

## PLANTING THE GARDEN

### Introduction

When gardening with children it is helpful to establish some rules to foster safety, teamwork, and good horticultural practices. Let the children establish the rules. Use multiple choice for acceptable and unacceptable behavior. Examples of unacceptable behavior are pushing, nudging, shoving, running, splashing. Working together and helping each other will establish a genuine spirit of cooperation and fun. Children will more likely follow the “rules of etiquette” if they help create the list.

### Garden Etiquette

Consider incorporating the following ideas:

- Be fair and courteous.
- Take care not to step into the beds and crush the young plants.
- Garden soil should not be walked on (this compacts the soil and makes it hard for the plants to grow).
- Share tools.
- Always clean tools before placing in designated area.
- Help keep litter and trash picked up.
- Plant in the soil; do not play with it.
- Always water gently so seeds and plants are not washed away.
- Water your plants, not your friends.
- Bugs are busy, watch them work.
- Touch everything, but pick nothing unless you ask the teacher first.

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A colorful poster in the garden will remind students of the safety and/or etiquette rules.

### **Garden Safety**

Safety guidelines might include:

- Tools are to be kept below the waist.
- Stay in the garden with your teacher.
- Walk. Don't run in the garden.
- Pointed tools should be laid down with the points in the ground.
- Never use tools as toys.
- Keep tools out of pathways.
- Be responsible and have fun.

### **Tools**

Before you start the garden you will need to have tools for the students to use. Tools such as rakes, shovels and hoes should be sized for the students. Also, sprinkling cans need to be smaller and lighter for the young students. Suggested tools are:

- Hand trowel - This tool is used more by students than any other tool. It is essential for transplanting and cultivating.
- Hand cultivator
- Gloves
- Magnifying glass- examine insects, identify disease organisms on plants

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- Hoe - used for chopping, scraping, shallow digging, and mounding
- Bow rake - wide metal head with heavy tines - level beds, spread soil amendments, and rake out rocks
- Leaf rake - remove light litter, such as leaves
- Scissors or clippers - trim plants, remove spent blooms
- Shovel - rounded on the end for digging and scooping
- Spade - squared on the end for cutting edges or digging
- Spading or digging fork - usually with four tines; dig into heavy soil
- Wheelbarrow or cart - transport materials in the garden
- Hose - buy a good quality hose that is flexible. Make sure it is long enough.
- Hose reel - store and prolong the life of the hose
- Sprinkler - choose one which can be set to a pattern and which emits a light mist, good for raised beds and for seedlings.
- Stakes, string, tape measure
- Watering can or 1/2 gal plastic containers with screw-on caps. Adults can poke small holes in the cap to allow a gentle stream of water to be emitted.
- Plant tags and waterproof markers - tongue depressors or popsicle sticks work well to identify plants or seeds. Sharpie waterproof markers work well to write the names of the plants on the tag.
- Clipboard
- Plastic jars or baby food jars to collect and study insects.

### Choosing the Plants

The garden team has been gathered, the garden has been laid out, the soil has been amended, and the beds are being prepared! At last it is time to choose the seeds and plants! This is a very exciting time! There are many seed and plant catalogs available which contain a wealth of information for plant and seed selection. Science, math, reading and other curricula can all be integrated into this activity. However, before seeds or plants are actually purchased, it is wise to determine the following:

- Will it be a specialty garden? [Click here to learn more about Specialty Gardens.](#) What types of plants are desired? For instance: vegetables or flowers. If flowers are to be included, will annuals or perennials be planted, or a mix of both? Will there be several beds each with different types of plants or will each bed have diverse plantings?
- What is your climate zone? Click this link [http://www.mastergardenerssandiego.org/Vegetable Planting Guide1.pdf](http://www.mastergardenerssandiego.org/Vegetable%20Planting%20Guide1.pdf) to go to the zone map in the Vegetable Planting Guide for San Diego County.
- Click this link [http://www.sunset.com/sunset/web/Sponsors/Garden/sunsetmonrovia\\_r1/htmlfiles/zone\\_map3.html](http://www.sunset.com/sunset/web/Sponsors/Garden/sunsetmonrovia_r1/htmlfiles/zone_map3.html) to go to the Sunset climate zone map for California for more detailed information.

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- To assist in choosing suitable plants check a reference book that is specific to southern California, the *Sunset Western Garden Book*, to determine the plants that will grow well in your particular climate zone.
- Note the growing characteristics of the chosen plants: Does a plant need full sun, partial shade or full shade?
- How much water does a particular plant require? Does it have any other specific needs such as soil type? Does it need to be started in a particular season?
- Determine the compatibility of various plants to be grown. If planting beds will contain diverse plants, it is best to group the plants by their cultural characteristics: water needs, sun/shade requirements, size at maturity and whether it is an annual or a perennial. It is possible to have plants with various water needs in one bed; however, it is best to group them according to their water requirements.
- Determine the space requirements: height, width and shadow pattern. Remember to leave sufficient room for the plants to achieve their mature size without crowding or overwhelming other plants. Also consider the invasiveness of some plants (e.g., Jerusalem artichokes or mint).

## Vegetables and Flowers



- Choose varieties that do well in your climate zone. Information on the most current varieties can be found in seed catalogs or at your local nursery or garden center.
- Choose disease-resistant varieties, if available.

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- Plant during the season most appropriate for the vegetables chosen; i.e. cool or warm season. Click this link [http://www.mastergardenerssandiego.org/Vegetable Planting Guide1.pdf](http://www.mastergardenerssandiego.org/Vegetable%20Planting%20Guide1.pdf) to go to the Vegetable Planting Guide for San Diego County, a guide for planting by\_season.



- Plant vegetables that can be grown and picked during the school term. For instance, radishes can be planted with other vegetables and picked within 30 days.
- Flowers - Annuals or perennials. Annuals are those which are generally started from seed or can be purchased in six packs or pony packs from a nursery. They mature and flower the first year, generally dying in summer or fall. However, some plants considered annuals in colder parts of the country will live and bloom for several years in our mild climate. Perennials, often purchased from nurseries, can also be started from seed, depending on the variety. They may or may not bloom the first year and they live for several years. Perennials and annuals may be mixed together, but it may be wise to space them out so that pulling the annuals at the end of the season will not disturb the root systems of the perennials.

### Seeds

- Every seed in a packet will not germinate. (Some seed packets and catalogs tell the percentage of germination that may be expected.) Discussing this ahead of time will save disappointment for children.
- Some seeds are more difficult to germinate than others.
- Good germination in containers requires constant moisture, air, sterile soil medium, proper soil temperature and correct light. Soggy wet conditions

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- may cause the seed to rot.
- Do not mix a fertilizer into the seed-starting medium as it will hinder germination.
- When transplants are to be grown from seeds, they must be sown 4-8 weeks prior to the time they are to be planted in the garden.
- Good seedling growth requires correct light intensity, correct moisture, moderate temperature and light feeding to promote growth.
- The first light, 1/2 strength feeding should be applied after the plant has grown its first set of “true” leaves.
- Seedlings should be thinned when they begin to crowd one another. Carefully cut off all but one or two with a scissors.
- Seedlings grown indoors generally need a period of time to become accustomed to the variation in outdoor temperature and light before being planted in the garden. This is called “hardening off”.
- “Hardening off” calls for the seedlings first to be exposed to a sunny location in the classroom or greenhouse; then they are moved outdoors each day to expose them to increasingly longer periods of sun and air over a period of a week or more. In this way, when the seedlings are planted out into the garden area they will experience less shock.
- No “hardening off” is required for seedlings purchased from a nursery because this was accomplished prior to shipping the seedlings to the nursery.
- Some seeds, such as carrots, need to be planted directly into the garden because they do not transplant easily. The seed packet will indicate whether the seeds can be sown indoors or whether they should be sown directly into the garden.
- If seeds are to be sown directly into the garden, thoroughly soak the bed one or more days prior to planting day. On planting day, lightly rake the area to loosen the soil to a depth of one inch. Then broadcast the seeds over the bed, or make shallow furrows and sprinkle the seeds thinly in the furrows. Lightly cover the seeds with compost or a small amount of soil; gently pat the soil to ensure the seeds are in good contact with the soil.
- Water gently so that the seeds are not dislodged. Seeds must be kept moist until germination, but the soil should not be soggy.
- Some seeds, such as peas or beans, will rot if kept too moist; therefore, the bed needs to be deeply watered before planting and only misted to keep the seeds moist until germination.
- Some seeds require light to germinate; therefore they should be only very lightly covered with soil, just enough to keep them from washing away when watered. Many lettuce seeds fall into this category.

### **Transplants**

- These can be plants started in the classroom from seeds or plants purchased from a nursery.
- Transplants (or seedlings) get the garden off to a faster start because the seeds are started 4-8 weeks earlier than seeds could be planted in the garden in the spring.
- The garden bed should be moist but not saturated when planting the seedlings. A hole about the size of the seedling root ball should be dug with a trowel. Remove the seedling from the container, keeping the root ball intact. The plants should be gently watered in to help establish the root system. A half-strength solution of plant food or starter fertilizer should be included in this watering to get the plants off to a good start. Always check the directions for use on the plant-food container.
- Keep a close watch for snails and other insects. Pick off and destroy them.

### **Fruit Trees, Vines, and Berries**

- Determine the amount of room needed for the plant(s).
- Buy bare root plants in January (for deciduous plants) or potted plants at almost any time of year.
- Some fruiting trees, such as avocado, are easily started from seeds. However, some seedlings may not be productive unless grafted.
- Pick those varieties whose cultural needs match your climate zone, such as number of winter chill hours required. Call the University of California Cooperative Extension or click this link <http://www.crfgsandiego.org> to go to the California Rare Fruit Growers San Diego Chapter for suggestions of varieties for your particular area.

### **Companion Planting**

This refers to planting two crops at the same time and in the same space to maximize productivity from the garden. Often this would be one crop (for instance radishes) which germinates and matures quickly, along with another (carrots), that is slow to germinate and mature. The radishes will remind the gardeners that something else is planted there. By the time the carrots have germinated and need more growing room the radishes will have been harvested.

### **Planting Calendar**

After researching the characteristics of the plants that have been chosen, make up a calendar for the year. This calendar should show when seeds for each variety should be planted, whether they are to be planted in pots or directly into the garden, the number of days for germination, the length of time until harvest

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and even a fertilizing schedule for the plants.

Remember that many vegetables require a minimum and maximum temperature during their growing season in order for flowers to set fruit and to mature (tomatoes). Vegetables which should be planted in the fall (Aug, Sept, Oct) are referred to as cool season vegetables. Those referred to as warm season vegetables, should be planted in spring and will mature through summer.

Click this link [http://www.mastergardenerssandiego.org/Vegetable\\_Planting\\_Guide1.pdf](http://www.mastergardenerssandiego.org/Vegetable_Planting_Guide1.pdf) to go to the Vegetable Planting Guide for San Diego for assistance in preparing a Planting Calendar.

### **Sample Planting Calendar**

#### September

- Start winter vegetable garden.
- Plant seeds directly into garden: carrots, radishes, beets, peas, spinach.
- Start seeds in flats for: cabbage, chard, onions, and scallions.
- Keep beds moist.

#### October

- Continue to plant winter vegetables to extend harvest time.
- Fertilize the plants set out in September.
- Keep beds moist to ensure good germination.
- Pull weeds as they appear.
- Pick off insects and snails.

#### November

- Continue to plant winter vegetables.
- Thin earlier plantings such as spinach and lettuce.
- Pull weeds and control pests.
- Keep plants moist.

#### December

- Feed plants that are actively growing now such as the vegetables. A balanced fertilizer should be used. Those that have just been planted should not be fed again.
- Water - unless there are substantial rains.

Expand this Planting Calendar to cover the entire growing season. These comments could be put on blank calendar pages with the various duties marked on dates that the children will be working in the garden. Or they can be listed as above, with the duties assigned to the students.

## **Post Planting Management**

The garden requires on-going attention for your plants to thrive. Post planting management includes:

### **Mulching**

- Mulch between beds to retard weed growth.
- Mulch around trees to reduce weeds and to conserve water.
- Mulch can be inorganic (woven plastic weed block fabric, for instance), or organic (grass clippings, composted materials, weathered sawdust or bark chips).

### **Weeding**

- Remove new weeds as early as possible, by gentle pulling or shallow digging. Working the soil too deeply will bring up more weed seed.
- Encourage children to pull weeds as they germinate among the desirable plants. Children will gradually learn to distinguish between “good” plants and the weeds by their appearance when the weeds are very small.

### **Fertilizing**

- The amount of Nitrogen, Phosphorous and Potash (N-P-K) is numerically indicated on the front of the package. A fertilizer listed as 5-3-1 would indicate a Nitrogen content of 5%, Phosphorous 3% and Potash 1%.
- A fertilizer may be liquid (e.g., fish emulsion) or water soluble (e.g., Miracle Gro or Miracid) to be mixed with water, or timed release (e.g., Osmocote or Dynamite) mixed into the soil prior to planting. (It is not diluted or mixed into water.) Osmocote and Dynamite are slow or timed-release fertilizers and last about 3 months. They come in various NPK levels.
- Always read the instructions carefully and mix according to directions. When it comes to fertilizing, less is better.
- Fertilizers can be organic (e.g., fish emulsion) or inorganic (e.g., Miracle Gro or Miracid).
- The nutrient most apt to be lacking in our soil is nitrogen, which is essential for good plant growth and health. It is important that the children learn that nutrition is as vital to plants as it is to them.
- Make up a fertilizer schedule on the Planting Calendar.
- Experiment with feeding weekly or every two weeks with 1/4 strength or 1/2 strength fertilizer.
- Always fertilize the plants after they have been well watered to avoid burning the roots.
- Seedlings should not be fertilized until they have at least one set of “true” leaves.

[Click here for more detailed information on fertilizers.](#)

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### Watering

- Check a reference to determine the water needs of various plants.
- Group the plants by their water requirements as much as possible.
- Make up a watering schedule for the various plants.
- Periodically check the moisture content of the soil by digging down 1-3 inches to see if it is dry or moist at that depth. Adjust your watering schedule accordingly. Water should penetrate at least to the depth of the root system.



If children are watering with a hose or watering cans, it may be necessary to follow up with periodic deep watering.