to eat the gummy worms. Let them build homes and tunnels for the worms to live in. When finished, have students wash hands with soap.

## **Fingerprint Worms**

*Supplies: paper, ink pads, markers*

Students can use their fingerprints to make their own unique worm picture. Let students decorate the worm's surroundings with markers. *Where does the worm live? What does the worm eat? Does the worm live in tunnels like in the story, [Diary of a Worm](#)?*

# Chapter 4: Sprouting the Garden



## Chapter 4: Sprouting the Garden

Ages  
3+

This lesson includes a variety of activities relating to starting a garden indoors. Tips and ideas for how to start a garden indoors, as well as projects for students to create their own gardens on paper, will solidify the ideas of what seeds need in order to grow and show how those seeds turn into the plants in the garden.

### Objectives:

- To learn how seeds grow and how to take care of them indoors.
- To learn about different types of gardens: fruit, vegetable, or flower gardens

### Tips for Success:

- Always be aware of any student allergies before doing an activity that involves food.

### Connections to Other Lessons:

- It Starts With a Seed
- Parts of a Plant
- Planting the Garden
- Caring for the Garden

### Activities:

- *How Groundhog's Garden Grew*, by Lynne Cherry
- *Up, Down, and Around*, by Katherine Ayres
- *Planting a Rainbow*, by Lois Elhert
- *Mrs. McNosh and the Great Big Squash*, by Sarah Weeks
- *The Surprise Garden*, by Zoe Hall
- Starting Seeds Indoors, Tips and Ideas
- Jars of Beans
- Planting a Rainbow
- Fingerprint Veggie Gardens
- Do-A-Dot Garden

### ***How Groundhog’s Garden Grew, by Lynne Cherry***

In the story, Groundhog learns all about planting, growing, and cooking “Delicious! Scrumptious! Irresistible!” foods found in the garden. Students will also learn about the importance of sharing the workload and harvesting the garden. Great for ages 4+.

### ***Up, Down, and Around, by Katherine Ayres***

This story talks all about how different plants and vegetables grow and the varying needs of each. Lots of space? Something to climb up? Straight rows? Students will be introduced to vegetables that grow in the garden and the different ways they can grow. Great for ages 2+.

### ***Planting a Rainbow, by Lois Elhert***

This story discusses the importance of planting flowers in a garden to encourage birds, bees, and other pollinators to visit. It also teaches about the importance of different colors and types of flowers. Why are pollinators important? How do bees pollinate flowers?

### ***Mrs. McNosh and the Great Big Squash, by Sarah Weeks***

This story shares Mrs. McNosh’s adventures in growing a giant squash. Students will learn about planting and caring for a seed, in addition to listening for rhyming words. Just how big will Mrs. McNosh’s squash get? What did Mrs. McNosh do with her squash?

### ***The Surprise Garden, by Zoe Hall***

This story takes children on an adventure to discover what grows after unidentified seeds are planted. What did the seeds need in order to grow? What were some of the vegetables that grew? Great for ages 2+.

### **Starting Seeds, Tips and Ideas**

*Supplies: Soil, seed cups, bin for soil, cup for scooping dirt, squirt bottle with water, seeds, seed tray, popsicle sticks, sharpie for labeling sticks, crayons*

When there is still snow on the ground, it is hard for some students to imagine what a garden will look like and why it is important to start planting seeds now. To engage students in the process, invite them to explore the components of a garden with all five of their senses – smelling the soil, feeling the seeds and seed cups, listening to seeds as they are shaken in the packet, seeing seeds up close with magnifying glasses, and tasting seeds as a part of a snack. These sensorial activities will be essential to getting students involved and excited about the process of growing plants in the classroom. Explain that some plants need to be started indoors because they need a longer growing season. The seeds that we are starting today will be transplanted into the garden in the spring.

Before planting, conduct a bit of research to determine which plants grow well in your area. Plants like tomatoes, peppers, broccoli, kale, cabbage, and cucumbers can benefit from having a head start on the

growing season. It may be beneficial to get an early start on starting tomatoes and peppers indoors as well.

Also, consider the manual dexterity of your little gardeners when determining which seeds to plant with each age group. The smaller seeds of tomatoes and peppers work well with older students (ages 4 and older) while the larger seeds of gourds, sunflowers, and beets work well for younger students (age 2 and older).

Biodegradable seed cups work great for starting seeds indoors, but if those are not available, recycled milk cartons, yogurt containers, and even toilet paper tubes work well for beginning a garden.

**Planting:** Introduce students to the seeds' new home by allowing them to investigate the seed cups. How much soil do you think we should put in each cup? What will happen to the cup as the seed grows? What happens to the cup once the seedling is planted in the ground?

As a group, take turns filling up the seed cups with soil. It is helpful to have a larger bin of soil and a smaller scoop so that students can easily access the soil.

Once each student has had a chance to add soil to the seed cups, explain the process for planting the seeds. Demonstrate by poking a hole, dropping the seed in, and covering it up. The depth of the hole depends on the size of the seed. Usually, it is said that a seed should be planted twice as deep as the seed is big. Demonstrate this concept to the students, and then pass out seeds. Using their finger, students will poke a hole in the seed cup, plant their seed, and gently cover the seed up with soil. Tell students that this process is similar to being tucked into bed at night. Be sure to wish the seeds "Sweet Dreams" and "Good Luck" for growing.

**Labeling:** To save some time and confusion later, it is very important that you label each tray of seeds as it is planted. Large popsicle sticks and sharpies work great for this. Create labels for students to decorate with crayons and allow them to place into their seed cups. Explain that these labels are like nametags for the plants and that it is very important that we leave them in their cups.

**Watering:** After each student has had the chance to plant their seed and decorate their label, have everybody take a turn watering the plants with a squirt bottle. It is important that the soil remains moist, which will require daily waterings by the students. Even after the seeds germinate, watering will still be essential for the health of the seedlings. Creative ways to make watering more exciting will help the children remain engaged in the process. One idea is to practice "Pattern Watering." Demonstrate a simple pattern to students (1, 2, 1, 2, 1... or 1, skip, 1, skip, 1...) and challenge the students to repeat that pattern as they are watering each seed cup. Another idea is to have students squirt their age (a 4 year old gets 4 squirts), or to squirt the number of letters in their name. Small squirt bottles work well because they are light-weight and create a fine mist, so you don't have to worry about overwatering seeds and plants.

**Growing:** With the help of students, find the best growing spot in your classroom. What do seeds need in order to grow? Will they grow better in a dark closet or in a sunny window? Although not necessary,

grow lights will do wonders for seeds started indoors. If possible, place seed cups and trays directly under grow lights and leave on 24 hours/day. This will help seeds to grow straight and strong instead of spindly, which can occur with plants grown only in sunlight.

As the seeds germinate and begin to grow, provide students with magnifying glasses, binoculars, and measuring tapes to get up close to the plants and to monitor their growth. Keeping a chart in the classroom with weekly plant updates of their height, number of leaves, etc. can help show the growth process over a period of time.

**Hardening Off:** As the weather warms and the seedling get big enough, it is time to harden off your plants. Hardening off is simply getting your plants used to being outside. Start off by taking them outside for a few hours at the warmest part of the day and gradually increase the amount of time they are out until you can leave them outside all day. Eventually, you will be able to leave them outside all day and night. During this time, make sure you monitor and water them frequently as they are very fragile. Too much direct sunlight can damage young leaves and kill your seedlings, so be sure to keep an eye on them while they are outside. Students can help with the task of carrying plants in and out. Explain that this process is like using training wheels on a bicycle. We are slowly getting the plants used to the idea of being outside, just like training wheels slowly get us used to the idea of riding a bike with two wheels.

### **Jars of Beans**

*Supplies: Glass Jar, paper towels, squirt bottle with water, pole bean seeds*

Another great activity that allows students to start seeds indoors, while also understanding how they grow, is planting pole bean seeds in glass jars. Introduce this activity as an experiment to see if we can “trick” the bean seeds into growing even though they are not in soil. In place of soil, each student will be given a paper towel that they will ball up and place into the jar. Once all the paper towels are in the jar, have each student take a turn squirting water inside the jar until the paper towels are moist. After this is done, pass out the bean seeds and have each student take a turn “planting” their seed. If possible, place beans along the side of the jar so sprouting can be seen.

Within a couple of days the beans will begin to sprout roots and root hairs. Explain that the root hairs act like straws for the plants, helping to bring water and nutrients to the bean plant. Carefully remove sprouts from the jar and let students examine them up close. Be sure to tell students to handle the plants gently because they are a living thing and can break easily.

Plant bean sprouts into cups or pots of soil. Make sure the roots are pointing down. Water beans as you would any other plant and watch them grow! If you plant pole beans, you can transplant them into the garden, or let them climb up string or other structures in the classroom and see how tall they can grow.

### **Planting a Rainbow**

*Supplies: Plain paper for backgrounds, rainbow colors of tissue paper cut into small squares, glue, markers*

This activity connects well with the story *Planting a Rainbow*, by Lois Elhert. After reading the story and talking about the different types and colors of flowers, explain to the students that they will have a chance to “plant” their own rainbow garden using tissue paper and markers. Encourage students to be creative when crafting their flower gardens and point out that no two gardens are alike. The more color, the better!

### **Fingerprint Veggie Gardens**

*Supplies: Ink pads of all colors, paper*

This activity connects well with the stories, *Up, Down, and Around*, by Katherine Ayres and *How Groundhog’s Garden Grew*, by Lynne Cherry. After reading about different vegetables that grow in a garden, ask students to name their favorite vegetable. Explain that they are going to become farmers and instead of using tools and getting their hands dirty with soil, they will be getting their hands dirty with ink. Demonstrate how to use your fingers to make different vegetables. It is best to encourage only using one finger at a time.

When finished, make sure students wash their hands with soap.

### **Do-A-Dot Garden**

*Supplies: Multiple colors of Do-A-Dot Bingo Markers, paper*

Another activity that allows students to create their own personalized gardens is by using Do-A-Dot markers to “paint” a garden on paper. Not only does this activity help students practice fine motor and eye-hand coordination, but it allows them to create a garden masterpiece. Students can make flowers, vegetables, or fruits using the markers.

## Chapter 5: Planning the Garden



## Chapter 5: Planning the Garden

Ages  
3+

The following activities will get students excited about growing their garden through hands-on activities of prepping and organizing the garden space. This lesson will also offer advice to teachers for how to have a successful garden and a positive experience with the children while growing healthy, fruitful plants.

### Objectives:

- To prepare the garden for planting
- To learn tips and strategies for successful gardening with kids
- To understand the process of planning a garden and deciding what goes where

### Tips for Success:

- Engage students' five senses to invite them to be involved in the gardening process. The more excitement there is around specific activities, the more fun the garden will become.

### Connections to Other Lessons:

- Wiggling Worms
- Planting the Garden

### Activities:

- *Tools for the Garden*, by Mari Schuh
- *What Lives in the Garden*, by John Woodward
- *Sunflower House*, by Eve Bunting
- *Up, Down, and Around*, by Katherine Ayres
- Planning Your Garden
- Paint a Garden Rock
- Garden Structures
- Critters in the Garden
- Prepping the Garden: Paths and Plant Beds

### ***Tools for the Garden, by Mari Schuh***

A non-fiction book for ages 3-5, teaching about the names and jobs of specific tools used in the gardens. This is a great book to show students how to use tools in the garden and what they should be used for.

### ***What Lives in the Garden, by John Woodward***

A non-fiction book about insects found in the garden. This is a great book to use as a reference for identifying different bugs, grubs, and insects found in the garden.

### ***Sunflower House, by Eve Bunting***

A story used to introduce students to the concept of a sunflower house. This book will help students understand the growth process of a sunflower and visualize the height of a full grown sunflower. This can be used as a way to get students excited about planning the garden. What “special places” do they want to add to their garden? A bean tipi? A sunflower house? A corn maze?

### ***Up, Down, and Around, by Katherine Ayres***

This story talks about how plants and vegetables grow differently and their unique needs. Lots of space? Something to climb up? Straight rows? Students will be introduced to vegetables that grow in the garden and the different ways they can grow. Great for ages 2+.

### **Planning Your Garden**

*Supplies: seed catalogs, paper with a 3x3 grid dividing the whole paper, glue sticks, scissors*

Explain to students that they are going to become farmers and plan out their very own garden. Today we will be using seed catalogs, just like farmers, to decide which fruits, vegetables, or flowers we are going to plant in our gardens. This is a way to design our gardens, discover new plant varieties, and get excited about growing food. As a group, look through the seed catalog and talk about different varieties, colors, shapes, and sizes of fruits, vegetables, and flowers. Show students common vegetables, such as carrots or cucumbers, and explain that just like people, vegetables can come in many different sizes, shapes, and colors. Purple carrots!? White cucumbers!? What else can you find?

Next, pass out paper and seed catalogs and have students page through to find interesting or delicious fruits and vegetables that they would like to have in their garden. When they find what they are looking for, instruct them to cut out different pictures and glue them onto their grid paper. Once everyone is finished, have everyone help clean up paper scraps, and have students share their gardens with the group. What is your favorite vegetable in your garden? Are there any vegetables in your garden that you haven't tried before?

Once their garden is “planted,” they can take it home and share it with their families.

- Seed companies are often willing to donate past years' seed catalogs, so reach out to different seed companies and inquire to see if they would be willing to donate any. Families of students might also have old seed catalogs to donate for the project.

### **Paint-A-Garden-Rock**

*Supplies: Medium-sized rocks, acrylic paint, paint brushes, clear acrylic sealer, sharpies, newspaper, paint shirts, egg cartons*

This is an activity to create “nametags” for the plants in the gardens. Students will have the opportunity to paint different rocks in a variety of colors that will act as plant markers in the garden. Choose bright colors that will stand out in the garden as the season progresses.

To prep the work area, cover tables with newspaper, fill egg cartons or paint trays with paint, and set out brushes for each color. Students should wear paint shirts or smocks, if possible.

Before painting begins, make a list with the students of all the plants you will have in your garden. How many can we name? Duplicates will be necessary if you are planting a certain plant in more than one area.

Once you have created a list, students can begin painting. Paint the entire rock, top and bottom. When dry, older students (ages 4+) can write the different plant names on the rocks using sharpie markers.

Once all rocks are dried and labeled, an adult can use acrylic sealer to coat the rocks and make them water resistant. Make sure rocks are on cardboard or some other protective sheet and spraying is done outside. Spray tops, bottoms, and sides to ensure that rocks will last for years to come!

*Additional Activity:* Students can draw a picture of one of the vegetables in the garden and practice their letters by writing the vegetable's name on paper while their rocks dry.

### **Garden Structures**

*Supplies: sticks, twine*

Garden structures can add a wondrous element to any garden space. They can be simple structures using sticks from trimmed trees and shrubs, fences and railings, or statues. You can make bean tips, arches, ladders, trellises, or a living wall. Structures can also be created by simply using plants. Sunflower houses and corn mazes are great examples of how to create a fun structure for children without investing time and money into additional materials.

Some of the best “climbing” plants include: pole beans, cucumbers, pumpkins, gourds, winter squash, peas, and morning glories.

Read either *Sunflower House*, by Eve Bunting, or *Up, Down, and Around*, by Katherine Ayres, and explain to students that some plants grow up tall, some plants spread out across the ground, and some plants

get big and bushy as they grow. Some of our plants will need help as they grow bigger. What types of structures would we like to have in our garden?

With students, create garden structures using sticks and twine. When finished, secure structures in the garden by digging holes and “planting” the structures.

### **Critters in the Garden**

*Supplies: Garden tools: rake, shovel, hoe, hand trowel, a critter container, white bed sheet*

A great way to get students curious about their garden space is by taking time before planting to explore the soil and the creatures that live in it. Child-sized shovels, rakes, and hoes are tools that students can use to dig around in the garden space. Hand trowels are also a tool that students can use explore the soil. What creatures do you think we will find today?

Before allowing students the chance to use the garden tools, be sure to show them how to safely use them. Sample guidelines: Always keep tools below your waist (when carrying and using), keep fingers away from tools (especially near holes), wear closed-toed shoes, be aware of who is around you, and watch where you are walking. Also, show students how to properly care for their tools. Just like our toys in the classroom, we need to treat our garden tools with respect. Wipe dirt off when done using, store in a safe place, put tool back where you found it when you are done using it.

Once you have gone over safety rules, show students the collection bucket where we will keep our garden critters. Start off by filling the container half full with soil. Tell students that this bucket will hold all the special critters we find until it is time to go inside. A clear bucket works best so students can see critter beneath the soil.

Next, explain to students that they are now ready to step into the bugs’ home (the garden). Remind them to be respectful because they are guest in the bugs’ house, and that bugs are living creatures. Allow plenty of time to search for bugs. Look under rocks and logs, and dig holes searching for roly polies, worms, and centipedes.

To wrap up the lesson, empty the collection bucket onto a white sheet and allow students time to see the critters up close. Magnifying glasses work well for up-close observations. How many creatures can we count? Are they fast or slow? Use the book, *What Lives in the Garden*, by John Woodward, as a resource to look up unknown bugs. Once everyone has had a chance to “meet” the critters, explain that they need to go back to their home so they can do their jobs. How do these bugs help the garden?

### **Prepping the Garden**

*Supplies: Garden tools: rakes and hoes*

Head out to the garden space and explain to students that before we can plant the garden, we must prepare the garden. This means that we are going to look for rocks, rake the soil, and prepare the paths and beds. Today we will be using special tools like rakes, shovels, and hoes to help us do our job. Read

*Tools for the Garden*, by Mari Schuh, and talk about the special jobs of each tool. Show the students how to use each tool and go over safety rules with the tools before they begin working in the garden.

Before bringing students out, lightly define where the paths and beds will be in the garden space. Once students are ready, share that today we will be creating paths for the gardens and beds for the plants. What is a garden bed? A garden bed is a safe place for the plants to grow. What is a path? A path is a safe place for our feet to be while in the garden. Explain that we are going to make a human caterpillar in the garden to help make our paths. Instruct students to line up behind the teacher and follow while stomping their feet. As your caterpillar moves throughout the garden, your garden paths and garden beds will be defined. When finished, have student line up at the edge of the garden so they can see the paths. Ask the students again: where is a safe place for your feet while in the garden? Where is a safe place for the plants?

Once the paths and beds have been created, students can practice keeping their feet on the paths by taking a tour through the garden.

Next, students can use the garden tools to makes the beds flat and smooth. Explain that rakes and hoes move the soil back and forth to make the garden beds nice and smooth for the plants. Once finished, explain to students that the garden is now ready for plants and that next time we will be planting seeds and seedlings!

# Chapter 6: Planting the Garden



## Chapter 6: Planting the Garden

Ages  
3+

The activities in this lesson will show students the process of planting a garden. From direct seeding, to transplanting, to celebrating the garden, students will engage in hands-on activities that show them the hard work, responsibility and fun that can be had surrounding the garden.

### Objectives:

- To direct seed and transplant seedlings into the garden
- To finish the planting process within the garden
- To acknowledge the hard work of planting and celebrate the upcoming growing season

### Tips for Success:

- Defining garden spaces and walking paths as much as possible will help to ensure that as few plants as possible get stepped on throughout the growing season. Defined walking areas also mean that students can have some freedom to explore in the garden independently.
- Always be aware of any student allergies before doing an activity that involves food.

### Connections to Other Lessons:

- It Starts with a Seed
- Planning the Garden
- Caring for the Garden

### Activities:

- Planting the Garden
- Mulching the Garden
- Seeds n' Snacks
- Garden Parade

## **Planting the Garden**

### ***Different spaces:***

Whether you have space to till up a garden, create a raised bed, or plant in containers, there are a variety of options to create a welcoming garden space for students. Especially true with preschool-aged students, all plants should be labeled and non-toxic if accidentally consumed. Creating an environment that allows children to explore and sample foods straight from the garden is the best possible outcome from a school garden. As students get more comfortable trying new fruits, vegetables, and herbs, make sure to instill in them the concept that not all plants are edible. It is always important to ask a teacher or adult before trying a new plant. Always be aware of any student allergies before doing an activity that involves food, even if it is simply snacking straight from the garden.

Container gardens, including pots, planters, and mini raised beds work great for extending an edible landscape throughout the school grounds. Herbs and flowers grow very well in garden pots and can be placed in a variety of areas. By including edible planters throughout the playground, the garden can be incorporated into students' unstructured playtime. Students can help with the process of filling the planters with dirt, planting the seedlings, watering, and moving the planters to specific areas around the school.

A pumpkin patch is a perfect place to let pumpkins grow undisturbed by lawn mowers and busy feet. By dedicating a space specifically for growing pumpkins and other winter squashes and gourds, children can see their pumpkins growing throughout the season. A fun activity to do with students is to write on the surface of small pumpkins and watch the words grow as the pumpkin grows. The pumpkin will scab over and stretch the words as it gets larger. Pumpkin patches also attract a variety of pollinators, so when the plants are producing flower blossoms, bring students out to the pumpkin patch to spot bees and other insects collecting pollen. What do bees do with the pollen? How do the bees and insects help the plants?

Fruit patches are relatively low-maintenance areas that students can explore and pick their own fruits. Strawberries, raspberries, and blueberries are plants that will produce at different times throughout the summer and make for a great activity for students. Be aware that strawberries and raspberries will spread from year to year, so proper maintenance at the end of the growing season and/or a large space that welcomes growth is advised when planting.

A vegetable garden with a variety of plants in it will show students how plants grow and produce vegetables. Helping student to identify fruits and vegetables and the plants that they come from will help to create greater personal connections with healthy foods and where they come from.

### ***Direct Seeding:***

Direct seeding means planting seeds from seed packets right into the ground. Before planting, you must make sure the soil in the bed is flat and level. Students can use rakes, hoes, or hand rakes to even out the surface of the bed. Next, using a stick trace a line in the soil. Each student can have a turn tracing the line. Explain that the seeds will be place in this trench and then lightly covered with soil. The depth of

the trench depends on the seed, so be sure to read the back of the seed packet before tracing the trench line. Show students how to place seeds into the trench. Again, depending on the seed size and type, the spacing of the seeds will differ, so read the seed packet for specific instructions. Each student will get a turn planting some seeds. Once finished, lightly cover the seeds with soil, and water. Place a marker (stick, popsicle stick, rock, etc.) at the end of the row so you know it has been planted.

To become educated about which seeds should be started indoors and transplanted, as opposed to direct seeded, reference the USDA's Plant Hardiness Zone Map (<http://planthardiness.ars.usda.gov/PHZMWeb/>). This map may be used to determine which plants will do well in your school's region, as well as provide information as to the approximate date that transplanting and direct seeding should occur.

### ***Transplanting:***

Transplanting plants that have been started indoors requires hand trowels - and patience! Before getting started, give each student a plant to carry out to the garden. Remind them that the plant is a living thing, so they must be very gentle with their seedling. Once in the garden, show the students where their plants will go, and with a couple of students at a time, show them how to dig a hole deep enough to cover the seedling's roots, remove the plant from the seed cup, and place it in the ground. Each student will get a chance to plant the seedling in the ground. Once finished, water the plants and place a marker next to it to remember what was planted.

Plants that should be started indoors and transplanted include: tomatoes, peppers, pumpkins, broccoli, Brussels sprouts, and kale. Again, reference the USDA's Plant Hardiness Zone Map for specific instructions about what should have an extended growing season and should be started indoors.

### **Mulching the Garden**

If possible, mulching the garden paths with woodchips will help to define walking paths and keep weeds down. Also, at the end of the growing season, woodchips can be mixed in with the soil and be broken down naturally to improve the health and fertility of the soil for the next growing season. Students can help with the process of spreading mulch by using garden tools such as rakes, hoes, and shovels. Explain to students that in addition to keeping weeds down, the woodchips help will show us where it is safe to put our feet while in the garden. Are weeds a good thing to have in the garden? How do the weeds impact the growth of the vegetable plants?

### **Seeds n' Snacks**

While planting in the gardens, a great snack that can be used to make connections to the seeds you have been planting is a "Seedy Snack" that contains a mixture of seeds and the vegetables that will grow from those seeds. For example, if you plant bean seeds one day, a follow-up snack could be green beans. Encourage the students to dissect their vegetables and find the seeds that they planted earlier in the day. Tomatoes, pea pods, cucumbers, and zucchini are other examples of snacks that students can enjoy

while searching for their seeds. Sunflower seeds, carrots, broccoli, and lettuce are other plants and vegetables that can easily be turned into a snack after planting.

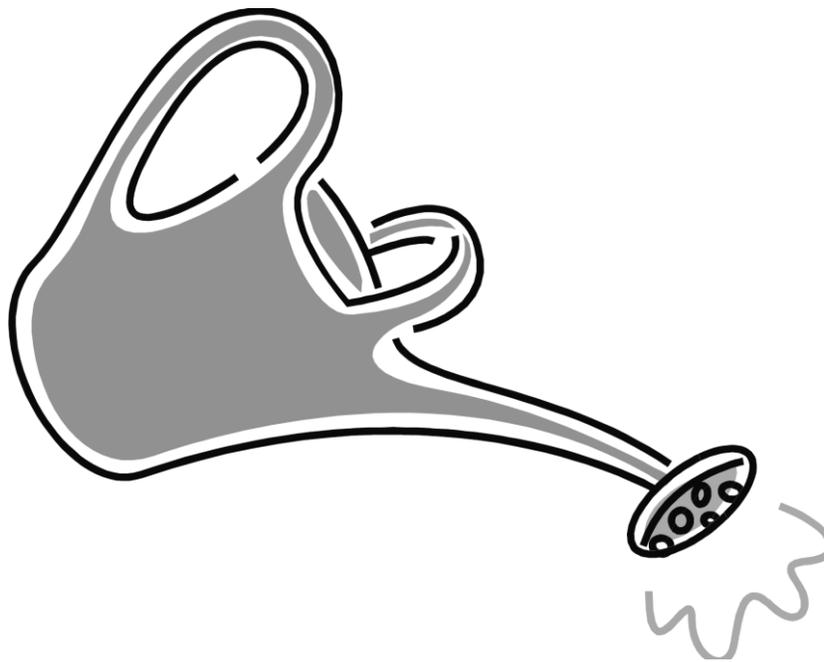
### **Garden Parade**

*Supplies: Fabric strips of a variety of colors, a basket to hold the fabric*

Once all of the plantings have been completed a celebration is needed! What better way to celebrate than by having a garden parade!? Explain to students that they have just accomplished a big task! All the plants that we have started from seeds indoors months ago, and all the seeds that we just planted directly into the soil have all been tucked into the soil and are ready to begin growing. Thank the students for all their hard work and help. Now we will celebrate our gardens by marching around to each area planted and wish the plants “Good Luck” with the upcoming growing season. Before the parade starts, ask if anyone has ever seen a parade before? Has anyone ever been in parade? Today we are all going to be in our very own garden parade. Each student will receive a parade flag that they will get to wave around as we march past all the plants. Explain that at the end of the parade, their parade flags will turn into wishing flags and that they will get to make a wish for the garden for the upcoming growing season, so while they are marching in the parade, they should try to think of a wish they have for the plants.

Start the parade off by marching past your favorite plants. Containers, pumpkin patches, fruit patches, and vegetable gardens should all be included in the parade. Wave at the plants as you pass and wish them each “Good Luck!” At your final destination, give students time to explore each area and check-in on the plants that they helped plant. Once you’re all finished touring the gardens, each student can make a wish for the plants for the upcoming growing season. Students can share their wishes with the group and then tie their parade flag onto the garden fence where it will stay all summer to protect the plants. Once the garden is surrounded by well-wishes, say good bye to the plants until the next visit! Each time you visit the garden throughout the growing season, check to see if their wishes are coming true. If you don’t have a fence to tie parade flags to, a railing, string, or post will also work the same.

# Chapter 7: Caring for the Garden



## Chapter 7: Caring for the Garden

Ages  
3+

This lesson will offer suggestions for teachers on how to successfully maintain garden spaces and how to engage students in the process of caring for the garden.

### Objectives:

- To maintain the garden space by watering, weeding, and harvesting crops
- To offer tips for successful garden maintenance with students

### Tips for Success:

- Get as many teachers and adults involved in the garden maintenance process as possible. Show teachers the proper way to weed and water a garden space, and make the garden a welcoming place for all.
- Teachers and staff may sometimes feel uncomfortable in the garden spaces and may be confused about which plants are weeds and which ones aren't. Best advice to offer: When in doubt, leave it! Eventually you will be able to tell the difference.

### Connections to Other Lessons:

- Planting the Garden

### Activities:

- Weeding the Garden
- Watering the Garden
- Harvesting the Garden

Maintaining garden spaces is just as important as planting the garden spaces. Involving students in the process of maintaining the garden teaches them the responsibility necessary to care for another living creature. Plants need sun, soil, water, air and love in order to survive, and by weeding and watering the gardens we are helping the plants meet those needs.

### **Weeding the Garden**

Weeding can be a tricky task with young students, so it is important to show the kids before starting which plants are weeds and which ones are garden plants. Ask students what would happen to the garden if we didn't weed it? Would our vegetable plants be happy? Why or why not? Remind students of what a plant needs in order to grow (sun, soil, water, air, and love) and explain that weeds compete for those resources, so it is our job to pull them out to help our plants grow big and healthy. Weeding in areas that have big plants and small weeds will make the job of differentiating garden plants from weed plants easier for students. Remind students and adults that when in doubt, leave it, and that eventually, the weed will get picked.

Scheduling parent volunteers to help maintain a garden space is also an option for gardens when teacher time in the garden is limited. Students and their families can be assigned a week where they will become Guardians of the Garden, making sure to weed, water, and harvest any of the plants and vegetables that are ready during that time.

Tips for successful weeding with students:

Weeding can be a fun activity, for a short amount of time. Keep weeding interesting and engaging by having a variety of "Weeding Games" on hand. Some examples include:

- *Dirty Hand Competition*: who can get their hands the dirtiest by the end of weeding time?
- *The Biggest Pile*: split the class into multiple groups and see which group can pull the most weeds in a set amount of time.
- *Wheel Barrel Challenge*: How fast can we fill the wheel barrel with weeds? When finished, the group can take turns pushing the wheel barrel to the compost pile.
- *Five Weed Race*: encourage kids to pull five weeds before they line up to leave the garden space

Weeding is a great way to teach and improve teamwork, showing that by working together, we can accomplish a lot.

### **Watering the Garden**

Watering is a fun activity that students will enjoy doing over and over again. Kid-sized watering cans help students to practice control while watering and make the job more fun. Explain that when we are watering we are giving the plants a drink, so a slow, steady stream of water is better for the plants compared to a big, quick splash.

Rain barrels are a great way to collect rainwater from buildings for later watering of the plants. Spouts on the bottom of the barrel provide easy access for students to get water and fill up their own watering cans. With this feature, students will feel a sense of responsibility for their watering tasks. Rain barrels can also be painted by a class and personalized for a garden space, which is another opportunity to get students involved in the gardening process.

### **Harvesting the Garden**

The most exciting part of having a garden is being able to harvest fresh produce from it. Students will love the novelty of trying peas fresh off the vine or picking a basil leaf to chew on. Planting vegetables that will ripen throughout the growing season will create anticipation for upcoming foods. Produce from the gardens can be used immediately for snacks and lunches, sent home with students to share with their families, or even frozen to be used at a later date.

Establishing a routine for harvesting will show students what to expect when going to the garden. Before harvesting, create ground rules for picking produce. Always ask a teacher or adult before picking anything. Some items may look ready to harvest, but will taste even better if we give them more time to grow and pick them later. Once you have shown students what to pick and how to pick it, give each student a chance to pick their own. By providing a harvest basket, students will learn where to put their produce once harvested, helping to ensure that it doesn't return to the school with nibble marks. Students can take turns carrying the harvest basket to and from the gardens.

Another way to communicate to students and teachers that specific items are ready to be harvested is through signage. "Ready to Pick" signs can easily be made and placed throughout the garden when specific items are ready to be harvested. This will help garden visitors know what is okay to pick and what needs more time before being picked. Students will learn to recognize these signs, and when exploring the garden, will feel comfortable picking those items identified.

# Chapter 8:

## Cooking from the Garden



## Chapter 8: Cooking from the Garden

Ages  
3+

The following tips and recipes will provide teachers with hands-on cooking projects that can be done with the help of students. By providing hands-on culinary opportunities using fresh garden produce, students will try new foods, learning new cooking skills, and celebrate their gardening experiences, together.

### Objectives:

- To encourage students to try new foods
- To learn the process of reading a recipe and following directions to cook good food
- To use fresh fruits and vegetables from the gardens to make healthy snacks

### Tips for Success:

- Always be aware of any student allergies before doing an activity that involves food.

### Connections to Other Lessons:

- Caring for the Garden

### Activities:

- Kids in the Kitchen
- Taste Bud Challenge
- Food Adventures
  - Cooking with Flowers
  - Cooking with Greens
  - Cooking with Herbs
  - Cooking with Vegetables

## **Kids in the Kitchen**

Getting kids in the kitchen and involved in the process of preparing food is critical to enhancing their level of comprehension about where food comes from and for expanding their palate. Preschool-aged students are able to engage in a variety of tasks in the kitchen to help with cooking projects. Some of the age-appropriate tasks that preschoolers can do include:

- Pick fruits, vegetables, and herbs from the garden for recipes
- Wash produce
- Tear lettuce and greens into small pieces
- Stir and mix ingredients in a bowl
- Measure ingredients using measuring cups and spoons
- Cut fruits and vegetables, with kid-friendly, plastic knives
- Make pictures and scenery using fruits and vegetables
- Touch, smell, taste, and feel textures and flavors of different vegetables, fruits, and herbs

Turning the cooking experience into a five senses experience will get students excited about trying new foods. Seeing and caring for the produce growing in the gardens, harvesting ingredients, washing, preparing, tasting, and sampling new creations are all parts of the learning experience. The more involved the students are in the growing-cooking process, the more likely and willing they may be to try new foods.

## **Taste Bud Challenge**

As you prepare new foods from the gardens, talking about how our taste buds change can help students feel more comfortable about new food experiences and may help them to “get over” preconceived feeling about certain foods. Explain that our taste buds are little dots on our tongues that help us to taste different flavors from foods. Our taste buds are constantly changing and something that you might not have liked yesterday might taste good to you today! Have students turn to their neighbor and look at one another’s tongues. Can you see their taste buds? Then, share a personal experience about how your taste buds have changed and how that has helped you to discover a new favorite food that you thought you didn’t like. This approach may help some students to be more willing to try a new recipe or food.

If students seem to be hesitant about trying the new food, explain that everybody has different taste buds and that it is okay to not like something. With that said, it is important to at least try it.

Taking a bite of the finished products all at the same time can help students who are feeling unsure about the new experience to feel more comfortable.

## **Food Adventures**

As you prepare to cook foods from the gardens, don't be afraid to experiment and create fun new snacks. Use as many ingredients as possible from the gardens, and make sure students help as much as they can with each and every step.

Writing out recipes for the class to read through will help students learn about different ingredients and directions they must follow in order for their snack to be a success. As you read through the ingredients list, ask the students where we will get specific ingredients? From the garden? From the grocery store? From a farm? After you have read through the recipe and gathered all ingredients and supplies, you may begin cooking. Make sure that students and teachers wash their hands before cooking. Once everyone has clean hands, remind students to keep their hands away from faces, cover coughs, and sneeze away from the cooking project. Also, double check to make sure that you do not have any children with food allergies.

Next, follow the directions of the recipe, making sure that each child has a chance to help out with at least one part of the cooking process. While cooking, offer mini taste tests of ingredients so students feel actively involved in the cooking process. When the recipe is completed, dish up servings to students and enjoy your tasty snack as a group. Review ingredients included in your snack and where they came from. Who can remember the steps we followed to make our snack? When finished, send recipes home with the students so they can share their project and maybe even make the recipe again with their family!

## **Cooking Projects**

The following recipes use a variety of ingredients from the garden at varying times throughout the growing season. Each recipe focuses on different types of produce from the gardens: edible flowers, greens, herbs, and vegetables. Cooking with preschool-aged students does not need to be an overwhelming task; recipes can be simple, requiring few ingredients and minimal cooking supplies.

# Cooking with Flowers

## Flower Petal Salad Dressing

### Ingredients:

- 2 Tablespoons lemon juice
- 2 Tablespoons orange juice
- 1 Tablespoon honey
- 1 teaspoon fresh thyme
- 2 Tablespoons chopped herbs
  - Chives, parsley, rosemary
- 1 handful of flower petals
  - Chives, zinnias
- ½ cup Olive Oil



### Directions:

- Mix all ingredients together in a jar and shake!
- Pour over a fresh salad and enjoy!

# Cooking with Greens

## Crazy Boy Smoothies

### Ingredients:

- 2 cups orange juice
- 1 bunch of greens
  - Kale, vitamin greens, Swiss chard, beet greens, etc.
- 2 cups of frozen fruit
- 1 banana
- 1 Tablespoon of honey



### Directions:

- Add orange juice, greens, and frozen fruit together, blend
- Add banana and honey, blend until creamy and smooth
- Enjoy!

## Kale Chips

### Ingredients:

- 1 large bunch of kale
- 1 Tablespoon of Olive Oil
- Salt



### Directions:

- Rip or chop leaves into bite-sized pieces, discarding the center stem
- Place in a large mixing bowl and add olive oil, mix until leaves are covered
- Spread evenly on a baking sheet and lightly sprinkle with salt
- To bake, set oven to broil, and add kale. Watch closely as kale will cook fast! Stir occasionally to make sure that leaves are evenly cooked
- Cool and serve!

### Variations:

- Use Swiss chard or any other leafy greens to make chips
- Add different seasonings, such as garlic powder, to flavor your chips

# Cooking with Herbs

## Cilantro Mint Dip

### Ingredients:

- 1 bunch of fresh cilantro
- 1 ½ cups fresh mint leaves
- A pinch of salt
- 1 small bunch of fresh chives
- 1 Tablespoon of lemon or orange juice
- ¼ cup of water, or less, as needed

### Directions:

- In a food processor, mix all ingredients together
- Enjoy with pretzels or crackers

### Variations:

- Use 1 medium onion instead of chives
- Mix all ingredients with yogurt or sour cream



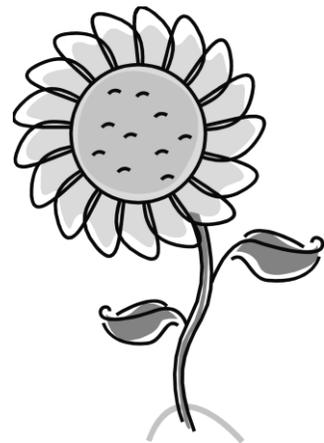
## Sunflower Pesto

### Ingredients:

- 1 bunch of basil
- 1 bunch of parsley
- 3 garlic cloves, garlic scapes, chives or green onions
- 1/2 cup of olive oil
- 1/3 cup of sunflower seeds (unsalted)

### Directions:

- Mix basil, parsley, and garlic in a food processor
- Add olive oil and sunflower seeds, mix again
- Serve with pasta or on pizza



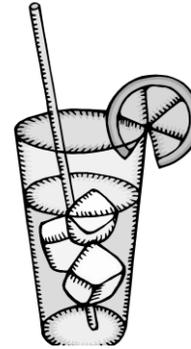
## Basil Mint Tea

### Ingredients:

- 1 bunch of fresh basil
- 1 bunch of fresh mint

### Directions:

- Wash leaves and place in a pot
- Fill pot with water and boil on stove for 10-15 minutes
- When finished, pour in a pitcher and place in refrigerator to cool
- Serve chilled with fresh basil or mint leaves as a garnish



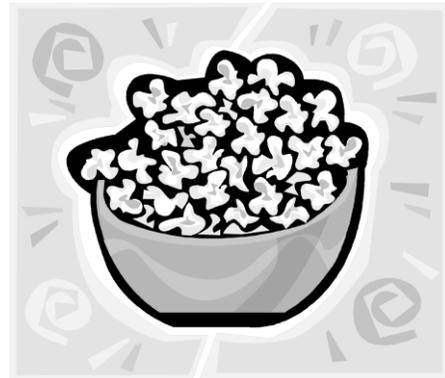
## Garden Herb Popcorn

### Ingredients:

- ½ cup of popcorn kernels
- 1 Tablespoon of olive oil
- 1 bunch of fresh herbs
  - Sage, thyme, rosemary, basil, lavender

### Directions:

- On the stove or in a popcorn maker, pop your popcorn
- Chop or rip herbs into tiny pieces
- When popcorn is finished, mix herbs in with popcorn and serve!



### Variations:

- Melt 2 Tablespoons of butter on stovetop and lightly sauté herbs, pour over popcorn

# Cooking with Vegetables

## Country Day Confetti Salad

### Ingredients:

#### *Salad:*

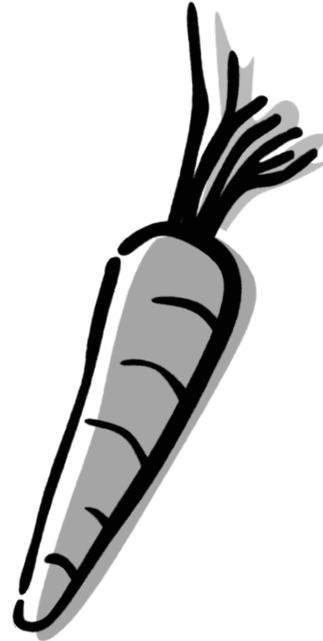
- 1 large beet, raw and peeled
- 2 medium carrots
- 1 apple

#### *Dressing:*

- 2 Tablespoons of olive oil
- 1 Tablespoon of lemon juice
- 2 Tablespoons of honey or maple syrup

### Directions:

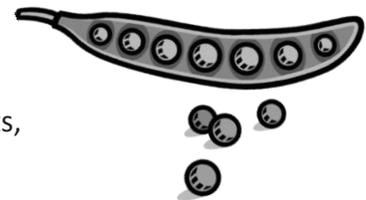
- Chop beets, carrots, and apple in food processor
- Mix together dressing ingredients in a jar and shake
- Place salad ingredients into a bowl and pour dressing over the top,
- Stir salad and Enjoy!



## Vegetable Necklaces

### Ingredients:

- A variety of whatever is available in the garden
  - Cherry tomatoes, peas, green bean, lettuce, carrots, cucumbers, zucchini, broccoli, green peppers

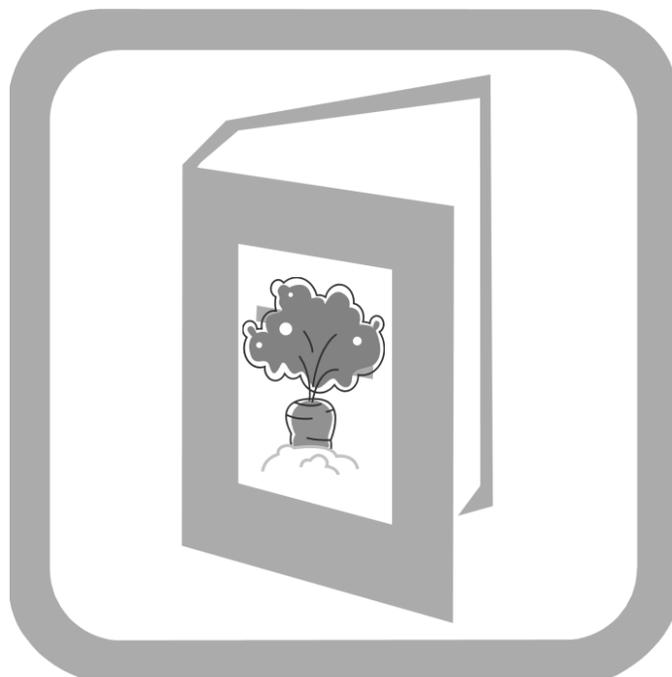


### Directions:

- On a paper plate, lay out the design of your necklace. Select which vegetables and which patterns you would like on your necklace
- Thread dental floss through a tapestry needle and begin stringing vegetables onto your necklace
- When finished, tie floss loosely around your neck like a necklace and eat it!

## **Chapter 9:**

# **Garden-themed Books and Additional Resources**



## 50 Garden-Themed Books for Students

### Seeds

1. *The Tiny Seed*, Eric Carle
2. *How a Seed Grows*, Helene Jordan
3. *The Carrot Seed*, Ruth Krauss
4. *I am a Seed*, Jean Marzollo
5. *Planting a Rainbow*, Lois Ehlert
6. *From Seed to Pumpkin*, Wendy Pfeffer
7. *From Seed to Plant*, Gail Gibbons
8. *How a Seed Grows*, Helene Jordan & Loretta Krupinski
9. *Seeds*, Vijaya Khisty Bodach
10. *From Seed to Plant*, Allan Fowler
11. *Seeds, Seeds, Seeds*, Nancy Elizabeth Wallace
12. *A Fruit is a Suitcase for Seeds*, Jean Richards

### Gardens

13. *The Surprise Garden*, Zoe Hall
14. *Up, Down, and Around*, Katherine Ayres
15. *Sunflower House*, Eve Bunting
16. *Cecil's Garden*, Holly Keller
17. *And the Good Brown Earth*, Kathy Henderson
18. *Tools for the Garden*, Mari Schuh
19. *From the Garden: A Counting Book About Growing Food*, Michael Dahl
20. *Counting in the Garden*, Kim Parker
21. *Pick, Pull, Snap!: Where Once a Flower Bloomed*, Lola Schaefer
22. *Tops and Bottoms*, Janet Stevens
23. *What do Roots Do?*, Kathleen V. Kudlinski
24. *One Bean*, Anne Rockwell & Megan Halsey
25. *Plant Secrets*, Emily Goodman & Phyllis Limbacher Tildes
26. *How Groundhog's Garden Grew*, Lynne Cherry
27. *The Curious Gardener*, Peter Brown
28. *In the Garden: Who's Been Here?*, Lindsay Barrett George
29. *Miss Rumphius*, Barbara Cooney

### Worms and Compost

30. *Garbage Helps Our Garden Grow: A Compost Story*, Linda Glaser & Shelley Rotner
31. *The Little Composter*, Jan Gerardi
32. *Yucky Worms*, Vivian French
33. *Diary of a Worm*, Doreen Cronin
34. *Wiggling Worms at Work*, Wendy Pfeffer

35. *Garden Wigglers: Earthworms in Your Backyard*, Nancy Loewen
36. *Compost Stew*, Mary McKenna Siddals

### **Vegetables**

37. *The Enormous Potato*, Aubrey Davis
38. *Mrs. McNosh and the Great Big Squash*, Sarah Weeks
39. *Growing Vegetable Soup*, Lois Elhert
40. *Two Old Potatoes and Me*, John Coy & Carolyn Fisher
41. *Eating the Alphabet: Fruits & Vegetables*, Lois Elhert
42. *Pumpkin Pumpkin*, Jeanne Titherington
43. *Pumpkin Circle: The Story of a Garden*, George Levenson
44. *The Gigantic Turnip*, Aleksei Tolstoy
45. *Popcorn Book*, Tommy dePaola
46. *Rah, Rah, Radishes!: A Vegetable Chant*, April Pulley Sayre
47. *I Will Never Not Ever Eat a Tomato*, Lauren Child
48. *The Giant Carrot*, Jan Peck
49. *The Giant Sweet Potato*, Dianne De Las Casas
50. *Muncha! Muncha! Muncha!*, Candace Fleming

### **10 Teacher Curriculum Books:**

1. *Gardening Projects for Kids: Fantastic ideas for making things, growing plants and flowers, and attracting wildlife to the garden*, Jenny Hendy
2. *Edible Schoolyard: A Universal Idea*, Alice Waters
3. *The Ultimate Step-by-Step Kids' First Gardening Book*, Jenny Hendy
4. *How to Grow a School Garden: A Complete Guide for Parents and Teachers*, Arden Bucklin-Sparer
5. *Roots, Shoots, Buckets & Boots: Gardening Together with Children*, Sharon Lovejoy
6. *The Book of Gardening Projects for Kids: 101 Ways to Get Kids Outside, Dirty, and Having Fun*, Whitney Cohen
7. *Ready Set Grow!: Quick and Easy Gardening Project*, DK Publishing
8. *Early Sprouts: Cultivating Healthy Food Choices in Young Children*, Karrie Kulich, and Dottie Bauer
9. *Hollyhocks and Honeybees; Garden Projects for Young Children*, Sara Starbuck
10. *Healthy Foods from Healthy Soils*, Elizabeth Patten and Kathy Lyons

## **Additional Resources Relating to Garden and Nature Education**

*Farm to School Growing Our Future*. 2012. Directed by Twin Cities Public Television (TPT).

Goleman, Daniel, Lisa Bennett, and Zenobia Barlow. 2012. *Ecoliterate: How Educators are Cultivating Emotional, Social, and Ecological Intelligence*: Jossey-Bass.

Lingelbach, Jenepher, Lisa Purcell, and Susan Sawyer. 2000. *Hands-on Nature: Information and Activities for Exploring the Environment with Children*. Vermont Institute of Natural Science.

Louv, Richard. 2008. *Last Child in the Woods: Saving Our Children From Nature-Deficit Disorder*. Algonquin Books.

—. 2012. *The Nature Principle*. Algonquin Books.

Martin Webb, Nicole. 1999. "From Farm to Preschool: A Garden-Based Program fo Childcare Centers." *Kids Gardening*. <http://www.kidsgardening.org/node/1147> (accessed August 2013).

Morris, Karyn, and Jane Kurisu. 2000. "Jumbo Book of Gardening." Toronto: Kids Can Press.

*National Farm to School Network*. <http://www.farmentoschool.org/> (accessed August 2013).

Occidental College. 2012. "Farm to Preschool Harvest of the Month Curriculum." *Urban and Environmental Policy Institute*. Los Angeles: Occidental College.

Orr, David. 2005. *Ecological Literacy: Educating Our Children for a Sustainable World (Bioneers)*. Sierra Club Books.

Parella, Deborah. 1995. *Project Seasons: Hands-on activities for discovering the wonders of the world*. Shelburne Farms.

*Making Health Easier: Healthy Changes Start in Preschool*. 2012. Directed by CDCStreamingHealth. Performed by Los Angeles Universal Preschool.

Project Learning Tree. 2010. "Environmental Experiences for Early Childhood." Washington D.C.: American Forest Foundation.

Project Wild. 2010. "Growing Up Wild: Exploring Nature with Young Children." Houston: Council for Environmental Education.

Shelburne Farms. 2012. *Adventure - Preschool Program*. <http://www.shelburnefarms.org/learn/for-families-youth/adventures-preschool-program> (accessed August 2013).

Sobel, David. 2005. *Place-based Education: Connecting Classrooms & Communities*. The Orion Society.

The Edible Schoolyard Project. 2012. *The Edible Schoolyard Project*.  
<http://edibleschoolyard.org/> (accessed August 2013).

The Food Trust. 2004. *Ensuring That Everyone Has Access to Affordable, Nutritious Food*.  
<http://www.thefoodtrust.org/> (accessed August 2013).

—. 2011. "The Preschool Initiative: Building a Healthy Foundation for Life." Philadelphia.

VT FEED. 2012. *Vermont FEED: Farm to School Education Every Day*.  
<http://www.vtfeed.org/about> (accessed August 2013).