Let’s Get Growing in Containers!

Presented by
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Seattle Tilth
Children’s Education
Program Manager
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About the Author

Lisa Taylor is the children’s education program manager at Seattle Tilth, an organization that teaches ways to grow food organically, conserve natural resources, and support our local food systems. Lisa is author of Your Farm in the City: An Urban Dweller’s Guide to Growing Food and Raising Animals.

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Resources

Local Experts and Information
The Garden Hotline (SPU & Seattle Tilth)
(206) 633-0224 help@gardenhotline.org
Seattle Tilth, www.seattletilth.org
WSU Cooperative Extension – see your county for resources.
http://about.wsu.edu/about/statewide.aspx
City Farmer, Canada’s Office of Urban Agriculture, www.cityfarmer.org

Resources for Children’s and School Yard Gardening
California School Garden Network, www.csgn.org
Life Lab at the University of California, Santa Cruz – www.lifelab.org
The Edible Schoolyard, Berkley - www.edibleschoolyard.org
National Garden Association - www.kidsgardening.com
American Community Garden Association - www.communitygarden.org
Farm to School www.farm2school.org
Washington State OSPI http://www.k12.wa.us

Gardening and Composting Resources
“Your Farm in the City,” Lisa Taylor & Seattle Tilth
“Maritime Northwest Garden Guide,” Seattle Tilth
“Worms Eat My (and Our) Garbage,” Mary Appelhof
“Kid’s Herb Book,” Lesley Tierra
“Growing Vegetables West of the Cascades,” Steve Solomon
“Composting Yard and Food Waste at Home”
“Rodale’s Color Handbook of Garden Insects,” Anna Carr
“Rodale Book of Composting,” Deborah L. Martin and Grace Gershuny
“Winter Gardening in the Maritime Northwest, Binda Colebrook
“Lasagna Gardening,” Patricia Lanza (sheet mulching)
“Food Is Elementary,” Dr. Antonia Demas (Uses garden produce and healthy commodities to make ethnic dishes with kids K and up)
“Math In The Garden,” Jennifer M. White and the University of California Botanical Garden

Supplies and Plants
Local garden and hardware stores
Peaceful Valley Farm Supply, 1-888-784-1722 www.groworganic.com
Steuber’s Distributing Company, Snohomish, (206) 632-8724
Drip Works, www.dripworks.com
Local nurseries
One Green World, www.onegreenworld.com
Raintree Nursery, www.raintreenursery.com
Weeks Berry Nursery, www.weeksberry.com
Thrift stores, garage and rummage sales
Look for OMRI, USDA, State or Independently Certified seeds and fertilizer

Tools for kids
www.burgonandball.com/shop/scripts/default.asp
www.fredshed.co.uk/bulldogtools.htm
www.shovelandhoe.com
www.terrebonnelimited.com

Seed Companies
Seeds of Change, www.seedsofchange.com
Territorial Seed, www.territorialseed.com
Renee’s Garden, www.reneesgarden.com
Baker Creek Heirloom Seeds, www.rareseeds.com
Irish Eyes/Garden City Seeds, www.irish-eyes.com
Fedco Seeds, www.fedcoseeds.com

Funding and Grants
There are many grants for money, supplies and materials to start school gardens. Search “school garden grants” or try one of these websites.
California School Garden Network, www.csgn.org/grants
New Hampshire Farm to School,
www.nhfarmtoschool.org/resources/schoolgrants

Storybooks
“The Maybe Garden,” Kimberly Burke-Weiner
“The Reason For A Flower,” Ruth Heller
“The Carrot Seed,” Ruth Krauss
“Tops and Bottoms,” Janet Stevens
“Compost!” Linda Glaser
“Wonderful Worms,” Linda Glaser
“The Turnip,” Pierr Morgan
“Nature in the Neighborhood,” Gordon Morrison
“Whose Garden is it?” Mary Ann Hoberman
“Bring Me Some Apples and I’ll Make You a Pie: A Story About Edna Lewis,” Robbin Gourley
Gardening with Children

Unit One

Objectives

- Review the principles of experiential, hands-on learning.
- Learn basic techniques for working with children in an outdoor, garden classroom.
- Learn basic organic garden principles.
SEATTLE TILTH CHILDREN’S GARDEN PHILOSOPHY

FOUNDATIONS
These are the underlying beliefs about teaching and learning that guide us in our work in the Children’s Garden.

Objective: Gardening together helps us understand where our food comes from and teaches us how to care for plants, creatures and one another. This is a path to peace.

We hope children and their families will learn how to care for all life and where their food comes from. They will learn how to be in the garden as a partner with nature, helping the garden to grow. They will learn why we compost, about the importance of soil and about compost critters and food webs. We hope they will gain an understanding of the importance of insect life in the garden. Finally we hope they will have an understanding of how plants grow, plant parts and common edible plants.

The Experiential Learning Model
The Experiential Learning Model is a cyclical model for assessing learning as a result of doing. This is a model which can be applied to an entire experience -- a tour, a week-long camp, a volunteer stint -- and to each individual aspect of each station or exploration. The EL model starts simply with a stated goal for the experience. The goal leads to doing the activity. Following the activity is debriefing or a review of the experience with the intent to integrate learning into the next goal.

The Invitation to Garden
We start with an invitation to garden. We invite children and their families to participate -- to come help in the garden. This invitation shapes how we develop activities for everyone who comes to the garden. We commonly ask the group to wait to be invited before they pick or eat or use tools in the garden. We promise
to invite them to do many things. We use this invitation as a cue for the kids to start exploring or eating or digging and remind them to wait until we are ready to begin.

Inviting children to participate in activities allows us to stay positive when kids start to do things before the activity is ready. It is more respectful (and frankly feels better as an educator) to ask the child if they have been invited to do something yet rather than tell them to stop.

**Positive Approach to Teaching**

One of the most respectful ways to work with children is to honor them as a person, to cherish the gifts that they bring and to always speak to them in a positive and encouraging way. This does not mean that you are giving them license to do whatever they want to do. There are rules and there are times when we get to choose what we want to do and there are other times when we are doing what the group is doing. Rather, speaking to children in a positive way, helps them to build self-esteem, see their own capabilities and helps them to have ownership of their work and contributions. We try to speak to children the same way we speak to adults.

We believe that everyone wants to be loved and to feel as though they belong. Mysterious and inexplicable behavior is really a need for love and belonging. Phrase things in a positive way – rather than focusing on the NOs try to say what they CAN do. If we need a child to stop a certain behavior, we give them something they can do. Rather than “Please stop tickling me.” We might say, “I’m tired of the tickling game, if you pick out a book from the bin, I’ll read it to you.”

Repeat the rules as often as needed. You may find yourself repeating “watch your feet, watch your feet” during your entire garden session, saying things in the positive tense will help everyone feel successful. If there is a simple reason why the rule needs to be followed, offer that too so kids can see why the rules make sense. Example: “We always wear our shoes in the Children’s Garden because we find glass in the soil every day.”

**The Theory of Focus and Expansion**

Students can’t focus and be still and attentive too long or they will fly apart. They express this by wiggling around, talking to their neighbor, tuning out, scuffling feet, looking bored, or being a distraction to others. Likewise, students cannot do whatever they want for as long as they want (self directed investigation) or you will never get them focused when you need them to be. Time with children must have a balance between focused time and expansive discovery time. There is a natural flow to lessons and learning times and stations and tasks in the garden; like breathing. This flow echoes the Experiential
Learning Model. We begin as a group or in a circle to learn what we will be doing next, then we do it, then we join together to think back and to introduce the next activity.

Likewise it is important not to stack focused activities or expansive activities. It may seem like the kids are loving building bughouses (expansive activity which is mostly self directed) and could do it all afternoon. This would be great if that is all you have planned for the lesson. If you need to gather them to do anything else, it will be difficult for them to switch modes. A better plan would be to limit their time building bughouses. Keep them really focused on the activity and end the time after about 15-20 minutes. It is ok if they are disappointed and want more time - they will pursue that in their own gardens or look forward to another opportunity to work with bughouses later.

**Rules**

For our foundation principles to work we still need a few rules. We have three main rules that we consciously say to the kids - there are many more (which the kids already know that we agree to but don’t really say). To establish rules for behavior in the garden, we clearly state our three rules at the beginning of each session and remind the children consistently during our time together.

**Main Three Rules**
- Wait to be invited (or ask) to pick or eat or use things in the garden
- Watch your feet, be careful and stay on the paths
- Walk in the garden

**Tool Rules**
- All tools should be held below the waist
- Tools should only be used for work, they aren't toys

**Underlying Rules**
- Respect and care for all living things in the garden
  - Be gentle with all plants, bugs, worms and each other
  - Treat books, tools, gloves, etc with respect
- Always wear shoes in the garden and park
- One person speaks at a time
- Kids use buckets or containers but not the garden hose

**SPECIFICS**

**Child-Focused Curriculum**

Children have ownership and do the work in the Children’s Garden. It is our job to set up activities so that the children can do garden tasks. We plan activities
around what work the kids can do to advance the garden plan. Our measure of success: everyone is safe, has fun and some garden work is accomplished.

Give the kids the responsibility for putting their things in place or away for the day – have them sweep, do the dishes, clean tools and try to find ways that they do most of the work. When children participate in setting up activities and putting away tools, they have a greater sense of ownership. Let the kids participate in some of the decision-making or let them figure out how to accomplish a task that you have outlined. Find ways for the children to be doing as much as possible. It is the student’s job to do the work; it is the teacher’s job to facilitate the experience.

Make work fun. If children do the work, it will be messy. Plan for this. Make sure there are enough tools and space for the group – no one should have to share a tool. Teach them how to use each tool and repeat the tool rules each time. Have a signal to use to stop them and then just cut loose and have fun! Make a game or contest or race out of the task. See who can dig up the longest bindweed root. Build a compost pile with a relay /bucket brigade race. Collect the most slugs or snails. Rake the biggest pile of leaves and then jump in them!!

Garden Driven Curriculum
We let the needs of the garden and the weather drive our daily lessons. We document each session in the garden in a spiral notebook. We include information about the weather, staff and volunteers, number of kids and how well the plan went. These notebooks are a great resource about planting times and weather and what activities work well.

Connecting to Classroom Curriculum
Start thinking about what you already teach and find ways to move those lessons outside to the garden. Don’t think of gardening as something to do when everything else (curriculum requirements) has been completed, think about the garden as a place to start teaching in your content areas.

Recess Mentality
When kids are outside, it is natural that some rowdiness will occur. Kids generally equate being outside with recess. Anticipate this and diffuse it by reviewing garden rules before going outside. Giving them an opportunity to run around before going to the garden can help them control their impulse to horse-around. Give them a big muscle activity that takes a lot of concentration or give them ideas about how to move their bodies – crabwalk, hopping, heavy steps, mouse steps, etc. After they have some time to release energy they should be able to come together as a group and focus on working in the garden. Remember to balance focus and expansion – with specific circle-up / focused times to help calm them down.
Organic Gardening Principles
Organic gardening practices are good for people and good for the earth. If you follow these practices you will have a garden that is healthy, safe and relatively carefree.

Build healthy soil
Good soil grows strong, healthy plants that resist disease and pest. Feed the life in the soil with organic material such as leaves, wood chips, compost or old garden plants.

Work with nature
Observe natural patterns and remember that you are helping the garden grow, not making the garden grow.

Right plant in the right place
Put plants where they will thrive. No good can come from putting something that likes full sun and sandy soil in a shady, dank corner of the garden.

Encourage biodiversity
Create plenty of habitat for creatures so that they can help keep the balance in your garden. Create a diverse garden ecosystem by incorporating plants of varying sizes with different colors of flowers and foliage.

Conserve resources; Water wisely
Preserve this precious resource by using it carefully and wisely. Make sure water is available when you need it and provide adequate amounts to promote healthy plant growth.

Learn as you grow
Gardening is the ultimate in experiential learning. With each season your skills will increase. Keep a journal so that you can keep track of all this learning!

Outdoor teaching techniques

Working outside
- Focus and expansion
- Routines and rituals in the garden/circle up
- Safety and rules – be safe, have fun and get some gardening done
- Outdoor classroom boundaries – visual & physical
- Letting off steam – recess mentality
- Small groups
  - 4-7 preschool
  - 5-10 elementary
- Group Identity
Planning your lessons
- Balance focused and expansive activities
- Using all the senses
- Mimic to demonstrate steps
- Physical movements to learn concepts
- Games and songs
- Make it fun

Garden Time!
- 45 minutes – 1 hour experience with opening circle and closing reflection
- Divide projects into 2-3 stations (w/digging)
- 5-20 minute stations depending on the age and abilities of the group
- Tasks to accomplish – keep projects realistic
- Focus and expansion – can’t say it too much
- Use volunteers or helpers to keep groups small

Be Flexible and Resilient
Be willing to adjust or change how much you have planned for the day. Have a few extras up your sleeve. Realize that sometimes a slug is just more interesting than what you had planned. Seize the teachable moment! Learn all you can about what the kids are interested in. Our slug and snail curriculum originated from a wet, cool spring morning in the garden when we couldn’t walk because there were so many slugs crawling around. Rather than try to divert the kids to what we had planned, we made a game of slug collecting. We observed all we could about the slugs, made guesses about how they lived and what their body parts were for. We counted and grouped the slugs first by size and then by coloration and markings. Then we talked about what we should do with all the slugs. Since they eat the garden, should we kill them? (no, we never kill things in front of the children), return them to the garden? Or find a place where they could live but be out of the garden? As you may imagine, the last idea was the group decision – we found a wild place in the park and relocated the whole batch of 120 slugs! The catch and release program still survives in the Children’s Garden.

Teaching as a Practice
There is a lot to learning the art of gardening and teaching. It’s important to know that you are not required to be a garden expert to be an effective teacher in a children’s garden. Teaching and learning go hand in hand. Your knowledge of the garden will grow each time you lead a group and your confidence as a teacher will likewise flourish. What do you do when the kids ask for the name of a plant that you don’t know? We think it is as powerful (or more so) for the students to give the plant a descriptive name from their imagination as it is for
you to tell them the genus and species. “Fuzzy pillow leaf” is just as good as lamb’s ear in our point of view. Chances are everyone will remember this plant the next time they see it. You needn’t be perfect. Teaching is a practice.

As you continue your journey as a Garden Educator remember:
Don’t Panic!
Monitor and adjust!
Learn as you grow!
Have fun!
Children’s Garden Basics

Unit Two

Objectives

- Review basic requirements for a children’s garden.
- Identify what plants to use in a garden for children.
- Learn when to plant and harvest vegetables.
- Differentiate ways to use the garden for learning.
Physical Requirements of Children’s Gardens

Space and Layout of Garden
GO ORGANIC!
Narrow beds
Wide obvious paths – straw, wood chips, burlap sacks
Weedy areas for creature habitat
Water source close by
Space for people – circle up area, covered area
A place to dig
A place to run
Sticks and rocks and shady spots

What to Plant
Edible
Not deadly or poisonous
Durable – trampling and picking
Useful – for habitat, medicine or construction/crafts
Anchor garden with perennials for year-round interest

Tools - sturdy and kid sized
Shed or storage area
Digging fork-- boarder size
Spade – boarder size
Hand trowel
Leaf rake
Buckets and hoses
Brooms
Watering cans and small containers
Magnifier boxes
Collecting baskets
Small scissors
Floral tape
Art supplies
Markers, crayons, tape, staplers
Small wheelbarrow
Jute twine
Sticks and found objects
Teepees and tunnels
Burlap sacks
Optional: steel rakes and hoes

Things we all like to do in the garden
Digging
Planting seeds and starts
Watering
Harvesting
Saving seeds
Pulling out the weeds
Helping
Making bouquets
Hunting for bugs
Building bug houses
Sifting compost
Raking leaves and jumping in them
Cooking
Charming snails and collecting slugs
Singing songs
Reading about bugs and plants
Drawing
Finding a magic spot
Eating
Smelling
Feeling
Looking carefully
Listening to the wind in the leaves
Pressing flowers
Making plant collages
Painting prayer flags
Making garden spirits and shrines

Plants for Kids

Perennials

- Agastache
- Artichoke
- Berries
- Cardoon
- Chamomile
- Chives
- Clove Currant
- Comfrey
- Culinary Sage
- Dianthus
- Fennel
- Fruit Trees
- Honeysuckle
- Hyssop
- Jerusalem Sage
- Kiwi
- Lamb's ear
- Lavender
- Lemon Balm
- Lemon Verbena
- Mint – especially flavored types
- Monarda
- Oregano
- Pineapple Sage
- Roses
- Rosemary
- Silver Shield Sorrel
- Sweet Cicely
- Thyme
- Tulips

Annual Veggies and Flowers

<table>
<thead>
<tr>
<th>Leaf</th>
<th>Flower</th>
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<tbody>
<tr>
<td>Basil</td>
<td>Arugula</td>
</tr>
<tr>
<td>Broccoli</td>
<td>Bachelor's Buttons</td>
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<tr>
<td>Cauliflower</td>
<td>Bean blossoms</td>
</tr>
<tr>
<td>Chard</td>
<td>Borage</td>
</tr>
<tr>
<td>Cilantro / Coriander</td>
<td>Brassica flowers</td>
</tr>
<tr>
<td>Collards</td>
<td>Calendula</td>
</tr>
<tr>
<td>Garlic</td>
<td>Clover</td>
</tr>
<tr>
<td>Leeks</td>
<td>Cutting flowers for bouquets</td>
</tr>
<tr>
<td>Lettuce</td>
<td>Daisies</td>
</tr>
<tr>
<td>Onion</td>
<td>Nasturtiums</td>
</tr>
<tr>
<td>Spinach</td>
<td>Viola, Pansies, Johnny Jump Ups</td>
</tr>
<tr>
<td>Stevia</td>
<td>Zinnia</td>
</tr>
</tbody>
</table>
**Root**
- Carrots
- Beets

**Potatoes**

**Fruit**
- Beans - snap
- Beans - runner
- Cucumbers - lemon
- Peas
- Peppers
- Pumpkins
- Squash
- Tomatillos
- Tomatoes

**Others we like**
- Buckwheat
- Burdock
- Cleavers
- Mullien
- Phacelia
- Rye
- Oats
- Barley
- Wheat

**A Few Poisonous Plants**
- Aconite
- Anemone
- Azalea
- Buttercup
- Calla Lily
- Clematis
- Daffodil
- Delphinium
- Four o’clock
- Foxglove
- Hyacinth
- Hydrangea

**Planting Times**
Timing is critical for getting the most from your garden. Not all plants are planted at the same time. There are cool season crops that are planted March-May (and again in July-August for fall harvest) and warm season crops that are planted May-June. The most important things to know are your first and last frost dates. The following are recommendations – your site may be warmer or cooler – use these as a guide and keep track of planting and harvesting times in your garden journal.

**First and last frost dates for Western Washington**

<table>
<thead>
<tr>
<th></th>
<th>Last Frost</th>
<th>First Frost</th>
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</thead>
<tbody>
<tr>
<td>Most cities</td>
<td>April 1-30</td>
<td>Oct 20-Nov 15</td>
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**First and last frost dates for Eastern Washington**

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<thead>
<tr>
<th></th>
<th>Last Frost</th>
<th>First Frost</th>
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<tbody>
<tr>
<td>Ellensburg</td>
<td>May 10</td>
<td>Sept 15-Oct 11</td>
</tr>
<tr>
<td>Moses Lake</td>
<td>April 21</td>
<td>Oct 11</td>
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<tr>
<td>Pasco</td>
<td>April 8</td>
<td>Oct 5</td>
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<tr>
<td>Pullman</td>
<td>May 12</td>
<td>Sept 9-Oct 1</td>
</tr>
<tr>
<td>Spokane</td>
<td>May 8</td>
<td>Sept 15-Oct 11</td>
</tr>
<tr>
<td>Yakima</td>
<td>May 14</td>
<td>Oct 11</td>
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**Recommended planting dates for Western Washington**

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<tr>
<th>Plant Name</th>
<th>Jan</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<td>arugula</td>
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<td>beans (bush)</td>
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<td>beans (pole)</td>
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<td>beans (runner)</td>
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** based on first and last frost dates.
### Recommended planting dates for Eastern Washington - May LFD - Ellensburg, Pullman, Spokane and Yakima

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** based on first and last frost dates.

To find more climate information about your location go to this great website. There are lots of interactive maps. This is your one-stop-shop for planting dates. Search for first and last frost dates by zip code.

Plant Maps
http://www.plantmaps.com/interactive-washington-last-frost-date-map.php
### Season Activities Calendar

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Anywhere Garden

Unit Three

Objectives

➢ Learn the basics of planting and maintaining an edible container garden.
➢ Identify plants that are well suited for containers.
➢ Plant a container garden with herbs, flowers and vegetables.
Container Garden Basics

Almost anything can be grown in a container; you may need a very large container. Starting a container garden is easy and can be created even if you don’t have soil for gardening. Here are the most important things to know.

Placement
- Sun – vegetables, flowers and herbs need 6-8 hrs of sun
- Out of the wind
- Easy to access for harvesting
- Water source close by

Soil
Potting soils are specially formulated to promote drainage while holding water. Fill the container with potting soil (do not add rocks at the bottom, this wrecks the drainage). Fill to about 2-4 inches from top rim of container.

Good Commercial Brands of Potting Soil for Edibles
- Cedar Grove Potting Soil
- Whitney Farms Premium Potting Soil
- Black Gold Organic Potting Soil
- E.B. Stone’s Organic Potting Soil

Basic Potting Soil Recipe from the Maritime NW Garden Guide:
1 part coco coir
1 part perlite
1 part sand or pumice
1 part compost

Container size
Look for containers that are 12”-24” inches tall and 12”- 24” inches in diameter. Containers that are smaller than four gallons will be difficult to keep watered.

Choosing a container
Containers are made of almost anything. Any container with drainage holes that will hold soil can be a home for plants. Use non-toxic (food quality) materials. Here are some choices:
- Plastic – inexpensive, lightweight, will fade and crack in sun
- Black plastic nursery pots – inexpensive or free, long lasting and warm up quickly
- Terra cotta – expensive and heavy, will crack and crumble in weather if left outside in winter
- Glazed-clay pots – expensive and heavy, long lasting and beautiful.
• Half whiskey barrels - reasonably priced, recycled product, lasts for several seasons, large planting area.
• Be creative - large brightly colored plastic tubs, wheelbarrows, 5 gallon buckets and kiddie wading pools make great places to grow vegetables.

**Planting your container**
Most vegetables, herbs and flowers will grow in containers. Look for dwarf, compact or bush varieties that have been specially selected to thrive in small spaces.

**Seeds**
You can direct sow seeds in a large container. Sow as you would in a garden bed. Try growing carrots, beets, onions or cilantro from seed in a container.

**Transplanting starts**
Almost all starts should be planted to the same depth as they are in their container. Tomatoes are the only exception; their stems can be buried more deeply.

**Spacing**
Give your plants plenty of space to grow. This means you will only be putting 2-4 plants per container. Vegetable, herb and flower plants typically need 6” to 12” inches of space. Thin seedlings as you would in a garden bed.

**Watering**
Vegetables, herbs and flowers are mostly made of water so they need consistent water as they grow. Containers dry out quickly so you will need to water more frequently – every 2-3 days. Check the moisture of your containers by digging down in the soil a few inches with your fingers. Soil should feel damp but not soggy. Here are some tips:

• Try and water first thing in the morning to conserve water and, so your containers don’t dry out in the middle of the day
• Watering Wands with shower heads and a shut-off valve work for everyday watering, especially if you have hanging baskets or hard to reach containers
• Watering cans with removable spray nozzles (roses) are great for watering a few containers and for fertilizing
• Patio drip irrigation kits can be set on a timer to water regularly for vacations or sunny spots that dry out quickly
• Visit [www.gardeners.com](http://www.gardeners.com) for more watering ideas
Feeding your plants
Plants in containers can’t get nutrients from the soil so you will need to provide their needs. Liquid fish fertilizer is a great option. Dilute with water according to the directions and give to plants every 3-4 weeks.

Which fertilizer should you get?
The numbers on the front of fertilizer boxes and bottles can be confusing. These stand for Nitrogen, Phosphorous and Potassium.

• Nitrogen promotes green leafy growth
• Phosphorous assists in the formation of roots, buds and flowers
• Potassium aides in the absorption of nutrients and trace minerals.

For most vegetables, look for fertilizer with numbers that are similar such as 3-4-2. For lettuce, onions, and other leafy greens look for a high nitrogen formula such as 5-1-1.

Organic Liquid Fertilizers for Edibles
• Fox Farm Tiger Bloom
• Grow Big Organic Liquid Fertilizer
• Earth Juice Fertilizer
• Alaska Fish Fertilizer
• Neptune’s Harvest
• Age Old Organics Liquid
## VEGETABLE AND HERB VARIETIES FOR CONTAINERS

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<tr>
<th>Vegetable/Herb</th>
<th>Varieties or traits to look for</th>
<th>Minimum Container Size Needed</th>
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<tr>
<td>CUCUMBER</td>
<td>Any bush or semi-bush variety</td>
<td>Shallow, wide 3 - 5 gallon container</td>
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<tr>
<td>EDIBLE FLOWERS</td>
<td>Calendula, marigolds, petunias, nasturtium, pansies, alyssum and violas</td>
<td>8” deep or more</td>
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<td>EGGPLANT</td>
<td>All kinds with smaller fruit</td>
<td>3 gallon container</td>
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<tr>
<td>GREENS</td>
<td>Kale, chard, lettuce, spinach, mustard greens, pac choi, radicchio and arugula</td>
<td>Window boxes or any container at least 8 inches deep</td>
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<td>MELON</td>
<td>Look for compact or bush varieties</td>
<td>Shallow, wide 5 gallon container</td>
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<td>ONIONS</td>
<td>All types</td>
<td>8”-10” deep or more</td>
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<td>PEPPERS</td>
<td>Any sweet or hot pepper variety</td>
<td>3 gallon container</td>
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<tr>
<td>STRAWBERRIES</td>
<td>Any kind</td>
<td>Any container at least 8” deep</td>
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<td>SUMMER SQUASH</td>
<td>Bush varieties</td>
<td>Large container 3 – 5 gallons</td>
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<td>TOMATOES</td>
<td>Determinate or bush varieties and ones with fruit on the small side</td>
<td>5 gallons</td>
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<tr>
<td>ANNUAL HERBS</td>
<td>Basil, cilantro, dill, chamomile, chervil, lemongrass and shiso</td>
<td>8'-10” deep or more</td>
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<tr>
<td>PERENNIAL HERBS</td>
<td>Rosemary, thyme, hyssop, sage, lavender, mint, oregano, marjoram, catnip and verbena</td>
<td>The larger the container, the better they will grow. Try a 5-10 gallon container planted with 3 different herbs to start.</td>
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Garden Indoors

Unit Four

Objectives

- Identify the key elements for successful indoor gardening.
- Learn how to plant seeds.
- Make a pot for starting seeds out of newspaper.
Indoor Growing Basics

Setting up an indoor growing area
Growing seeds indoors is fun and easy. You will need supplemental light and a space where plants can grow for a few months. Prepare for mess. Seedlings become leggy and weak when there is insufficient light. These plant starts will be targets for pests and diseases. Keeping lights close to the seedlings will ensure that you grow compact plants that will be healthy and vigorous. Cool florescent bulbs are perfect for indoor growing. Inexpensive 4’ shop lights can be found at garage sales or thrift stores. Hang the lights from hooks in the ceiling. Make sure lights can be adjusted higher or lower as plants grow.

Tips for indoor growing
• Hang lights 2-3” above potting soil or plant starts
• Set lights on a 12-hour timer
• Use fresh potting soil or sterile seed starting mix
• Sanitize recycled pots in a mild bleach solution
• Use a small fan for air circulation
• If seedlings become leggy, lights are not sufficient – start again
• Keep seeds moist until they sprout, then water daily

Indoor projects
Teacup succulent gardens
Plant cuttings from indoor succulents like aloe vera, Christmas cactus or jade plant in cute tea or coffee cups purchased at Goodwill.

Sprouts
Growing and eating sprouts is fun. Sprout alfalfa, cover, radish, broccoli or mung beans. If you are adventurous try sprouting some sunflower seeds, wheat or oats.

Planting seeds
All seeds are planted to a depth of 2-3 times the thickness or diameter of the seed. Large seeds such as peas, beans or nasturtiums go in a small hole. Small seeds such as carrots, mustard and lettuce can be scattered on the top of the soil and then covered with a thin layer of soil.

How to plant a seed in a pot:
• Fill the pot to the top with potting soil
• Pat the bottom of the pot to settle the soil
• Level off the soil
• Make a hole or place seeds on the soil
• Cover seeds with a sprinkle of soil and pat the soil gently
• Water carefully and keep the soil moist until seeds sprout
When to start seeds for transplanting

Most plant starts that you see at the store are already 1-2 months old when you buy them. You can get a jump on the planting season and save some money by starting some vegetables, flowers and herbs from seed indoors. These starts will be transplanted later to the garden. Generally you will sow seeds about 4-8 weeks before transplanting. Plan to start most things about a month before it is warm enough to put them outside in the garden.

Recommended planting dates for Western Washington

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**Recommended sowing dates for starting indoors to transplant dates for Eastern Washington - April LFD - Moses Lake and Pasco**

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**Based on first and last frost dates.**
### Recommended sowing dates for starting indoors to transplant for Eastern Washington – May LFD – Ellensburg, Pullman, Spokane and Yakima

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** based on first and last frost dates.
Objectives

- Learn about worms and other decomposers.
- Learn how to setup and maintain an indoor worm bin.
- Make a mini worm bin or Worm Condo.
Kids love worms

Keeping a small worm bin is easy and extremely rewarding. Red worms are great recyclers of organic waste. Their castings (or poop) make the finest compost a gardener can find. Recycling kitchen scraps in a worm bin reduces waste and provides endless opportunities for learning. Children love to search through the compost and find many interesting things both living and non-living. This is a great way to explore nature in a microcosm.

Worm bins

A worm bin is a closed system for composting kitchen scraps. A worm bin is a shallow (12”-24” deep) box that has a tight fitting lid, drainage holes and some air circulation. This bin is filled with red worms and moist bedding such as dry leaves, shredded newspaper or cardboard. Vegetable and fruit scraps are buried in the bedding and the worms convert it into compost. Presto!

Instant worm bin

Start a small indoor/outdoor worm bin with materials that you can buy right “off the shelf.” This worm bin uses two Rubbermaid tubs and some 1” louvered vents. Tub A. will hold the worms and Tub B. will catch any liquid that drains out of Tub A.

You’ll need

- 2 – 14 gallon Rubbermaid tubs
- 6-8 aluminum 1” louvered vents
- ¼” drill bit
- 1” drill bit
- Newspaper (and leaves)
- Water
- A handful of soil
- Red worms

Make your bin

- Use a ¼” drill bit to make 8 drainage holes in the bottom of Tub A.
- Use a 1” drill bit to make 3 holes equally spaced along the side Tub A. near the top
- Push louvered vents into holes
- Nest Tub A. into Tub B.
- Fill Tub A. with moist bedding and a starter batch of worms
- Bury 1-2 pounds of food scraps each week
- Make sure bedding stays moist
- Replace bedding when there isn’t enough to completely bury food
**Bedding the worm bin**

When we bed a worm bin, we are creating a home for the worms to do their important job of making soil for the garden. Worm bin bedding (in the Children’s Garden) has three main ingredients: newspaper, leaves, and water. In a tub, tear newspaper into strips. Then add an equal amount of leaves if you have them. Next soak the pile with water till gloppy. Have the kids mix it all around and then move it into the worm bin. This is messy good fun. If you are using newspaper only, add a couple handfuls of soil as a microbe and grit source.

**Worm Bedding**
- Newspaper
- Cardboard
- Soil paper towels or napkins
- Fall leaves
- Clean sawdust or shavings

**Feeding your bin**
Worms can eat one pound of food waste, per one square foot of surface area, per one week. This is the rule of one. If your bin measures 1’ by 2’ that equals 2 square feet of surface area. This means you can give your worms up to 2 pounds of food each week. In the first couple months of running your worm bin you will feed it smaller amounts – until your worm population increases. Completely bury all food scraps in the bedding and stagger burial sites so your worms have time to eat each deposit.

**Worm Food**
- Fruit and vegetables either cooked or raw
- Bread and grains
- Coffee grounds and filters
- Tea bags
- Egg shells

**Do not feed to the worms**
- Meat
- Fish
- Poultry
- Dairy products
- Pet wastes
- Evergreen leaves
- Coated paper or magazines
- Sawdust or shaving from treated or painted wood
- Citrus peels
Harvesting your worm compost
When the bedding has been digested and there is a thick layer of dark soil at the bottom of your bin it is time to harvest. Stop feeding your bin for a little while. Dig out the finished compost and spread it out on flattened cardboard or a tarp. Pick out any food that hasn’t decomposed and put it back in the bin. Children have a lot of fun separating the worms from the soil. Put the worms back in the bin and spread ½” – 1” of the finished compost around plants in the garden. Refill your bin with fresh moist bedding and keep going!

Exploring the worm bin with children
Invite the children to come stand around the worm bin. This is a magic box. This is where all of our leftover plants are changed into compost. Open up the bin and let the children peer inside. Lead them over to the tarp with the worm bin sample. Pass out magnifying glasses and bug boxes. Encourage the children to explore the castings or compost. They will not only find worms but other insects and rotting food scraps. Look for worm egg sacs or cocoons.

At the end of this station, invite each child take a small handful of worm castings and find a plant in the garden they want to feed. Tell and show them how to put the compost around the base of the plant. Demonstrate.

Open up a discussion on the “helpers in the garden.” The worms represent a very critical cycle in the garden. Worms decompose plants to make soil to feed the plants. The plants die and provide more food for the worms.

Worm Bin Exploration Prompts
- Find and identify critters
- Why do we use a worm bin?
- How do worms eat?
- What do they eat?
- Describe worm reproduction – find worm egg sacks
- Show worm diagram – talk about worm digestion
- Use magnifying boxes – empty and put away
- Make a slide show using magnifying boxes
- Feed some compost to plants
- Feed some plants to worm bin

Worm Facts
Worms are the ultimate recyclers, turning leftover food scraps and plant materials back into nutrient rich humus that is mixed with garden soil to help plants grow. Worm poop is referred to as castings. Compost made from this is called vermicompost. Worms love to eat all fruits, vegetables, and plant matter. All meat, dairy and oily food should not go into the worm bin. These products
take a long time to disintegrate, and create bad smells and encourage rodent invasion. Worms eat their weight in food everyday.

The worms in worm bins are red wiggler worms or Eisenia fetida, not regular earthworms or night crawlers. Red worms digest organic matter, as opposed to soil, are smaller than the common earthworm. They like it where it is cool, moist, and dark.

Worms have no eyes or ears but use the skin on their body to feel. They don’t have teeth and grind up their food in a gizzard. Worms have five enlarged blood vessels that work like five hearts in their body. They have a single digestive tract that runs the length of their body.

The band around the worm’s body is called the clitellum. When a worm is pregnant, the area gets swollen. Worms lay cocoons that contain from two to twenty baby worms. Worms produce these cocoons at least twice a week. The cocoons look like little tiny golden teardrops or lemons. They are about one millimeter long or about the size of a short-grain of rice. If they are squeezed too hard premature baby worms will come out and will not live. All worms can lay cocoons. Red worms are hermaphroditic – each worm has both male and female parts.

**Worm Reproduction**


Worms are hermaphroditic, having both ovaries and testes. The band 1/3 of the way down from the worm’s head is the clitellum. The presence of the clitellum indicates that the worm is sexually mature. Worms, attracted by glandular secretions, find each other and lie with their heads in opposite directions; their bodies are closely joined (almost entwined). Their clitella secrete large quantities of mucus that forms a tube around each worm. Sperm from each worm move down a groove into receiving pouches of the other worm. The sperm, in a seminal fluid, enter the opening of sperm storage sacs where they are held for some time.

After the worms separate, the clitellum secretes a second substance, a material containing albumen. The albuminous material hardens on the outside to form a cocoon or egg sac in which eggs are fertilized and from which baby worms hatch. As the adult worm backs out of the hardening balloon, it deposits eggs from its own body and the stored sperm from its mate. The sperm fertilize the eggs inside the egg sac that closes off at each end as it passes over and off the worm’s head. It takes at least three weeks development in the cocoon before one of several baby worms hatch. A red worm can be producing cocoons when it
is 4-6 weeks old. A mature worm can deposit 2-3 cocoons per week for 6 months to a year.

**Worm Bin Critters**  
*(Loose excerpts from Mary Applehof’s excellent book, “Worms Eat Our Garbage”)*

**Collembola** is a close relative of the springtail but doesn’t have a springing tail. This tiny insect, often white, is less than 1/16 of an inch long. Along with springtails, they are members of a group of animals, which are primitive insects. Thousands of collembola live in worm bins where they eat molds and decaying matter.

**Red Worm**, *Eisenia fetida*, is a long, thin soft-bodied animal. Its body is made up of little rings called segments. It has neither legs nor eyes; when a worm senses light, it slithers away to a protected spot. Worms eat bacteria, fungi, protozoa, and decaying organic matter.

**Pot Worm** is a skinny, white worm also known as a pot worm or an enchytraeid (*en kee tray’ id*). It is about an inch long, but is so thin that they look like a piece of thread. They move like an earthworm, they are related to earthworms. They don’t have red blood like an earthworm. They eat well-decomposed material. White worms “finish off” the job of decomposition.

**Pill Bug** or **Roly Poly** is an isopod, which means that they have 7 pairs of legs that look very similar to each other. The flattened plates on its body make it look like an armadillo. It is about ½ inch long. It rolls up in a ball if it is disturbed or in danger. It eats vegetation and leaf litter.

**Ant** is an insect with 6 legs and 3 body sections – head, thorax, and abdomen. It is an important decomposer because it breaks material down into smaller particles. Ants create tunnels, and assemble soil particles into clumps. People find ants a nuisance in their homes, so it is best to keep them from setting up residence in a worm bin.

**Fruit Fly** is a small fly. It sometimes is a nuisance. It doesn’t bite, sting or make annoying buzzing sounds. It never harms earthworms. People consider the fruit fly a pest because it sometimes invades worm bins. If it is warm and humid, and fruit and yeast are present, then fruit flies will lays eggs that will hatch. One way to help keep fruit flies from being a nuisance is to completely bury food waste deep in the worm bin bedding.

**Mite** is a tiny arthropod. It could take 25 mites to cover an inch long line. Its body is so round and fat it is hard to see its 8 jointed legs. Thousands of mites
live in a worm bin. They are important decomposers. Some mites eat plant material, such as mold and soft tissues of leaves. Other mites eat manure of other organisms.

**Centipede** is a fierce hunter! It is known as a predator because it preys on earthworms and eats them. They have a pair of poison claws - no danger to humans! - to help keep prey from getting away. Centipedes move quickly on 15 pairs of legs. They have only 1 pair of legs on each of their body segments that stick out to the sides. Centipedes are about 1 – 2 inches long.

**Sow Bug** or **Potato Bug** is an isopod. It has 7 pairs of legs. It is related to crayfish and lobster. It breathes with gills, so it must live in a damp, moist place. Its ½ inch long body is oval and flat, with a series of flattened plates like its close relative the roly-poly. The sow bug can't roll up in a ball. It eats vegetation and leaf litter.

**Millipede** has so many legs you would have a hard time counting them. Its name means “thousand legs,” but it doesn't have that many. Each segment has 2 pairs of legs the point toward the ground. The millipede is not fierce but quite timid. It rolls up in a spiral to avoid danger. It is a vegetarian. It eats soft, moist, decaying plants. It is thick-skinned, slate gray in color and 1-2 inches long.

**Slimy Creatures**

**Snail Facts**
The body of a snail has a foot and head and a visceral mass, which is inside the shell. The visceral mass contains the mantle cavity where the heart and single kidney sit. The body of the snail, near the shell mouth is an opening called the pneumostome. This leads into the mantle cavity that has the function of a lung. The head usually has two pairs of tentacles. The upper are the eyestalks, while the lower pair helps with smelling and feeling. Snails probably don't see shapes but are very sensitive to light.

The mouth has a tongue called a radula. In the top of the mouth is a hard ridge and food is mashed between the radula and this ridge. The front teeth of the radula wear very fast but the radula grows from the backend. The digestive system begins with the mouth, and follows with the esophagus, crop, stomach and intestine. The intestine is folded in loops and ends in the anus. This is situated in the front of the mantle cavity.

The blood system in Gastropods is open, with blood spaces but no veins. The pigment is usually colorless. The heart consists of a single thin walled ventricle and a single thin walled auricle. The blood takes oxygen from the lung and
transports it to the auricle, and then to the ventricle and then to the blood spaces.

**Locomotion**
Snails and slugs move by contracting and relaxing muscles in the foot. There are two sets of muscle fibers and each set performs a different task. When moving forward one set contracts pulling the snail from the front and pushing it off toward the back. At the same time the second set pulls the outer surface of the sole forward.

Both halves can move separately, creating a sort of pedal-like locomotion. Glands produce mucus, which allows snails to move over rough or sharp material and crawl on vertical surfaces. It is also used for protection and navigation. Snail trails are broken and slug trails are continuous.

**Snail Reproduction**
Most snails are hermaphroditic. Snails need a partner to mate. Each snail has two sets of sex organs – male and female. Two snails exchange sperm into holding sacs under the mantle or shell. After about two weeks the eggs are laid. The eggs look like little clear or white pearls and are laid in clusters or separately under rocks, bricks, burlap sacks, mulch, cardboard or fallen leaves. After a few weeks tiny snails are born. They have a transparent shell. Most species of snail reach maturity in a year.

**The Shell**
The most eye-catching part of the snail is the shell. It consists of several layers: A thin outer layer called periostracum made of an organic substance called conchiolin. A thick inner layer called ostracum made of inorganic calcium carbonate. Most shells are coiled in a clockwise direction. The oldest part of the shell is the apex. From the apex the shell grows downward. Every 360 degrees turn is called a whorl. The seam where two whorls meet is called the suture. This can be shallow or deep. The mouth of the shell is called the aperture, it can be round, semicircular, trilobate, or auriculate.

**Snail Life**
Snails eat a large variety of mostly decomposing plants. Fruits, especially strawberries are favorites too. Sometime they eat carrion if they find it. Snails have a lot of enemies. Birds, especially the blackbird and the song thrush, eat the smaller species. Rats, mice, hedgehogs, moles and rabbits have snails on their menu. Beetles eat them sometimes too and people often rid them from gardens. In the winter and in dry periods snails crawl under rocks, wood and leaves, and seal their shell with several layers of mucus. This is called aestivation in the summer and hibernation in the winter.
**Slug Anatomy**

Slugs are similar to snails with a leathery mantle taking the place of the whorled shell and the main body or foot more exposed.

**Mantle:** Also called the pallium, the mantle is a fleshy lobe that, in other gastropods, secretes materials for making a shell. In most slugs this anatomical feature is vestigial; however, it can serve as a key identifier for many species.

**Keel:** A prominent ridge that runs along the back of some slug species. Also called the carina.

**Pneumostome:** A small hole or slit on the slug’s right side, leading to the slug’s single lung.

**Tentacles:** Erroneously called antennae, these are two pairs of stalks – short sensory tentacles for feeling or smelling and longer optic tentacles tipped with tiny, light-sensitive eyes.

**Mouth:** Located below the eyes on the underside of the head; equipped with a tongue like, rasping radula and a jaw.

**Anus:** Under a flap on the right side of the mantle; channels waste from the intestine and kidney.

**Love Spur:** Reproductive protrusion that is located under a flap on the side of the mantle.
**Worm Condo**

Students will experience making a suitable habitat for composting worms. Students will make a miniature worm bin. Students will learn how to care for red worms.

**Materials**

- Pint sized cartons
- Red worms (three for each habitat)
- Newspaper for bedding
- Spray bottle with water
- A pinch of soil per student
- Colored markers

Each student decorates the outside of their carton with permanent markers. **Make sure they all have names.** Tear newspaper into tiny, thin strips and stuff into the box. Dampen newspaper strips with the spray bottle. Fill box with lots of paper and add a sprinkling of soil. Toss together. Add 3 worms and some pieces of left over vegetable or fruit scraps.

**Care for your worms**

Discuss care of worms with students. The paper must remain moist like a rung out sponge. Damp like the outside of the worm's body. Worms like darkness, so when not observing them, keep the top closed, avoid drastic hot or cold temperatures, feed them little scraps every few days.

The worms will probably survive a week or two in this habitat before needing to be moved to a larger worm bin. Seattle Tilth has a diagram describing how to build your own worm bin or you can make a classroom bin out of a plastic rubber maid tub. [www.nwcleanair.org/pdf/agPrograms/outdoorBurning/Worm%20Bin-OTS.pdf](http://www.nwcleanair.org/pdf/agPrograms/outdoorBurning/Worm%20Bin-OTS.pdf) Contact the Garden Hotline (206) 633-0224 for more information.

If keeping a worm bin doesn't fit into your lifestyle, you can release your worms into an outdoor compost pile or your garden beds or containers.
Culinary Adventures

Unit Six

Objectives

➢ Review the techniques for working with children in the preparation and cooking of vegetables and fruit from the garden.
➢ Prepare, eat and clean up a healthy delicious snack or salad made from fresh garden produce.
Cooking With Children

Helpful items for cooking kits
Kid-safe plastic knives
Kid-sized knives
Tupperware
Metal Mixing bowls
Mixing spoons
Measuring cups
Measuring spoons
Cutting boards
Cheese (veggie) graters
Vegetable peelers
Colander
Small strainer
Ladle
Tongs
Potato masher
Salt and pepper
Various dry herbs
Olive oil
Vinegar
Clean jars for shaking and mixing salad dressings
Eating utensils, cups, bowls, plates (reusable or disposable), table clothes
Plastic trays, aluminum foil, plastic wrap
Dish soap, dish tubs, dishcloths and clean, dry towels, drying rack

Other nice things to have
Aprons
Garlic press
Rubber spatula
Metal spatula
Veggie scrub brushes
Salad Spinner
Electric spice mill
Blender
Crockpot
Propane camp stove
Skillets
Saucepans with lids
Stockpots with lids
Scissors are great for snipping herbs or salad greens
Ice cream maker for sorbet
Electric skillet or burner for hot cooking
Some things to keep in mind

- Always make sure the area that your cooking area is cleared of clutter
- Clean and sanitize area as much as possible
- Teach children correct hand washing procedures
- **Always wash hands before cooking for others and eating**

I like to empower the students with a few knife skills so they feel like a chef. If you are letting students use knives, give them instructions on how to use them safely and expectations of how they are to act when holding and using knives. You may choose to create some rules for working with knives; these are mine:

1. **Only one person should hold the knife at a time** - if they need to pass the knife to someone else, I suggest placing on the table and sliding it to the person.
2. **The only time you should be holding the knife is if you are chopping something** - if there is no chopping or cutting happening, the knives should be at rest on the table.
3. **Notice where the tip is pointing** - a knife should not ever be pointed at another person or yourself.

Any electric skillet or hot cooking device can also be a safety issue. Make sure students are aware of where they are standing and what they are doing if they are using or even close to these tools.

The Food $ense program of WSU King County Extension has their CHANGE curriculum online to download for free in pdf form. These are garden based nutrition lessons with classroom friendly recipes: [http://king.wsu.edu/nutrition/change.htm](http://king.wsu.edu/nutrition/change.htm) It is great to use graphic recipes like the ones designed by WSU extension. It breaks down each recipe into simple tasks that can easily be divided between small groups of students.

**Cooking with Groups**

You can organize your cooking project so that each group makes their own snack or each group prepares some part of the whole. When each group makes a complete snack, it is fun to do taste testing so everyone can taste the different creations. When groups are preparing separate parts of a recipe the students can see how one aspect can contribute to the bigger whole.

Create mini-kitchens for groups of 3-4 students. These will include all the utensils, bowls, cutting boards and produce that each team will need to make the recipe. Before we eat, we always clean up each mini-kitchen and set a table so we can sit down to serve everyone family style.
Recipes

Vinaigrette Dressing

Shake, whisk or blend
3 parts oil
1 part acid such as vinegar or lemon juice
Add herbs and spices to taste:
   Minced garlic
   Minced shallots
   Dijon mustard
   Thyme
   Basil
   Rosemary
   Oregano
   Dill
Salt and pepper to taste

Lemon or cucumber water

Make 6-12 thin slices lemon or cucumber
Put lemon or cucumber slices in the bottom of a pitcher
Mash lightly with a wooden spoon
Fill pitcher with cold water and ice
Let stand 20-30 minutes
Drink with garnish of mint or lemon wedge

Cucumber dill dip
Adapted from www.cdkitchen.com

1 cucumber, peeled and grated
1 pound soft tofu
1 tsp dry dill weed
2 Tbs lemon juice
¼ C chopped parsley
½ tsp garlic powder
Salt and pepper to taste

Combine all ingredients and blend smooth with a food processor, blender or immersion blender. Chill ½ hour.
Upscale Spinach Salad

1 bunch spinach, washed and torn into bite sized pieces
¼ red onion sliced very thin
1 crisp apple, cored and cut into small chunks
1 handful of raisins
1 handful of roasted sunflower seeds
soft goat cheese (optional)

Toss spinach, onion, apple and raisins in vinaigrette dressing. Sprinkle to top with sunflower seeds (and goat cheese).
Appendix:

Garden Songs

A collection of songs that are fun to sing and play. Reproduced here for educational purposes only.
Dirt Made My Lunch
By The Banana Slug String Band

Chorus
G                                    C
G                                      G
Dirt made my lunch, dirt made my lunch.
C                                    G
Thank you dirt, thanks a bunch
                                    C
G                                    G
For my salad, my sandwich, my milk, and my munch.
                                    D                                    G
Thanks Dirt, you made my lunch.

Lunch Made My Dirt
From Hidden Villa tape

G                                    C
G                                      G
Lunch you made my dirt, lunch you made my dirt
C                                    G
Worms and bugs with my apple cores flirt
                                    C
G                                    G
If it wasn't for them I’d have to eat my shirt
                                    D                                    G
Thanks lunch, you made my dirt
Itsy Bitsy Spider
-- traditional

G                      D7
G
The itsy bitsy spider climbed up the
water spout
G                      D7
G
Down came the rain and washed the
spider out
G                      D7
G
Out came the sun and dried up all
the rain
G                      D7
G
And the itsy bitsy spider climbed up
the spout again

G                      D7
G
The great big spider climbed up the
water spout
G                      D7
G
Down came the rain and washed the
spider out
G                      D7
G
Out came the sun and dried up all
the rain
G                      D7
G
And the great big spider climbed up
the spout again
The Garden Song
By Dave Mallet

G                   C          G
Inch by inch, row by row
C          D            G
Gonna help this garden grow
C           D           G               Em
All you need is a rake and a hoe
A                                 D
And a piece of fertile ground
G                   C          G
Inch by inch, row by row
C              D               G
Someone bless these seeds I sow
C              D                G     Em
Someone warm them from below
A D       G
Til the rains come tumbling down.

2. G                   C          G
Pulling weeds, picking stones
C          D            G
We are made of dreams and bones
C        D         G            Em
Gotta need to grow my own
A                                   D
For the time is close at hand
G                       C          G
Grain for grain, sun and rain
C              D            G
Find my way thru nature’s chain
C              D          G     Em
Tune my body and my brain
A             D         G
To the music of the land.

3. G                   C                    G
Plant your rows straight and long
C          D          G
Temper them with prayers and song
C        D         G            Em
Mother earth will make you strong
A                                    D
If you give her love and care
G                   C          G
That old crow watching hungrily
G                       C          G
From his branch in yonder tree
C              D            G     Em
In my garden I’m as free
A             D         G
As that feathered thief up there.
"I'Il Rot Away"
Words by
The Banana Slug String Band

G 1. In the ground where all the plants are found
   C G I’ll rot away
   G I’ll rot for a while in your compost pile
   D G I’ll rot away

CHORUS
G I’ll rot away like compost
   C G I’ll rot away in the garden
   G Back to the ground where all the plants are found
   D G I’ll rot away

G 2. My nose and my toes they will decompose
   C G I’ll rot away
   G My ears & my knees will be food for the trees
   D G I’ll rot away

CHORUS
G 3. My eyes and my thighs will be food for the flies
   C G I’ll rot away
   G When I die I guess I’ll fertilize
   D G I’ll rot away

CHORUS
G 4. Feed the garden with my head I won’t need it I’ll be dead
   C G I’ll rot away
   G When you eat a pea, you’ll be eating part of me
   D G I’ll rot away

CHORUS
The Insect Song
By Tickle Tune Typhoon

C    F    C
I am an insect in the life
C    G7    C
And this is what I look like
C
Two antennae
F
Compound eyes
G7
One, two, three,
C
Four, five, six legs
C
Two sets of wings
F
So I may fly
G7
My thorax
C (G) C
And my ab-do-men
G    C
And this is what I look like

(Revved UP)

C
Two antennae
F
Compound eyes
G7
One, two, three,
C
Four, five, six legs
C
Two sets of wings
F
So I may fly
G7
My thorax
C (G) C
And my ab-do-men
G    C
And this is what I look like

Bridge
C
Instead of bones
F    C
My body grows
C    G7    C
An exoskeleton
C
Its hard and strong
C    F    C
And seals me in
C    G7    C
Protecting my organs.
Let’s Make Tea
Words by Joan Goodnight

To the tune of Frere Jacques--

G
Hold and pick it,

G
Hold and pick it,

G
Use two hands,

G
Use two hands.

D7                     G
Hold the stem with one hand,

D7                     G
Pick it with the other hand,

G         D7    G
Let’s make tea!

G         D7    G
Let’s make tea!
Ladybug Picnic
-- unknown

G
One two three, four five six
G
Seven eight nine, ten eleven twelve
D7
Ladybugs came
D7           G
To the ladybugs’ picnic

G
One two three, four five six
G
Seven eight nine, ten eleven twelve
D7
And they all played games
D7           G
At the ladybugs’ picnic

C
They played jump rope
C
But the rope it broke
G
So they just sat around
G
Tellin’ knock-knock jokes
D7
Ladybugs 12
D7           G
At the ladybugs’ picnic

C
They had twelve sacks
C
So they ran sack races
G
And they fell on their backs
G
And they fell on their faces
D7
Ladybugs 12
D7           G
At the ladybugs’ picnic

C
They talked about the high price
C
Of furniture and rugs
G
And fire insurance
G
For ladybugs
D7
Ladybugs 12
D7           G
At the ladybugs’ picnic

G
One two three, four five six
G
Seven eight nine, ten eleven twelve
D7
And they played more games
D7           G
At the ladybugs’ picnic

------------------
G
One two three, four five six
G
Seven eight nine, ten eleven twelve
D7
And they chatted away
D7           G
At the ladybugs’ picnic

C
They talked about the high price
C
Of furniture and rugs
G
And fire insurance
G
For ladybugs
D7
Ladybugs 12
D7           G
At the ladybugs’ picnic

------------------
G
One two three, four five six
G
Seven eight nine, ten eleven twelve
D7
And they shivered away  
D7                     G  
At the ladybugs’ picnic  

C  
Along came winter  
C  
The cold and the snow  
G  
So the flew down inside  
G  
My window  
D7  
All the ladybugs left  
D7  
the ladybug picnic  

Slimy, Slimy little Slug  
By Lisa Taylor and Sam O’Brien  
--to the tune of Twinkle, Twinkle . . .  

G                  C      G  
Slimy slimy little slug  
C                  G      D  
You live in the garden but you’re not  
G  
a bug  

G                  C      G      D  
In the garden on the ground  
G                  C      D  
I find your trail but you don’t make a  
G  
sound  

G                  C      G  
Slimy slimy little slug  
C                  G      D  
You’ve got a face only a mother  
G  
could love
**Slimy Shake**  
By Sam O’Brien and Lisa Taylor

- **A7**
  The worms in the ground, they wiggle around
  Can you wiggle wiggle wiggle?
  wiggle wiggle wiggle
- **D7**
  The worms in the ground, they wiggle around
  **A7**
  Can you wiggle wiggle wiggle?
  wiggle wiggle wiggle
- **E7**
- **D7**
  The slugs in my yard, make a squishy sound
  They go squish squish squish -- squish squish squish
- **A7**
  The slugs in my yard, make a squishy sound
  They go squish squish squish -- squish squish squish
- **E7**
- **D7**

Oh the snail in its shell, likes to hear us hum
We go hum hum hum -- hum hum hum
Oh the snail in its shell, likes to hear us hum
We go hum hum hum -- hum hum hum
Oh the snail in its shell, likes to hear us hum
We go hum hum hum -- hum hum hum

Wiggle, wiggle, wiggle one more time!
**Roots, Stems, Leaves**  
By S. Van Zandt

Chorus  
C  
Roots, stems, leaves, flowers, fruits and seeds  
G
C  
Roots, stems, leaves, flowers, fruits and seeds  
C  
Roots, stems, leaves, flowers, fruits and seeds  
G
C  
Roots, stems, leaves, flowers, fruits and seeds  
C  
That's six parts, that's six parts, six plant parts  
G C
That plants and people need.
Sing When The Spirit Says Sing
-- traditional

Am E7 Am
You gotta sing when the spirit says sing
Am E
You gotta sing when the spirit says sing
Am
Cause when the spirit says sing
Dm
You gotta sing right along
Am E7 Am
Sing when the spirit says sing

Clap
Snap
Shout
Laugh
Sway
Hug
Love
Shake
Wiggle
Dance
**Magic Penny**  
By Malvina Reynolds

Chorus

G
Love is something if you give it away  
D   G
Give it away, give it away  
G
Love is something if you give it away  
D   G
You end up having more

C   G
It’s just like a magic penny  
D   G
Hold it tight and you won’t have any  
C   G
Lend it, spend it and you’ll have so many  
A      D
They’ll roll all over the floor, for

**Love is something . . . .**

C   G
Money’s dandy and we like to use it  
D   G
But love is better if don’t refuse it  
C   G
It’s a treasure and you’ll never lose it  
A      D
Unless you lock up your door, for

**Love is something . . . .**

C   G
So let’s go dancing til the break of day  
D   G
And if there’s a piper we can pay  
C   G
For love is something if you give it away
This Little Light Of Mine
-- traditional

C
This little light of mine, I’m gonna let it shine
F             C
This little light of mine, I’m gonna let it shine
C                                  Em          Am
This little light of mine, I’m gonna let it shine
                                       C                G                C      F C
Let shine, let it shine, let it shine

C
This little dream of mine, I’m gonna let it shine
F             C
This little dream of mine, I’m gonna let it shine
C                                  Em          Am
This little dream of mine, I’m gonna let it shine
                                       C                G                C      F C
Let shine, let it shine, let it shine

C
This little heart of mine, I’m gonna let it shine
F             C
This little heart of mine, I’m gonna let it shine
C                                  Em          Am
This little heart of mine, I’m gonna let it shine
                                       C                G                C      F C
Let shine, let it shine, let it shine

C
All around the world, I’m gonna let it shine
F             C
All around the world, I’m gonna let it shine
C                                  Em          Am
All around the world, I’m gonna let it shine
                                       C                G                C      F C
Let shine, let it shine, let it shine