Southern California Preschool Garden Primer

Who we are:
The Garden School Foundation is a 501(c)3 non-profit dedicated to providing an interdisciplinary program of education through garden-based learning in outdoor living classrooms.
At the 24th Street School pilot ¾ acre garden, our curriculum is designed to foster children's innate sense of curiosity and free play. By providing a dynamic learning experience, the Garden School Foundation serves as a model of garden-based learning for other schools throughout Los Angeles.

What we do:
GSF runs a pilot K-5 California state standards-based Seed to Table garden program incorporating science, math, literacy and nutrition for every student at the 24th Street Elementary School in West Adams. Our curriculum includes a bi-weekly cycle of planting, experimentation, harvesting, cooking, and eating, with over 30 classes taught each week.

GSF assists parents, teachers and faculty members with their own garden plots on a daily basis; runs parent and community workshops; and hosts monthly workdays in which well over 150 GSF supporters, teachers, neighbors, and administrators attend, translating to over 1000 workday volunteer hours during the school year.

www.GardenSchoolFoundation.org

Who we are:
Farm to Preschool, a grant-funded program of the Urban & Environmental Policy Institute at Occidental College, is designed to facilitate access to healthy and affordable locally sourced food among preschoolers and their families, and to influence early childhood eating habits, which is crucial in preventing childhood obesity and other health conditions related to poor nutrition.

What we do:
The program follows a multi-level approach, which includes facilitating the incorporation of farm-fresh, locally grown fruits and vegetables into childcare and preschool menus, providing culturally- and age- appropriate nutrition and garden based education, school garden technical assistance, templates for interactive parent workshops and helping establish healthy school food policies; all of which can increase access to fresh fruits and vegetables at preschools, influence life-long eating patterns, and improve the overall health and well-being of young children and families. As a natural expansion of the national farm to school model, this program supports local farmers and the economy through farm and farmers' market-based purchasing.

www.FarmToPreschool.org www. uepi.oxy.edu

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Creating a Garden Bed

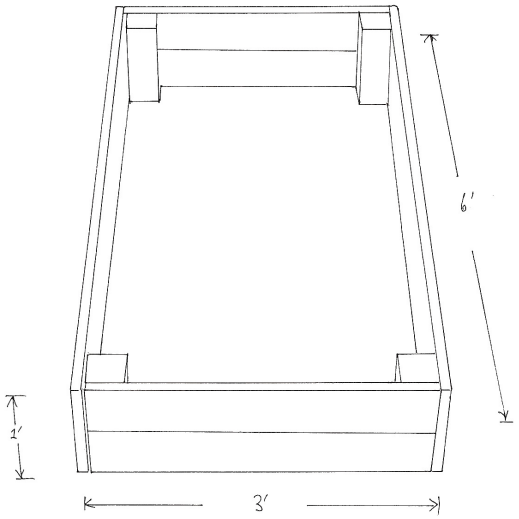
Most schools choose to make a "raised bed" garden, which is just a box set on top of the ground that's filled with high quality soil. This type of garden has many advantages: greater productivity because you can plant close together, low water usage, control over soil quality, fewer weeds and less digging! Here are very simple instructions for how to create a raised bed. If you can't build one or don't have enough space, there are companies that sell raised bed kits out of recycled plastic (see resources page). Or consider a container garden instead. Get creative with the kinds of pots you use, even old pairs of shoes are great for growing lettuce!

Build a Raised Bed

We suggest building a raised bed that's between 3'x3' and 3'x12'. To allow for easy access to all parts of the bed do not build it wider than 3'. Redwood makes a great, long lasting option but can be expensive, so ask around for recycled wood (just be sure it's not treated – NEVER use treated wood as the chemicals can leach into the soil). To build a basic 3'x6' bed you'll need:

(4) 2"x6"x6' wood boards
(4) 2"x6"x3' wood boards
(4) 3"x3"x12" wood posts
1 piece 3'x6' hardware cloth (optional – use only if you have a gopher problem)
Screws
Power Drill

Assemble the pieces according to the drawing below:



If you are using the hardware cloth lay the piece down underneath the bed or staple it to the underside before it's placed on the ground.

You can seal the wood by using linseed oil or another water sealant, but if you use redwood or cedar they will last a good few years if left untreated.

Fill the Bed Soil
When gardening organically the most important thing is your soil. You want your soil to be alive, teeming with worms and microorganisms that slowly feed your plants not only the main nutrients they need (Nitrogen, Phosphorous and Potassium) but the micronutrients they need as well. You can fill the bed with good garden soil purchased from a local nursery or make your own mix by using equal parts compost, vermiculite, and coconut coir (peat moss is also used but is not environmentally sustainable!). You can purchase all of these materials at the garden supply store but ask around for local sources of compost – sometimes a neighbor makes some in their backyard or a grocery store will donate it from leftover fruits and vegetables.

As you fill the bed keep a hose handy and water after every few inches of soil added. This will ensure an evenly moist bed. It's very difficult to water an entire bed at the end!

Planting
Plant each seed or seedling according to the instructions in the planting guide. Seeds need to be kept moist until they sprout and then watered regularly. To transplant a seedling, first make sure your soil is damp but not soaking wet. Gently squeeze the pot to loosen it and gently remove – do not pull it out by the stem! Make a hole in the dirt large enough to fit the seedling comfortably (don't squish it) and gently place in the hole. Fill dirt in around it being careful to keep the soil at the original level it was in the pot (except for tomatoes which can be buried past the first set of leaves). Tamp down gently and water well.

Watering
If you only have one or two beds to tend to then hand watering is best. To figure out if your plants need water, check the soil with your finger down to a couple of inches – if it feels dry, give it some water! Many people over-water their plants without realizing it, not letting the roots get the oxygen they need, so remember to check before watering.

Find a watering can that has a good nozzle that gently sprinkles water and try to water the ground around the plants, not the leaves as this can lead to multiple problems, such as powdery mildew. For larger gardens consider installing a drip irrigation system- they're low-cost, easy to install, and are very water efficient.

Fertilizing
Fertilize your vegetables according to packet directions with a slow-release organic fertilizer such as fish emulsion or compost tea.

Southern California Planting Schedule and Guide

Plant Type	Sow Indoors	Plant in Garden	Time to Maturity	Spacing
Beans, Bush and Pole	n/a	March-August	60 Days	Plant seeds 2-3 inches apart or closer and thin out after a few weeks
Plant in March for an early spring crop and again in July for a Fall crop.				
Broccoli	Start indoors	Transplant September-March	90 Days	One per square foot
Broccoli is an excellent vegetable to grow and can be eaten raw in salads or is delicious cooked in pasta.				
Brussels Sprouts	n/a	Plant August-March	90 Days	1 per square foot
Cabbage	January-February	July-September	3-4 Months	1 per square foot
Grow a mixture of red and white cabbages to make colorful rainbow salads.				
Carrots	n/a	October-Mid March	90 Days	Thin seedlings to 2-3 inches apart
Make sure to grow lots of carrots. There's nothing more exciting than pulling up a huge orange carrot from the ground! Look for white, purple and red carrot seeds for an exciting mix.				
Cauliflower	n/a	August-Mid February	4-5 Months	1 per square foot
Corn	n/a	April-August	2-3 Months	8-12" b/t plants, must grow 3 rows for pollination
Plant a Native American 3 Sisters garden: plant pole beans next to the corn so they'll grow up the stalks and squash or melons around the base so they'll provide cover (mulch) for the soil, keeping it cool and moist.				
Cucumbers	n/a	April-August	2-3 Months	1 per 2 square feet
"Lemon" cucumbers (named for their appearance) are a delicious and fun variety to grow with kids. Must be trellised so they can grow vertically.				
Eggplants	February -March	Transplant April-June	2-4 Months	1 per square foot
There are many delicious varieties of eggplant. Look for a baby variety like "Fairytale" or "Little Prince"				

Lettuce	September-January	October-Mid March	70-90 Days	Check seed packet for spacing, varies
Melons	February-March	April- June	3-4 Months	Melons need lots of room to grow or can be trellised
Harvest when fully colored, heavy, fragrant and can be pulled easily from vines.				
Peas	n/a	October-March	60 Days	Must be trellised – plant 2-3" apart
Plant "Sugar Snap" peas – they make a delicious snack eaten straight off the vine!				
Peppers	February	Mid March-June	4-5 Months	1 per square foot
There are many wonderful varieties to experiment with. Plant Jalapenos with tomato, cilantro and onion for a 'salsa bed'.				
Potatoes	n/a	January-May	90-150 Days	1 per 3 square feet
Plant a chunk of a 'seed' potato, containing 2 or more eyes. Harvest when the vine begins to die or has died completely, digging around in the dirt to find all of the potatoes – a great activity for kids. Leave the potatoes laying on the ground for a day to harden them and prevent bruising.				
Pumpkins	n/a	April- July	4-5 Months	Depends on variety
Start in June to have them for Halloween. Pumpkins need a lot of space to grow, or grow a baby variety.				
Swiss Chard	n/a	February - September	50 Days	1 per square foot
Chard is a very reliable school garden crop and will grown nearly year-round. Sow "Neon Glow" rainbow chard for a truly beautiful, tasty and delicious addition to your garden.				
Squash (summer)	n/a	February-August	30-70 Days	1 per 4 square feet
There are many fun varieties and squash is easy to grow and delicious – just make sure you don't grow too much!				
Tomatoes/ Tomatillos	February-May	Sow Transplants Mid March-June	4-5 Months	1 per 3 square feet for tomatoes, 1 per square foot for tomatillos
Make sure to plant "determinate" tomatoes if you are short on space or growing in a small raised bed and use a tomato cage or other long stakes for support. Cherry tomatoes are great for little hands!				

Companion Planting Guide

Certain vegetables seem to grow better when planted with certain others. This can be for a variety of reasons: sometimes one plant's leaves will provide shade for another plant; sometimes a certain beneficial insect is attracted to one plant that will benefit all those around it; some plants add nitrogen to the soil that is used by those nearby; some people insist that certain vegetables even taste better when they're planted close to others! While there is no exact science behind these decisions, the following combinations are good to keep in mind when planning your garden:

BASIL: Improves flavor of tomatoes and peppers, can also repel thrips.

BEANS: Beans add nitrogen to the soil and so are great for all plants that grow nearby, especially heavy feeders like corn and grains.

BEET: Don't plant near runner or pole beans as they'll stunt their growth, but beets are great for adding minerals to the soil and grow well with lettuce, onions and brassicas. It is said that garlic improves their flavor.

BROCCOLI: Broccoli grows great with lots of vegetables such as lettuce, potatoes, bush beans and cucumbers. Sweet alyssum attracts beneficial insects that eat aphids from the broccoli. For a beautiful combination, plant nasturtiums underneath the plant. Don't plant with strawberries.

CABBAGE: Plant with celery and onions. Don't plant with strawberries or most summer vegetables like tomatoes etc.

CARROTS: Carrots, with their long roots, grow well with shallow-rooted plants like lettuce and can be planted in-between these types of vegetables.

CORN: Plant with squash and beans for a three sisters garden. The corn provides a stalk for the beans, the beans add nitrogen to the soil, and the squash acts as a mulch to keep the soil cool for everyone! Make a delicious succotash at harvest time. Don't plant with tomatoes.

CUCUMBERS: Grow cucumbers with corn (they'll grow up the stalks) and dill – makes a great salad when harvested! Do not grow next to potatoes.

LETTUCE: Don't plant near cabbages – they'll stunt their growth!

MARIGOLDS: Marigold is a great pest deterrent, especially for whiteflies. Plant throughout your garden.

PEAS: Peas, like beans, add nitrogen to the soil and are great planted near corn, cucumbers, tomatoes, etc.

PEPPERS (Sweet): Plant with cilantro, onions and tomatoes for a salsa bed! Do not grow near apricot trees.

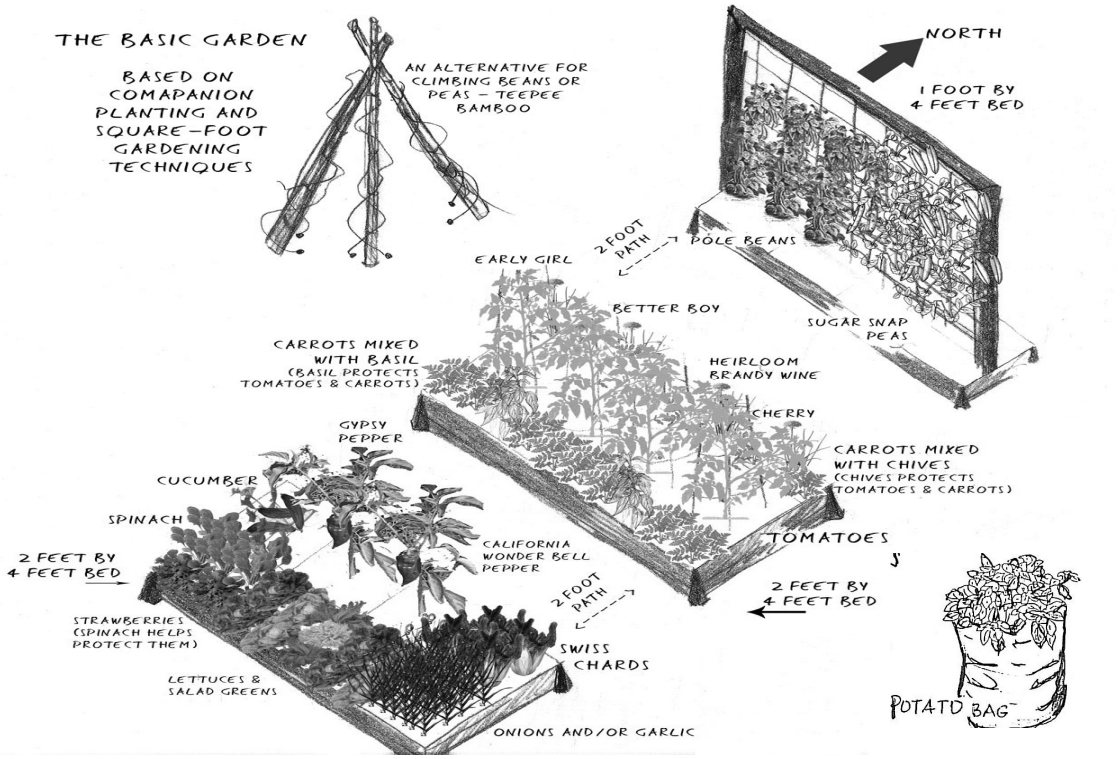
SQUASH: Grows well with corn, beans and cucumbers but don't plant near potatoes.

STRAWBERRY: Don't plant with cauliflower, cabbage or broccoli.

SUNFLOWERS: Sunflowers make a stunning addition to every garden, make great food for birds that also eat harmful insects, and are used by ants to "harvest" aphids, keeping them from your other vegetables.

SWEET ALYSSUM: This plant is great at getting rid of aphids, as they attract hoverflies whose larva eats them! Also smells beautiful.

TOMATOES: Tomatoes work well with many plants such as cucumbers, basil, and peppers. Try planting a pizza bed with all the great toppings for a garden pizza party! Do not grow under Walnut trees.



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Garden Activities

Seed Tapes

This is a great way to make it easier for little hands to plant seeds and see clearly how they should be spaced.

Materials:

- Paper Towels (cut into 3 inch x 12 inch strips)
- White Glue (Elmer's)
- Small or Medium Seeds (Lettuce, Carrots, Beets, etc.)

Instructions:

- Check seed packet to determine how far apart seeds should be planted. On paper towel strips, draw small dots spaced according to packet instructions
- Place a drop of glue on each dot and place one to three seeds on each drop of glue
- Allow glue to dry completely before moving
- Plant the seed tapes along the edge or in the center of your raised bed (NOTE: read seed packet for proper planting depth)

Pinecone Birdfeeders

A wonderful way to dress-up bare trees in the winter and bring bird-life to the garden! Keep an eye out for hungry squirrels as well!

Materials:

- Large Pinecones
- Peanut Butter (Honey if there is a peanut allergy)
- Small plastic spoons
- Seeds (birdseed, sunflower seeds, etc)
- Twine
- Scissors

Instructions:

- Using the bottom end of the plastic spoons, have the children spread peanut butter or honey on the open spaces of the pinecone
- Once all of the open spaces are covered with peanut butter or honey, have the children place the seeds on the pinecone
- After all of the seeds are placed, use the twine to hang the pinecones in an area easily accessible by the birds

Newspaper Pots

This is a fun hands-on planting activity that children can take home to their parents. A great way for kids to see clearly how seeds are planted and how to tend to them.

Materials:

- Newspaper
- Bottle/Mason Jar/Can (Size depends on how large you want your pots to be)
- Pair of scissors
- Potting Soil
- Seeds

Instructions:

- Cut the newspaper in into five to six inch strips (NOTE: do not use colored ink)
- Align the bottle, jar or can with the newspaper so that a few inches of the newspaper remain hanging off one end
- Roll the strip of newspaper around the bottom half of the bottle or around the opening of the cup/jar and fold any excess paper towards the bottom of the bottle
- Remove the bottle, cup or jar from the pot and flatten out the bottom of the pot in order to seal it
- Fill the pot with soil
- Plant seeds in pot, water well (a spray bottle works well) and make sure to label with a popsicle stick the name and date planted
- Allow seeds to sprout before planting the pot in the ground, making sure soil level in the pot is the same as the soil level in the ground

Seed, Seed Sprout

A fun game that helps reinforce how seeds go from being planted in the ground to growing into a plant.

Instructions:

- Have the children sit in a circle around the raised bed.
- Once the children are seated the game is played exactly like Duck, Duck, Goose except with the terms Seed and Sprout

Fresh from the Garden Recipes

Rainbow Pasta Salad

Pasta salad is a great recipe to make to use up whatever you have growing in the garden – carrots, peppers, broccoli, cherry tomatoes, Swiss chard, spinach, kale, etc. all make great additions. If you don't have any cooking equipment you can pre-cook the pasta or any other vegetables at home, but most vegetables can be used raw – just cut them into very small pieces.

Ingredients (serves 8):	Cooking Method
1 box whole wheat pasta (a small shape works best, not spaghetti) 1 head broccoli 2 leaves Swiss chard 1 yellow bell pepper 1 orange bell pepper 1 small container cherry tomatoes 2 tbsp olive oil parmesan cheese to taste salt and pepper to taste squeeze of lemon to taste	1. Boil pasta according to directions on the box. 2. Put a small pot of water on to boil. Add a little bit of salt to the water once it boils. 3. Have students cut or break up the broccoli into small pieces, slice or tear by hand the Swiss chard into small strips, cut up the peppers into small pieces and slice the cherry tomatoes in half. 4. Boil the broccoli and Swiss chard for 5 minutes, then drain and add to the pasta. 5. Have students add all of the other ingredients to the pasta and taste to make sure there's enough salt, pepper, lemon, cheese and olive oil. Serve and enjoy together!

Broccoli Song (to the tune of Old Mac Donald)
Sing this song while you're waiting for the vegetables to cook or after you've finished eating.

"Broccoli is good for me / ee-i-ee-i-oh / it makes my bones grow strong, you see / ee-i-ee-i-oh / brocc-o-li, so tast-y, eat it with your fa-mi-ly / broccoli is good for me / ee-i-ee-i-oh

Ants on a Log

Have students go into the garden and investigate how ants behave in the garden, then come back and create this healthy and tasty ant-like snack!

Ingredients:	Preparation Method
Celery Sticks Small raisins / currants Peanut butter	1. Cut celery sticks into 3-in. pieces and pass out to students 2. Have students spread peanut butter on their celery slice and then sprinkle raisins on top!

Rainbow Cracker Cakes

One of the most important and easily remembered nutrition lessons is to eat like the rainbow, making sure your plate always has a variety of colors and ensuring you're getting a variety of nutrients. This simple activity demonstrates that eating like the rainbow is fun, creative, and delicious. You can substitute any of the ingredients below depending on what's affordable, in season, or growing in your garden.

*Butter knives make great safe cutting utensils for little kids but every group is different. If they're not able to handle butter knives safely then you can pre-cut the fruit.

Ingredients (for one):	Cooking Method
1 Graham Cracker 1 tbsp 2% Plain Greek yogurt with a drop of honey mixed in 1 strawberry 1 small piece banana ½ Clementine orange 3 blueberries 3 grapes 5 fresh mint leaves	1. Wash all fruits before cutting. 2. Demonstrate how each fruit can be cut into small pieces and different shapes like circles or triangles. 3. Demonstrate how to hold and use the butter knife correctly and safely. 4. Divide up fruit amongst children and encourage them to experiment with different sizes and shapes. 5. Mix honey with yogurt and place a tbsp or so on each cracker, letting them spread it with their butter knife. 6. Have each child arrange their fruit on top and then everyone can eat together!

Follow-up: Have your students recite or learn all of the colors of the rainbow and talk about why it's important to eat like a rainbow. Students can try and come up with their own rainbow recipes, too!