

**Head Start Hamilton County** 

# Bloom to Grow Garden Guide

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### Introduction

Preschool students are at an age of curiosity and rapid learning that makes garden programming especially effective for cultivating a lifelong interest in the living world, the environment, and healthy eating. Incorporating nature and natural elements into curriculum can also improve focus, inventive thinking, science skills, fine motor skills, and delayed gratification. The natural world provides many opportunities for fascinating sensory experiences, child-guided exploration, and wonder, and garden programming can help teachers tap into these experiences in an intentional and structured way.

The purpose of this guide is to help Head Start facilities to successfully incorporate garden practices and concepts into curriculum and maintain a functional school garden. It will also provide useful materials to help Head Start locations interested in starting new garden projects walk through the process in a way that helps formulate and implement manageable goals.

The first section focuses on the classroom. It includes lessons and activities for both indoor and outdoor use, but also generally describes different ways that the garden can relate to the classroom during each month of the year, units of curriculum, and areas of instruction. These activities include teacher-guided lessons, center activities the children can do on their own, garden maintenance tasks, classroom-friendly recipes, and ideas for other ways to interact with plants and produce. Even if you are not cooking and eating in your classroom, sensory experiences with various vegetables can make children more familiar and comfortable with the foods and more likely to try them later if given the opportunity.

The second section outlines some practical information for starting and maintaining a garden. Strategies for a school garden in general and a preschool garden in particular can vary significantly from a home garden, so reviewing these ideas can help you set up a garden that works for your school. You'll find ideas on themes for your garden, recommended plants, planting schedules designed around the school year, and other guidance.

The guide ends with helpful local, print, and online resources. We can't anticipate every hurdle a Head Start garden might face, and it can be a challenge to find reliable, science-based garden advice if you don't know what you're looking for. There are also many local people and groups who can provide support tailored to our region and to your garden.

This guide was produced in partnership with the Hamilton County Soil and Water Conservation District through a generous grant from the National Association of Conservation Districts.



**Head Start Hamilton County** 

Bloom to Grow Garden Guide

# Part 1:

# The Garden and the Classroom



**Head Start Hamilton County** 

## Bloom to Grow Garden Guide

# Garden Lessons

### **Bulbs Are Waking Up**

Before it is warm enough to plant seeds or plants in the garden, spring bulbs will start emerging if you planted them in previous years (see <u>Planting Bulbs</u> if your garden doesn't have any planted). Watching them emerge and paying attention to their growth is a good way to usher in the season.

- Place in Schedule: science station (no active supervision/instruction required)
- Objectives: learn the life cycle of bulbs
- GOLD Objectives: 23 demonstrates knowledge of patterns

### **Supplies**

- Photos of the types of bulbs you planted
- Bulb life cycle chart (images at end of lesson, fully laminated version in lesson bag)

### Preparation

• Look up the type of bulbs planted in your garden to see what time they typically emerge so you can time the lesson with the bulbs coming out if possible.

### Activity

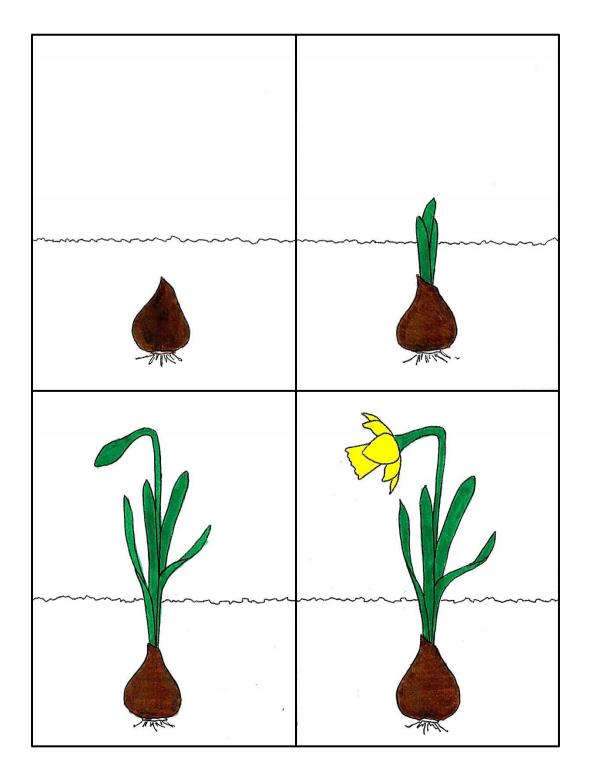
- 1. Take out the pictures of the bulbs from the fall planting. Ask if anyone remembers these pictures from the fall. If they struggle to remember, remind them that we put bulbs in the ground, and they're going to grow into these flowers.
- 2. Show the cards of the life cycle chart and put them up in order. Talk about each image as you put it up.
  - a. First we plant bulbs in the ground in the fall. All winter they sleep in the ground like this.
  - b. When the ground starts to get just a little bit warmer in the spring, green leaves will start to poke up from the ground. The leaves come out of the tops of our bulbs like this.
  - c. Next, a flower stem will start to grow out of the bulb. At first it will be all green, and it will be shaped different from the leaves like this.
  - d. And then the flower opens up like this! Some bulbs will have different flowers. This one is called a daffodil.
  - e. At the end of the spring, the leaves and the flowers fall down and wilt away. The bulb sleeps in the ground again all summer and winter and fall, just like the first picture. Next spring it will all start over again.
- 3. After talking through the process once take the images back off of the life cycle chart, and invite the children to put them in order on their own and tell the story about what happens themselves.

### **Optional Expansions**

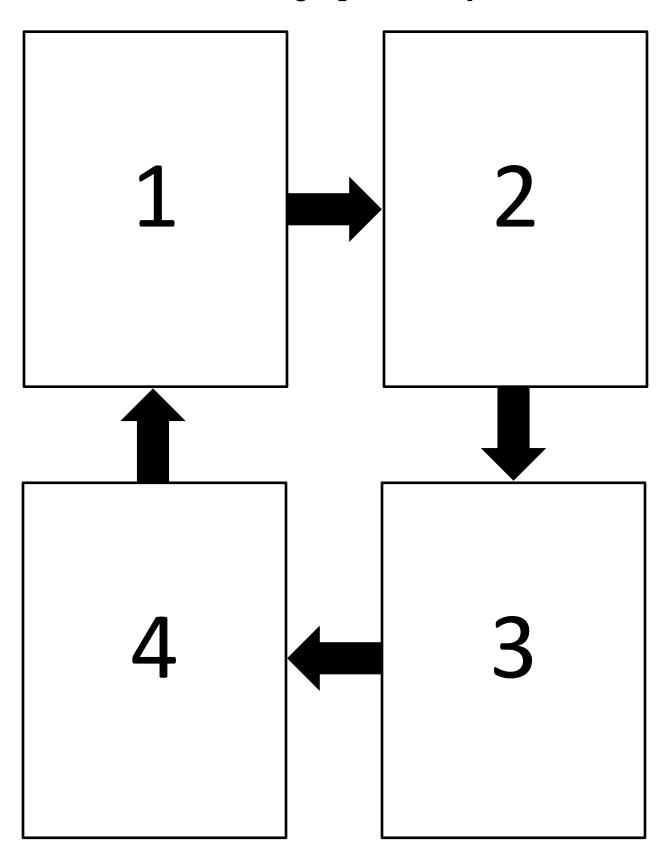
 Math: watch outside to see when bulb leaves start to emerge. Measure them each week and keep track of how tall they get and how many days it takes for them to bloom.

# Bulbs Are Waking Up – Life Cycle Cards

Cut out the cards on the lines to use with the chart on the next page.



Bulbs Are Waking Up – Life Cycle Chart



### **Busy Buzzy Bees**

Bees are easy to find in any healthy garden, and they're important to our environment. They're also an insect that the children have probably heard of and can easily spot once they know it. With this lesson they'll learn about the jobs bees do and mimic how they move.

- Place in schedule: outside
- Objectives: learn how bees are involved in making fruits and vegetables
- GOLD Objectives: 4 demonstrates traveling skills, 24 uses scientific inquiry skills

### **Supplies**

- Resource book about flower structure (see Flowers by Gail Saunders-Smith, Flowers from Moonlight Publishing, or From Seed to Plant by Gail Gibbons in resource room)
- Resource book about bees (Buzzing Bees by Melissa Higgins in lesson bag)
- Magnifying glass (in lesson bag)

### Activity

- 1. Look around at flowers until you find one with a bee, and take a moment to observe it. Use magnifying glasses if the children want to. Ask the children what they think the bee is doing. Refer to the bee book if they want to see something closer or if they ask questions.
- 2. Explain that the flowers help the bees by giving them food (nectar and pollen), and bees help the flowers by moving pollen around. Moving the pollen from one flower to another lets the flowers grow into fruits and vegetables.
- 3. Show developing fruits if you can (squash is great for this because you can still see the flower at the end of the squash while it's forming), and refer to the book about flower structure if they have more questions or want to learn more.
- 4. Watch how the bees move. What do they do? Where do they go? Do you hear any sounds?
- 5. Let's move like bees! Flap arms like wings, make buzzing sounds, and look around for flowers to fly from one to the next to the next.

### **Optional Expansions**

- Dramatic Play: put bee antennas and other accessories and flowers in the dramatic play area to pretend to be bees
- Science: spend more time looking at resource books about bees and flowers and plastic models
  of bees and flowers

### Chicka Chicka Boom Boom Tree

If you have a tree or shrub with low branches outside, it can easily become a tool for re-telling Chicka Chicka Boom Boom. This lesson can be varied based on a child's literacy level to range from simply knowing that the shapes are letters all the way up to identifying the letters and putting them in order like the book.

- Place in Schedule: outside (no active supervision/instruction required)
- Objectives: recall the basic narrative of the book; practice letter recognition; practice pairing uppercase and lowercase letters
- GOLD Objectives: 16a identifies and names letters, 18c retells stories and recalls information from informational texts

### **Supplies**

- Set of plastic letters (such as magnets) with all uppercase and lowercase letters (in lesson bin)
- Tree or shrub with branches low enough for children to safely reach
- Small basket big enough to hold letters (in lesson bin)

### Preparation

- Choose the tree or shrub you want to use. Make sure there are no thorns,
- nests, or wasp nests in it. Branches should be flexible enough to bend a bit without breaking.
- Separate the uppercase and lowercase letters ahead of time.

### Activity

- 1. Dump the lowercase letters on the ground and put the basket in an easy-to-reach spot in the tree or shrub. Explain that we will be walking the letters up the tree just like in our book Chicka Chicka Boom Boom.
- 2. Encourage the children to walk the letters up into the basket and recall as much of the story as they can. If they are ready for putting the letters in order or naming the letters, encourage that.
- 3. Once all the letters are in the basket, ask if they remember what happens next. You can pull the branch lower until the basket tips, or just tip the basket yourself to let all the lowercase letter on the ground.
- 4. Get out the uppercase letters to finish the story. Encourage children who are able to match the uppercase and lowercase letters. For children who aren't ready for that yet, match a few for them (such as the first letter of their name) to reinforce the idea.

### **Optional Expansions**

- Literacy: gradually increase the difficulty of the tasks with the letters depending on a child's ability or progress
- Math: substitute plastic numbers for letters and re-enact Chicka Chicka 123

### Compost in a Bag

Composting is typically a long process that's hard to see in action. With this activity, compost can be ready in weeks instead of months, and the children will be able to help it along.

- Schedule Slot: science station
- Objectives: learn what compost is and where it comes from; demonstrate patience watching a process over time
- GOLD Objectives: 7a uses fingers and hands, 8b follows directions, 9a uses an expanding expressive vocabulary, 13 uses classification skills, 18 comprehends and responds to books and other texts

### Supplies

- Compost Stew by Mary McKenna Siddals (in lesson bin)
- 1 sealable sandwich bag per child (in lesson bin)
- 1 plastic straw per child (in lesson bin)
- ¼ cup of fresh (aka "green") material per child chopped up uncooked fruit or vegetable scraps (works best if it's soft or cut into very small pieces), fresh grass clippings, green leaves
- ¼ cup of dry (aka "brown") material per child undyed paper, brown paper towels, newspaper, dried leaves (in a real compost pile you can use sticks and twigs, but not for this activity)
- Pitcher of water
- Permanent marker to label bags
- 1 tablespoon measuring spoon
- 2 plastic bins one for green material and one for brown material (in lesson bin)
- Small plastic containers (in lesson bin)
- A place in the room to be able to store the bags (can be anywhere doesn't need light)

### **Initial Activity Instructions**

- 1. Skim through *Compost Stew*. Consider the following questions (or others that the children are interested in based on the story)
  - a. Why do you think people make compost? It turns trash into something that's good for our plants.
  - b. How long do you think it takes? How do you think we can find that out? We can make some ourselves.
  - c. Can you think of anything that connects the things you can compost? They all come from plants!
- 2. Explain that we will be making a little bit of compost of our own right in the classroom. It will take a long time, but we will start it today and check on it every week until it's done.
- 3. Show bins of fresh and dry materials. Ask if they recognize anything in the bins from the book. These will be the things we turn into compost.
  - a. Note: when discussing composting, people often refer to green and brown materials rather than fresh or dry. Do not use these terms with the children since many things in

those two categories are not actually green or brown. If you want names for the two categories, you can try wet/fresh and dry or living and dead.

- 4. The children should rip dry material into small pieces. Also rip up fresh material if it's larger leafy things (lettuce, spinach, green leaves, etc.). Use the small containers to measure one full of fresh materials and two full of dry materials, and put the materials in the bag.
- 5. While children are ripping green and brown material, write their names on plastic bags.
- 6. Help each child measure 1 tablespoon of water and put it in their bag.
- 7. Put the straw at a far end of the bag with the straw sticking out a bit, and zip the bag up to it.
- 8. Child squishes the mixture around inside the bag.
- 9. Take a picture of at least one bag today to compare it to how the bags look later on.
- 10. Adult can choose to put all bags in the same spot, or let the children pick where to put their bags based on where they think it will turn into compost quickest.

### Keeping up with the compost

- Twice a week, the children should use their hands to squish the bag and move around the mixture inside. This can be during the science station or wherever in the schedule works for you. If you squish them less often it just means the process will go a little slower.
- Take pictures weekly or bi-weekly so you can compare visually at the end of the process.
- After about eight weeks, you should have compost. If interest is being lost, you can stop once
  visible change starts happening, but consider keeping at least one bag going until all signs of the
  original materials are gone and bring it out to look at every week.

### **Optional Expansions**

- For a second science activity midway through the compost process, re-read Compost Stew.
   Show images of different kinds of trash and classify them based on whether they can or can't go in compost.
- Worms are some of nature's composters. Read a book about worms (see <u>Wiggly Worms</u> bin for a book) and compare what they do to what you're doing.
- Save the compost at the end and combine it with potting mix to start seeds (see <u>Planting Seeds Inside</u>), or sprinkle the compost in the holes when planting seeds outside for extra plant food (see <u>Planting Seeds Outside</u>).

### Corn Stalk Decorations

Corn stalks are fun fall decor, but they're even more fun when they're colorfully decorated, especially at a time of year when natural colors are starting to fade in the garden. These decorations can be part of a fall celebration (such as Halloween, Thanksgiving, or a fall harvest party), or they can be decorations just for their own sake.

- Place in Schedule: art center (no active supervision/instruction required), optional science center during preparation time
- Objectives: understand that when plants aren't connected to the ground they die; children will see their own artwork in the classroom or garden
- GOLD Objectives: 3 participates cooperatively and constructively in group situations, 7b uses writing and drawing tools, 9 uses language to express thoughts and needs

### Supplies

- Dried corn stalks (see preparation)
- Tempera paints (or other kid-safe paints)
- Paintbrushes
- Paint smocks
- Acrylic paint sealer for outdoor use (optional you can let the weather gradually wash the paint away and watch the process, or you can keep the corn stalks inside to decorate your room)

### Preparation

- Cut green corn stalks off close to the ground using pruners, loppers, or sharp scissors. If you are planning on sticking the finished products in the ground, cut at an angle to make a point.
- Set the stalks in a dry, sunny place for 5-7 days to dry out.
- Science Center (optional): Bring the stalks inside. Ask the children what they think will happen to the corn stalks now that they have been cut. Each day (or every few days), encourage them to describe how the corn stalk is changing. Why do you think that is happening? (This can be the full science station, or an add-on to another activity)
- On the day you're planning to decorate, shake off any loose dirt or bugs and bring them inside

### Activity

- 1. Lay out the stalks and painting supplies at the art center.
- 2. Explain that the class will be decorating some corn stalks for the classroom or garden.
- 3. After everyone has had a chance to decorate, leave the stalks in a safe place to dry.
- 4. If you want to seal the creation to make it more weather-proof, once the paint is dry an adult can follow the directions on acrylic paint sealer to spray and seal it. Children should not be present while sealer is being sprayed.
- 5. Once the paint and sealer are dry, you can put your creations up! You can take a vote on where to put them, collaborate with other classes to decorate a space together, or come up with another way to decide where the stalks go.

### Optional extensions:

- Theme: pair with the *Mouse Paint* unit and stick with just blue, yellow, and red paints as decorations. Ask the children to mix colors and predict what they will get and make connections to the story.
- Science Center: Bring the stalks inside. Ask the children what they think will happen to the corn stalks now that they have been cut. Each day (or every few days), encourage them to describe how the corn stalk is changing. Why do you think that is happening? (This can be the full science station, or an add-on to another activity)
- Art Center: After harvesting and shucking the ears of corn, save the husks and dry them in a sunny spot as well. Each child can paint their own husk in addition to working on the stalks together as a class. Punch holes in them and string them together for a festive garland.

### **Decorating Bamboo Stakes**

We will be using bamboo stakes to make teepee trellises for the green beans and peas. To give the children opportunities to see something of their own outside, classes will be able to decorate the poles in the art station.

- Place in Schedule: art station (no active supervision/instruction required after images are introduced and explained)
- Objectives: learn that different plants grow in different ways; children will see their artwork being part of the garden
- GOLD Objectives: 7b uses writing and drawing tools, 9 uses language to express thoughts and needs

### Supplies:

- Bamboo poles
- Crayons
- Other decorating materials if desired
  - Colorful yarn, string, and ribbon can be wrapped around the poles (great fine motor material – if you go all string and ribbons this would be a manipulatives station activity)
  - Crayon is the only child-safe medium that will stick to the stakes long-term, but other
    materials can also be used with the understanding that they will eventually wash off.
     Tempera will work, or you could glue items like leaves or feathers to the poles
- Image cards with different ways that plants grow (see end of lesson, there are some copies already laminated in the lesson bag)

### Instructions:

- 1. Ask if anyone knows any plants.
  - a. How do they grow?
  - b. Do they grow the same, or are there different ways?
  - c. How about people? Do we grow different ways, or mostly all the same way?
- 2. Show the cards of different types of plants and the different ways they grow.
  - a. Some stand tall like corn and trees
  - b. Some stay short like lettuce and grass
  - c. Some grow out sideways on the ground like pumpkins and squash
  - d. And some like to climb up other things like green beans and peas
- 3. Explain that we will be planting some beans or peas outside. We will be using these bamboo poles to build a tower for them to climb on, but first we need to decorate them!
- 4. Allow each child to decorate a segment of the bamboo. If that does not leave enough sections, use a permanent marker to divide larger sections in half to make enough spaces to decorate.
- 5. Once the poles are done (and dry, if you used glue or paint), use them to make 3-legged teepees outside. Use string or rubber bands to tie the stakes together at the top

### **Optional Expansions**

Outside Time: see Planting Seeds Outside for a lesson to plant seeds.



Green beans climb things



Pumpkins spread along the ground

# Corn stalks grow straight up



Lettuce stays small.

### Feed the Birds

Birds are welcome guests in most landscapes, unless you're trying to grow berries! They are fun to watch and listen to, and if we keep them around through the winter with the help of bird feeders they can keep the outdoors alive. Making these bird feeders exercises fine-motor skills and encourages a mindset of caring for our world.

- Place in Schedule: special activity
- Objectives: reinforce ideas of caring for nature and our world; exercise fine-motor skills
- GOLD Objectives: 7a uses fingers and hands, 8b follows directions

### **Supplies**

- 1 pine cone per child (can be bought or found, there are some in the activity bin)
- Peanut butter (use vegetable shortening if any children have nut allergies)
- Plastic knives (in lesson bin)
- Bird seed
- Pipe cleaners, if your pinecones don't have strings
- Small plates to work from
- Larger plate or bowl for bird seed
- Masking tape and sharpie optional if you'd like to label each child's bird feeder
- Picture of bird at bird feeder (see end of lesson, there is a laminated copy in the lesson bin)

### Preparation

- If you are hunting for your pine cones, look for ones that are already opened. If you can't find any that are open, you can put them in the oven on a parchment-lined cookie sheet at 300F for 10 minutes to open them up.
- Wrap the pipe cleaners around the pine cones ahead of time to make the activity shorter or to
  avoid frustration for children who might struggle with twisting the skinny wires. If you're
  planning on labelling them with children's' names, fold a piece of masking tape around the pipe
  cleaner in advance.
- Set a plate with a pinecone on it at each seat.
- Open a peanut butter (or vegetable shortening) jar and put it in the center of the table. Put enough plastic knives in the jar for each child at the table to have one.
- Pour some bird seed into a bowl or plate for the center of the table.
- Make an example bird feeder so the children can see what their end result should be.

### Activity

- 1. Show a picture of a bird at a bird feeder. Ask the children what they think is happening in the picture. If they're having a hard time figuring it out, tell them the bird is eating the seeds.
- 2. Show them the feeder you made ahead of time and explain that we will be making bird feeders to help make sure the birds have enough food to eat all winter.

- 3. Help them use the plastic knives to cover their pinecones in peanut butter or vegetable shortening.
- 4. Once their pinecones are well coated, roll them in the birdseed to cover the peanut butter.
- 5. Write their names on the masking tape if you want to keep track of whose is whose.
- 6. Hang the feeders up outside when everyone is done. They can be hung on a tree, shrub, or chain link fence. Pick something low enough for the children to reach and hang their own feeders if possible.

### **Optional Extensions**

- Theme: line up with the Winter unit. At the beginning of *Snowballs*, birds are eating seeds, so you can make these after reading the book and refer back to it.
- Science: take pictures of the kinds of birds (and maybe squirrels) visiting your feeders. Use a book or computer to find out what kinds of birds they are.



Bird eating at a bird feeder

### **Funny Nature Faces**

Adapted from "Funny Nature Faces" in Bringing the Outside In by Sandra Duncan, EdD and Jody Martin

Making faces and thinking about parts of the face is a good way for children to be artistically expressive and practice remembering and recognizing parts of the face.

- Place in Schedule: art center (no active supervision/instruction required unless using food)
- Objectives: show creative representations of parts of the face; remember and recognize parts of the face
- GOLD Objectives: 11e shows flexibility and inventiveness in thinking, 14a thinks symbolically

### Supplies

- Any safe natural objects from outside, not just the garden
- Ideas include veggies, leaves, sticks, rocks, acorns
- Examples of nature faces (see end of lesson, there are some laminated copies in lesson bags)

### Preparation

- If you're making edible faces, wash and chop the vegetables ahead of time.
- Put trays or plates at each space for the child to work on.
- Set materials out in the center of the table. You can keep the materials separated by type in different bowls/containers or mixed together.

### Activity

- 1. If you'll be making edible faces, have the children wash their hands first.
- 2. Show the images of other nature faces. Ask the children what they see? Are there parts of the face they recognize? Where are those parts on their face?
- 3. Explain that they will be able to make faces and people of their own with things from outside. Make an example face and talk about different ways we can use different nature objects.
- 4. Let the children explore their own interpretations of faces. You can take pictures to hang up if you like, or let them be temporary art.
- 5. When each child is done with their face(s) and ready to leave the table, ask them to put their pieces back in the middle for others to use.

### **Optional Expansions**

Special Station: make edible funny faces and eat them as a food experience. See the <u>Lettuce</u>
 <u>Faces</u> recipe for ideas.



The Greengrocer – Giuseppe Arcimbaldo



Vertumnus – Giuseppe Arcimbaldo





### Garden Journals

Garden journals are an excellent tool to help the children internalize and remember the things they are learning and seeing in the garden, and it also provides an opportunity to use the garden to strengthen literacy and communication skills.

- Place in Schedule: outside, art station, anywhere else you want to use it in your schedule
- Objectives: practice representing outside world in pictures and words, note changes over time in garden
- GOLD Objectives: 7b uses writing and drawing tools, 19 demonstrates emergent writing skills

### **Supplies**

- Garden Journals (can be blank pages made into a booklet, or you can print out the pages with prompts at the end of this lesson print multiple copies of page 2 for each journal)
- Writing and drawing tools

### Preparation

• Print and assemble garden journals and write children's names on them

### Activity

- 1. Take journals and writing tools outside as an option for outdoor time or use them inside after observing or interacting with the garden
- 2. Encourage children to look back at what they have drawn other times to recall what they have seen in different seasons

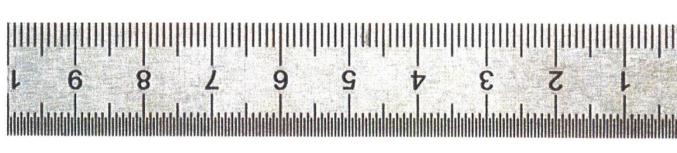
My Plan-Journal My Plant Journal

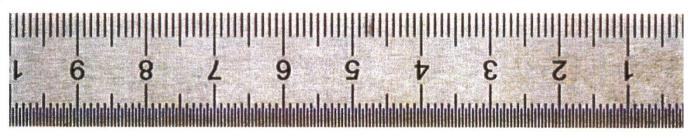
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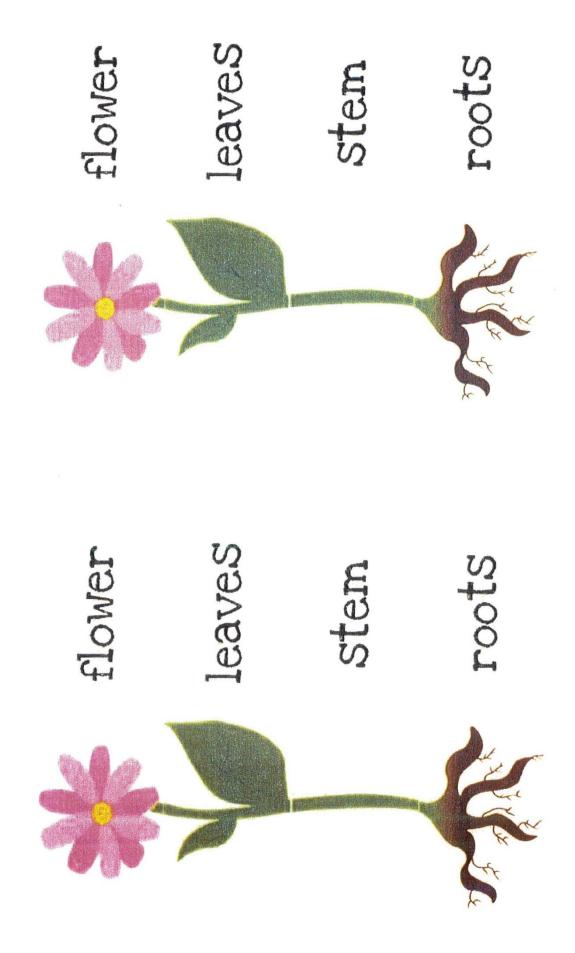
Word Bank: Plant Flower Dirt Grow

Plant lourne 

Flower Dirt Grow Word Bank: Plant Flowe

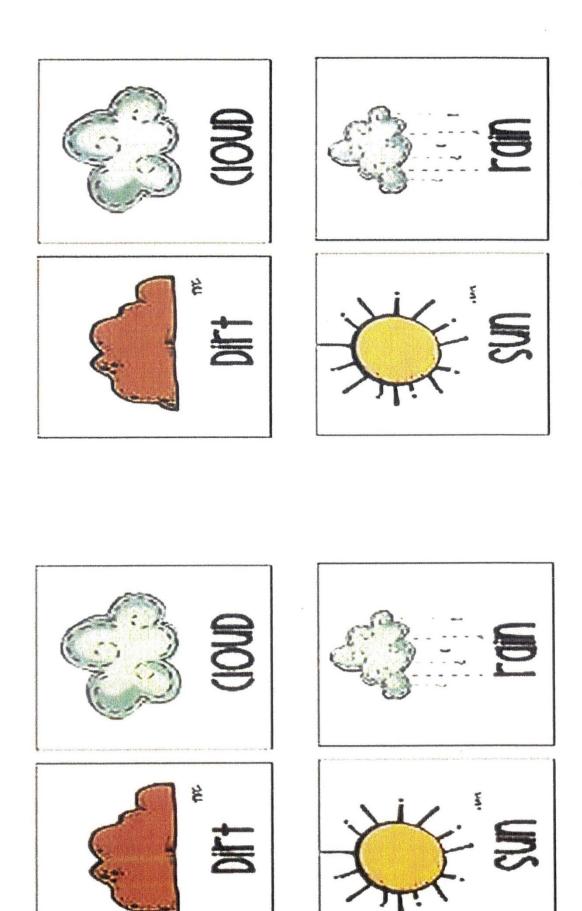




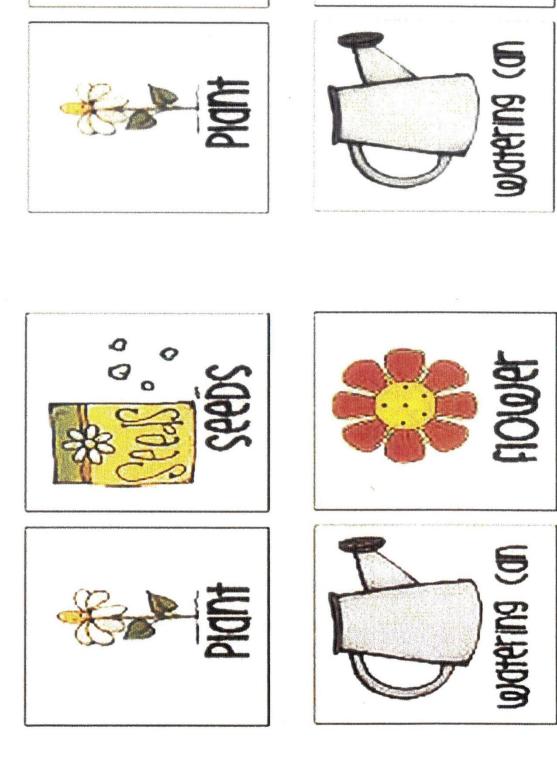


Garden Words

Garden Words



Garden Words



SEES

Garden Words

### Good Leaf Bad Leaf

Adapted from "Good Leaf Bad Leaf" lesson from SEEDS, more at <a href="scottsmiraclegro.com/responsibility/foundation">scottsmiraclegro.com/responsibility/foundation</a>

Leaves tell us a lot about how a plant is doing. They can tell us if a plant needs more water, if something is eating it, if it has a disease, and more. Some of the differences are subtle, but many differences are easily visible and offer good opportunities for differentiating between similar objects and using descriptive words to describe their differences.

- Place in Schedule: outside
- Objectives: be able to spot differences between similar leaves; make guesses about what those
  differences mean and whether they're good or bad for the plants; learn that we can help solve
  problems and take care of the plants
- GOLD Objectives: 22 compares and measures, 24 uses scientific inquiry skills

### Supplies

- Magnifying glass (see outdoor activity bin, or lesson bins for Wiggly Worms or Insect Investigation)
- Plants that are wilting or have insect damage or discoloration on leaves

### Preparation

Look outside ahead of time to find a few plants that have some leaf damage/differences

### Activity

- 1. Go to a plant that has a mix of healthy and unhealthy leaves. Point to a healthy leaf and ask the children to describe it
  - a. Main features of a healthy leaf: green, no holes or spots
- 2. Next look at an unhealthy leaf (preferably on the same plant). How is it different? Which leaf do you think is better for the plant? How do you know? Use your magnifying glasses to get up close looks at the healthy and unhealthy leaves.
- 3. There are lots of different things that can make a leaf unhealthy. The most common problems are not enough water, not enough food, too many bad bugs, and plant sickness. Let's ask some questions to see what might be wrong with our leaves.
- 4. Are the leaves droopy? Our plant might need more water. Can we help with that?
  - a. If the plant needs more water, fill the watering cans and give it a drink (see <u>Watering the Garden</u> for a full lesson)
- 5. Are there holes in our leaves? A bug is probably eating it. Can we find the bug?
  - a. The undersides of leaves are often the best place to find insects feeding on leaves.
  - b. Take a picture of the bug and show it to the garden manager so they can take care of it if it's a serious pest, or send it to Hamilton County Extension at <a href="mailto:extension.osu.edu/ask-an-expert">extension.osu.edu/ask-an-expert</a> for advice on what to do.
- 6. Are there brown spot or yellow spots (or both) but no holes? Our plant has a plant sickness.

- a. Take a picture of the leaf disease and send it to your garden manager or Hamilton County Extension at <a href="mailto:extension.osu.edu/ask-an-expert">extension.osu.edu/ask-an-expert</a> for information on how to deal with the problem.
- 7. Sometimes we have bugs and plant diseases on our plants at the same time. So if you see both holes and brown and yellow spots, your plant might have more than one problem.
  - a. Take a picture of the leaf and send it to your garden manager or Hamilton County Extension at <a href="mailto:extension.osu.edu/ask-an-expert">extension at <a href="mailto:extension.osu.edu/ask-an-expert">extension.osu.edu/ask-an-expert</a> for information on how to deal with the problem.

### **Optional Expansions**

- Science Center: if you find some suspicious bugs, you can catch some and refer to the <u>Insect</u> <u>Investigation</u> lesson for some ideas on how to investigate them and learn more.
- Math: find a healthy leaf, a somewhat damaged leaf, and a very damaged leaf and take them off
  of the plant (not great for squash and pumpkin plants since they need all of their big leaves). Ask
  the children if they can put them in order from the most healthy to the least healthy. Add more
  leaves for a bigger challenge, but be sure that there's a reasonable order they might be able to
  figure out.

## Indoor Water Garden

Adapted from "Indoor Water Garden" in Bringing the Outside In by Sandra Duncan, EdD and Jody Martin

Keeping garden interest alive through the winter requires some creativity. One option is to grow plants in water from cuttings. The children can see a demonstration of a different way plants can start growing other than seeds, and they can actually watch the roots grow gradually into the water.

- Place in Schedule: science center
- Objectives: observe a different way of growing plants; monitor and measure a plant's growth over time; see that roots grow to absorb water
- GOLD Objectives: 22 compares and measures, 24 uses scientific inquiry skills

#### Supplies

- Potted plant that grows well from cuttings (see list at end of plan) with at least
- Clear plastic jars or bottles about 1L/1QT or smaller
- Child-sized scissors (need to be sturdy enough to cut a plant stem)
- West, east, or south-facing windowsill
- Ruler
- Reference book with parts of plants (see From Seed to Plant by Gail Gibbons in resource room)

#### Preparation

- Put about 3" of water in the bottom of each jar
- Put most of your jars on the windowsill where they will be growing, and have just one jar at a time at your center to minimize risk of spilling

- 1. Ask the children if any of them know about seeds. Where do they come from? What do they do?
- 2. Explain that a lot of plants grow from seeds, but there are other ways they can grow too. Some special kinds of plants can grow roots if you cut off a stem and put it in water. Refer to the plant book to reinforce what stems and roots are.
- 3. Show them the plant you will be taking cuttings from. Spend some time examining it.
  - a. Measure how tall it is (or how long if it's a trailing plant)
  - b. How many stems does it have? How many leaves does it have on one stem?
  - c. If it's an herb, crush some of the leaves and smell them
- 4. Each group of children should decide together which stem they want to cut since there are probably not enough stems or space for each child to have one. Ask one child to use the scissors to cut a stem section about 4" long while another child holds the stem above the cut. Your cut should be just above the next set of leaves (see image on page with recommended plants)
- 5. A third child should help you pick any leaves off of the last 2" of the stem
- 6. Ask the last child to put the cut stem in one of your water jars. Tell them that we will be checking the plants every week to see what happens.
- 7. Before your next group comes, put the jar with the cutting on the windowsill and get a new jar.

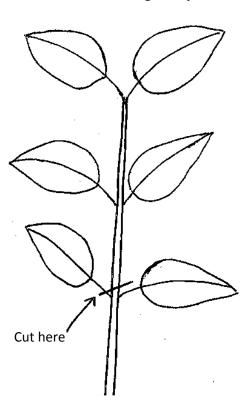
#### **Optional Expansions**

• Science Center: measure and observe changes each week. How tall is the cutting now? How many leaves does it have? Are roots growing yet? How long are they? To keep your cuttings going strong, replace the water weekly by running fresh water into the jar and letting it flush out the old water.

Non-toxic plants that grow well from cuttings

- Coleus
- Mint
- Basil
- Rosemary
- Begonia
- Sweet potato vine
- Swedish ivy

Where to cut for a stem cutting – cut just above a node, where a set of leaves emerges



# **Insect Investigation**

Adapted from Growing Minds "Insects in the Garden" lesson. More lessons and ideas at growing-minds.org

There are many creatures in the garden, and many of them are helpers. Helping children safely investigate them and learn about what they do can reduce fear and increase understanding. Insects will be the most common, but you may also see spiders, mites, and worms. There are versions of this activity for either indoor or outdoor use.

- Place in Schedule: outside or science center (no active supervision/instruction required in the science center, supervision is recommended outside)
- Objectives: learn that there are many types creatures in the garden; learn that some bugs are garden helpers, others are garden pests; understand that we don't have to be afraid of bugs
- GOLD Objectives: 9 uses language to express thoughts and needs, 9d tells about another time or place, 13 uses classification skills, 18 comprehends and responds to books and other texts, 24 uses scientific inquiry skills, 28 uses tools and other technology to perform tasks

#### **Supplies**

- Bug book (such as Little Kids First Big Book of Bugs by Catherine D. Hughes in resource center library)
- Specimen cases if using live specimens (in lesson bin)
- Magnifying glasses (in lesson bin)
- Rulers (in lesson bin)
- Realistic plastic insects if not using live specimens (see LS 25 and 26 bins)

# **Outdoor Activity**

#### Preparation

- Familiarize yourself with the places where insects are likely to be in your garden (under rocks, bottoms of leaves, beneath straw, in damp ground, inside flowers, etc.)
- Understand which harmful insects or spiders are likely to be found in your area and be on the lookout for them (see guide at end of lesson for the most common risky spiders/insects).

- 1. Explain that today we'll be looking for creatures in the garden. Ask if anyone can name a bug they have seen outside.
- 2. Head outside and catch some critters! Good places to check are inside flowers, the bottom sides of leaves, underneath boards or rocks, and in the ground.
- 3. When you find a bug, catch it using the bug catcher or another tool. Put it into a specimen container to examine.
  - a. We do our best not to touch the bugs with our hands because we might hurt them.
- 4. Once you capture a few different types of bugs, take turns looking at each bug with and without a magnifying glass.
  - a. What do you see?

- b. Which creature is the biggest? Can you measure to see how big?
- c. Which one has the most legs?
- 5. Match the bugs you caught to the bugs on the critter cards.
  - a. Were there some that you saw a lot of? Why do you think that is?
  - b. What can we learn about these bugs from the facts on the cards?
- 6. Once you have finished investigating and identifying your creatures, release them back outside where you found them.

# **Indoor Activity**

#### Preparation

- If you want to use real insects for your investigation, catch some an hour or two ahead of time. Worms will need some damp soil in the case with them, but other creatures will be fine outside their normal habitats for short periods of time. If your center time is after outdoor time, you can catch the insects with the children outside and bring them inside for the science center.
- If you're planning to use plastic insects, pick out ones that the children are likely to find outside, such as ants, flies, and spiders.

- 1. Have the children look at each bug (fake or real) with and without a magnifying glass.
  - a. What do you notice about the bugs?
  - b. Which bug is the biggest? Can you measure to see how big?
  - c. Which one has the most legs? How many?
- 2. Match the bugs to the critter cards or to insects you see in the books.
  - a. For a follow-up to outside insect-catching: were there some that you saw a lot of? Why do you think that is?
  - b. For real and fake bugs: what can we learn about these bugs from the facts on the cards?
- 3. If you are using real insects release them back outside where you found them after you're done with center time.

# Risky Insects and Spiders

Yellow Jacket Risk: can be aggressive, especially if defending nest; very painful sting  Habitat: most nest in the ground; some nest in shrubs	Cicada Killer Risk: will only sting if handled – they look much scarier than they are  Habitat: burrows in sandy or loose soil	
Wasp (various kinds) Risk: can be aggressive, especially if defending nest; very painful sting  Habitat: nests built in trees, eaves, and outside structures	Grass Spider Risk: bite is venomous and may need treatment, but they will rarely bite  Habitat: tunnel- shaped webs in grass and low plants	
Assassin Bug Risk: will only bite if handled, bite is painful but not venomous  Habitat: outside wherever food (smaller insects) are	Brown Recluse Risk: not a common spider; bite is very dangerous and requires immediate medical attention  Habitat: dark, dry, undisturbed areas	
Wheel Bug Risk: will only bite if handled, bite is painful but not venomous  Habitat: outside		

# **Insect Life Cycles**

Adapted from "Insect Cycles" lesson from the Whole Kids Foundation and the American Heart Association

Insects grow up in very different ways than people do. In this lesson we look at how butterflies and ladybugs develop and how that is different from how people develop.

- Place in Schedule: science center (no active supervision/instruction required)
- Objectives: understand that insects go through life cycles; practice sequencing life stages
- GOLD Objectives: 9d tells about another time or place, 23 demonstrates knowledge of patterns

#### Supplies

- Laminated ladybug life cycle cards and chart (at end of lesson, laminated copies in lesson bags)
- Laminated butterfly life cycle cards and chart (at end of lesson, laminated copies in lesson bags)
- Insect reference book(s) with images of metamorphosis (bookmark relevant pages with post-its, see *Little Kids First Big Book of Bugs* by Catherine D. Hughes)

#### Preparation

Print out and cut out life cycle cards and charts if they are not already provided

#### Activity

- 1. Explain that today we'll be looking at how different insects grow up, and how that's different than how people grow up.
- 2. Show the adult butterfly card and ask if anyone knows what it is. Ask what they know about butterflies.
- 3. Show the caterpillar card and ask the same questions. Do we know how caterpillars and butterflies are related? Explain that caterpillars turn into butterflies if they don't know.
- 4. Bring out the butterfly egg and pupa cards and talk through the life cycle terms and pictures. Stick the stages on the chart where they belong.
- 5. Show the adult ladybug card and ask if they know what it is or if they know any facts about ladybugs. Ask if they know anything about what ladybugs look like when they're babies.
- 6. Pull out the rest of the ladybug life cycle cards and go through the terms and pictures. Stick the stages on the chart where they belong.
- 7. Do people go through these processes?
  - a. What are people like when they're first born?
  - b. What are they like when they're older?
  - c. Are there a lot of differences, or not so many?
- 8. Pull the cards back off of the life cycle charts, and let the children try to put them in order or narrate the process.
- 9. If the children want to learn more about butterflies or ladybugs or life cycles, encourage them to look at the reference books.

#### **Optional Expansions**

Outdoors: Go outside and see if you can find any life stages of butterflies or ladybugs.

# Butterfly Life Cycle Cards



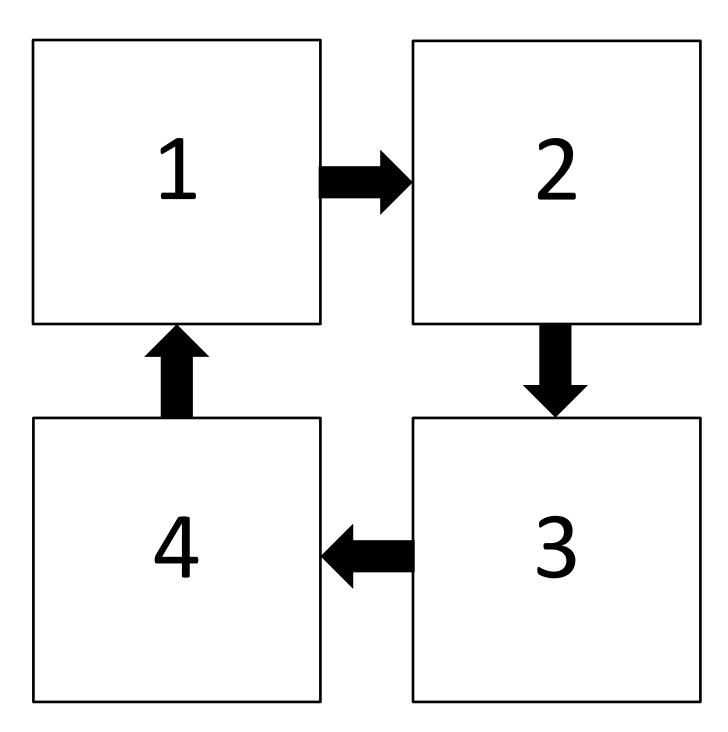
# Ladybug Life Cycle Cards





# Butterfly Life Cycle Chart

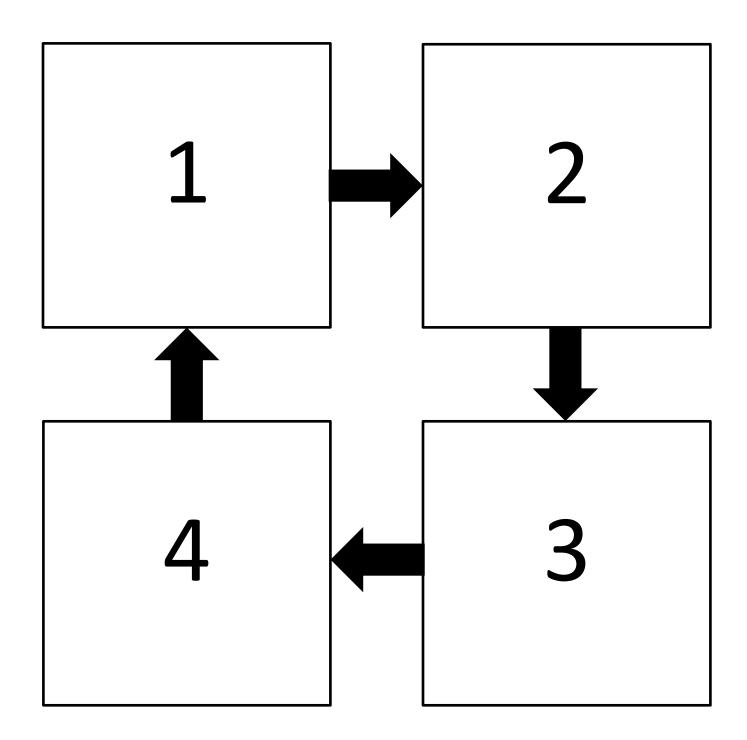






# Ladybug Life Cycle Chart





# Leaf Art

Making art with and of leaves is a lovely way to interact with and investigate these fascinating natural objects. While we think about leaves more often in the fall when the colors change, you can make art with leaves any time they're around. These activities are well suited as a follow-up to some other leaf exploration lesson or on their own.

- Place in Schedule: art center (no active supervision/instruction required)
- Objectives: explore leaves in a variety of ways; make art with non-typical materials
- GOLD Objectives: 7b uses writing and drawing tools, 33 explores the visual arts

# Leaf Rubbings

Supplies: crayons, leaves, printer paper

Use leaves with prominent veins and some stiffness for best results. Some good options are tree leaves, corn, and kale. Fleshier leaves like tomato and pumpkin will just turn into a pulpy mess. Lay your leaves down with the veins up. Put a piece of printer paper (or other thin paper – construction paper is too thick) on top of the leaves. Lightly color over the leaves with a crayon and the pattern of the veins will show through. Try making a scene with the leaves.

#### **Leaf Prints**

Supplies: tempera paints, leaves, paper

Any type of leaf will work for this, although bigger leaves are easier to hold for painting. Set out a piece of paper you want to print onto. Using a paintbrush, paint one side of the leaf. The thinner your layer of paint is, the more defined your print will be. Flip the leaf over and press it on the paper with the paint side down. When you lift the leaf away, a print will be left behind.

#### Leaf Stacks

Supplies: variety of leaves, optional camera

Leaf stacks are temporary artwork made by collecting leaves and then stacking them in a way that is interesting to you. You can try to collect leaves of different sizes, colors, shapes, or similar leaves. If you want a record of your leaf stacks, take pictures and hang them up. Check out #LeafStackChallenge on Instagram for ideas, and you can post yours there as well.

# Painting with Leaves

Supplies: tempera paints, leaves

Some leaves work well as improvised paintbrushes. Good leaves for this will have a thicker stem that's easier to hold and interesting leaf textures to pick up the paint. Use the same way as you would a typical paintbrush. Some leaves that work well would be kale, chard, and tomato leaves.

# **Leaf Diversity Exploration**

Leaves are so common all around us outside that we sometimes don't even notice them or think about them. Curious children are more likely to take notice of the little things, and with some encouragement you can find all kinds of different types of leaves on different types of plants.

- Place in Schedule: outside
- Objectives: understand that there are many kinds of leaves; use language to describe differences between different leaves
- GOLD Objectives: 9a uses an expanding expressive vocabulary, 20a counts, 22 compares and measures, 24 uses scientific inquiry skills, 28 uses tools and other technology to perform tasks

#### Supplies

- Ruler
- Magnifying glass
- Camera (optional)
- Unique leaves from home or elsewhere (optional)

#### Preparation

- You can work with just the leaves in the garden or on the playground, but if you don't have many varieties you can look around for some other interesting options and bring them in.
- Collect a few examples of different leaves and stash them somewhere, or look around the day before to take stock of where different kinds of leaves are.

- 1. Look around together to collect several different kinds of leaves. If you already have a few, show them to the children to show how many different ways they can look
  - a. Don't forget that blades of grass and evergreen needles are also types of leaves!
  - b. Take only one or two leaves from each plant so we don't hurt them and so that there are more left for other classes
- 2. Lay all your leaves out on the ground. What do we notice about our leaves?
  - a. How are they similar? How are they different?
  - b. Suggest specific descriptive words (and explain if needed) when they apply. Some words that might be good are smooth, rough, prickly, soft, bumpy, waxy, thick, thin, crunchy, and squishy.
- 3. Measure the different leaves and look at them with a magnifying class to see if you can find more similarities and differences (and just interesting discoveries in general).
- 4. Optional: Make leaf stacks! You just stack up and arrange leaves in ways that look interesting to you. If you want a record of your leaf stacks, take pictures and hang them up. Check out #LeafStackChallenge on Instagram for ideas, and you can post yours there as well.

- Theme: line up with Trees & Leaves theme to reinforce classroom experiences
- Art Center: bring the leaves inside and use them to make leaf art. See Leaf Art for some ideas
- Math: Arrange leaves from smallest to largest; ask children to place leaves in relation to each other next to, on top of, above, etc.
- Science: bring some of the leaves inside and use microscopes to look at them up close and draw what they see. Provide reference books about plant structure to look through photographs.

## Nature Color Hunt

Adapted from "Color Swatch Nature Hunt" in <u>Bringing the Outside In</u> by Sandra Duncan, EdD and Jody Martin

There are many colors outside, and color matching can be a good entry-level activity for the beginning of the school year. This activity can be used to help introduce and reinforce color names, or simply as an exercise in visual matching without color names.

- Place in Schedule: outside
- Objectives: children will explore how everything has a color; children will notice that some colors are more common than others outside; most plants are green
- GOLD Objectives: 8b follows directions, 13 uses classification skills

#### **Supplies**

Color cards or swatches – include some colors that are harder to find outside (such as blue), but
do not include any colors that are not found on your playground (in lesson bag)

#### Preparation

• Take a look around the playground to see what colors are present

#### Activity

- 1. Show the color swatches and explain that we will be finding these colors outside. Some colors will be easy to find. Others will be difficult to find.
- Hunt for the colors as a group. You can hand out the color swatches, or show one at a time.Encourage the children to name the colors and the fruits or vegetables that have that color if they can. If they need help, you can remind them.
- 3. When you have found all the colors, talk about what it was like to find them.
  - a. Were some of these colors easy to find (they can hold up color cards if they don't know the color names)?
  - b. Were some of them harder to find?
  - c. Why do you think that is? One possible connection to make is that many plants are green, and there are a lot of plants outside

- Theme: Pair with the *Mouse Paint* unit and ask children to think about which colors combine to make each color on their cards and outside.
- Art: After you go back inside, invent plants and draw them. Use what you learned about which
  colors are hard and easy to find outside to choose which colors to use on your invented plants. If
  you are doing just this expansion and not the outdoor portion, put some pictures of plants on
  the table to look at for inspiration.
- Science: coordinates well with LS boxes 17 & 18

# Nature Scavenger Hunt

Adapted from Kids Gardening's "Scavenger Hunt in the Garden" lesson. More lessons and ideas at KidsGardening.org

Outdoors activities don't need to only be about crouching down and looking close. This scavenger hunt can have you running all over the playground in search of natural objects of many kinds.

- Place in the Schedule: outside
- Objectives: observe the variety of objects found outdoors; match drawn symbols to real objects
- GOLD Objectives: 8b follows directions, 11a attends and engages, 11b persists

#### **Supplies**

- Scavenger hunt worksheets (at end of lesson)
- Markers or stickers

#### Preparation

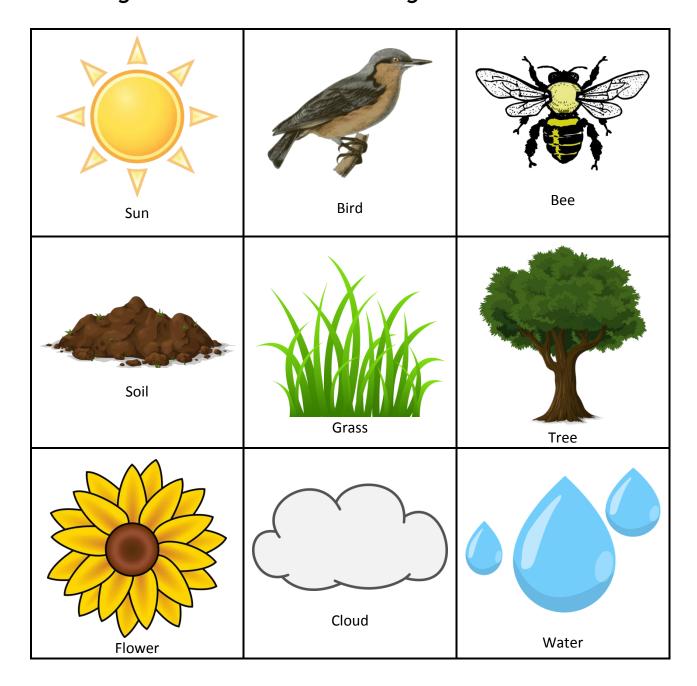
- Look around ahead of time so you know where you can find the things on the list
- Be sure and identify any hazards, such as wasp nests or poison ivy to avoid them (and report them to be removed)

#### Activity

- 1. Hand out worksheets and sticker sheets or markers and explain that we will be looking for all kinds of things outside.
  - a. If the children will be working cooperatively in groups, just the adult helper needs the worksheet and stickers/marker
- 2. Point to the pictures and explain that we will be trying to find all of the things in these pictures. You can have the children work individually, in small groups, or a larger group.
- 3. Look around the playground to find the items on the sheet.
- 4. After finding all of them you can dismiss the children if they're antsy and need to keep running around, or you can keep them together to talk for a moment
  - a. Where did we find these things? On the ground? In the air? On Plants?
  - b. Which thing was the hardest to find? Which was the easiest? Why do you think that is?

- Language: use descriptive words such as soft, hard, and round to describe objects instead of images. Children will probably need help recognizing written words, but you can practice some letter recognition as appropriate for the child. Alternate worksheet at end of lesson.
- Art: use sidewalk chalk to draw the things you saw on the ground

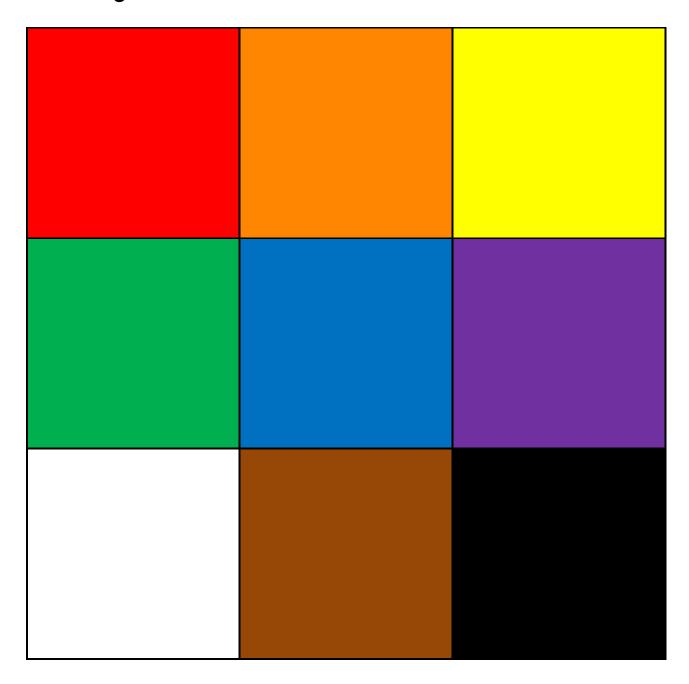
# Scavenger Hunt Worksheet – Images



# Scavenger Hunt Worksheet – Adjectives

Soft	Hard	Wet
Dry	Rough	Smooth
Small	Big	Round

# Scavenger Hunt Worksheet – Colors



# Painting with Garden Scraps

Adapted from Painting with Kitchen Scraps in Bringing the Outside In by Sandra Duncan, EdD and Jody Martin

Any experience with a new fruit or vegetable contributes towards a child feeling more comfortable with that food and more willing to taste it. So when there are suddenly so many new things in the school garden, slower, non-taste sensory experiences can be a good way to familiarize children with the crops.

- Place in Schedule: art center (no active supervision/instruction required)
- Objectives: increase familiarity with new vegetables through tactile experience; learn more about what vegetables the children are familiar with
- GOLD Objectives: 7a uses fingers and hands, 33 explores the visual arts

#### Supplies

- Paper
- Plates for vegetables
- Paint smocks
- Various colors of tempera paint (or other child-safe paint)
- Vegetables and scraps for painting with

#### Preparation

- Go outside to collect items the children can use to paint. Stick with edible items since you will be discussing eating them.
  - o Kale and other big leaves can make good paintbrushes
  - Peppers and tomatoes sliced in half can make stamps
  - o You can draw with the tip of a carrot or use the foliage as a brush
  - You can also bring items from home like the end of a celery bunch or orange peels
- Slice round vegetables in half or into other shapes to increase the range of options.

#### Activity

- 1. Show the children each vegetable or plant you'll be using to paint. Name them, and ask if anyone has ever tasted them. Did they like them or not? If someone didn't like one of the foods, sometimes if you don't like something one day, you might like it another time.
- 2. Explain that today you'll be using the vegetables to make art instead of food.
- 3. Set out paper in front of each child and demonstrate how to use some of the vegetables to make prints and marks on the page
- 4. Help the children put on smocks, and then let them paint
- 5. Make sure each child's name is on their painting, and then hang them to dry

- Theme: Time with the *Mouse Paint* unit, and use red, yellow, and blue paint to mix other colors. Ask the children to identify the colors of the vegetables and what colors mix to make them.
- Food experience: After painting, make a snack out of clean veggies. See recipes for ideas. The simplest way is always to eat them with a veggie dip (see <u>Ranch Dip</u> and <u>Greek Dip</u> recipes).

## Pebble Garden Labels

Incorporating children's art into the garden increases the children's sense of ownership in the garden. It's also something that can be done inside in the winter or on a rainy day. This activity combines the fun of painting with the need for labelling in the garden. But even if there are already labels, or your class has already done this activity once, it never hurts to add more kid art to the garden!

- Place in Schedule: art center (no active supervision/instruction required)
- Objectives: create something that will beautify the garden; experience the different in painting on an irregular, 3D object rather than paper
- GOLD Standard tie-ins: 7b uses writing and drawing tools, 19a writes name

#### Supplies

- Rocks or pebbles 3-5" across (big enough to write labels), such as Mexican beach pebbles
- Tempera paints
- Paintbrushes
- Paint smocks
- Permanent markers
- Acrylic paint sealer labelled for outdoor use

#### Preparation

Rinse and dry stones ahead of time so paint will stick

#### Activity:

- 1. Explain that today you will be decorating rocks for the garden. They will make the garden more fun and beautiful, and some of them will also tell us which plants are which.
- 2. Give each child a rock. Write their name on the bottom of the rock with a permanent marker, or you can also ask the children to write their own names on the bottom if they can.
- 3. Ask the children to paint the rocks however they like.
- 4. Let the rocks dry, and then adults should take them outside to spray them with acrylic paint sealer to make them weather-proof.
- 5. To use these rocks as labels, adults can use sharpies or paint pens to write plant names on them. This should be done before sealing them.

#### **Optional Expansions:**

• Theme: Pair with the *Mouse Paint* unit and provide just red, yellow, and blue paints. Encourage the children to mix colors like the mice in the story.

# Planting Bulbs

One of the consistent challenges of school gardens is that the school is open when there is the least garden activity. Planting bulbs in the fall lengthens the season for outside activities, and watching them bloom early in the spring is great delayed gratification experience and a way to start the garden season earlier in the spring.

- Place in Schedule: outside
- Objectives: observe a different way that plants grow; practice delayed gratification; connect changing seasons to changes in the outside world
- GOLD Objectives: 7a uses fingers and hands, 8b follows directions

#### **Supplies**

- Enough bulbs for each child to plant at least one
  - Earliest bloomers: crocus, Siberian squill, snowdrops, some tulips (depends on variety), some daffodils (depends on variety), Iris reticulata (dwarf iris), winter aconite, some hyacinth (depends on variety), winter aconite
  - Deer and rabbit resistant: daffodil, Siberian squill, allium, grape hyacinth, winter aconite, snowdrop
  - o Bulb mixes work well
- Bulb digger or drill with bulb auger
- Pictures of the types of bulbs you'll be planting

#### Preparation

- Bulbs should be planted in fall after daytime temperatures are consistently low. Late October is generally a reliable time.
- Identify location for planting. Bulbs should be planted in the ground in a location that does not
  get soggy. Most like plenty of sun, but you do not have to worry about shade from trees since
  the bulbs come up before leaves come out.
- If you're planting in the ground, making the holes ahead of time is strongly recommended since drills aren't safe for children and using a bulb digger requires a fair bit of muscle. Refer to the bulb packaging for the recommended planting depth
  - This does require some coordination if you're mixing bulb types since different bulbs require different depth.
  - Choose different rows or different areas for different bulb types (you can mix varieties or bulbs of similar size but different species)
- Bulbs can also be planted in raised beds, but pots don't insulate the bulbs well enough to keep them alive through the winter. If you're planting in raised beds that have looser soil, you can let the children dig the holes instead of digging them ahead of time.

#### Activity

- 1. Ask the children if they know where plants come from. They will likely have planted seeds and watched them grow at this point.
- 2. Explain that a lot of plants grow from seeds, but some grow differently. One way that plants grow is from bulbs. Show one of the bulbs.
- 3. Bulbs are planted in the ground like seeds, but they are different from seeds because they take a long time to grow, and the bulb doesn't go away the way a seed does.
  - a. How long does it take for a seed to start growing?
  - b. How long do you think it will take for \ bulbs to grow? We're planting them when it's cold. Do you think they will grow when it's cold, or will they grow when it's warm again?
- 4. What do you think these bulbs will look like when they grow? Show pictures of the flowers for the types of bulbs you're planting.
- 5. Now it's time to plant these in the ground. Show how to put a bulb down in the hole with the flat side with roots facing down. Correct any that are upside down, or they might not bloom.
- 6. Cover the holes back up with soil. Ask the children how they think the soil will help the bulbs.
  - a. If they are remembering previous lessons, they might know that soil has water and food that the plants need
  - b. The soil will also keep the bulbs from getting too cold outside in the winter
- 7. Note: The children may want to water the bulbs the way they have watered seeds and plants to help them grow. This is not good for bulbs, and can cause them to rot. If any children want to add water, explain that the bulbs are asleep, and they need to sleep all winter. They won't need any water until they wake up in the spring.

- See <u>Bulbs Are Waking Up</u> lesson for a spring garden lesson. If you want to do this, it would help to keep the bulb pictures visible through the winter or occasionally refer to them so the children remember what happened.
- Math: as the bulbs start to emerge, measure the height at least once a week. Make a graph to see how fast they grow and when they stop growing.
- Science: when you come back after winter break (or in February when you're getting closer to spring), remind children about the bulbs the planted. Put up pictures of what you planted, and make predictions about when they will start growing. Check whenever you are outside to see if there are any signs of plants emerging yet.

# **Planting Cover Crops**

Winter cover crops help make our soil healthier and block out weeds. Introduce the concept of healthy soil and soil and dirt as a valuable thing. In the spring, we can plant a cover crop between the rows to help reduce soil erosion and to enrich the soil. In the fall the cover crop serves the same purpose, but we plant it over the whole garden since it won't be competing with any garden plant roots.

- Place in Schedule: outside
- Objectives: understand that soil can be healthy or unhealthy; understand that our actions can make soil more healthy or less healthy
- GOLD Objectives: 3 participates cooperatively and constructively in group situations, 7a uses fingers and hands, 8b follows directions, 9 uses language to express thoughts and needs,
   24 uses scientific inquiry skills, 28 uses tools and other technology to perform tasks

#### Supplies

- Scarlet clover seeds for cover crop
- Plastic rakes
- Gloves (optional)

#### Preparation

• Clear away weeds in the area you want to plant your cover crop. You can do this during the outside time on a different day. See <a href="Weeding the Garden">Weeding the Garden</a> for instructions on pulling weeds with children.

- 1. Explain that soil is made of very old rocks in very tiny pieces and plants that have died, so we're going to plant some plants for them to die and make our soil richer. These will also help block weeds from growing where we want our plants to be and taking their food, water, and light.
- 2. Look at the garden. Ask if we have to do anything first to be able to plant seeds.
  - a. If there's already straw on the ground, you'll need to move the straw out of the way.
  - b. What do you think will happen if we put seeds on top of the straw?
  - c. What do you think will happen if we move the straw and plant on the ground?
- 3. Use your hands and/or rakes to move the straw to the side in the area you want to plant a cover crop.
  - a. As you're moving the straw, what do you notice?
  - b. Does all the straw look the same? Does it all feel the same?
  - c. Is there anything hiding under the straw? Why do you think something might want to live under there?
  - d. What do you think will happen if we put some seeds on top of the straw and some seeds underneath the straw? Leave the straw over one area to try and find out.
  - e. What does the soil look like under the straw? Is it wet or dry?

- 4. Use rakes to rough up the soil a little bit. Why do you think we want to break up the soil? What parts of the plant are going to grow into the soil?
- 5. Have the children take turns taking a handful or two of cover crop seeds and sprinkling them over the ground you prepared. Make sure someone sprinkles some on top of the straw too so you can test to see what happens.
- 6. After every child has had a turn, sprinkle more over any bare spots and use a rake to spread out any spots that are too thick.
- 7. Now it's time to put the straw back. Why do you think it's good to put the straw back over the seeds? What will happen if we don't put the straw back? Leave one spot without straw and see what happens.
- 8. What do seeds need to start growing? They may come up with several answers, but the one we're interested in now is water. Is there water in the ground? How can you tell? If there is not water in the ground and no rain is expected in the near future, use watering cans or a hose to water the seeds (see <u>Watering the Garden</u> if you want a full lesson on watering).

- Outside: for a simpler version of seed-planting to plant cover crop seeds without exploring the role of these seeds as a cover crop, see Planting Seeds Outside.
- Science Center: Adults keep an eye on when seeds start sprouting. Once they sprout, take groups of 4 children at a time outside for science center (can also be done during outside time). Is there any difference between the area with straw on top of the seeds, the area with seeds on top of the straw, and the area with seeds but no straw? Back inside, draw what you saw.
- Science Center: Take a few of the cover crop seeds and germinate them inside to watch the
  process up close and outside. Soak a paper towel and squeeze out most of the water. Lay it flat
  inside a re-sealable plastic bag. Place the seeds on the paper towel. Fold the zipper part of the
  bag under, but do not seal it. Place the bag in a sunny spot and check on it every day. Identify
  the parts of the plant as they emerge. Compare them to what you see happening with the seeds
  you planted outside.

# Planting Seeds Inside

Planting seeds indoors allows for closer examination of what exactly is happening to a seed as it grows, and it makes starting seeds a year-round activity. This activity focuses on the first week or so of the growing seed's life, but it can also be expanded to starting crops to grow outside or keeping a classroom plant long-term.

- Place in Schedule: science center
- Objectives: observe seed germination; understand that plants need water and light to grow; take responsibility for nurturing a seed
- GOLD Objectives: 7a uses fingers and hands, 8b follows directions, 24 uses scientific inquiry skills

#### Supplies

- Quick-sprouting seeds (beans, melons, squash, radishes, nasturtiums, sunflowers, marigolds, and zinnias work well)
- Paper towels
- Snack sized bags
- Spray bottle with water
- Sharpie
- Picture of the plant your seeds will turn into (the seed package may have a good picture, or you may need to find a different picture)

#### Preparation

- Fill spray bottle with water
- Put a bag and a paper towel at each seat

- 1. Show the children the seeds and ask if anyone knows what these are and what they do.
- 2. Show the picture of the plant that will grow from your seeds, and explain that we will be growing seeds that will turn into this plant. Seeds need two things to grow: light, and water. We will be making sure the seeds have both of these things.
- 3. Ask the children to fold a paper towel and fit it into their plastic bag. The paper towels should be folded flat not crumpled.
- 4. Ask the children to place a seed on the middle of the paper towel.
- 5. Have the children take turns using the spray bottle to dampen the paper towel inside the bag. We don't want it to be soupy, just damp. You may need to hold the bag open while they spray if they need to use two hands on the spray bottle.
- 6. Zip the bags mostly shut (leave a gap open so the seeds don't suffocate), and put each child's name on the bag. Make predictions about how many days it will take for the seeds to grow.

- 7. Explain that we will place the bags on trays in a sunny spot since seeds need sun, and check back every day until you see seeds germinating. Keep checking back to watch the plants develop, and teach the words for the different plant parts as they develop.
- 8. When you check on the plants, check to make sure the paper towel is still damp. Spray on more water as needed.
- 9. See Optional Expansions for ideas about growing the plants inside or in the garden.

- Science: pick a sunny spot and a dark spot in the room for seeds to be stored, and let each child pick where to put their seed based on what they think will help the plant grow.
- Garden: if you start the seeds inside in late winter, you can transplant sprouts outside as they grow. First transition them to small peat pots once the roots start to develop, and then plant the pots outside. Timing will depend on which plants you're using.
- Science: grow plants to keep in the classroom through the winter. Herbs are a good pick for classroom growing with a grow light since they stay small, but the seeds are smaller to handle. You may want to start them yourself in trays or pots at the same time that the children are starting their seeds in bags.
- Science: write about or draw pictures of the seeds at different stages of growth in a garden journal.

# **Planting Seeds Outside**

Watching a seed grow touches on science, exploration, patience, nurturing, and more. Planting seeds in cups inside may allow for quicker results and closer monitoring, but planting a seed outside gives it much more longevity (and productivity, depending on what you plant) and incorporates more variables and learning opportunities.

- Place in Schedule: outside
- Objectives: understand that plants come from seeds; take ownership of plants in garden; practice patience and delayed gratification as you wait for germination
- GOLD Objectives: 7a uses fingers and hands, 8b follows directions, 22a measures objects, 28 uses tools and other technology to perform tasks

#### Supplies

- Seeds (see Picking Plants to help choose your seeds)
- Children's garden hand tools
- Photos of plants that will grow from seeds (often your seed packet will have a good photo)
- Ruler to measure seed spacing

#### Preparation

- If you have straw on the ground, move it to the side in your planting area ahead of time.
- Make sure ground isn't too soggy and muddy or too dry. If the ground is very dry, running the sprinkler for about a half hour (outside of normal classroom time) will make it wet enough to work with.

- 1. Start with the full class for a minute or two. Pour some of the seeds into your hand, and show them to the children.
  - a. Does anyone know what these are?
  - b. Does anyone know what seeds do?
  - c. If someone knows: How do you know that?
  - d. If they don't know: Do you have any guesses about what they might do? Let's look at the envelopes they come in. Does that give you any clues?
- Today we will be planting some seeds to grow some more vegetables. Everyone will be able to watch the vegetables grow and help take care of them. Anyone who wants to can help plant seeds today.
- 3. Children are free to leave, and three at a time can stay to plant. Take turns to let all children who are interested have a turn.
- 4. Show the children how to make holes and plant the seeds (depth and spacing will be on the seed packet, but don't obsess over matching the instructions precisely)
  - a. We need to make holes for the seeds. What tool do you think will be best for that?
- 5. After the seeds are planted, cover them back up with soil.

a. How long do you think it will take for the seeds to grow? Keep track of their guesses, and check back to see how long it takes

- Garden Task: seeds will need to be watered before they can grow. See <u>Watering the Garden</u> if you want a fuller lesson on this for the children. This can be done on the same day or separately. You can coordinate with other teachers to handle different tasks.
- Garden Task: Put straw over the new seeds (either new straw or putting the old straw back) within a few days of planting. See <u>Straw Is a Blanket for Plants</u> for a lesson. You can coordinate with other teachers to handle different tasks.

# Pumpkin Experience

Adapted "Save Your Seeds" from Kids Gardening activity (more at <u>KidsGardening.org</u>) and from "Pumpkin Exploration" from Growing Minds (more at <u>Growing-Minds.org</u>).

Cutting pumpkins and squash open is a sensory experience you don't want to skip, and the seeds are a huge part of that. But what do you do after the playing and squishing is done? Roasted seeds are tasty, but you can also save some to plant next year.

- Place in Schedule: science center (no active supervision/instruction required)
- Objectives: understand that plants make seeds to grow more plants like them; see one way that plants produce seeds; understand that plants make fruits to carry seeds
- GOLD Objectives: 7a uses fingers and hands, 20a counts

#### **Supplies**

- Fully ripe pumpkin (all referred to as pumpkin from here on)
  - One per 5 children if using a smaller variety, one per class for a huge variety
  - o Buy some with Kroger card if the garden didn't produce enough
- Table
- Newspaper
- Colander (see Food Experience bin)
- Large knife (see Food Experience bin)
- Plastic spoons (see Food Experience bin)
- Tray(s) for drying seeds (optional)

#### Preparation

- This lesson should be done when the pumpkin has matured to the point of having viable seeds,
   which will be in October or November in most cases
- They will be ready when they have turned hard enough that you can't pierce or dent them with your fingernail. The leaves and vines will likely be turning yellow and brown by this point.
- Pumpkins, summer squash (such as zucchini or crookneck), and winter squash (such as acorn or butternut) can all have their seeds saved this same way.
- Harvest (or purchase) the pumpkin ahead of time and cut it in half while children are not present for safety. There is a large knife in the Food Experience bin.
- Cover a table with newspaper and set the pumpkin halves together to look like a whole.

- 1. Ask the children if any of them know what the vegetable in front of them is.
  - a. Have they seen it growing outside? What part of the garden was it in?
  - b. Have they ever tasted it?
- 2. Ask what they think the inside might look like.
  - a. What color do you think it is?
  - b. Do you think there's anything inside?

- c. Why do you think that's what it's like?
- d. How do you think we can find out?
- 3. Separate the two halves to show what the inside looks like.
  - a. Was it similar or different than what you expected?
- 4. Invite the children to feel the different textures inside.
- 5. Pull out a few seeds. Ask if any of the children know what they are.
  - a. Explain that these are seeds. Seeds grow into more plants that look like the plant they came from.
- 6. Ask each child to take 10 seeds out of the squash. They can play and squish with the goop a bit, but keep things moving as needed to allow other children to take a turn.
- 7. The children should put seeds in the colander once they're separated from the goop.

#### Post-lesson Seed Saving (optional)

- Once you have all the seeds, rinse them thoroughly under the colander. The children should use their hands to help rinse off any remaining goop.
- Spread the seeds out on trays to let them dry. They should be in a single layer. Leave them to dry for at least a week until there is no moisture left on the surface of the seeds.
- After the seeds are dried, they can be put into a jar for the whole class or split into individual
  paper envelopes. If you're using envelopes, consider having the children decorate them before
  sealing the seeds inside.
- Store your seeds in a cool, dry place until it's time to plant or send them home.

- Food Experience: roast the seeds and bring them in as a snack. Present the seeds along with the Pumpkin Dessert Cups recipe if you want to show how the rind of a pumpkin is used.
- Manipulatives: mix together these seeds with seeds from a different harvest (or seed packages) and the children can use tweezers to sort them by different types. Be sure to use seed types that are easy to differentiate.
- Science Center: After drying your seeds, grow them inside in peat pots to plant out in the garden
  or to take home and plant. See the plant life science lessons for an indoors seed starting lesson.
  (Note: if you want to be able to plant outside and let the plants grow to maturity plant before
  you leave for the summer, but someone will need to care for the vines over the summer. This is
  a better plan if you will have many returning students the following year who would remember
  harvesting and planting the seeds).
- Science Center: After drying your seeds, do the <u>Compost in a Bag</u> activity (allow at least two months for compost to develop) and plant your bean or pea seeds in the compost you make.
- Theme Garden: If you're saving more than one type of seed, instead of keeping your seeds for
  different herbs separate and labeled, you can mix them together and plant a mystery garden.
   Squash and pumpkin seeds are especially good for this since they can cross-pollinate and
  produce interesting new varieties. Read *The Surprise Garden* by Zoe Hall for inspiration.

## Save Seeds: Beans and Peas

Adapted from Kids Gardening "Save Your Seeds" activity. More lessons and ideas at KidsGardening.org

Green bean and pea seeds are great candidates for saving to plant the next year. The seeds are large, the pods are easy to harvest, and splitting the pods requires little effort and makes very little mess. Harvesting your own seeds for planting helps show the full plant life cycle in real life.

- Place in Schedule: outside
- Objectives: understand that seeds come from plants; see one example of how a plant grows seeds; learn that seeds grow a plant that looks like the plant they came from
- GOLD Objectives: 7a uses fingers and hands, 8b follows directions

#### Supplies

- Tray or screen for drying (about the size of a sheet of printer paper should be big enough lids for plastic bins work well)
- Green bean or pea pods with ripe seeds (see Preparation section)
- Paper envelopes that seal (if you're planning to send seeds home or plant individually) or a glass
  jar with a tight lid

#### Preparation

- This lesson should be done when bean or pea pods are ready to be harvested. To do this, you will need to coordinate with the other teachers to leave at least some pods on the vines after the usual harvest time.
- Wait until pod and flower production is slowing down because letting pods mature enough to harvest seeds will signal to the plant to stop growing.
- Pods are ready when they are starting to dry out and turn brown. If you shake a pod, you'll hear the seeds rattling inside.
- For beans planted in late spring or peas planted in late summer, let pods dry out for harvest in late September or October. For early spring peas, let them start drying out in early May.
- To make it easier to find the pods you want to harvest (and mark them for other teachers not to harvest), tie bright yarn or string on the stem above the pods you want. You'll want to save at least one pod per child.
- If some pods are ready and others are not, wait for them all to be ready. It won't hurt to have the early ones stay on the vine while you wait.

- 8. Go outside to the garden and find your bean or pea trellises.
- 9. Children should look for bumpy, lumpy pods. (If you marked them with yarn, it should be easier to find them.) Shake them on the vine. If you can hear something rattling around inside, it's ready to be picked!
- 10. The children can gently pull on the pods or snap the ends to remove them from the rest of the plant. Try to be gentle and not pull too hard and hurt the plant.

- 11. Once a child has a pod, they can split it open with their fingers to get the seeds out. They should put the seeds on the tray or screen. The pods can go in a compost bin if you have one, or back on the ground in the garden area to break down there. (Or you can save them for <a href="Compost in a Bag">Compost in a Bag</a> if you will be doing that lesson)
- 12. While children are breaking open the pods, ask them what they think these seeds are for. What kind of plant will the seeds make? How do they know?

#### **Post-lesson Processing**

- Spread the seeds out on trays to let them dry. They should be in a single layer. Leave them to dry for at least a week until there is no moisture left on the surface of the seeds.
- After the seeds are dried, they can be put into a jar for the whole class or split into individual
  paper envelopes. If you're using envelopes, consider having the children decorate them before
  sealing the seeds inside.
- Store your seeds in a cool, dry place until it's time to plant or send them home.

- Manipulatives: mix together these seeds with seeds from a different harvest (or seed packages)
  and the children can use tweezers to sort them by different types. Be sure to use seed types that
  are easy to differentiate.
- Science Center: After drying your seeds, grow them inside in peat pots to plant out in the garden or to take home and plant. See <u>Planting Seeds Inside</u> for an indoors seed starting lesson. (Note: if you want to be able to plant outside and let the plants grow to maturity, plant in early April)
- Science Center: After drying your seeds, do the <u>Compost in a Bag</u> activity (allow at least two
  months for compost to develop) and plant your bean or pea seeds in the compost you make.
- Theme Garden: If you're saving more than one type of seed, instead of keeping your seeds for different herbs separate and labeled, you can mix them together and plant a mystery garden. Read *The Surprise Garden* by Zoe Hall for inspiration.

## Save Seeds: Herbs

Adapted from Kids Gardening "Save Your Seeds" activity. More lessons and ideas at KidsGardening.org

Herb seeds are smaller than many other garden seeds, but they show a different way to get seeds than what you see in beans or pumpkins where the seeds are inside the part we eat. This process works well with cilantro, basil, dill, chives, and oregano.

- Place in Schedule: outside
- Objectives: understand that seeds come from plants; see one example of how a plant grows seeds; learn that seeds grow a plant that looks like the plant they came from; differentiate different seed shapes
- GOLD Objectives: 7 demonstrates fine-motor strength and coordination, 9a uses an expanding expressive vocabulary, 11c - solves problems

#### Supplies

- Paper lunch bag(s) for collecting seeds one bag for each type of herb
- Safety scissors
- Tweezers
- Trays for each table for drying
- Herb flowers with ripe seeds (see Preparation section)
- Paper envelopes that seal (if you're planning to send seeds home or plant individually) or a glass
  jar with a tight lid for each type of herb

#### Preparation

- Usually we remove flowers on herbs if we're trying to keep them producing leaves, so you'll need to make sure other teachers and garden helpers leave some herb flowers for your class.
- Seeds are ready to harvest when the flower has faded and is drying out and turning brown. You can harvest just one herb's seeds, or multiple.
- Some flowers release their own seeds quickly, so be ready to harvest just before the seed capsules start opening.

- 13. Go outside to the garden and find the herbs you're growing for seeds.
- 14. Children should look for dried brown flowers.
- 15. Once they spot them, the adult can hold a bag under the flower. A child can use scissors to clip the stem so that the flowers fall into the bag.
- 16. Set trays on the ground and put a different type of flower on each tray. Ask the children if they know what seeds are. Do we know what they do? Can they spot the seeds in these flowers?
- 17. Ask for ideas about how to get the seeds out of the flowers. Let them try anything they come up with, but for many of the flowers just shaking the flowers or knocking them against the tray will shake the seeds loose. They can also try picking the seeds out by hand or with tweezers or rubbing them between their hands.

18. If you have different types of seeds from different herbs, ask the children to describe how the seeds are similar or different.

#### **Post-lesson Processing**

- Spread the seeds out on trays to let them dry. They should be in a single layer. Leave them to dry for at least a week until there is no moisture left on the surface of the seeds.
- After the seeds are dried, they can be put into a jar for the whole class or split into individual
  paper envelopes. If you're using envelopes, consider having the children decorate them before
  sealing the seeds inside.
- Store your seeds in a cool, dry place until it's time to plant or send them home.

- Manipulatives: mix together some different types of seeds (can also include seeds from other
  harvesting activities) and the children can use tweezers to sort them by different types. Be sure
  to use seed types that are easy to differentiate.
- Science Center: After drying your seeds, grow them inside in peat pots to plant out in the garden or to take home and plant. See <u>Planting Seeds Inside</u> for an indoors seed starting lesson.
- Science Center: After drying your seeds, do the <u>Compost in a Bag</u> activity (allow at least two
  months for compost to develop) and plant your bean or pea seeds in the compost you make.
- Garden: If you're saving more than one type of seed, instead of keeping your seeds for different herbs separate and labeled, you can mix them together and plant a mystery garden. Read *The Surprise Garden* by Zoe Hall for inspiration.

# Spiders Are Garden Helpers

Adapted from "Spider Web Wonders" from Growing Up WILD (more at fishwildlife.org/projectwild/growing-wild)

It is common for both adults and children to be afraid of spiders, but most of them are harmless to humans, and they provide natural pest control in the garden. With these lessons, children can learn more about spiders. Unlike most other lessons, this is split into multiple smaller activities. Start with Spider Introduction, and then do whichever of the Web Expansions you would like.

- Place in Schedule: science station (Web Lacing activity can be done with no active supervision/instruction)
- Objectives: understand that most spiders are not dangerous; learn what spiders do and how that helps us; learn about how webs work

## **Spider Introduction**

GOLD Objectives: 9a - uses an expanding expressive vocabulary, 24 - uses scientific inquiry skills

#### **Supplies**

- Realistic plastic spiders
- Magnifying glasses (in lesson bin)
- Spider reference book (in lesson bin)

- 1. Ask the children what they know about spiders.
  - a. If they do not know that spiders eat insects or make webs, add that to whatever else they know
- 2. Ask if they think it might be good for our plants if spiders eat insects. How do insects interact with plants?
  - a. Some insects eat plants. When the spiders eat those insects, it helps the plants.
  - b. Some insects help plants. When the spiders eat those, the plants lose a helper, but there are still lots of helpers left for the plants.
- 3. Ask the children how they feel about spiders.
  - a. We want to teach that most spiders do not want to hurt people. If we pay attention and look with our eyes but don't touch with our hands, we can watch what they do and not be afraid that they will hurt us.
- 4. Get out the plastic spider, magnifying glass, and books. Encourage the children to take some time looking closely at the spiders and seeing what they can discover.
  - a. How many legs do spiders have? How many eyes? How are their bodies shaped?
  - b. Encourage them to use words to describe what they're seeing.
  - c. If they have a question, look in the books to see if you can find the answer

# Web Expansion: Web Lacing Cards

GOLD Objectives: 7a - uses fingers and hands

#### **Supplies**

- 2 pieces of yarn, string, or ribbon cut into 2-3' lengths (in lesson bin)
- Spider web weaving cards (at end of lesson, some in lesson bin)

#### Activity

- 1. Remind the children of how we just talked about spider webs. Many kinds of spiders build webs out of sticky strings so they can catch bugs.
- 2. Different spiders make different kinds of webs, but they all make them by jumping and climbing around and trailing their string along behind them.
- 3. We can trace the webs the same way the spiders do with yarn and these weaving cards.

# Web Expansion: How Sticky Webs Work

GOLD Objectives: 7a - uses fingers and hands, 14a - thinks symbolically, 23 - demonstrates knowledge of patterns

#### **Supplies**

- Sheet of paper with spider web outline (at end of lesson, some copies in lesson bin)
- Clear tape (in lesson bin)
- Double-sided tape (in lesson bin)

#### Preparation

- Print out the spider web sheet
- Put strips of normal one-sided tape on the web lines that cross through the center
- Put strips of double-sided tape on the spiral lines of the web
- After a few rounds of children have don't the activity, the double-sided tape may need a new layer if the sticky-ness starts to wear off

- 1. Explain that spider webs need to be sticky to catch bugs. But if the webs are sticky, how do spiders move around? They have a few tricks.
- 2. One trick the spiders have is that some of their web strings are sticky, but some of them are not. Spiders know which ones aren't sticky, but other bugs don't.
- 3. Ask the children to touch the web printout in different spots. What do you notice? Help them figure out the pattern in sticky and non-sticky spots if they need help.
- 4. Ask the children to walk their fingers around the web like spider legs and stay on just the parts that aren't sticky. Was that hard to do or easy?

5. Now we're going to pretend that our hand is a fly that comes at the web and doesn't know it's there. Have the children slap their hand down on the web. Did they hit any sticky spots? Would it be hard for a fly to land in a non-sticky spot?

### Web Expansion: Special Spider Senses

GOLD Objectives: 7a - uses fingers and hands, 14a - thinks symbolically

#### Supplies

- Piece of yarn or string 3-4' long (in lesson bin)
- Two chairs or a table and a chair

#### Preparation

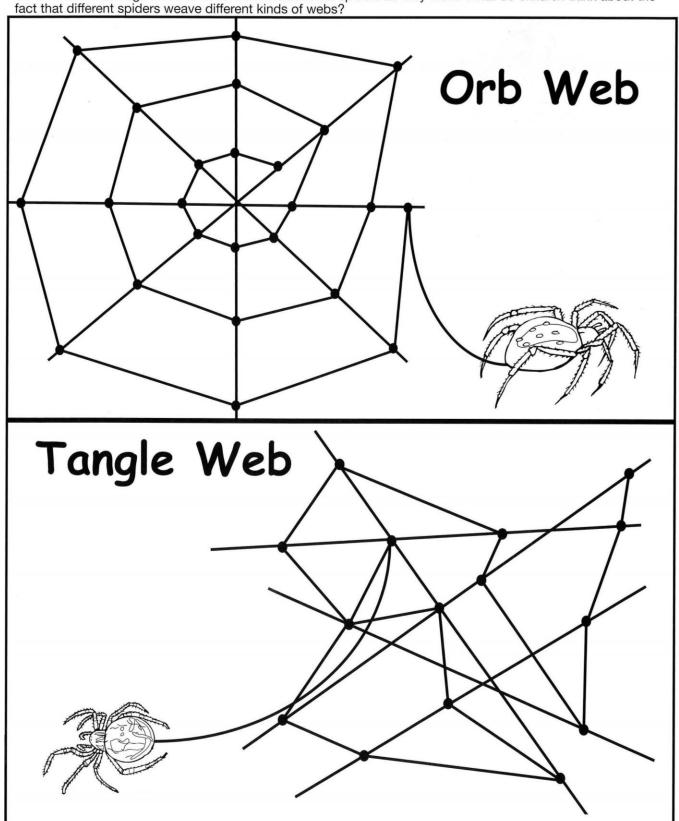
- This activity is for two children at a time.
- Tie the ends of the string or yarn to chair or table legs. Leave the string slack until you're ready for the activity to minimize risk of tripping

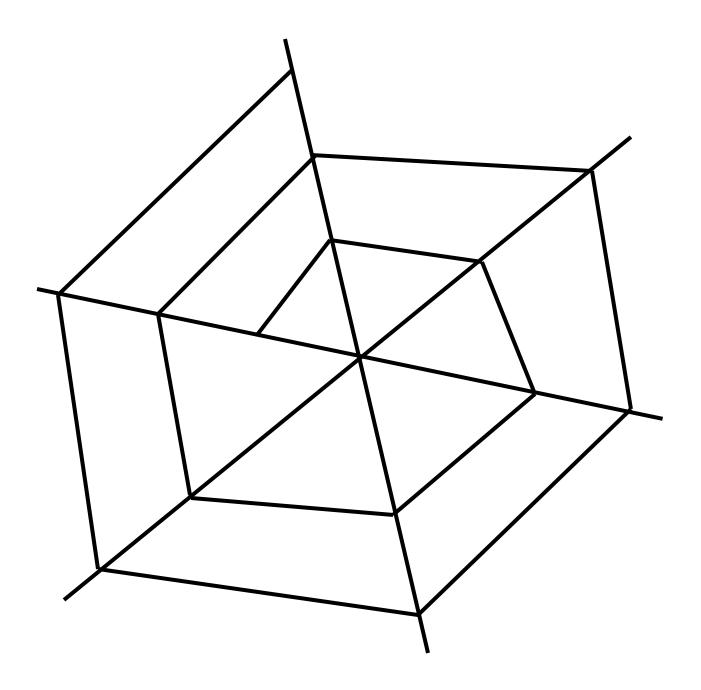
#### Activity

- 1. Ask what we noticed about spider eyes when we looked at the plastic spiders and books. If the children can't remember anything about spider eyes, look at the plastic spiders or books again to notice that spiders have many eyes.
- 2. Spider eyesight helps them find insects in their webs, but it is not their only sense. Spiders don't have ears to hear or a nose to smell like we do, but they are very good at feeling things through their webs.
- 3. Move the chair(s) apart to pull the string tight. If the chairs aren't heavy enough to keep the string tight, have the children sit on the chairs to keep them in place.
- 4. Ask one child to cover their eyes and hold onto the string. They will be the spider, and this string is like a string on a spider web. They will be waiting to see if they can tell without looking when a "bug" (another child) lands on their web.
- 5. Ask the second child to touch or pluck the string, and ask the first child to raise their other hand when they feel something touch the string.
- 6. Switch roles so both children can feel how the string lets you feel another person touching it.
- 7. Bring the example together to say that spiders can feel when something touches their web even when they can't see it.

## Web Lacing Cards

**Directions:** Copy one or more sets of **Spider Web Lacing Cards** onto card stock. Laminate, if desired. Use a hole punch to create holes at each dot on the lacing cards. Children may lace the cards with yarn, ribbon, or long shoe laces. Encourage children to tell stories about the spiders as they work. What do children think about the fact that different spiders weave different kinds of webs?





#### Straw Is a Blanket for Plants

Straw helps the garden by protecting it from drought, weeds, and disease. In early spring it also helps keep newly sprouted seedlings warm. Whenever seeds or plants are planted, a layer of straw should be put down as soon as possible. Involving children in putting down straw does slow down the process, but it's an interesting sensory experience and an opportunity to be active in caring for their garden.

- Place in Schedule: outside
- Objectives: understand that plants have needs; understand that people can help plants;
   understand that they can do things to take care of the garden
- GOLD Objectives: 3 participates cooperatively and constructively in group situations,
   6 demonstrates gross-motor manipulative skills, 7a uses fingers and hands, 8b follows directions, 9 uses language to express thoughts and needs

#### Supplies

- Straw
- Children's plastic rakes
- Optional: gloves
- Optional: wagon

#### Preparation

- Put the bale of straw as close as possible to the area where you will be spreading it to minimize
  mess.
- If you will be putting down straw in several spots that are spread out, put the bale of straw on a wagon so you can pull it around with you.

#### Activity

- 1. Ask the children if any of them have a favorite blanket. Ask how it makes them feel to have their blanket with them. Explain that plants also like blankets, but it's a different type of blanket. For plants, straw is a good blanket. Pull some straw off of the bale to show it to the children more closely.
- 2. Ask if they can think of any ways a blanket might help plants.
  - a. They may come up with keeping warm and feeling safe and many other creative ideas
  - b. Fill in any of the other benefits they might miss: keeping them from drying out, blocking weeds (plants that take food and water from the plants we want), keeping new plants warm, and keeping tiny bad guys called fungi from coming out of the soil and making the plants sick.
  - c. If any of the children express concern about the bad guys in the soil, assure them that the bad guys can't hurt them as long as they wash their hands after working outside and wash food before eating it.

- 3. Untie the bale of straw. Two or three children at a time can help you by pulling a chunk of straw off and spreading it over the seeds/around the plants. Gloves can help make a clear rule for who is and isn't helping with the straw at the moment.
- 4. Take turns until anyone who wants to put the straw down has helped at least once. If you do use gloves, encourage the children to feel the bale without gloves as well.
- 5. Our end goal is to have a straw layer about 2" thick over the planting area. Either work with your class to get it all done, coordinate with another class to finish it, or notify the garden manager if you won't be able to finish it so they can wrap it up and check that it is done correctly.

#### **Optional expansions**

• Science: Leave an area without straw to compare what happens. After several dry days feel the soil without straw and the soil under the straw. Do you notice any differences? How about in the seeds? Are there more seeds growing in the straw or fewer seeds or the same amount?

## Strawberry Pie Journey

Understanding where food comes from is an important life lesson for healthy eating. Strawberry pie is a good example for tracing on its food journey because it has relatively few ingredients, the strawberries are easily recognizable, and strawberries are popular with children.

- Place in Schedule: special activity
- Objectives: understand that many foods come from plants
- GOLD Standards: 9 uses language to express thoughts and needs, 11e shows flexibility and inventiveness in thinking, 13 - uses classification skills, 18a - interacts during reading experiences, book conversations, and text reflections

#### Supplies

- The Little Red Hen
- Images or toys of pie ingredients (milk, sugar, butter, strawberries; images at end of lesson and in lesson bag)
- Toys of other foods that are plants or come from plants
- Image of a strawberry pie (at end of lesson and in lesson bag)

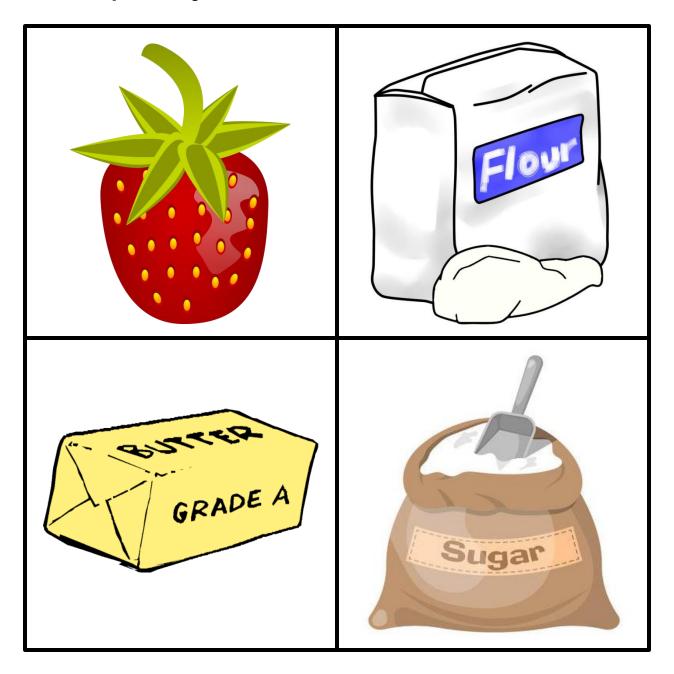
#### Activity

- 1. Read or skim *The Little Red Hen* to learn about where bread comes from.
  - a. Can you think of other foods that come from plants?
  - b. How can you tell if something comes from plants?
  - c. Show a food pyramid (or whatever we're using now). Meat and dairy come from animals. Almost everything else comes from plants somehow!
- 2. Go through some simple examples of plants in food.
  - a. Popcorn comes from special kinds of corn, just heat up the seeds.
  - b. Ketchup comes from tomatoes cooked a lot and mixed with other ingredients.
- 3. Hold up a picture of a strawberry pie. What ingredient in this strawberry pie comes from plants? We're going to talk about four main ingredients: flour, butter, sugar, and strawberries.
- 4. For each ingredient, hold up a plastic model and ask where they think it comes from.
  - a. For flour, remind them of the story you just read if they need some help.
  - b. If they get stuck on butter, tell them butter is made from milk. Where milk comes from?
  - c. For sugar, ask for their ideas first and encourage creative thinking. Explain that there is a plant called sugar cane, and it has a very sweet and sticky juice in its stems. That juice gets squeezed out and then cooked in a pot for a long time. When it dries out, it gets turned into sugar that is put in bags and sent to grocery stores.
  - d. Wrap up with strawberries. They will likely know that fruits come from plants.
- 5. Using plastic foods encourage them to make up their own recipe with different plant ingredients and serve them to each other.

#### **Optional Expansions**

• Food Experience: bring in a strawberry pie for them to sample (check for allergies first)

# Strawberry Pie Images





#### Sweet Potatoes in a Bucket

Bucket gardening lets you grow plants even with limited space or in the winter. Root crops are a fun pick since the bucket can be dumped out to hunt for veggies at the end. Sweet potatoes do require at least 6 hours of full sun a day, so you'll want a sunny south-facing window to grow them inside. Most varieties take three to three and a half months to mature, so plant early in the semester.

- Place in Schedule: Special Activity
- Objectives: learn that not all plants grow best from seeds; observe how some vegetables grow underground; track a plant's growth over time
- GOLD Objectives: 3 participates cooperatively and constructively in group situations, 7a uses fingers and hands, 8b follows directions

#### Supplies

- 1 new five gallon bucket with at least five holes 1/2" drilled in the bottom
- Circle coffee filters
- 14" plant saucer
- 2 sweet potato slips (not tubers) buy in a garden center or online, Vardaman or other bush variety is best
- ~16 quarts of potting mix (must be potting mix not potting soil, garden soil, orchid mix, etc.) should fill up to a few inches from the top of the bucket
- Hamilton County Soil and Water Conservation District has some supplies for this activity.
   Contact the education team for more information <u>education.hcswcd.org</u>

#### Preparation

- Drill holes in the bottom of your bucket for drainage
- If your sweet potato slips come with any directions about things to do before planting, follow those directions to prepare the slips
- Sweet potatoes take ~4 months to mature, so start the activity early enough to get a harvest

#### Activity

Phase 1: Planting – split tasks among the children so everyone can have a role

- 1. Place the bucket on top of the plant saucer in a sunny spot. The bucket can be outside in warm weather, but it must be brought inside any time night temperatures will be below 45° F.
- 2. Ask why they think we put holes in the bottom of the bucket. What is the dish for?
- 3. Put coffee filters in the bottom of the bucket to cover the drainage holes. You may only need one, or you may need a few depending on how far apart your holes are.
- 4. Fill the bucket up to about 3" from the top with potting mix.
- 5. Make two small holes in the potting mix about 6" apart big enough for the roots on the slips.
- 6. Put the slips into the holes, and push the potting mix up against the slips securely.
- 7. Water gently to soak the potting mix.
- 8. Check the package from the sweet potato slips and make a note of when they can be harvested.
- 9. Where on the plant do you think the sweet potatoes will grow? What makes you think that?

#### Phase 2: Growth

- 10. Ask what our sweet potato plants need to grow. How can you help?
- 11. Any time the top 2" of the potting mix dries out, add some more water, but not a lot. We want to be careful not to let the bottom of the bucket repeatedly get soaked and stay soaked, or the bottom potatoes will rot. If water builds up in the dish under the bucket, dump it out.
- 12. If old leaves start to turn yellow and drop off, you should add all-purpose liquid fertilizer according to the instructions on the fertilizer label.
- 13. Ask how many weeks they think it will take for the potatoes to be ready. Keep track of their predictions if you want to.

#### Phase 3: Harvest

- 14. Harvest time will depend on the day you planted and the variety you chose, but there's no harm to letting them go longer. If you harvest sooner, the potatoes will be smaller and there might be fewer, but the potatoes themselves will be fine to eat at any stage.
- 15. Before dumping the bucket, make guesses about how many sweet potatoes you'll find.
- 16. To harvest, spread a tarp or tablecloth on a table or the ground, and dump the bucket out on it.
- 17. Hunt through the potting mix to find your potatoes. Wash them and send them home with the children, make baked sweet potatoes in the microwave (see recipe), or take the sweet potatoes home to make a different recipe you might be interested in for the class.

#### **Optional Expansions**

- Math: measure how much the vines grow each week and make a graph.
- Literacy: in garden journals draw what you think is going on at different stages. Draw what you
  think the plant will look like once it starts sprouting. Imagine what the flowers will look like.
   Draw what the sweet potatoes might look inside the bucket before harvesting.
- Make checking for water and measuring the vines part of your weekly routine.

## Thanksgiving Veggies Exploration

For many families, Thanksgiving is a time when we eat a lot of food. Many traditional Thanksgiving foods revolve around the fall harvest, whether we're aware of it or not. Take time to learn about different families' Thanksgiving traditions, and connect dishes to the garden vegetables.

- Place in Schedule: special activity
- Objectives: understand that fruits and vegetables can be turned into many foods; understand that many common Thanksgiving foods have special connections to fall garden vegetables
- GOLD standards tie-ins: 7b uses writing and drawing tools, 9d tells about another time or place, 11e - shows flexibility and inventiveness in thinking

#### **Supplies**

- Plastic vegetables and fruits (especially crops currently growing in your garden)
- I Know an Old Lady Who Swallowed a Pie by Alison Jackson
- Paper
- Crayons

#### Activity

- Ask the kids what kinds of foods they love to eat at Thanksgiving. Mention some common things like mashed potatoes or pumpkin pie if they aren't coming up with any (or if they don't celebrate or remember Thanksgiving).
- 2. Help them figure out if there are fruits or vegetables in those foods. Are you growing any of those crops in your garden?
- 3. Read I Know an Old Lady Who Swallowed a Pie.
- 4. Ask the kids to draw/write recipes for foods they invent from the things in the garden right now.

#### **Optional Expansions**

 Dramatic Play: put food toys in dramatic play and encourage the children to cook and serve each other meals with vegetables.

## The Garden Is Sleeping

In the winter, it looks like nothing is happening outside, and it may be too cold for children to go outdoors. But while it's quiet outside, the garden is sleeping rather than dead. In this lesson we will look at how some plants, insects, and animals spend the winter.

- Place in Schedule: Special Activity
- Objectives: learn about the ways plants and animals survive the winter; practice using the computer to research information
- GOLD Objectives: 11a attends and engages, 17a uses and appreciates book, 28 uses tools and other technology to perform tasks

#### Supplies

- Wait, Rest, Pause: Dormancy in Nature by Marcie Flinchum Atkins (see resource room library)
- Computer
- Notebook or a few sheets of paper
- Marker

#### Preparation

- Take a look around your school to see if you can find any squirrel nests in the trees
- Familiarize yourself with which animals and plants are in the book

#### Activity

- 1. Look outside. Do things look different than they did at the beginning of the school year? What sorts of things can we notice?
  - a. Leaves are gone, grass is brown, and the garden is cleaned up.
  - b. Maybe they have noticed that there are fewer birds, squirrels, bugs.
- 2. What do you think happens to the plants and the creatures in the winter? Will they come back?
- 3. Let's make a list of animals and plants whose winter habits we want to learn about. Aim for about 5 things with a mix of things that covered in the book and things that aren't. Write it down in large letters in the notebook/paper.
- 4. Look through the book first to find as many of the things you're interested as you can. Read those pages, and discuss any questions or observations that come up naturally.
- 5. Ask if there are any things left on our list that we wanted to learn about. Are there any ways we can learn about things when books don't tell us? We can try looking on the computer.
- 6. Use the search engine on the computer to learn about the winter habits of the remaining creatures or plants on your list.

#### **Optional Expansions**

• Art Center: glue leaves and yarn to paper to make a cozy den for a squirrel or creature to sleep in all winter.

## Watering the Garden

Adapted from Growing Minds "Watering the Garden" lesson. More lessons and ideas at growing-minds.org

Watering the garden is an easy way for children to take ownership of the garden and contribute to nurturing and caring for it. Checking for soil moisture is an interesting sensory experience as well.

- Place in schedule: outdoor time
- Objectives: children will learn about the importance of water for plants; children will learn how to determine if gardens need to be watered by exploring dry and wet soil.
- GOLD Objectives: 6 demonstrates gross-motor manipulative skills, 7a uses fingers and hands, 28 uses tools and other technology to perform tasks

#### Supplies

- Two shallow dishes or containers
- Watering cans
- Larger bucket(s) of water

#### Preparation

- Do this lesson on a day when it hasn't rained recently.
- Find a place in the garden where the soil is dry.
- If you don't have an easily accessible water spigot in the playground area, fill extra buckets with water ahead of time to easily refill watering cans.
- Fill watering cans halfway to speed up all children having a turn

#### Activity

- 1. Ask: what things do you think our plants need to survive?
  - a. Goals: food, water, sun
  - b. Are some of them the same things you need to survive?
- 2. Ask: How do you think nature gives water to plants? Are there things you can do to help if it hasn't rained in a while?
- 3. Explain that today we're going to learn how to tell if plants need water, and then we will learn how to water them.
- 4. Explain that first we need to tell if the soil is dry or wet. Ask the children to help you dig some soil from the ground in a dry place and put it in the two shallow dishes.
- 5. Next, ask the children to help you put a little water from the hose in just one of the dishes and mix it up with the trowels.
- 6. Have the children take turns feeling and looking at the wet and dry soil.
  - a. Do the wet and dry soils look different? How?
  - b. How do they feel different?
- 7. Now look at the ground around your plants. Feel it with your fingers. Is it wet or dry?
  - a. If it's wet, the plants have enough water today. Check again in a few days.
  - b. If it's dry, it's time to water!

- 8. To water a plant, tip the watering can so that water starts to come out, and draw 10 circles around the plant with the water (for rows, go up and down the row 10 times). After all the plants have gotten water, go back through and repeat so the water can soak in all the way.
- 9. Have the children wash their hands when they go back inside.

#### **Optional Expansions**

- Math: on your classroom calendar, mark wet days and dry days for a month. How many times did the garden need water this month?
- Science: What do you think will happen if a plant doesn't have water? Bring a houseplant or other potted plant into the classroom and don't water it. What happens to the plant? How many days does it take?

## Weeding the Garden

Adapted from Growing Minds "Weeding the Garden" lesson. More lessons and ideas at growing-minds.org

Pulling weeds is one task children can participate in to help nurture the garden. They will also be able to practice fine motor skills and classification skills.

- Schedule slot: outdoor time
- Objectives: students will add to their understanding of what plants need to grow; students will use pictures (or sample plants) and follow instructions to identify weeds and pull them.
- GOLD Objectives: 7a uses fingers and hands, 8b follows directions, 9 uses language to
  express thoughts and needs, 13 uses classification skills

#### Supplies

- Child-sized trowels for digging weeds
- Bucket for collecting weeds
- Weeds in the garden

#### Preparation

• Identify which plants are weeds and which ones belong on your own so you can help prevent the children from pulling up good plants

#### Activity

- 1. Explain that in the garden, many different types of plants grow. People plant vegetables, herbs, and flowers in the garden, but lots of other plants grow that people don't plant. A weed is a plant that is growing where it isn't wanted.
- 2. Ask students to brainstorm why they think weeds might be bad for the garden. How do they think the seeds for the weeds got to the garden?
- 3. Show examples of some of the different kinds of weeds from the garden, including their roots. Explain that the weeds use their roots to take food and water from the soil that other plants need to survive. If they are left to grow, they can steal other plant's sunlight, growing tall and casting shade over small areas of the garden.
- 4. Explain that before we start weeding, we need to know how. Ask if anyone has a idea about how to weed.
- 5. Show the tools they will use to pull weed (their fingers and the trowels). Demonstrate how to pull weed and explain why it is important to remove the weeds' roots.
  - a. If students are using their hands to weed, they should pull weeds with their fingers as close to the soil as possible. We want to get as much of the roots as possible so the weed can't re-grow. If they are using a trowel, they can dig under the weeds.
  - b. No weed is too small! The smaller the weed, the easier it is to pull.
  - c. Tip: to mark which plants to weed, sprinkle a little baking flour onto the weeds. If you have recently planted seeds, it is wise to only have adults with garden experience pull weeds around them until the new plants get larger.

- 6. If you use straw as mulch in your garden, weeds that don't have seeds can be put on the ground to help stop more weeds from growing. Children should put weeds that do have seeds in a bucket, and adults can throw them away.
- 7. Make sure the children wash their hands when they go back inside.

#### **Optional Expansions**

- Math: Ask the students to count the number of weeds they collected.
- Cognitive: Ask students to sort their weeds into groups of small weeds and large weeds (or any other grouping that makes sense based on the weeds you have). How many small weeds do they have? How many large weeds do they have?
- Language: Ask the students to describe one of the weeds they pulled. Is it tall or short? Does the weed have flowers? Does it have long roots or short roots? How do they feel about pulling weeds in the garden?

## Wiggly Worms

Adapted from "Wiggling Worms" from Growing Up WILD (more at <u>fishwildlife.org/projectwild/growing-wild</u>) and "Wiggly Worms" from SEEDS (more at <u>scottsmiraclegro.com/responsibility/foundation/seeds/</u>)

Worms are always a hit with young children. They are interesting to touch, their squirming way of moving is fun to watch and feel, and they're fun to hunt for. This activity combines observation and movement to learn more about worms and how they help us.

- Place in Schedule: outdoor time or science center
- Objectives: observe how worms move; learn about where worms live and what they do
- GOLD Objectives: 9a uses an expansive and expressive vocabulary, 18 comprehends and responds to books and other texts, 22a - measures objects, 24 - uses scientific inquiry skills, 28 uses tools and other technology to perform tasks

#### **Supplies**

- Plastic bin or bucket (use lesson bin)
- Worms
- Damp soil
- Rulers (in lesson bin)
- Magnifying glasses (in lesson bin)
- Plastic hand rakes or small shovels (in outdoor activity bin)
- Tunneling Earthworms by Suzanne Paul Dell'oro (in lesson bin)

#### Preparation

- One good time to do this activity is in spring during your annual soil preparation. Worms are easier to find in well-watered soil or after a heavy rain.
- If you will be doing this activity in the science center, you'll need to find some worms ahead of time. Aim to find about 5-6.
- If you're doing this activity outside, after each group of children put the worms back in the same area so you know exactly where to have the next group of children look.

#### Activity

- 1. Ask if anyone has ever seen a worm. What was it like? Where did they see it? Explain that today we'll be exploring worms.
- 2. (skip if doing activity in science center) The first thing we need to do is find worms. Worms like cool, damp places in the ground. Can we find a spot like that?
- 3. Once we find a good spot, can use a shovel or rake to dig and look for worms. Put the worms and some damp soil in the bin.
- 4. The lid of the bin can be a good place to set the worms (and some soil) to examine them.
- 5. Look at the worms. What do you notice? Use the magnifying glasses for a closer look.
  - a. Are they all the same, or are they different?
  - b. Do they have any of the same parts you do?

- c. How do they move?
- d. Encourage the use of descriptive words for color, size, movement, etc.
- 6. If the children want to, they can hold the worms.
  - a. Picking them up or pulling them out of the soil can lead to dead worms, so ask the children to hold out an open hand and put a worm in their palm.
  - b. They can gently touch the worm with one finger at a time of their other hand.
  - c. Keep the child's hand over the bin or lid so that if they don't like it they can just drop the worm back in.
  - d. Ask them to describe how the worm feels.
- 7. Let's measure some worms. Ask a child to put a worm next to the ruler, and measure it as well as you can without hurting the worm. Is there another worm that looks like it's bigger or smaller? Let's measure another one and find out.
- 8. Let's look at the worm book and see what else we can learn about worms.
  - a. What do you think the worms are doing in the ground? Show the picture of the worm mouth in the book and talk about how worms eat dirt.
  - b. Why do you think the worms are trying to get away from us? Show the picture of the bird eating the worm and ask them to describe what is happening in the picture. Explain the worms are afraid of being eaten, so they want to hide.

#### **Optional Expansions**

- Special Program: Contact Hamilton County Soil & Water Conservation District to have a worm program done in your classroom <a href="https://www.hcswcd.org/">https://www.hcswcd.org/</a>
- Art: dip rubber worms in tempera paint and make worm trail paintings by asking the children to move the worms across the page the way worms move in the ground
- Music: Worms help plants by mixing up the soil and making holes for plant roots and by eating soil and dead plants to make more plant food from their poop. Let's sing a song about what worms to and try to dance like a worm!

Worm Song (to the tune of Mary Had a Little Lamb)

Worms are mixing up the soil
Up the soil, up the soil
Worms are mixing up the soil
So our plant roots can grow

Worms are eating up the soil
Up the soil, up the soil
Worms are eating up the soil
To make food for our plants



**Head Start Hamilton County** 

# Bloom to Grow Garden Guide

# Harvest and Sensory Guides

## Harvest and Sensory Guide - Acorn Squash

#### When to Harvest

- An acorn squash is mature when it's a dark, shiny green color and orange streaks are starting to come through. The skin should be hard enough that it's difficult to pierce with your fingernail.
- The yellow spot where the squash touches the ground will also turn orange when it's ripe.
- If you're not ready to harvest them yet when they first turn ripe, they can be left on the vine longer as long as you harvest them before a frost

#### How to Harvest

- Use pruners or scissors to cut the acorn squash off the vine, leaving a stem 2-4" long
- You can also try twisting the squash until the vine breaks, but that doesn't always work

#### Sensory Ideas

- Cut the squash in half (across the middle or from stem to point) and compare the feelings of the outside, the solid flesh, and the seedy pulp
- Use a squash cut in half as a stamp to paint with (if you cut it horizontally across the middle you'll get a flower shape)

Recipes (\*requires a microwave, blender or other appliance)

Roasted Acorn Squash\*

## Harvest and Sensory Guide - Beets

#### When to harvest

- Beets are generally at the best stage to harvest 8-10 weeks after planting, but check on the specific variety you're growing to be sure
- Beets can be harvested when the top of the root visible above the soil is anywhere from about 1" in diameter up to about 3" in diameter. Smaller beets are sweeter and more tender
- Late crops of beets are best to harvest just after the first hard frost because the cold temperatures cause the plant to move all the sugars into the root for a sweeter taste
- Beet greens are also edible see chard harvesting and sensory guide for instructions

#### How to harvest

- Loosen soil around the beet with a tool (a trowel, soil knife, or weed fork will work well)
- Grab a hold of the top of the root, not the green leaves
- Pull on the beet, wiggling it around or using the help of a tool as needed, until it comes free of the soil
- Cut the leaves off of the top of the beet, but do not cut into the root itself

#### Tasting and other sensory tips

- Beets have an interested shape and solidity and can stand up to rough handling. Consider letting some be used with the blocks for a day, although be aware that if the beet is damaged it could stain the blocks
- Cut beets in half, and their juice will act as an ink that you can stamp paper with. Once the juice dies, build off of the designs with crayon or another drawing or painting tool. (beet juice will stain, so smocks are a good idea)
- Slice the beet long-ways and in circular slices to look at the different patterns (use a very sharp knife, and cut away from the children beets can be hard to cut)
- Beets can be eaten raw, especially when harvested young and sliced thin, but use forks to avoid staining fingers

- Pickled Beets
- Beet Chips\*
- Roasted Beets\*
- Garden Salad

## Harvest and Sensory Guide - Carrots

#### When to Harvest

- Carrots are generally at the best stage to harvest 9-12 weeks after planting, but check on the specific variety you're growing to be sure
- Carrots can be harvested from about ½" in diameter up to about 1" in diameter. You can usually see the diameter at the surface of the soil, or dig in just a tiny bit around the top. When they're smaller they tend to be more bitter.
- Late crops of carrots are best to harvest just after the first hard frost because the cold temperatures cause the plant to move all the sugars into the root for a sweeter taste.

#### How to Harvest

- Loosen soil around the carrot with your fingers or a tool (may not be necessary if the ground is damp). A trowel, soil knife, or weed fork will work well.
- Grab the top of the carrot or at the base of the leaves and pull. You can pry some with a tool, but not right next to the carrot or you'll damage it.

#### Sensory Ideas

- Use the carrot itself as a paintbrush handle and paint with the green tops, or write/paint with the tip of the carrot
- Slice the carrot long-ways and in circular slices to look at the different patterns
- Compare the smell of the carrot tops and the carrot roots
- Feel the tops of the carrots

- Carrots and Dip (see Greek Dip or Ranch Dip for a classroom-made option)
- Ants on a Log
- Garden Salad
- Roasted Carrots\*
- Lettuce Faces

# Harvest and Sensory Guide - Chard

#### When to Harvest

- Chard can be harvested at any size. Younger leaves are more tender and require less preparation to eat. Older leaves are heartier and are typically cooked
- Harvest leaves before the blades get much longer than 8-10" or they will start to get tough
- Chard will grow all year long, but it is happier and tastes better when the weather is cooler.
- Harvest in the morning for the best taste.

#### How to Harvest

- Grasp a leaf stem at the base close to the ground or stem
- It's easiest to cut the thicker stems with scissors or pruners, but you can also pinch tightly and twist to snap the leaf stem
- Harvest from the lower, larger leaves if you want to let the inner leaves mature, or you can cut the whole bunch an inch or two above the ground and let it regrow
- Chard will start to wilt fairly quickly (especially younger leaves), so unless you are using it soon get it cleaned off and into a refrigerator

#### Sensory Ideas

- Slice a leaf across the vein to let the children look at how the veins look like straws
- This could be a good leaf to look at with the microscope
- There are many bumps and ridges to explore. Try tracing the veins with your fingers.
- The brightly colored veins and stems can inspire fun drawings

- Chard salad (can just be chard and any dressing of your choice, or you can add toppings and other veggies)
- Pickled Chard Stems
- Chard Smoothie\*

## Harvest and Sensory Guide - Cucumbers

#### When to Harvest

- Cucumbers can be harvested at virtually any point after the fruit begins forming. Smaller cucumbers are good for pickling, and medium to large cucumber are good for raw snacking.
- Larger cucumbers can start to lose flavor, so most varieties are the tastiest for raw snacking at about 6-8" long.

#### How to Harvest

- Look through the leaves to check everywhere for ripe cucumbers.
- Once you find one, pick up the cucumber and trace it back to the stem or vine.
- Break at the vine to detach from the vine, or use pruners.

#### Sensory Ideas

- Slice a cucumber open long-ways to look for seeds and compare inside color to outside color
- Feel the texture of the seeds and pull them out of the cucumber

- Sliced Cucumber with Dip (see <u>Greek Dip</u> or <u>Ranch Dip</u> for a classroom-made option)
- Garden Salad
- Ants on a Log
- Greek Chopped Salad
- Lettuce Faces

## Harvest and Sensory Guide - Green Beans

#### When to Harvest

- Green beans have a sweet spot in harvesting, and you want to hit your variety as close to that spot if you intend to eat them.
- For most beans, you want something about the diameter of a pencil before the beans are standing out through the pods, but look up your variety to be sure.

#### How to Harvest

- Hold the green bean at the very top by the plant stem and snap off the stem.
- Avoid breaking the bean itself if at all possible.
- The more often you harvest the beans, the longer they keep producing, and the better you do at harvesting them at their tastiest point. Harvesting every day or two is good.

#### Sensory Ideas

- Raw green beans are fairly sturdy and can take a lot of handling for activities like counting, measuring, and weighing.
- Split the beans apart to see and feel the inside and count the beans.
- Green beans are tough straight off of the plant, so they need at least some minimal prep before eating. For a hands-on, heat-free method check out the smashed green beans recipe.

- Smashed Green Beans
- Pickled Green Beans

## Harvest and Sensory Guide - Herbs

#### When to Harvest

- Herbs can be harvested pretty much any time since they are grown for their leaves
- Keep herbs from blooming to avoid bitter flavors. For some herbs (such as basil and cilantro), the plant dies after producing seeds. Pinch or cut off stems just below flower buds.
- Some herbs will die back in a light frost and need to be harvested earlier (basil, cilantro, dill)
- Other herbs are hardier, but should still be harvested before consistent freezing temperatures set it (mint, chives, oregano, rosemary, parsley, sage, lemon balm, thyme)

#### How to Harvest

- Pluck off leaves: any herb can be harvested by simply picking off a few leaves as needed. Pinch the leaf stem where it connects to the main stem, and it should come off easily.
- Cut off stems: cutting stems is a quicker way to harvest larger amounts, and it encourages growth and delays flowering. Cilantro stems are flavorful, but most other herbs are better separated from their stems. Cilantro, chives, and parsley can be cut back to 1" above the ground, and they will grow back. For other herbs, cut just above another branch or leaf.

#### Sensory Ideas

- Herbs can be eaten straight from the garden (after washing), but the flavor is often very intense and could be off-putting for younger tasters
- Encourage them to touch, rub, and smell each herb if they aren't ready to taste
- Herbs that are more friendly to immediate tasting: mint, lemon balm, cilantro, basil, parsley

#### Recipes (\*requires a hot plate/stove, oven, or other appliance)

- Fresh Herb Tea\* mint or lemon balm, could try rosemary, basil, or sage
- Ranch Dip (can dip other garden veggies in it) chives and parsley, optional oregano or dill
- Greek Dip (can dip other garden veggies in it) dill, oregano, mint, parsley
- Ice Cream basil, mint, or lemon balm
- Fresh Salsa cilantro, chives
- Caprese Salad Stacks basil
- Greek Chopped Salad dill, oregano

## Harvest and Sensory Guide - Kale

#### When to Harvest

- Kale is ready to harvest when the leaves are about the size of your hand
- Smaller leaves can be harvested for a more tender texture, but you always want to leave the smallest ones to keep growing
- Harvest leaves before they get much larger than 12" or they will start to get tough and bitter

#### How to Harvest

- Hold the stem of the leaf firmly between the main stem of the plant and the frilly part of the leaf
- Twist and bend the leaf stem quickly and it should break off fairly easily

#### Sensory Ideas

- Raw kale can be tough and unappetizing, but the smaller leaves are more tender
- Raw kale is better-suited to non-taste sensory explorations such as feeling the texture of the leaf and smelling the broken end
- Thick kale leaves hold up well to leaf rubbings or leaf stamping to get more hands-on with the texture of the leaves

- Kale Chips\*
- Kale Salad

## Harvest and Sensory Guide - Lettuce

#### When to Harvest

- Lettuce can be harvested early on as baby greens, as larger leaves once the head begins to form, or it can be allowed to form a lettuce head before harvesting
- If you harvest the small leaves, the lettuce will continue to produce new leaves
- When a mature head is harvested, the plant will not come back
- Most lettuce is not heat tolerant and will quickly bolt, which turns the leaves bitter. Check if your variety is heat tolerant. If not, it should be harvested before temperatures stay in the 80s.

#### How to Harvest

- For baby lettuce greens, once the leaves are about 4" long use scissors to cut them about an inch above the growing point (the place in the center where new leaves are emerging).
- Baby greens can also be pinched off one by one, it just takes longer.
- Once the lettuce head starts to form, larger leaves can be cut or pinched off from the outside for larger leaves that are still tender and tasty.
- If you want a full head of lettuce, wait until the head starts to get tight and filled out at the middle, but not yet totally solid. Cut the stem just below the head, or pull the whole plant out of the ground and take a look at the roots along with the rest of the plant.
- Lettuce will wilt quickly, so get it into a fridge quickly.

#### Sensory Ideas

- Lettuce leaves come in a wide diversity of appearances, so explore that by drawing or tracing around different types of leaves and feeling the different textures.
- Larger lettuce leaves can be painted or decorated with cut paper (or other garden veggies) to look like faces (see <u>Lettuce Faces</u> recipe).

#### Recipes

- Lettuce Faces
- Garden Salad

## Harvest and Sensory Guide - Peppers

#### When to Harvest

- Peppers are picked at different times for different flavors.
- A pepper can be picked at any stage, but the longer you leave it the more color and flavor it has. Even peppers we think of as green will turn another color if you leave them long enough.
- If you want to use the pepper the way the seed producer expects, look up the variety on the internet and wait for the color you see in most of the pictures.
- Peppers will sometimes develop streaks that look like scars. This does not affect the flavor or quality; they're essentially just stretch marks from quick growth during spells with a lot of water.

#### How to Harvest

• Twist the pepper and it will usually separate from the plant easily, even if it's not fully ripe.

#### Sensory Ideas

- Visually compare types of pepper, colors
- Feel the shape of the outside
- Slice open to feel and smell the inside (do not touch spicy peppers with bare skin! The juices will burn skin with a delayed reaction)
- Play with the seeds
- Slice peppers open at different angles to see how it looks different in different cross-sections
- Peppers can make good stamps for painting with if you slice them in half

- Peppers with Dip (see <u>Greek Dip</u> or <u>Ranch Dip</u> for a classroom-made option)
- Fresh Salsa
- Gazpacho\*
- Garden Salad
- Ants on a Log
- Lettuce Faces

## Harvest and Sensory Guide - Pumpkins

#### When to Harvest

- Pumpkins can be harvested at any point they look cool if your goal is aesthetics
- A pumpkin is mature when the skin is hard enough that it's difficult to pierce with your fingernail, and it sounds hollow when you knock on it

#### How to Harvest

- Use pruners to cut the pumpkin off the vine, leaving a stem 2-4" long
- Do not pick a pumpkin up by its stem. If the stem breaks off, the pumpkin will quickly start to rot

#### Sensory Ideas

- Drum on the pumpkin with different objects to hear different sounds
- Slice the pumpkin open for the children to enjoy the feeling of the pumpkin guts (or just cut around the stem if you want to be able to make a jack-o-lantern). Separate the seeds from the goop and wash them for roasting (see Pumpkin Experience lesson)

- Roasted Pumpkin Seeds\*
- Pumpkin Dessert Cups
- Roasted Pumpkin\*

## Harvest and Sensory Guide - Radishes

#### When to Harvest

- Radishes are ready to start harvesting about 4 weeks after planting seeds.
- The radish will be visible at the soil level. Once it's about 1" across, it's ready to come out. They can be left longer to get bigger, but they will also start to get tougher and much hotter.

#### How to Harvest

• Grab the radish at the top of the root or the bottom of the leaves and pull. If the soil is pretty dry, you may need a trowel or other tool to pop it out of the ground.

#### Sensory Ideas

- The tops have little hairs with an interesting prickly feel. Encourage the kids to contrast the feel of the leaves to the feel of the root
- The tops will wilt quickly, so you can keep one radish off to the side and make observations to see what the leaves do when they lose water (put it in a sunny window to speed it up)
- Radishes do not have a strong smell, so you can ask the kids to compare the smell to the taste
- Use the leaves as a brush to paint with
- Slice the radishes to make stamps to paint with

#### Recipes (\*requires at least some non-classroom prep)

- Radishes with butter and salt let the butter sit at room temperature to make it spreadable
- Radishes with Dip (see <u>Greek Dip</u> or <u>Ranch Dip</u> for a classroom-made option)
- Roasted Radishes\*
- Pickled Radishes
- Garden Salad
- Ants on a Log
- <u>Lettuce Faces</u>

## Harvest and Sensory Guide - Snap Peas

#### When to Harvest

- Snap peas are ready when the pod starts to fill out, but the peas inside aren't sticking out yet
- Leave them on longer to harvest seeds or to play with bigger peas and pods

#### How to Harvest

- Hold the green bean at the very top by the plant stem and pinch off the stem
- Avoid breaking the tip of the bean
- The more often you harvest the beans, the longer they keep producing, and the better you do at harvesting them at their tastiest point. Harvesting every day or two is good

#### Sensory Ideas

- Split the pods apart to see and feel the inside and count the peas
- Snap the pods in half for a nice pop feeling
- Trace the path of a vine up the trellis
- Snip off some leaves and vines to bring in and compare the textures to the pea pods

- Snap Peas with Dip (see <u>Greek Dip</u> or <u>Ranch Dip</u> for a classroom-made option)
- Garden Salad
- Lettuce Faces

## Harvest and Sensory Guide - Spinach

#### When to Harvest

- Spinach is ready to harvest when the leaves are about 2-3" long
- Harvest leaves before they get much longer than 5" or they will start to get tough
- Once a flower stem starts growing (taller stalk with leaves shaped like arrowheads), the leaves turn bitter. Let the flower stalk grow if you want to harvest and save seeds, or go ahead and pull it out to make room for another crop or to clean up for the winter

#### How to Harvest

- Pinch and twist the leaf stem, and it will break off fairly easily
- Spinach will wilt fairly quickly, so unless you are using it immediately get it cleaned off and into a refrigerator

#### Sensory Ideas

- Spinach leaves are thick and spongy and feel neat to manipulate with your fingers by squishing or ripping (sometimes you can even get layers of the leaf to separate if you rip just right)
- Slice a leaf across the vein to let the children look at how thick the leaf is and how the veins look
- This could be a good leaf to look at with the microscope
- Spinach leaves are very highly pigmented, so you can get a really good green color squishing/pounding them onto paper

- Spinach and Strawberry Salad (and other salad variations)
- Smoothies\*

## Harvest and Sensory Guide - Summer Squash

#### When to Harvest

- Summer squash are ready to harvest when they're about 6-8" long. The smaller they are, the more tender and flavorful they are
- The skin should be light yellow and easily pierced with a fingernail. Once it turns a darker yellow with harder skin it's still okay to eat, just less tasty and with more seeds.
- The more you harvest the more it grows, and the earlier you harvest the better it tastes, so keep harvesting and don't let them get large and tough

#### How to Harvest

- Look through the leaves to check everywhere for ripe squash
- Once you find one, gently pick up the squash and trace it back to the stem or vine
- Use scissors or pruners to cut the stem just above the top of the squash
- Do not try to break the squash off of the vine. You could damage the squash or the vine

#### Sensory Ideas

- Summer squash come in all kinds of shapes and textures, so consider bringing in different varieties to compare
- Slice a squash open long-ways to look for seeds and compare inside color to outside color
- Feel the texture of the seeds and pull them out of the squash

- Sliced Summer Squash with Dip (see Greek Dip or Ranch Dip for a classroom-made option)
- Garden Salad
- Ants on a Log
- Lettuce Faces

## Harvest and Sensory Guide - Sweet Corn

#### When to Harvest

- Sweet corn is ready to harvest when the silks coming out the top of the ear of corn have turned brown
- Start watching the silks about a week before expected maturity (look up your specific variety's
  expecting maturity time after planting) and check back every day or two to catch them when
  they're ready

#### How to Harvest

- Harvesting corn is something that will require adult help to reach the ears and break them off the stalk
- Grab the ear of corn around the middle and twist and pull down to break off of the stalk

#### Sensory Ideas

- Corn must be husked before it's ready to eat, which is an excellent sensory experience. Help children peel off the outer leaves and silks. Encourage them to peel off as many stringy silks as possible. This can be a somewhat sticky task, so they will need to wash their hands afterwards
- Put cobs in the sensory center to play with the feeling of the cobs, especially for irregular cobs that may not be great for eating.
- Keep some of the green husks and watch them dry out and turn brown. They can be painted or colored for fall decorations (see Corn Stalk Decorations activity).

- Corn on the Cob\*
- Fresh Salsa

# Harvest and Sensory Guide - Sweet Potatoes

#### When to Harvest

• Sweet potatoes can be harvested at any point after the tubers have started forming (typically about 3 months after planting), but they will continue growing until the ground gets cold. Harvest them before the first frost.

#### How to Harvest

- If you grow your sweet potatoes in a container, you can dump the container out and sift through the dirt for sweet potatoes
- If you are growing them in the ground, put a shovel in the ground a few feet out from where the vine emerges from the ground pry up with the shovel to loosen the soil and see if any sweet potatoes are near. Work around the plant and gradually get closer to make sure you get as many potatoes as possible without cutting them with the shovel
- Tubers can be cut away from the rest of the plant and put in a cool, dark place to store

#### Sensory Ideas

- Feel the soil and the roots and the vine during the harvest process (keep children's fingers away from where a shovel is being used)
- Cut sweet potatoes in half and cut shapes into them to use as stamps

- Sweet Potato Chips\*
- Microwaved Sweet Potatoes\*

# Harvest and Sensory Guide - Tomatoes

#### When to Harvest

- Tomatoes are ready to pick when they have reached their mature color (usually red, but check on what your variety is supposed to look like). Tomatoes can also be harvested a bit early and allowed to ripen the rest of the way in a sunny spot inside.
- Timing of harvest depends on the variety. Some early types are ready to harvest starting in June, while others aren't ready until late July. Check your variety to know what to expect, and if your school doesn't have summer activities make sure you pick a late-ripening variety.

#### How to Harvest

- Grab a ripe tomato and gently pull and detach it from the plant. Use two hands on larger tomatoes, especially for children
- If it resists breaking off, you can snap the stem just above the tomato. There should be a little knob visible that will probably snap.

#### Sensory Ideas

- Visually compare types of tomatoes, colors
- Feel around different nooks and crannies of larger tomatoes
- Slice open to feel and smell goopy insides and seeds (great use for split insect damaged tomatoes that can't be eaten)
- Slice tomatoes open at different angles to see how it looks different in different cross-sections

#### Recipes (\*requires a microwave, blender or other appliance)

- Raw Tomato eat cherry tomatoes with veggie dip and try large tomatoes in slices with a sprinkle of salt (see <u>Greek Dip</u> or <u>Ranch Dip</u> for a classroom-made option)
- Caprese Salad Stacks
- Fresh Salsa
- Gazpacho\*
- Garden Salad
- Greek Chopped Salad
- Ants on a Log
- Lettuce Faces

# Harvest and Sensory Guide – Zucchini

#### When to Harvest

- Zucchini are ready to harvest when they're about 6-8" long. The smaller they are, the more tender and flavorful they are. They're still good when they get larger though, they just start to get tough.
- The more you harvest the more it grows, and the earlier you harvest the better it tastes, so keep harvesting and don't let them get large and tough.

#### How to Harvest

- Look through the leaves to check everywhere for ripe zucchini.
- Once you find one, gently pick up the zucchini and trace it back to the stem or vine.
- Use scissors or pruners to cut the stem just above the top of the zucchini.
- Do not try to break the zucchini off of the vine. You could damage the zucchini or the vine.

#### Sensory Ideas

- Slice a zucchini open long-ways to look for seeds and compare inside color to outside color
- Feel the texture of the seeds and pull them out of the zucchini

#### Recipes (\*requires a microwave, blender, or other appliance)

- Sliced Zucchini with Dip (see <u>Greek Dip</u> or <u>Ranch Dip</u> for a classroom-made option)
- Garden Salad
- Ants on a Log
- Lettuce Faces



**Head Start Hamilton County** 

Bloom to Grow Garden Guide

# Classroom Recipes

# Ants on a Log

Traditional ants on a log with celery, peanut butter, and raisins are a fun and tasty treat, but there are dozens of ways to mix and match alternative ingredients to showcase garden veggies. Use one of the recommended combos, or come up with your own.

#### Logs

- Carrot
- Cucumber
- Summer squash
- Zucchini
- Celery (not likely to be from the garden)
- Bell pepper (more like canoes than logs)

#### Ants

- Raisins or other dried fruit
- Fresh berries
- Diced veggies (tomatoes, peppers, carrots, cucumbers, and radishes work well)
- Snap peas without shell

#### Combination ideas

- Carrot, hummus, and diced peppers
- Carrot, nut or seed butter, dried fruit
- Cucumber, cottage cheese, fresh berries
- Summer squash, veggie dip, snap peas without shell
- Zucchini, cream cheese, diced radishes or tomatoes
- Bell pepper wedge, veggie dip, mixed diced veggies (ants on a canoe instead of ants on a log)

#### Instructions

- 1. Children: wash the vegetables and your hands
- 2. Adult: cut\* log vegetables into 4" sections and cut in half long-ways (unless you're using celery)
- 3. Adult: if you're using diced vegetables as your ants, chop them up into small pieces
- 4. Children: if your log vegetables have seeds in the middle (such as cucumbers or zucchini), you can use a spoon to scoop them out or you can leave them in
- 5. Children: if you're using snap peas as your ants, use your fingers to snap and split the pods so you can pull the peas out
- 6. Children: spread your filling in the middle of the log
- 7. Children: put your ants on your logs and enjoy!

#### **Fillings**

- Nut or seed butters
- Cream cheese
- Veggie dips (consider making your own ranch or Greek dip from garden herbs)
- Cottage cheese
- Hummus

#### **Tools and Supplies**

- Sharp knife
- Cutting board
- Plastic knife or spoon to spread filling
- Plates for serving

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# Caprese Salad Stacks

A classic Italian appetizer and just about the simplest recipe you can make! It's pronounced cap-RAY-zay, if you want to feel official. There are options for dressing this dish up with a dressing or olive slice faces, but in its simplest form all you need is a tomato, some basil, mozzarella cheese, and a pinch of salt.

#### Ingredients (for 12-16 children)

- 3 medium or large tomatoes
- 1 bunch of basil leaves, want at least 1 leaf per child (larger leaves are better)
- ½ pound mozzarella cheese (fresh or shredded)
- Salt
- Optional olive face decoration: 1 small can sliced black olives
- Optional dressing: 3 tablespoons olive oil, 1 tablespoon balsamic vinegar, black pepper

#### **Tools and Supplies**

- Sharp knife and cutting board
- 1 tablespoon measuring spoon (if you're making the dressing)
- Small container with tight sealing lid (if you're making the dressing)
- Spoon (if you're making the dressing)
- Can opener (if you're decorating with olive faces)
- Plates to serve

- 1. Children: wash the tomatoes and basil
- 2. Children: pick the basil leaves off of the stems
- 3. Adult: slice the tomatoes\* horizontally into slices about 1/4-1/2" thick. Slice the mozzarella if you're using fresh mozzarella.
- 4. Children: place a tomato slice on your plate
- 5. Children: put at least one large basil leaf on your tomato, more than one if they're small leaves
- 6. Children: put mozzarella cheese on top of the basil
- 7. Children: get a big pinch of salt and sprinkle it around on top of your stack
- 8. (optional) Adult: open the can of olives, and cut some slices in half to make semicircles
- 9. (optional) Children: put two olive circles for eyes and one semicircle for a mouth on top of the cheese to make a face
- 10. (optional) Children: measure 3 tablespoons of olive oil, 1 tablespoon of balsamic vinegar, and some generous shakes of black pepper into the small container with a lid
- 11. (optional) Children: put the lid on the container and shake vigorously to mix
- 12. (optional) Adult: pour a little bit of the dressing on the salad stacks if the children want to try it

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

#### Chard Smoothie

Adapted from Growing Minds "Swiss Chard Smoothies" lesson. More lessons and ideas at growing-minds.org

Chard smoothies turn an unfamiliar vegetable into a healthy treat. This recipe is adaptable for many other greens, including spinach and kale, and the options for fruit combinations are practically endless.

#### Ingredients (for 12-16 children)

- 4 cups swiss chard (or other greens)
- 2 10-oz bags of frozen fruit, your choice (8 oz bags will work, you want at least 16 oz of fruit)
- 6 bananas
- 16 oz container of plain yogurt
- 2 cups of milk, nut milk, or apple juice
- Optional honey

#### **Tools and Supplies**

- Blender (may need extension cord)
- Wooden spoon
- 1 cup and ½ cup measuring scoops
- Paper plates
- 4 plastic knives
- Cups for serving

#### Instructions: for four children to make four servings

- 1. Adult: set up blender base away from where children are working, but put blender pitcher on work table. Wait to plug in blender.
- 2. Adult: peel bananas, and keep in separate container for now.
- 3. Children: wash hands and 1 cup of greens.
- 4. Children: divide greens between children and use plastic knives or hands to cut or tear the thick stem and veins away from the leaves and tear leaves into smaller pieces about 2" across (for spinach, don't remove stem/vein).
- 5. Children: put the torn greens in the blender pitcher.
- 6. Children: measure 1 cup of frozen fruit into the blender pitcher.
- 7. Adult: distribute 1.5 bananas between the children helping you.
- 8. Children: use plastic knives to cut bananas into small chunks. Dump into blender pitcher.
- 9. Children: measure half a cup of plain yogurt into the blender pitcher.
- 10. Adult: put pitcher blender into pitcher base.
- 11. Adult: measure half cup of milk, nut milk, or apple juice into blender pitcher. Add honey if you want to sweeten the smoothies.
- 12. Adult: invite children to watch while you use the blender to turn the mixture into smoothies.
- 13. Adult: pour smoothie into cups. Since children will be cooking in batches, and not every child will want to cook, put the smoothies in the fridge until snack or lunch time. Make an extra batch or divide the smoothie more to have enough servings for each child.

#### Fresh Herb Tea

This recipe works very well with mint or lemon balm, but basil, oregano, rosemary, or sage would make interesting teas, especially combined with mint or lemon balm. Dill, cilantro, chives, and parsley probably wouldn't taste great, but let the kids try it if they want. Brew up one herb at a time, or make custom mixes with classroom input.

#### Ingredients (for 12-16 children)

- ½ cup of fresh herbs
- 1 quart of water
- Optional: 2 tablespoons honey

#### Tools and supplies

- Colander
- Microwave-safe pitcher
- Clock or timer
- Slotted spoon
- Ice (optional)
- Cups (use Styrofoam cups if you want to drink it warm)

- 1. Children: wash the herbs in a colander
- 2. Adult: use a pitcher to microwave a quart water until almost boiling (option: use room temperature water and make sun tea instead see variation below)
- 3. Children: put herbs (and honey if you're using it) in the pitcher of hot water and stir a few times to mix the leaves in well.
- 4. Children and adult: Watch clock or timer and wait for tea to steep. Wait 5-7 minutes if you want to drink it warm or 10-12 minutes if you want to drink it cold.
- Children: set the cups out to be ready to fill with tea. Fill each cup with ice cubes if you will be drinking it cold.
- 6. Children: use a slotted spoon to fish out the leaves or position the slotted spoon over each cup to catch the leaves
- 7. Adult: Pour the tea.
- 8. Adult: if you're drinking it warm, make sure that the tea is cooled off to a safe temperature before drinking.

### Variation: Sun Tea

#### Ingredients

- ½ cup of fresh herbs
- 1 quart of water
- Optional: 2 tablespoons honey

#### Tools and supplies

- Colander
- Pitcher, jug, or jar with lid or cover (drink dispensers work great for this)
- Clock or timer
- Slotted spoon
- Fridge
- Cups

- 1. Children: wash the herbs in a colander
- 2. Adult: put a quart of water in a pitcher or jar (drink dispensers are great for this purpose)
- 3. Children: put herbs (and honey if you're using it) in the water and stir a few times to mix the leaves in well.
- 4. Adult: cover the pitcher or jar and put it in a sunny spot.
- 5. Children and adult: set a timer or watch the clock and wait 3-5 hours
- 6. Children: use a slotted spoon to scoop the leaves out
- 7. Adult: put the tea in the refrigerator for at least two hours and up to 24 hours
- 8. Children: set the cups out to be ready to fill with tea.
- 9. Adult: remove the tea from the fridge and pour into the cups

#### Fresh Salsa

Most children are already familiar with salsa, so making and trying their own fresh salsa will be more familiar than some of the other ways they can try the produce. This recipe is also highly adaptable to use up a lot of tomatoes and whatever else you might have around. For a heftier snack, add black beans.

#### Ingredients (for 12-16 children)

- 1 lb of tomatoes, or about 2 cups
  - o About 3 large tomatoes, 6 medium tomatoes, or 20-25 cherry tomatoes
- 1/4 cup of red or white onion (about half a white onion or a quarter of a red onion)
- 1/4 cup fresh cilantro
- 2 tablespoons white vinegar or lime juice
- 1-2 teaspoons salt (taste after 1 teaspoon and add more if desired)
- Corn or tortilla chips
- Optional additions
  - o 1 bell pepper
  - o 1/2 cup sweet corn
  - o 115-oz. can of black beans

#### **Tools and Supplies**

- Sharp knife
- Cutting board
- Mixing bowl
- Spoon for mixing
- 1/4 cup, 1 tablespoon, 1 teaspoon, and 1/2 teaspoon measuring scoops
- Can opener and colander (if adding black beans)
- Plates to serve

- 1. Children: wash the vegetables and herbs
- 2. Adult: cut\* the vegetables into small pieces (about ¼"). If using garlic, cut it about half that size.
- 3. Adult: chop the cilantro into small pieces by holding a bundle together and cutting down the length across the whole bundle at once. The stems are good to eat too.
- 4. Adult: if using black beans, open can and dump into a colander
- 5. Children: if using black beans, rinse them until all residue from the can is gone
- 6. Children: put chopped vegetables, cilantro, and beans (if using) in mixing bowl
- 7. Children: measure lime juice/vinegar, salt, and any other seasonings into the bowl
- 8. Children: mix everything together thoroughly
- 9. Adult: put chips and servings of salsa on plates
- 10. Children: use the chips to scoop up the salsa

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# Gazpacho

This cold soup is an excellent way to use all kinds of common garden produce. It's a quick and easy recipe that can be made entirely in the classroom with the help of a blender or food processor.

#### Ingredients (for 12-16 children)

- 2 pounds of tomatoes
  - About 4 cups chopped tomatoes, 12 medium tomatoes, or 30-40 cherry tomatoes
- 1 medium cucumber
- 1 red, orange, or yellow bell pepper
- 1/2 of a small yellow, white, or sweet onion
- 1 clove garlic (or 1/2 teaspoon garlic powder, but the fresh garlic makes a big difference)
- 1/3 cup fresh herbs (basil, cilantro, and parsley are great, oregano and chives are good too)
- 2 tablespoons vinegar (white vinegar, red wine vinegar, and balsamic vinegar all work)
- 1/2 cup olive oil
- 1 teaspoon salt
- Optional garnishes: tomato chunks, corn (cut off cob), cucumber, fresh herbs, avocado, croutons, black pepper, drizzled olive oil

#### **Tools and Supplies**

- Sharp knife and cutting board
- 1/3 cup and 1/2 cup measuring cups
- 1 teaspoon measuring spoon
- Blender or food processor (smoother in a blender, chunkier in a food processor)
- Bowls or cups and spoons to serve

- 1. Children: wash the vegetables and herbs
- 2. Adult: set up blender or food processor, but do not plug in
- 3. Adult: cut\* tomatoes, cucumber, pepper, and garlic into rough chunks of about 1". Remove the stem and seeds from the pepper, but the rest of the veggies all go in
- 4. Children: remove stems from herbs (parsley and cilantro can keep stems)
- 5. Children: put herbs chopped vegetables in blender or food processor
- 6. Children: measure olive oil, vinegar, and salt and put them in blender or food processor
- 7. Adult: put lid on blender or food processor, and plug in. Run until ingredients are completely blended and chopped. In the blender, the texture will eventually be like tomato soup. In a food processor you can get down to a saucy texture, but not totally smooth.
- 8. Adult: pour soup into cups or bowls
- 9. Children: top with the garnishes of your choice and enjoy

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# Greek Chopped Salad

This filling vegetarian salad comes together quickly with just a few ingredients. You can use a store-bought Greek dressing instead of the homemade dressing in this recipe.

#### Ingredients (for 12-16 children)

- 1 lb of tomatoes, or about 2 cups
  - o About 3 large tomatoes, 6 medium tomatoes, or 20-25 cherry tomatoes
- 1 medium sized cucumber
- 2 tablespoons of fresh oregano (or 2 teaspoons of dried oregano)
- 1 cup feta or mozzarella cheese
- 1 15-oz cans of garbanzo beans
- 1/4 cup red onion (about 1/8 of a large red onion)
- Optional dressing: 6 tbsp olive oil, 2 tbsp red wine vinegar, 1 tsp salt, 1/2 tsp black pepper
- 1/2 cup Greek salad dressing, if you don't want to make your own

#### **Tools and Supplies**

- Sharp knife
- Cutting board
- Mixing bowl
- Long-handled spoon
- Can opener
- Colander
- 1 tablespoon, 1 teaspoon, and 1/2 teaspoon measuring spoon
- Small container with tight sealing lid (if you're making the dressing)
- Plates and forks to serve

- 1. Children: wash the vegetables and herbs
- 2. Children: pick the oregano leaves off of the stems
- 3. Adult: open the cans of garbanzo beans
- 4. Children: dump the garbanzo beans into the colander and rinse until there are no more bubbles
- 5. Adult: slice\* the tomatoes and cucumber (and feta if you're using a block of it) into pieces similar in size to the garbanzo beans. Cut the red onion a little smaller
- 6. Children: put the vegetables, garbanzo beans, and cheese in the mixing bowl
- 7. Children: rip the oregano leaves into small pieces and put them in the mixing bowl
- 8. (optional dressing) Children: put the olive oil, red wine vinegar, salt, and pepper in the small container and shake until all mixed together
- 9. Children: pour dressing (homemade or bought) into mixing bowl and mix everything together
- 10. Adult: scoop servings of the salad onto plates for everyone to try

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# Greek Dip

This recipe is both a great way to use fresh herbs and a fun sauce to encourage children to try dipping less familiar vegetables in. If you don't have all the herbs growing fresh, use dried herbs. The most essential herb is dill. Use as many or as few of the other herbs as you like. If you only use dill, you'll definitely want to add the olive oil.

Ingredients (makes a little over 1.5 cups, enough for two snacking experiences for 12-16 children)

- 1½ cups **plain** Greek yogurt (about half of a larger yogurt container at the store or 3 of the single-serve cups)
  - Use non-Greek yogurt if you can't find Greek yogurt, but it must be plain/unsweetened
- 1 tablespoon fresh dill (or 1 tsp dried)
- 1 tablespoon fresh oregano, optional (or 1 tsp dried)
- 1 tablespoon fresh Italian parsley, optional (or 1 tsp dried)
- 1 tablespoon fresh mint, optional (or 1 tsp dried)
- 1/2 teaspoon garlic powder (or 1 clove finely chopped fresh garlic instead)
- 1/2 teaspoon salt
- 1 tablespoon olive oil (optional, but I think it adds a nice taste)

#### Tools and supplies

- Mixing bowl
- 1/2 cup measuring scoop
- 1 tablespoon, 1 teaspoon, and 1/2 teaspoon measuring spoons
- Sharp knife
- Cutting board
- Spoon long enough to stir the bowl without getting messy
- Smaller spoon for getting yogurt out of the measuring scoop

- 1. Children: wash the herbs
- 2. Children: measure the fresh herbs you're using by packing the leaves into the measuring spoon
- 3. Adult: use the knife\* and cutting board to finely chop the herbs. If you are using fresh garlic instead of garlic powder, finely chop the garlic now as well.
- 4. Children: measure 1½ cups Greek yogurt and use a spoon to scrape it out of the measuring cup and into the mixing bowl.
- 5. Adult: use the knife to scrape the herbs off of the cutting board and into the mixing bowl
- 6. Children: measure salt, garlic powder or fresh garlic, olive oil (optional), and any dried herbs you're using into the mixing bowl
- 7. Children: use the long spoon to stir the ingredients until they are thoroughly mixed together
- 8. Enjoy with vegetables from the garden as a tasty dip

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

#### Ice Cream

At the end of the school year, it can be a struggle to hold children's attention and keep the last days organized. Direct some youthful energy towards hand-churned ice cream with herbs fresh from the garden and other fresh fruit treats.

#### Ingredients (for 12-16 children)

- 2 cups heavy cream (keep cold until you're using it)
- 1 ¼ cups whole milk (keep cold until you're using it)
- ¾ cup white sugar
- 1 tablespoon vanilla
- 3 tablespoons fresh herbs
- ¼ cup fresh berries or other fruit (optional)
- ¼ teaspoon salt for flavoring
- ¼ cup coarse salt (such as rock salt) for freezing does not need to be food safe salt
- 4 cups of ice
- Ice cream toppings (optional)

#### **Tools and Supplies**

- Jar or other container with tight sealing lid (16 oz capacity or larger is best)
- Sharp knife and cutting board
- 1 cup and 1/4 cup measuring cups
- 1 tablespoon and 1/4 teaspoon measuring spoons
- Quart-sized sealable bag
- Gallon-sized sealable bag
- Towel to wrap around freezing bag
- Ice cream scoop
- Cups and spoons for serving

- 1. Children: wash the herbs and fruit
- 2. Children: pick the herb leaves off of the stems
- 3. Adult: stack up the herb leaves, roll them up, and slice down the roll to make thin ribbons
- 4. Adult: if using larger fruits like strawberries, cut them into smaller chunks about ½-¼"
- 5. Children: put the sugar in the container with a lid and add the milk
- 6. Children: shake the container until all the sugar is dissolved into the milk
- 7. Children: pour the sugar and milk mixture into the quart-sized bag and add the heavy cream, vanilla, salt, herbs, and fruit
- 8. Adult: seal the quart-sized bag tightly while getting as much air out as possible
- 9. Children: put the quart-sized bag full of ice cream mix inside the gallon-sized bag

- 10. Children: put ice and salt into the gallon-sized bag
- 11. Adult: seal the gallon-sized bag tightly while getting as much air out as possible
- 12. Children: wrap the towel around the bags and take turns shaking as hard as you can and squeezing the bag all over for 5-8 minutes
- 13. Adult: open the bags and check to see if ice cream is ready yet or if it needs more shaking. Once it's ready, use an ice cream scoop to dip the ice cream into cups or bowls for the class
- 14. Adult: help the children add ice cream toppings in reasonable amounts if you're using them

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# Kale Chips

Kale chips are a good way to introduce a leafy green in an unusual way. Most of the work for kale chips involves an oven or a knife, so this may be a recipe to make at home and bring in to class. This version of the recipe does still include child-friendly steps in case a class does want to make them at school. Fortunately, kale chips do not need to be kept cold or warm, so they're easy to transport and store.

#### Ingredients (for 12-16 children)

- 1 lb of kale
  - About 3 cups, tightly packed
  - If you're buying the kale, it typically comes in 1 lb bags or bundles already
- 3 tablespoons olive oil
- 1 teaspoon salt
- Add other seasonings if desired (examples: soy sauce and ginger, chili powder and lime juice, or Worcestershire sauce)

#### **Tools and Supplies**

- Sharp knife
- Cutting board
- Large baking sheet with rim
- Spatula
- Plates for serving

- 1. Adult: preheat oven to 350 degrees
- 2. Children: wash and dry the kale and your hands
- 3. Children: rip the leaves away from the thick center vein and tear into pieces about 2" across (if not making in the classroom adult can just use a knife\* for this step)
- 4. Children: put the kale pieces on the baking sheet in a single layer (you may not be able to fit all the kale in one batch)
- 5. Children: put the salt and olive oil on the kale and use the spatula or your hands to mix until the oil is evenly spread over the kale
- 6. Adult: put the baking sheet in the oven and set a timer for 12 minutes
- 7. Adult: after 12 minutes check on the kale chips. They should be very dark and starting to turn brown on the edges. If they are still bright green, your kale chips will be inedible. If they aren't ready after 12 minutes, keep cooking them
- 8. Adult: take the kale chips out of the oven and use the spatula to put them onto plates for immediate serving or onto cooling racks before storing. The chips will become cool enough to eat in a minute or so and cool enough to put in a storage container (loosely, not packed tight) in about 15 minutes.

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

#### Kale Salad

Usually kale is cooked before eating, but it can be tasty raw as well. This salad includes kid-friendly ingredients like apples to make children more likely to give the leafy green a chance.

#### Ingredients (for 12-16 children)

- 3 cups of kale
- 1/2 cup shredded cheddar cheese
- 1 large sweet apple (such as Fuji, Gala, or Honeycrisp)
- Optional: 1/4 cup chopped nuts such as almonds, walnuts, or pecans
- 2 tablespoons lemon juice
- 1/4 cup olive oil
- 1 tablespoon honey, maple syrup, or other liquid sweetener
- Salt and pepper

#### **Tools and Supplies**

- Sharp knife
- Cutting board
- Mixing bowl
- Spoon for mixing
- 1 cup, 1/4 cup, 1 tablespoon, and 1/2 teaspoon measuring scoops
- · Small container with tight lid
- Plates and forks to serve

- 1. Children: wash the kale and apple and your hands
- 2. Children: rip the kale leaves off of the thick stem and break into small pieces 1" or smaller. Put the pieces in the mixing bowl
- 3. Children: measure 1 teaspoon of salt into the bowl, and take turns using your hands to scrunch and squish the kale with the salt until it turns a darker green and gets more tender
- 4. Adult: core and cut\* the apple into small pieces 1/2" or smaller
- 5. Children: add apples and shredded cheddar cheese (and nuts, if you're using them) to bowl
- 6. Children: measure olive oil, lemon juice, honey or other sweetener, 1/2 teaspoon pepper, and 1/2 teaspoon of salt into the small container with a lid
- Children: put the lid on tightly (Adult should check that it's sealed) and shake until the dressing is well mixed together
- 8. Children: pour the dressing over the salad, and mix everything together thoroughly
- 9. Adult: let the salad sit in the fridge for at least 15 minutes to let the dressing start to soak into the kale and continue to soften it.
- 10. Adult: after the salad has had time to sit, serve it up on plates for the children

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

#### Lettuce Faces

Large lettuce leaves can be a fun canvas for imaginative eating. The possibilities are practically endless. For a little more durability, use "glue" to set the pieces in place, or just leave them loose. Usually we frown on "playing with your food", but experimenting with foods in ways other than eating can make reluctant eaters more likely to try. For a more extended lesson, refer to <u>Funny Nature Faces</u>.

#### Facial Features

- Eyes: cherry tomatoes, carrot slices, cucumber slices, summer squash slices, zucchini slices, radish slices
- Nose: cherry tomato, bell pepper slice, tomato wedge
- Ears: half of cucumber slice, half of carrot slice, half of radish slice, half of summer squash slice, half of zucchini slice
- Mouth: bell pepper slice, tomato wedge, snap pea, red onion slice

#### "Glue"

- Veggie dip (try making one with fresh garden herbs)
- Hummus
- Guacamole

#### Tools and supplies

- Sharp knife
- Cutting board
- Plastic knives or spoons to spread "glue"
- Plates
- Small dishes for face ingredients

#### Preparation

- Adult should wash and cut vegetables ahead of time
- Put bowls of different prepared vegetables out for easy reach
- Make your own example lettuce face

#### Activity

- 8. Children: wash hands or use hand sanitizer
- 9. Adult: set a plate with a piece of lettuce in front of each child. Show them your lettuce face and explain that they get to make their own with foods that we can grow out in our garden
- 10. Adult: put "glue" on the lettuce where the features will go
- 11. Children: pick which vegetables to use for different parts of the face. Be creative and add more parts if the face if you want to add more than what the teacher has!
- 12. Children: When you're all done, eat your creation! The lettuce can be rolled into a wrap and eaten that way, or the children can sample the pieces one by one.
- 13. Adult: taste the veggies on your lettuce face yourself if some children are reluctant to try.

#### Microwave Sweet Potatoes

Typically sweet potatoes are cooked in the oven like baked potatoes, but if you want to prepare them in the break room (or your classroom, if you have a class microwave) this shortcut will soften the sweet potatoes enough to enjoy.

#### Ingredients (for 12-16 children)

- 1 large sweet potato for every 4 children
- Salt
- Butter or margarine
- Brown sugar

#### **Tools and Supplies**

- Sharp knife and cutting board
- Glass or ceramic microwaveable dish with lid (or plastic wrap)
- Plates and plastic knives and forks to eat

- 1. Children: wash sweet potatoes and prick skin all over with forks.
- 2. Children: place potatoes in microwaveable dish and cover with lid or plastic wrap
- 3. Adult: put the dish in the microwave and run for 5 minutes for one sweet potato plus another 2 minutes per additional sweet potato (so for four potatoes, microwave for 11 minutes).
- 4. Adult: test sweet potatoes with a fork to see if they're done. If a fork doesn't easily stab into the sweet potato, microwave it for another minute. Repeat until the fork goes in easily.
- 5. Adult: set the dish in a safe place to cool to a safe temperature. Once the potatoes are cool enough to handle, cut\* them in half long-ways and short-ways to make four pieces out of each sweet potato.
- 6. Children: each child should use their fork and knife to get a piece out of the dish and put on their plate. Shake some salt onto your serving.
- 7. Adult: help children add an appropriate amount of butter and brown sugar to their sweet potatoes before eating.

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# Pickling Veggies

While some pickles take complicated canning setups and months of waiting, there are many vegetables that make tasty quick pickles. They can be made entirely in the classroom, and you get a significant taste transformation overnight. Try raw veggies with the pickles to see the differences in look and taste.

Pickling solution (per 16 oz. jar)

- 1/2 cup water
- 1/2 cup vinegar (white, apple cider, red wine, or rice vinegar – don't use balsamic)
- 1 ½ tablespoons salt
- 1 ½ tablespoons sugar

Vegetables (2 cups of veggies per jar; use all one thing or mix and match)

- Radishes
- Beets
- Chard stems
- Cucumbers
- Peppers (sweet or spicy)
- Carrots
- Green beans (blanch in boiling water before pickling to keep bright color)
- Summer squash
- Zucchini
- Cherry tomatoes

Tools and supplies

- Glass jar(s)
- Spoons for mixing
- Measuring cups and spoons
- Sharp knife
- Cutting board

Herbs and spices – optional (use up to 1 teaspoon dry seasonings or 1 tablespoon fresh seasonings per jar)

- Dill
- Oregano
- Rosemary
- Thyme
- Peppercorns
- Fresh ginger
- Fresh garlic (cut 1 clove into 3-4 pieces)
- Coarse mustard or mustard seeds
- Ground paprika

- 14. Children: wash the herbs and vegetables
- 15. Adult: cut\* vegetables into slices about ¼" or thinner (thinner pieces get more flavor and pickle quicker). Green beans and cherry tomatoes can be left whole, and chard stems can be left whole or cut into chunks 1-2" long
- 16. Children: measure 1/2 cup water, 1/2 cup vinegar, 1 ½ teaspoons salt, and 1 ½ teaspoons sugar into each jar, and add any herbs or spices you're using
- 17. Children: stir until all the salt and sugar are dissolved. (option: put the lids on the jars and shake them until the salt and sugar are dissolved)
- 18. Children: add the vegetables to the jar(s) and put the lids back on
- 19. Adult: put the jars in a refrigerator. For super thinly sliced pickles, you can eat them within an hour. For thicker pickles wait overnight. Eat within three days.

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# **Pumpkin Dessert Cups**

Desserts are the most common way to eat pumpkin for a lot of us, but it's not easy to make a pumpkin pie in the classroom. This quick and easy dessert requires no baking, and almost all steps can be completed by the children. This recipe is a good follow-up to the Pumpkin Exploration lesson so you can demonstrate how people eat pumpkins.

#### Ingredients (for 12-16 children)

- 1 box of instant sugar free vanilla pudding mix
- 2 cups of milk (or 1 cup almond milk)
- 1 15-oz can of pumpkin puree
- Cinnamon
- Nutmeg
- Salt
- 1 box of graham crackers
- 1 can of whipped cream (optional)

#### **Tools and Supplies**

- Mixing bowl
- Mixing spoon
- 3 metal spoons
- Glass pouring measuring cup
- Measuring cups
- Measuring spoons
- Plastic fork
- Can opener
- Plastic cups for serving
- Plastic spoons for serving

#### Instructions (makes 8 servings, tasks divide well among 3-4 children)

- 1. Children: wash hands or use hand sanitizer.
- 2. Adult: use can-opener to open pumpkin puree
- 3. Adult: remind children of pumpkin activity a few weeks ago. If you have roasted pumpkin seeds, taste these now to see how the seeds can be a snack. Show the children the can of pumpkin puree and explain that when you cook the orange part, it turns into this. Today we're going to use this to make a pumpkin snack we can eat at the end of the day.
- 4. Adult: write each child's name on a plastic cup. Break half a graham cracker into each cup.
- 5. Adult and Children: child can hold measuring scoop while adult pours milk into scoop. Measure 1 cup milk or ½ cup almond milk. Child dumps scoop into bowl.
- 6. Children: measure ¼ cup of pudding mix into bowl
- 7. Children: take turns using fork to stir pudding mix into milk.

- 8. Children: any time children are waiting for a turn to stir or measure, they can break up their graham crackers. Adult can give the child their cup and a metal spoon, and child can use the spoon to smash their graham crackers into smaller pieces.
- 9. Children: measure about 1 cup (half of can) of pumpkin puree into the bowl.
- 10. Children: add ½ teaspoon salt, ½ teaspoon nutmeg, and 1 teaspoon cinnamon to bowl
- 11. Children: take turns mixing all ingredients together with large wooden spoon.
- 12. Adult: help children scoop about ¼ cup of pumpkin mixture on top of graham crackers. Make additional cracker cups to use up the remaining mixture. Put all snacks in the fridge or on a counter until snack or lunch time.
- 13. Adult: add whipped cream to snack before eating if desired.

# Ranch Dip

This recipe is both a great way to use fresh herbs and a familiar sauce to encourage children to try dipping less familiar vegetables in. There are many options for which herbs to use, and don't be afraid to used dried herbs if there's a flavor you want that you didn't grow in the garden.

Ingredients (makes almost 2 cups, enough for two snacking experiences for 12-16 children)

- 1/2 cup sour cream
- 1/2 cup plain yogurt
  - Use Greek yogurt for a thicker dip
  - Use buttermilk to make a thinner dressing (to make your own buttermilk, add 1½ tsp vinegar or lemon juice to 1/2 cup milk before mixing it in with the other ingredients)
- 1/2 cup mayonnaise
- 1/3 cup fresh herbs
  - Chives or green onions are the most essential herb to get the familiar ranch flavor. Add
     1/2 tsp onion powder if you didn't grow fresh chives
  - Other herbs that work are dill, oregano, Italian parsley, basil
- 1/2 teaspoon garlic powder (optional: 1 clove fresh garlic instead)
- 1/4 teaspoon salt
- 1/4 teaspoon pepper

#### **Tools and Supplies**

- Mixing bowl that holds at least 1 quart
- 1/2 cup and 1/3 cup measuring scoops
- 1/2 teaspoon and 1/4 teaspoon measuring spoons
- Sharp knife
- Cutting board
- Spoon long enough to stir the bowl without getting messy
- Smaller spoon for getting sour cream etc. out of the measuring scoop

- 20. Children: wash the herbs and pack them into the 1/3 cup scoop until it is full
- 21. Adult: finely chop\* the herbs. If you are using fresh garlic, finely chop the garlic clove as well.
- 22. Children: measure 1/2 cup sour cream and use a spoon to scrape it out of the measuring cup and into the mixing bowl. Do the same for 1/2 cup plain yogurt and 1/4 cup mayonnaise.
- 23. Adult: use the knife to scrape the herbs off of the cutting board and into the mixing bowl
- 24. Children: measure salt, pepper, and garlic into the mixing bowl.
- 25. Children: use the spoon to stir all the ingredients until they are all thoroughly mixed together
- 26. Enjoy on a salad as a dressing or with cut vegetables as a dip.

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# Roasted Pumpkin Seeds

If you do the Pumpkin Experience lesson, you can save the seeds and roast them for your class to show one way that people can eat pumpkins. If you do want to save and cook the seeds, it is important to get the seeds in the fridge as quickly as possible, and rinse and roast them within a few days. This will need to be done at home rather than in the classroom.

Ingredients (makes more than enough for 12-16 children)

- Seeds from 1 medium pumpkin
- 1 tablespoon olive oil
- ½ teaspoon salt
- Optional: additional seasonings like cinnamon or pepper

#### **Tools and Supplies**

- Colander
- Towels or paper towels
- Mixing bowl
- Baking sheet
- Spatula or wooden spoon
- Oven
- Airtight storage container

- 1. Rinse the pumpkin seeds. You want to remove all guts and strings. You can recruit the children for this step in the classroom if you want.
- 2. Spread the seeds out on towels or paper towels to dry. Leave the seeds out overnight or use a hair dryer to speed up the process, but you want the seeds all the way dry before roasting.
- 3. Preheat the oven to 325 degrees.
- 4. Put pumpkin seeds in mixing bowl. Drizzle olive oil on seeds and stir to distribute. Add generous salt and other seasonings as desired.
- 5. Spread the seeds into a single layer on the baking sheet. If the seeds won't fit in one layer, take some off and cook in two batches.
- 6. Put the baking sheet in the oven and cook for 25 minutes or until seeds are turning a medium golden brown. Stir once halfway through cooking. Undercooked seeds will be chewy rather than crunchy. Test one to see if they are cooked all the way.
- 7. Put the baking sheet on the counter to let the seeds cool. Once they're cool enough to handle, store them in an airtight container until you're ready to taste them in class.

## Roasted Vegetables

Some vegetables are interesting and easy to grow, but require some cooking. This method will focus on harder vegetables like root crops and tougher squash. Pumpkins, acorn squash, butternut squash, beets, sweet potatoes, radishes, and carrots all work well. This is a recipe that would need to be done outside the classroom and brought in.

#### Ingredients (for 12-16 children)

- Your choice of root vegetable or winter squash (includes pumpkins, acorn squash, etc.) feel free to combine multiple. About 1.5 lbs of vegetables should make plenty enough for a class
- Olive oil
- Salt

#### **Tools and Supplies**

- Cutting board
- Sharp knife
- Baking sheet with edges or cake pan
- Spatula or wooden spoon
- Oven
- Airtight storage container

- 1. Preheat the oven to 400 degrees.
- 2. Wash and dry off the vegetables
- 3. Cut the vegetables into chunks about 1" square.
- 4. Put your vegetable chunks on the cake pan/cookie sheet. Drizzle olive oil on seeds and stir to distribute. Add generous salt and other seasonings as desired.
- 5. Spread the chunks into a single layer on the baking sheet with some room between. If they won't fit in one layer, take some off and cook in two batches or you'll end up with soggy cubes.
- 6. Put the baking sheet in the oven and cook for 25 minutes or until vegetables are soft enough to stick and knife or fork into them easily. They should be starting to turn brown. Stir once halfway through cooking.
- 7. Once the vegetables have cooled off, store them in a container in the refrigerator for 3-5 days before serving. Reheat in the microwave.

#### **Smashed Green Beans**

Green beans are fun to grow, but not fun to snack on totally raw. Cooking them outside of the classroom is an option, but you can also tenderize green beans for a tasty snack while also getting some pent-up energy out.

#### Ingredients (for 12-16 children)

- 1/2 lb fresh green beans
- 2 tablespoons olive oil
- 2 teaspoons lemon juice
- 1/2 teaspoon salt

#### **Tools and Supplies**

- Colander
- Cutting board and sharp knife (optional see step 2)
- Gallon zip-able bag
- Rolling pin or large wooden blocks
- Measuring spoons
- Plates and forks to serve

#### Instructions

- 1. Children: wash hands, and wash green beans in colander and dry off.
- 2. Children: snap stem ends off of green beans

OR

Adult: use knife\* to quickly slice stem ends off of green beans.

- 3. Children: put green beans into bag
- 4. Adult: squeeze most (not all) of the air out of the bag and zip it shut
- 5. Children: take turns using a block or rolling pin to hit the green beans (Adult: we're looking for the beans to get bruised and start splitting open, but not smashed to a mush)
- 6. Children: open bag back up and add in olive oil, lemon juice, and salt
- 7. Children: re-seal bag, and use your hands to squish the bag around to distribute the olive oil, lemon juice, and salt evenly
- 8. Adult: open the bag and distribute beans onto plates for children.

<sup>\*</sup>Keep your cutting board out of the reach of children while cutting. When not using the knife, keep a cover on it and keep it completely out of reach of children.

# **Sweet Potato Chips**

Sweet potato chips are a good way to introduce an unfamiliar vegetable in a familiar way. Sweet potato chips will look like potato chips, but with a different flavor. These would need to be made at home and brought in. For a classroom recipe with sweet potatoes, see microwave sweet potatoes. If you are growing beets, you can also make beet chips with the same recipe and 4 medium sized beets.

#### Ingredients (for 12-16 children)

- 2 medium sweet potatoes
- 1 tbsp olive oil
- 1 tsp salt

#### **Tools and Supplies**

- Sharp knife or mandoline slicer
- Cutting board
- Mixing bowl
- Oven
- 2 baking sheets
- Cooling rack
- Airtight container.

- 1. Preheat oven to 400° F
- 2. Scrub and dry sweet potatoes
- 3. Cut about an inch off of either end of the sweet potatoes, and slice the rest as thinly as possible using a sharp knife or mandoline slicer. The slices should be about 1/8" or thinner. Thicker slices will not get crispy.
- 4. Toss the potato slices, olive oil, and salt in a mixing bowl until potato slices are evenly coated in oil and salt
- 5. Spread the slices in a single layer on the baking sheets. Do not overlap.
- 6. Put the sheets in the oven for 25 minutes, flipping the chips over halfway through. The edges should be crispy and brown when they're done.
- 7. Turn the oven off, but leave the chips in the oven as the oven cools off. This will help them get crispier.
- 8. Put the chips on cooling racks to cool the rest of the way and dry crispy, and store in an airtight container until you're ready to eat them.



**Head Start Hamilton County** 

# Bloom to Grow Garden Guide

# **Lesson Lists**

# Lessons and Activities by Curriculum Unit

This list of curriculum units is based off of the 2018-2019 and 2019-2020 unit lists. Some topics may need to be added and adjusted as new units are brought in.

Theme	Activities and Topics
Back to School – Raffi	<ul> <li>In My Garden – What garden jobs does this song talk about? How can you help with those things? (see <u>Watering the Garden</u>, <u>Weeding the Garden</u>, and <u>Good Leaf Bad Leaf</u>)</li> <li>Garden Song (there are copies of this in book form in the resource room) – What are some things in this song that plants need to grow? Can you help them get any of these things? (see <u>Watering the Garden</u>)</li> </ul>
Mouse Paint	<ul> <li>Watch how colors change as veggies ripen (cherry tomatoes are good to watch because there are several colors close together)</li> <li>Use red, yellow, and blue paint to decorate rocks for the garden (see Pebble Garden Labels)</li> <li>Vegetables, fruits, and flowers come in a rainbow of colors. How many colors can you find in our garden? Do you know what colors mix to make those colors? (see Color Swatch Nature Hunt)</li> <li>Cut corn stalks down, let them dry out for a week, and then paint them (see Corn Stalk Decorations)</li> <li>Describe the shapes of the vegetables as best as you can</li> <li>Count vegetables</li> </ul>
In My Neighborhood	<ul> <li>While exploring the garden talk about how there are jobs taking care of plants (ex: gardeners take care of flowers, fruits, and vegetables; landscapers take care of grass and flowers; arborists take care of trees; farmers grow food to eat)</li> <li>What things from <i>Around the Neighborhood</i> can you find in the garden?</li> <li>Pretend to be chefs by making a snack from garden produce, or from the kinds of produce you can grow in the garden (see <u>Classroom Recipes</u>)</li> </ul>
Trees and Leaves	<ul> <li>Make leaf rubbings and prints/stamps (see <u>Leaf Art</u>)</li> <li>Make leaf stacks and take pictures (see <u>Leaf Art</u>)</li> <li>Explore many different kinds of leaves on different plants (see <u>Leaf Diversity Exploration</u>)</li> </ul>
Bears	<ul> <li>Bears aren't the only ones who sleep all winter. Learn about the strategies other animals and plants have for staying outside all winter (see <u>The Garden Is Sleeping</u>)</li> <li>Bulbs are planted in the ground when it gets cold, and they "sleep" underground all winter as well. Plant some, and watch to see when they come up in the spring (see <u>Planting Bulbs</u>)</li> </ul>
Food and Grocery Store	<ul> <li>Food journeys – trace how different foods come from plants (see Strawberry Pie Journey)</li> <li>Make snacks with veggies from the garden (see Classroom Recipes). Consider sending a few recipes home for parents.</li> <li>See if you can find any of the foods from your unit books in the garden</li> </ul>

Cookies and Bakery	<ul> <li>Food journeys – trace how different foods come from plants (see Strawberry Pie Journey)</li> </ul>
	<ul> <li>Go through the foods in your garden and think about whether they</li> </ul>
	would taste good in cookies. If you're not sure, taste it and see what
NAC at a c	you think!
Winter	Learn about the strategies other animals and plants have for staying
	outside all winter (see <u>The Garden Is Sleeping</u> )
	• Put out seeds for the birds like in the beginning of <i>Snowballs</i> (see <u>Feed</u>
	the Birds). Watch for them to get covered in snow like in the story.
Wheels and Vehicles	Bring a farm/landscaping truck and trailer to explore
	Wheelbarrows and wagons are tools with wheels for the garden. Bring
	some into the classroom to explore and see how they work.
Construction	Schedule earth work during this time if possible so the children can see
	the different kinds of equipment, especially if powered equipment will
	be used to start a new garden or till an existing garden
	If you won't need to do any building or earth work for your garden, find
	pictures or videos of machines that can be used in gardens
Spring and Flowers	Watch spring flowers emerging (see <u>Bulbs Are Waking Up</u> )
Spring and Howers	
	<ul> <li>Plant spring flowers in planter boxes or window boxes like in the book Flower Garden</li> </ul>
	• Use Zinnia's Flower Garden to introduce tasks we can do in the garden
	(see Weeding the Garden, Watering the Garden, and Planting Seeds
	Outside)
Insects and Spiders	Look at the insects outside in the garden. Are any of them similar to the
moods and optace	kinds of insects and spiders you learned about in the books? (see Insect
	Investigation)
	<ul> <li>Insects have different lives than people do. How are they the same and</li> </ul>
	different? (see Insect Life Cycles)
	The state of the s
	• Spiders can be very important in the garden to help eat bad bugs (see
	Spiders Are Garden Helpers)
	Worms live in our garden with insects and spiders (see <u>Wiggly Worms</u> )
Back to School with Pete	• Pete the Cat's shoes turn a lot of colors. How many colors can you find
the Cat	in the garden? (see <u>Color Swatch Nature Hunt</u> )
	How many buttons does Pete the Cat have? Can we find that many
	[leaves, tomatoes, flowers, etc.] out in the garden?
Emotions	• Encourage the use of emotions language to describe how you feel about
	things that happen outside. Maybe finding a beetle makes you feel
	excited (or scared), or tasting a new food makes you feel brave, or
	seeing a flower makes you feel happy.
Fire Safety	Water is good for putting out fires and for helping our garden (see
,	Watering the Garden)
Farm	Many farmers grow plants as well as raising animals, and some farmers
	only grow plants! Pretend to be farmers in the garden.
	<ul> <li>Radish seeds are cold-hardy and quick-growing, so consider starting</li> </ul>
	some at the beginning of this unit, and you may get a harvest in 3-4
	weeks (see Planting Seeds Outside)
	, <u> </u>

Chicka Chicka Boom Boom	<ul> <li>Use a tree or shrub outside to reenact the story in <i>Chicka Chicka Boom Boom</i> or <i>Chicka Chicka 123</i> (see <u>Chicka Chicka Boom Boom Tree</u>)</li> <li>You can grow real peas in the garden to line up with <i>L M N O Peas</i>. Sow the peas in the first week or two of school to have them ready to pick in October (see <u>Planting Seeds Outside</u>)</li> </ul>
Babies and Families	<ul> <li>Insect families have some things in common with people families, and some differences. (see <u>Insect Life Cycles</u>)</li> </ul>
Pets	<ul> <li>Sometimes people keep plants in their house instead of pets. You can grow a classroom plant if you want (see <u>Indoor Water Garden</u> or <u>Sweet</u> <u>Potatoes in a Bucket</u>)</li> </ul>
Night/Sleep	<ul> <li>What do you think plants do at night time? Do they sleep? Some plants sleep at night, and others make tasty food.</li> <li>What do you think the bugs do at night? Some go to sleep (butterflies and bees), and others wake up at night like owls (worms and moths)</li> </ul>
Birds	<ul> <li>Plants feed birds, and birds spread seeds to help new plants grow. They both help each other. Do you like to eat any seeds? Some seeds that people can eat are sunflower seeds, pumpkin seeds, and poppy seeds</li> <li>Sometimes it's hard for birds to find seeds in the winter. We can help by making bird feeders with flower seeds on them (see <u>Feed the Birds</u>)</li> <li>Birds eat bugs too. Do you think this helps plants? How?</li> </ul>
Wind/Weather	<ul> <li>Plants need water, and when they don't get it from the rain we can help (see Watering the Garden)</li> <li>Plants need sun to make their own food. How can we find a spot where plants will have a lot of sun?</li> <li>Some plants need the wind to make and spread seeds (read <i>The Tiny Seed</i> by Eric Carle)</li> </ul>
Zoo	<ul> <li>Gardens can be habitats for creatures. What creatures do you see living in the garden? What kinds of spaces make good living spots for different animals? Why? Take magnifying classes and specimen cases outside to see what kinds of creatures you can find.</li> <li>Plants are part of the ecosystem. What do plants do to help insects, birds, and other animals? What do they do to help plants? How can people help plants and use plants?</li> <li>Horticulture is using plants to make things look pretty or to grow food. Horticulture is an important part of our Cincinnati zoo, and it is good for the animals and the people.</li> </ul>
Ice Cream	<ul> <li>Make your own ice cream with herb and fruit ingredients from the garden or the grocery store (see <u>Ice Cream</u> recipe)</li> <li>What plants would taste good and bad in ice cream? How can you tell?</li> <li>Invent a new type of ice cream with plants from the garden</li> </ul>

# Lessons and Activities by Month

Month	Garden Work*	Topics/Activities
August	<ul> <li>Harvest summer crops (Harvest and Sensory Guides)</li> <li>Plant fall crops (Planting Calendar and Planting Seeds Outside)</li> <li>Put straw in newly planted areas (Straw Is a Blanket for Plants)</li> <li>Water garden (Watering the Garden)</li> <li>Pull weeds (Weeding the Garden)</li> <li>Check for garden problems (Good Leaf Bad Leaf)</li> </ul>	<ul> <li>Back to School – what happened in the garden over the summer? Look at pictures from the spring and compare to what it looks like now</li> <li>Start Sweet Potatoes in a Bucket activity for a November/December crop</li> <li>What insects and other creatures live in your garden? (Insect Investigation, Busy Buzzy Bees, Wiggly Worms, or Spiders Are Garden Helpers)</li> <li>Paint with veggies (Painting with Garden Scraps)</li> <li>If you are growing any climbing crops, decorate some trellises (Decorating Bamboo Stakes)</li> <li>Make snacks from the garden (Classroom Recipes)</li> <li>Explore nature in the playground (Nature Scavenger Hunt)</li> </ul>
September	<ul> <li>Plant fall crops (<u>Planting Calendar</u> and <u>Planting Seeds Outside</u>)</li> <li>Put straw in newly planted areas (<u>Straw Is a Blanket for Plants</u>)</li> <li>Harvest summer crops (<u>Harvest and Sensory Guides</u>)</li> <li>Water garden (<u>Watering the Garden</u>)</li> <li>Pull weeds (<u>Weeding the Garden</u>)</li> <li>Plant late season cover crop (<u>Planting Cover Crops</u>)</li> <li>Check for garden problems (<u>Good Leaf Bad Leaf</u>)</li> </ul>	<ul> <li>Edible garden faces (Funny Nature Faces)</li> <li>Start Sweet Potatoes in a Bucket activity early in the month for a November/December crop</li> <li>Identify colors in the garden (Nature Color Hunt)</li> <li>Save seeds for next year (Save Seeds - Beans and Peas or Save Seeds - Herbs)</li> <li>What insects and other creatures live in your garden? (Insect Investigation, Busy Buzzy Bees, Wiggly Worms, or Spiders Are Garden Helpers)</li> <li>Paint with veggies (Painting with Garden Scraps)</li> <li>Make snacks from the garden (Classroom Recipes)</li> <li>Explore nature in the playground (Nature Scavenger Hunt)</li> </ul>
October	<ul> <li>Harvest and clean up summer crops         (Harvest and Sensory Guides)</li> <li>Water garden (Watering the Garden)</li> <li>Pull weeds (Weeding the Garden)</li> </ul>	<ul> <li>Each class decides what to do with their class pumpkin (Pumpkin Experience)</li> <li>Take a look at all the different kinds of leaves you can find outside (Leaf Diversity Exploration)</li> <li>Leaf stacks, rubbings, and other art (Leaf Art)</li> <li>Save seeds for next year (Save Seeds - Beans and Peas or Save Seeds - Herbs)</li> <li>Decorate corn stalks to make fall decorations for the garden or classroom (Corn Stalk Decorations)</li> <li>What insects and other creatures live in your garden? (Insect Investigation, Busy Buzzy Bees, Wiggly Worms, or Spiders Are Garden Helpers)</li> <li>Make snacks from the garden (Classroom Recipes)</li> </ul>
November	Clean up garden – children can pull up old plants, rake up straw, etc.	<ul> <li>Leaf stacks, rubbings, and other art (<u>Leaf Art</u>)</li> <li>What vegetables are in Thanksgiving foods? (<u>Thanksgiving Veggies Exploration</u>)</li> </ul>

November (cont.)	Bag up leaves for compost if you have a compost pile	<ul> <li>Save seeds for next year (Save Seeds - Beans and Peas or Save Seeds - Herbs)</li> <li>Make fall decorations (Corn Stalk Decorations)</li> <li>Make a list and draw pictures of what you're thankful for in the garden this year</li> <li>Plant bulbs in the fall for an spring garden experience (Planting Bulbs)</li> <li>Composting recycles our trash into food for our plants (Compost in a Bag)</li> </ul>
December	Take a break from garden work	<ul> <li>Holiday smells from plants in the sensory station (spruce, cranberry, ginger, cinnamon, vanilla, mint), bring in objects when you can or oils or candles when you can't</li> <li>Birds need to eat all winter. Can we help? (Feed the Birds)</li> <li>The garden is cleaned up for the year, but what happened to the creatures and the plants? (The Garden Is Sleeping)</li> <li>Make thank you cards for people who helped with your school garden this year</li> </ul>
January	Pick plants for next season. Adults can do this, or class input can be involved (Choosing Plants for tips or Theme Garden lists for ideas)	<ul> <li>Grow plants from cuttings or tubers in water (Indoor Water Garden)</li> <li>Start Sweet Potatoes in a Bucket activity for an April/May crop</li> <li>Make bird feeders (Feed the Birds)</li> <li>The garden is cleaned up for the year, but what happened to the creatures and the plants? (The Garden Is Sleeping)</li> <li>Composting recycles our trash into food for our plants (Compost in a Bag)</li> </ul>
February	Make garden signs ( <u>Pebble Garden</u> <u>Labels</u> for one idea)	<ul> <li>Grow some seeds inside to prepare for outdoor seed germination (Planting Seeds Inside)</li> <li>Birds need to eat all winter. Can we help? (Feed the Birds)</li> <li>Start Sweet Potatoes in a Bucket activity for an April/May crop</li> <li>Composting recycles our trash into food for our plants (Compost in a Bag)</li> </ul>
March	<ul> <li>Plant early spring vegetables         (Planting Calendar and Planting Seeds Outside)</li> <li>Put straw in newly planted areas         (Straw Is a Blanket for Plants)</li> <li>Water garden (Watering the Garden)</li> <li>Pull weeds (Weeding the Garden)</li> <li>Make garden signs (Pebble Garden Labels for one idea)</li> </ul>	<ul> <li>Imagine what the garden will look like this year and draw pictures</li> <li>Grow some seeds inside to prepare for outdoor seed germination (<u>Planting Seeds Inside</u>)</li> <li>Count how many days it takes different seeds to germinate and make a graph</li> <li>If you planted bulbs in the fall, they will start coming up in March most likely (<u>Bulbs Are Waking Up</u>)</li> </ul>

April	<ul> <li>Plant later spring vegetables (see Planting Calendar and Planting Seeds Outside)</li> <li>Put straw in newly planted areas (Straw Is a Blanket for Plants)</li> <li>Harvest early spring vegetables (Harvest and Sensory Guides)</li> <li>Water garden (Watering the Garden)</li> <li>Pull weeds (Weeding the Garden)</li> <li>Check for garden problems (Good Leaf Bad Leaf)</li> <li>Plant early season cover crop (Planting Cover Crops)</li> </ul>	<ul> <li>Smelling and tasting herbs (Herb Harvest and Sensory Guide)</li> <li>Count how many days it takes different seeds to germinate and make a graph</li> <li>Go outside and look for signs of spring coming back. Write/draw them in a garden journal</li> <li>What insects and other creatures live in your garden? (Insect Investigation, Busy Buzzy Bees, Wiggly Worms, or Spiders Are Garden Helpers)</li> <li>If you are growing any climbing crops, decorate some trellises (Decorating Bamboo Stakes)</li> <li>Labelling your garden can help connect the plant to the crop it will produce as well as reinforcing letter recognition (Pebble Garden Labels)</li> <li>Paint with veggies (Painting with Garden Scraps)</li> <li>Make snacks from the garden (Classroom Recipes)</li> <li>Explore nature in the playground (Nature Scavenger Hunt)</li> </ul>
May	<ul> <li>Harvest spring vegetables (<u>Harvest and Sensory Guides</u>)</li> <li>Plant summer vegetables (<u>Planting Calendar</u> and <u>Planting Seeds Outside</u>)</li> <li>Put straw in newly planted areas (<u>Straw Is a Blanket for Plants</u>)</li> <li>Water garden (<u>Watering the Garden</u>)</li> <li>Pull weeds (<u>Weeding the Garden</u>)</li> <li>Check for garden problems (<u>Good Leaf Bad Leaf</u>)</li> </ul>	<ul> <li>Count how many days it takes different seeds to germinate and make a graph</li> <li>Track where the ingredients in a strawberry pie come from (Strawberry Pie Food Journey)</li> <li>Compare seeds we planted to the plants we see now in a garden journal</li> <li>What insects and other creatures live in your garden? (Insect Investigation, Busy Buzzy Bees, Wiggly Worms, or Spiders Are Garden Helpers)</li> <li>Paint with veggies (Painting with Garden Scraps)</li> <li>Make snacks from the garden (Classroom Recipes)</li> <li>Explore nature in the playground (Nature Scavenger Hunt)</li> </ul>
Any Time	<ul> <li>outside. Set up a regular time for clear</li> <li>Look for and examine bugs, leaves, wo</li> <li>Draw/write about what you see in the</li> <li>Document garden changes over time (</li> <li>Sensory experiences with garden prod</li> </ul>	assroom) to collect interesting things the children find ing the collection to make room for new finds arms, etc., with or without specimen cases garden in garden journals size of pumpkins, color of cherry tomatoes, etc.) ucts (see Harvest and Sensory Guides) m to incorporate into other lessons, activities, or

<sup>\*</sup>The Garden Work tasks are things that *someone* needs to be doing that children are capable of helping with (see <u>Garden Task Calendar</u> for a full list of tasks). If the classes are not working on it, the garden team needs to coordinate people to take care of these tasks.

# **Connecting Garden Themes to Centers**

Incorporating the garden into the life of your school doesn't need to come just in the form of gardenoriented lessons. There are plenty of strategies that can be employed in choice time and casually during outdoor time if children are exploring the garden.

#### Math

- Count, measure, or weigh/balance produce
- Use different vegetables to explore spatial relationships
- Compare sizes of different produce or heights of different plants
- Identify shapes in leaves or vegetables
- Make a recipe to practice measuring

#### Science

- Use magnifying glasses to get a closer look at something
- If you see a new plant growing, make a guess about how tall it will get
- Cut open vegetables, seed pods, etc. to see what's inside. Make predictions about what you'll see when you open them up.

#### Literacy

- Make letter signs for each crop to practice letter shape and sound recognition
- Write or draw what you saw outside with chalk on the ground or in a garden journal
- Use reference books with photos to identify parts of plants and types of plants

#### Language

- Use as many words as you can to describe a leaf, tomato, pepper, etc.
- Describe something that happened in the garden on a previous day
- Talk back and forth to make a story about a bug or bugs you see

#### Fine Motor

- Pick small vegetables
- Use small tools to dig
- Pull weeds
- Plant seeds, especially larger seeds (such as beans or squash) one at a time (can be <u>indoor</u> or <u>outdoor</u> activity)
- Use tweezers to sort smaller vegetables or larger seeds

#### **Gross Motor**

- Move like different bugs such as grasshoppers, worms, and butterflies
- Use rake to move straw or leaves around
- Use watering can to water plants

# Lesson Alignment with GOLD Objectives

Objective	3	4	9	7а	3 d7	q8	6 6	9a 9d	11a	a 11b	) 11c	11e	13	14a	16a	17a	18 1	18c 1	19 20a	Ja 22	23	24	28	33
Bulbs Are Waking Up																					×			
Busy Buzzy Bees		×																				×		
Chicka Chicka Boom Boom Tree															×			×						
Classroom Recipes	×			×		×														×				
Compost in a Bag				×		×	^	×					×				×							
Corn Stalk Decorations	×				×		×																	
Decorating Bamboo Stakes					×		×																	
Feed the Birds				×		×																		
Funny Nature Faces												×		×										
Garden Journals					×													-	×					
Good Leaf Bad Leaf																				×		×		
Indoor Water Garden																				×		×		
Insect Investigation							×	×					×				×					×	×	
Insect Life Cycles								×													×			
Leaf Art					×																			×
Leaf Diversity Exploration					$\dashv$		^	×									$\dashv$		×	×		×	×	
Nature Color Hunt						×							×											
Nature Scavenger Hunt				$\exists$	$\dashv$	×		$\dashv$	×	×							$\dashv$							
Painting with Garden Scraps				×																				×
Pebble Garden Labels				$\dashv$	×		$\dashv$	$\dashv$		$\dashv$					$\dashv$		$\dashv$		$\dashv$	$\dashv$				
Planting Bulbs				×		×																		
Planting Cover Crops	×			×	$\dashv$	×	×	$\dashv$									$\dashv$					×	×	
Planting Seeds Inside				×		×																×		
Planting Seeds Outside				×	$\dashv$	×	$\dashv$	$\dashv$		$\dashv$							$\dashv$		$\dashv$	×	$\dashv$	$\dashv$	×	
Pumpkin Experience				×															×	u u				
Save Seeds: Beans & Peas		$\neg$	$\neg$	×	$\dashv$	×	$\dashv$	$\dashv$	_	$\dashv$	$\perp$	$\Box$		7	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	$\dashv$	4	_		
Save Seeds: Herbs				×			^	×			×													
Spiders Are Garden Helpers				×	$\dashv$		^	×		$\dashv$	_			×	$\dashv$		$\dashv$		$\dashv$	$\dashv$	×	×		
Straw Is a Blanket for Plants	×		×	×		×	×																	
Strawberry Pie Journey							×	-		-		×	×		$\exists$		×							
Sweet Potatoes in a Bucket	×			×		×																		
Thanksgiving Veggies				$\dashv$	×		$\dashv$	×	_	$\dashv$	_	×			$\dashv$	×	$\dashv$		$\dashv$	$\dashv$	_			
The Garden Is Sleeping									×							×							×	
Watering the Garden			×	×	$\dashv$		$\dashv$	$\dashv$	4	$\dashv$	$\downarrow$				$\dashv$		$\dashv$	+	$\dashv$	$\dashv$	$\dashv$	4	×	
Weeding the Garden				×		×	×						×											
Wiggly Worms					$\dashv$	$\dashv$		×	$\dashv$	_						$\dashv$	×	$\dashv$	$\dashv$	×	_	×	×	



**Head Start Hamilton County** 

Bloom to Grow Garden Guide

# Part 2:

# Garden Planning and Maintenance

# **Building Your Garden Team**

The most important factor in the success of your school garden is building a garden team. A core team of 2-4 people can handle planning and setting a direction for your garden from year to year, and it simplifies the garden administration process. There is room for support from larger groups of teachers, parents, and others when it comes to planting and maintenance, but this core team will be the key to a functional garden program.

Finding a team and helpers is a challenge for any school garden, but Head Start programs face more obstacles than others. Schools with older children can teach the students to do most of the work, including planning. Schools that retain students for several years also keep parents for several years, which can be a source of volunteer labor. Relying on parents as a source of volunteer work is further complicated by the fact that Head Start works with families who are more likely to move frequently and less likely to have free time during convenient hours. At many schools one or two teachers take on responsibility for gardens, and mobility and turnover in Head Start systems can make this more difficult.

This doesn't mean that building a team is impossible. It just means that you may need to be more creative and intentional about building a team that can survive the dynamic environment of your programs. Setting up a structure for your team rather than relying on specific people handling everything every year is likely the best approach. Based on the interest and support of people beyond the core team, your garden may look different from year to year.

### Possible ways to set up your team:

- Decide how many people you want on your team, and change the way the team works each year depending on who volunteers to be in it
- Recruit by role in garden (ex: overall planning, volunteer coordination, materials and tools sourcing, curriculum oversight)
- Recruit by role in Head Start (ex: building and grounds, nutrition, classroom, supervisor, parent)

### Possible sources of volunteers:

- Teachers and staff
- Parents
- Community members (especially if your program is located in a church or community center)
- Garden clubs and Master Gardeners

Despite your best efforts, it's possible that your garden program may fizzle out after a few years. But the beauty of this guide is that as long as the physical infrastructure is still in place, the next garden advocate who makes it into your program can pick back up with a new plan and structure for whatever the needs are at that time.

# Setting Your Garden's Purpose

A school garden can serve many purposes from literature connections to student nutrition to science exploration. Most gardens are adaptable to multiple uses, but knowing what your primary goal is for your location will help you determine what to plant and when as well as how big of a volunteer force you need. This purpose can vary from year to year depending on teacher interest and the number of people available to help. These ideas can get you started, but don't feel limited!

### **Supplementing Snacks**

If you want to be able to routinely use the products of your garden as part of your snacks and meals, you'll want to go for fewer varieties of vegetables and more of each plant. Exact quantities of different vegetables will depend on the size of your school. This is the option that will likely require the most maintenance since you will need to stay on top of any diseases, pests, and dry spells, and depending on enrollment at your facility you may need more plants than with some other options. A mix of familiar vegetables and less familiar vegetables will help your students be willing to try more foods. For ease of use, stick with veggies that need little or no preparation to eat.

### **Experiencing New Foods**

If you want your students to be able to taste several different things they might not normally try, go for a variety of foods with limited quantities of each. You'll need enough for the children at your location to all be able to taste if they want to, but not necessarily enough to make a full snack for each. Experienced volunteers are helpful for this setup to make sure each of the crops turn out well, but it's not a huge loss if a specific crop doesn't come through well. Some vegetables the children will be less familiar with (butternut squash for example) may require cooking outside of the classroom, so keep that in mind and have a plan for preparing those foods when choosing your plants.

### **Exploring Diversity in Nature**

Showcasing variety in plants and animals can spark curiosity for children, and it can open up some lower-maintenance plant options since your focus won't be on an edible product. Edible plants can and should be a part of this type of garden, but since the focus won't be on eating the crop, this can be more accessible for people with less experience dealing with garden pests and diseases.

### **Curriculum Connections**

Choose a book that is already part of your curriculum (or add a garden book to your curriculum) and pick plants based on the text of the book. You'll want to revisit the book periodically rather than reading it every day for just one week. Some good selections are *Planting a Rainbow* by Lois Ehlert, *Tops and Bottoms* by Janet Stevens, *Oliver's Vegetables* by Vivian French, *Up Down and Around* by Katherine Ayres, *And the Good Brown Earth* by Kathy Henderson, and *The Surprise Garden* by Zoe Hall.

### Creating a Peaceful Place

A school garden can also be a corner to get away and be calm. These sorts of gardens have seating and a soft screen of plants to help separate it from the rest of the playground while still giving teachers line of sight into the space. This option is probably the lowest maintenance, as it can be all perennials and shrubs that will need little care beyond pulling weeds and some initial watering. Soft textures, light colored flowers, and soothing smells can help create a peaceful effect.

# **Choosing Plants**

When choosing plants, you'll need to consider many factors. The purpose you set will guide your selections significantly, but you'll also need to think about maintenance needs, space requirements, light levels, familiarity of foods, ease of preparation, and more. You may also be interest in a specific theme that will unify your garden, and we have some suggestions for that as well.

### Maintenance Needs

High Maintenance Needs a lot of water or pest and disease management	<ul><li>Tomatoes</li><li>Squash/pumpkins</li><li>Cucumbers</li></ul>	<ul><li>Cauliflower</li><li>Corn (if you want good kernels)</li></ul>
and disease management	Basil	Kerriers)
Moderate Maintenance	• Melons	Sweet potatoes
Needs consistent water	<ul><li>Cilantro</li></ul>	<ul><li>Peppers</li></ul>
throughout summer, some	• Dill	<ul> <li>Full head lettuces</li> </ul>
attention to other problems	<ul> <li>Broccoli</li> </ul>	<ul> <li>Most annual flowers</li> </ul>
	<ul><li>Cabbage</li></ul>	
Low Maintenance	<ul><li>Green beans</li></ul>	<ul><li>Carrots</li></ul>
Needs water during dry spells,	<ul><li>Herbs</li></ul>	<ul> <li>Corn (if you don't mind poorly</li> </ul>
little or no other maintenance	<ul><li>Strawberries</li></ul>	formed kernels)
	<ul><li>Onions</li></ul>	<ul> <li>Most perennial flowers</li> </ul>
	• Garlic	<ul><li>Shrub crops</li></ul>
No Summer Maintenance	<ul><li>Oregano</li></ul>	<ul><li>Spinach</li></ul>
These cool season crops can be	• Mint	• Kale
grown within the school year in	<ul> <li>Lemon balm</li> </ul>	<ul><li>Radishes</li></ul>
spring or fall	<ul><li>Snap peas</li></ul>	<ul><li>Swiss chard</li></ul>
	<ul><li>Baby greens</li></ul>	• Bulbs

# Familiarity to Children

Familiar	<ul><li>Carrots</li><li>Bell peppers</li><li>Broccoli</li><li>Green Beans</li></ul>	<ul><li> Melons</li><li> Strawberries</li><li> Lettuce</li><li> Tomatoes</li></ul>
Less Familiar	<ul><li>Corn</li><li>Zucchini</li><li>Squash</li><li>Sweet potatoes</li><li>Cabbage</li></ul>	<ul><li>Radishes</li><li>Kale</li><li>Chard</li><li>Herbs</li></ul>
	<ul><li>Snap peas</li><li>Garlic</li></ul>	• Onions

# Ease of Preparation

No Cooking Needed	• Carrots	• Zucchini
	<ul> <li>Bell peppers</li> </ul>	<ul> <li>Summer squash</li> </ul>
	• Broccoli	<ul><li>Snap peas</li></ul>
	<ul><li>Melons</li></ul>	<ul><li>Radishes</li></ul>
	<ul> <li>Strawberries</li> </ul>	<ul><li>Chard</li></ul>
	<ul><li>Tomatoes</li></ul>	• Kale
	• Lettuce	<ul><li>Herbs</li></ul>
Requires Cooking	• Corn	<ul> <li>Winter squash (acorn,</li> </ul>
*can be used raw in limited	<ul> <li>Green beans</li> </ul>	butternut)
applications	<ul><li>Pumpkins</li></ul>	<ul><li>Onions*</li></ul>
	<ul><li>Cabbage</li></ul>	• Garlic*

# Space Needs

Very minimal space	<ul><li>Carrots</li></ul>	<ul><li>Radishes</li></ul>
Can be grown in spaces as	<ul><li>Strawberries</li></ul>	<ul><li>Chard</li></ul>
small as a window box.	<ul><li>Lettuce (baby greens)</li></ul>	• Kale
	<ul><li>Spinach</li></ul>	<ul><li>Herbs</li></ul>
	<ul><li>Onions</li></ul>	Garlic
Moderate space	<ul> <li>Green beans</li> </ul>	<ul><li>Peppers</li></ul>
Needs at least 1-2' all around	<ul><li>Cabbage</li></ul>	<ul> <li>Garlic</li> </ul>
for each plant. Can be grown in	<ul> <li>Smaller tomato varieties</li> </ul>	<ul> <li>Cauliflower</li> </ul>
medium sized containers.	<ul><li>Lettuce (full heads)</li></ul>	<ul> <li>Broccoli</li> </ul>
Significant space	<ul><li>Pumpkins</li></ul>	<ul><li>Cucumbers</li></ul>
Needs a large container or	<ul><li>Squash (all types)</li></ul>	<ul> <li>Sweet potato (can grow in a</li> </ul>
ground bed. Spreads more than	• Zucchini	bucket, but vines grow long)
2' wide.	• Melon	<ul> <li>Corn (need to plant a lot to</li> </ul>
	<ul> <li>Larger tomato varieties</li> </ul>	get cross-pollination)

# Light Needs

Needs 6+ hours of sun per day	• Corn	• Tomatoes
Generally anything that you are	<ul><li>Green beans</li></ul>	<ul> <li>Zucchini</li> </ul>
growing for its fruit or flowers	<ul> <li>Bell peppers</li> </ul>	<ul><li>Summer squash</li></ul>
	<ul> <li>Broccoli</li> </ul>	<ul><li>Snap peas</li></ul>
	<ul><li>Melons</li></ul>	<ul> <li>Winter squash (acorn,</li> </ul>
	<ul> <li>Strawberries</li> </ul>	butternut)
Can tolerate 4-6 hours of sun	<ul> <li>Cabbage</li> </ul>	<ul><li>Onions</li></ul>
per day	<ul><li>Herbs</li></ul>	<ul><li>Garlic</li></ul>
Generally anything grown for	<ul><li>Chard</li></ul>	• Kale
its leaves or roots	<ul><li>Lettuce</li></ul>	<ul><li>Radishes</li></ul>
	<ul><li>Carrots</li></ul>	

# Food Themed Gardens

Salsa Garden	Tomatoes	<ul> <li>Cilantro</li> </ul>
	Bell peppers	• Corn
	• Onions	
Pizza Garden	• Tomatoes	<ul> <li>Oregano</li> </ul>
	• Onions	<ul><li>Peppers</li></ul>
	Garlic	Basil

# Sensory Garden

Touch	• Lamb's ear	Carrots
	Strawflower	<ul><li>Cucumber</li></ul>
	• Kale	
Taste	Nasturtium	<ul> <li>Any fruit or vegetable (see</li> </ul>
	<ul><li>Pansies or violas</li></ul>	ease of preparation list)
Sight	<ul> <li>Snapdragons</li> </ul>	<ul><li>Marigold</li></ul>
	<ul> <li>Scarlet runner beans</li> </ul>	<ul><li>Sunflower</li></ul>
Sound	<ul> <li>Squash (buzzing bees love</li> </ul>	<ul> <li>Silver dollar plant</li> </ul>
	the flowers)	<ul> <li>Add wind chimes and other</li> </ul>
	• Corn	sound-makers
Smell	• Herbs	<ul><li>Onions</li></ul>
	Carrots	<ul><li>Catnip</li></ul>

# Rainbow Garden

Red	Tomato	Strawberries
	<ul> <li>Red bell pepper</li> </ul>	<ul><li>Radishes</li></ul>
Orange	• Carrots	<ul> <li>Butternut squash</li> </ul>
	<ul><li>Pumpkin</li></ul>	<ul> <li>Orange bell pepper</li> </ul>
Yellow	<ul> <li>Summer squash</li> </ul>	<ul> <li>Spaghetti squash</li> </ul>
	• Corn	<ul> <li>Yellow tomatoes</li> </ul>
	<ul> <li>Yellow bell pepper</li> </ul>	
Green	<ul> <li>Lettuce and other greens</li> </ul>	<ul> <li>Broccoli</li> </ul>
	<ul><li>Cucumbers</li></ul>	<ul> <li>Cabbage</li> </ul>
	<ul> <li>Green bell peppers</li> </ul>	<ul><li>Herbs</li></ul>
	• Zucchini	
Blue	Blue corn	<ul> <li>Cornflower</li> </ul>
Purple	<ul> <li>Red cabbage</li> </ul>	<ul> <li>Kale (some varieties)</li> </ul>
	<ul><li>Red onions</li></ul>	<ul> <li>Pole beans (some varities)</li> </ul>
Rainbow	Gem corn	<ul> <li>Flowers can be added for</li> </ul>
	<ul> <li>Rainbow carrots</li> </ul>	any color
	<ul> <li>Rainbow Swiss chard</li> </ul>	

# Plants to Avoid

Spines, Thorns, Etc.	Eggplant	
	<ul> <li>Raspberries (thornless varieties available)</li> </ul>	
	Blackberries (thornless varieties available)	
Toxic Parts	Rhubarb – leaf blades	
	Potatoes – leaves and stems	
	Asparagus – berries	

### Animal Themed Garden

Fruits, vegetables, and herbs	Black zebra, red zebra, or	• Gooseberry
	green zebra tomato	Bee balm
Annuals	<ul><li>Tomatoes</li></ul>	<ul><li>Oregano</li></ul>
	<ul><li>Onions</li></ul>	<ul><li>Peppers</li></ul>
	Garlic	• Basil
Perennials – will come back	• Lamb's ear	<ul><li>Catnip</li></ul>
every year	Catmint	<ul><li>Turtlehead</li></ul>
	<ul> <li>Hens and chicks</li> </ul>	<ul><li>Toad lily</li></ul>
	• Tiger lily	<ul> <li>Ostrich fern</li> </ul>
	<ul> <li>Butterfly weed</li> </ul>	<ul><li>Zebra grass</li></ul>

# Planting Calendar

Time	Crop	Seed or starts	Expected Harvest Time	Notes
	spinach	either	6-7 weeks for seeds, 3-4 for starts	harvest until flower stalks emerge
	radishes	seeds	4 weeks	
Mid-March	snap peas	seeds	8-10 weeks	needs trellises to climb
to mid-	broccoli	starts	8-10 weeks	
April	kale	starts	3-4 weeks	can harvest for weeks
	chard	starts	3-4 weeks	can harvest for weeks
	lettuce	seeds	5-8 weeks (check variety)	can harvest as baby greens or wait for heads
	tomatoes	starts	5-8 weeks (check variety)	many varieties will produce for several weeks
	peppers	starts	4-5 weeks	many varieties will produce for several weeks
	herbs	starts	varies widely	see herb harvest and sensory guide or the plant label/seed package for info
Early to	zucchini	seeds	8-10 weeks	many varieties will produce for several weeks
mid-May	summer squash	seeds	7-9 weeks	many varieties will produce for several weeks
	winter squash	seeds	13-14 weeks	winter squash includes butternut, acorn, spaghetti
	melons	either	12-14 weeks for seeds, 10- 13 for starts	
	sweet potatoes	potato slips	13-16 weeks	can also do well in a bucket for easier harvesting
	pumpkins	seeds	15-20 weeks (check variety)	
	corn	seeds	9-16 weeks (check variety)	
Late May to mid- June	summer squash	either	8-10 weeks for seeds, 6-9 for starts	
	zucchini	either	7-9 weeks for seeds, 6-8 for starts	
	melons	either	12-14 weeks for seeds, 10- 13 for starts	
	green beans	seeds	10-12 weeks	will keep producing as long as they're harvested
	carrots	seeds	8-10 weeks (check variety)	

	snap peas	seeds	8-10 weeks	needs trellises to climb
	lettuce	seeds	5-8 weeks (check variety)	can harvest as baby greens or wait for heads
Mid to late	radishes	seeds	4 weeks	
	spinach	either	6-7 weeks for seeds, 3-4 for starts	harvest until flower stalks emerge
	carrots	seeds	8-10 weeks (check variety)	
	radishes	seeds	4 weeks	
	kale	starts	3-4 weeks	can harvest for weeks
Early to Mid-	lettuce	seeds	5-8 weeks (check variety)	can harvest as baby greens or wait for heads
September	spinach	starts	3-4 weeks	harvest until flower stalks emerge or until a freeze kills it off

# Garden Task Calendar

In the Garden Curriculum section you can find garden tasks that are appropriate for children to help with, but this calendar distills it down to the most essential tasks that someone needs to take care of. Some of these tasks are not on the classroom calendar (such as using a tiller) since they are not appropriate or safe for children.

July	Assemble your garden team for the coming school year
	Recruit volunteers for fall garden maintenance if your garden will be big enough to
	require outside help
	Set your goals for how to use the garden space in the coming year
	Water and maintain summer crops if you have them
	Harvest summer crops and decide how to use them outside of the school year
August	• Find out where to source seeds or plants for fall plantings (the Civic Garden Center
	of Cincinnati gives out seeds for free for school gardens every spring and fall)
	Water and maintain summer crops if you have them
	Schedule a planting day with any classes who are interested in participating
September	Harvest fall crops
	Plant cover crops if you're using them
	Water and maintain fall crops
October	Harvest fall crops
	Water and maintain fall crops as needed
November	Clean up garden after first hard frost/freeze
December	No garden tasks
January	Regroup with garden team to make plans for spring/summer
	If you're starting a garden for the first time,
February	Do a soil test to see if you need any fertilizer (contact the Hamilton County Soil &
	Water Conservation District for inexpensive soil tests and help with interpretation)
	• Find out where to source seeds, plants, fertilizers, and any other needs for spring
	and summer plantings (the Civic Garden Center of Cincinnati gives out seeds for free
	for school gardens every spring and fall)
March	Add any fertilizers or other needs to the soil (adults only)
	Complete any remaining cleanup necessary to get the garden ready to start again
	Schedule a planting day with any classes who are interested in participating
	Late in the month, plant your spring crops
	If you're planning on growing plants that need to be taken care of through the
	summer, make a summer watering and maintenance plan
April	Harvest spring crops
	Water and maintain spring crops
May	Harvest spring crops
	Water and maintain spring crops
	Plant summer crops if you're planning on using them
	Touch base again with summer garden maintenance team if relevant
June	Water and maintain summer crops if you have them
	Harvest summer crops and decide how to use them outside of the school year



**Head Start Hamilton County** 

# Bloom to Grow Garden Guide

# Part 3: Additional Resources

### Sources for More Garden Lessons

When building this guide, significant help and guidance came from pre-existing garden curriculum. These are some helpful resources we found. Many of them have at least some lessons available for free online, and some have additional lessons or entire curriculum models available for sale.

### KidsGardening.org

KidsGardening.org

This is a comprehensive online resource for all things relating to school gardens. They have information on designing, maintaining, and learning in gardens for preK-12, including free lessons and activity outlines. Some lessons may need to be adapted for preschool needs, but they're a great starting point.

### **Growing Minds**

growing-minds.org

Growing Minds is part of the Farm to School network. Their website offers detailed lesson plans (with clear objectives and recommended books), recipes, and recommended children's books. In addition to lessons about gardens, they also provide materials to teach about local farms and local foods.

### SEEDS

<u>scottsmiraclegro.com/responsibility/foundation/seeds</u>

SEEDS offers spring, summer, fall, and winter activities on air, soil, critters, sun, plants, and water. The lessons also come with literate and artwork recommendations to accompany most lessons. They have lessons designed for pre-K, and also lessons for other ages that can be adapted.

### Bringing the Outside In

by Sandra Duncan, EdD and Jody Martin, gryphonhouse.com/books/details/bringing-the-outside-in

This book has dozens of ideas for integrating nature into the classroom for early childhood settings. The activities are fairly open-ended and can be adapted in many ways. The activities place a heavy emphasis on child-led curiosity and exploration rather than direct instruction. A copy is available through HCESC.

### AHA and Whole Kids Foundation School Gardens Lesson Plans

heart.org/idc/groups/heart-public/@wcm/@fc/documents/downloadable/ucm 478049.pdf

The American Heart Association and Whole Kids Foundation have worked together to make school garden curriculum. Seven of the lessons are recommended for preschool aged students. Each lesson comes with several literature connection options.

### **Growing Up WILD**

fishwildlife.org/projectwild/growing-wild

Project WILD is aimed at developing nature-based lessons for children. *Growing Up WILD* is their early childhood curriculum. For each subject, there are several activities and ideas for engaging with the topic. These lessons apply more to the creatures you'll find in your garden than to garden plants. A copy of the materials may be available to borrow from Hamilton County Soil and Water Conservation District.

### Farm to Preschool

farmtopreschool.org/preschoolgardens.html

The Farm to School program is designed to help school children learn about where their food comes from in a range of ways, including school gardens. Their preschool division page has some helpful links to other resources on curriculum, recipes, family outreach, research, and successful preschool programs. They also provide more information about the other ways Farm to School engages with schools.

### Life Lab

lifelab.org

Life Lab has been working with garden-based education for decades. Most of their material is available for purchase, but they offer a few free resources as well. Their guide for starting school gardens is available for free.

### **Early Sprouts Institute**

earlysprouts.org

Early Sprouts curriculum and training is designed to use repeated exposure to familiarize children with their food through growing, sensory exploration, and cooking. Their full training does cost money, but it is fairly low cost. One team member can go through the training and then train the rest of the team.

### **Head Start ECLKC**

eclkc.ohs.acf.hhs.gov

Head Start's Early Childhood Learning Knowledge Center can link instructors to many resources for the classroom on any topic. To find materials related to gardens, just type "garden" or "nature" in the search bar and search.

# Local Resources on Garden Advice and Expertise

No matter how many web searches you do, sometimes the easiest way to find out what's going on in your garden and get recommendations is to have an expert come in person or to ask questions directly to someone who is familiar with gardens and plants and how they grow in local conditions.

### Civic Garden Center of Greater Cincinnati

civicgardencenter.org

The Civic Garden Center offers classes, demo gardens, blog post, and expert advice for just about any type of garden, including school gardens. They can also help you connect to other knowledgeable people in our area, including other teachers and staff working on school gardens. The school garden staff can also come to your classroom to do interactive lessons.

### Hamilton County Soil and Water Conservation District

hcswcd.org

The Hamilton County Soil and Water Conservation District provides educational programming and expertise relating to some components of urban agriculture. They are also the best avenue for low-cost soil testing with help in interpreting your results. During some years they have access to federal grant money through partnerships for new or expanding programs.

### Hamilton County Master Gardeners

extension.osu.edu/ask-an-expert/ask-master-gardener

Master Gardeners are volunteers trained through the OSU Hamilton County Extension office. They are knowledgeable about all things garden-related, whether it's an ornamental garden or fruit and vegetable garden, and they are often willing to be involved in helping local garden projects like school gardens. They also have a web form where you can submit any questions about your garden with pictures, and they'll help you find out how to solve your problem.

### Gorman Heritage Farm

gormanfarm.org

Gorman Heritage Farm is a non-profit working farm in Evendale dedicated to educating our community about local agriculture. They host education events and invite schools to visit, and they can also bring some agriculture lessons to the classroom.

### Turner Farm

### turnerfarm.org

Turner Farms is also a working farm in the Cincinnati area. They focus on community gardens rather than school and education gardens, but they have knowledgeable staff that can provide answers for many types of gardens. They partner with the Civic Garden Center to provide comprehensive training for running a garden.

### Reliable Websites for Garden Information

While a web search on any garden topic may generate thousands of pages claiming to offer solutions, misinformation and old information are often circulated widely among gardeners and gardening groups, and you may come up with conflicting information or old wives' tales rather than helpful solutions to your garden questions. To minimize your risk of receiving bad advice, stick to reputable, research-based resources. Here are some you can depend on.

### **University Extension Websites**

If you can find a university page answering your garden question, you can guarantee that their advice is backed by the most recent research. While all universities will have good information, the universities in your region will give the most relevant advice. <u>The Ohio State University</u>, <u>Purdue University</u>, <u>Penn State</u>, <u>University</u> of <u>Kentucky</u>, and <u>Michigan State University</u> are all good resources in our region.

### **Botanical Garden Websites**

Botanical gardens are also likely to use research-proven practices in their advice. Not all botanic gardens include garden resources on their websites, but the <u>Missouri Botanical Garden</u> and <u>Chicago Botanic</u> <u>Garden</u> in particular have plenty of material available to the public.

### KidsGardening.org

In addition to lessons and school garden ideas, KidsGardening.org also provides some basic garden maintenance information through their blog and other resources in their <u>Gardening Toolbox</u>.

### Gardening Know How

While this website may not have quite the level of verification of university extension sites, it is still a reliable source for good information communicated in a simple way. <u>Gardening Know How</u> will also show up early in just about any search for a garden-related question, so they're easy to find.

# Bonnie Plants and Burpee

<u>Bonnie Plants</u> and <u>Burpee</u> are two giants in producing vegetable and herb seeds and plants. Their websites have a wealth of practical information for home gardeners, and each plant variety gives you all kinds of details to help pick the best varieties for your needs.

### **School Garden Grants**

Depending on the condition of your garden and your plans for the year, you may find yourself needing more funds and resources than you can easily obtain through local networks. New gardens in particular generally need a decent amount of investment up front. These grant opportunities can help.

### KidsGardening.org

kidsgardening.org/garden-grants

KidsGardening.org provides a few grants through their sponsors, but they also maintain a thorough list of school garden grants available through other groups.

### **Gro More Good Garden Grants**

nhsa.org/our-work/initiative/gro-more-good-garden-grants

The Scotts MiracleGro Foundation has partnered with NHSA to fund garden education in Head Start programs. The provide annual grants as well as webinars aimed at educators who want to add gardens to their curriculum.

### SARE Youth Educator Grant Program

northcentralsare.org/Grants/Our-Grant-Programs/Youth-Educator-Grant-Program

Our regional division of Sustainable Agriculture Research & Education offers annual grants to educators who need funding for programs related to sustainable agriculture. Any school programming that teaches children gardening principles with good gardening practices and low inputs is sustainable programming.

### Seed Money

<u>seedmoney.org</u>

Seed Money helps garden projects all over the country leverage crowd-funding to raise their own money as well as receiving additional money from the group's larger fundraising efforts. They accept over 200 applications every year, and they provide a simple online platform for gardens to use.

### **ALDI Smart Kids**

corporate.aldi.us/en/corporate-responsibility/aldi-smart-kids

ALDI provides funding to programs promoting health and wellness for children in areas where they have stores. To qualify for their funding, your garden plans would need to intentionally indicate a wellness component, such as benefits of time outdoors or learning about healthy eating.