

APPENDIX

Appendix A	97
Indoor Seed Starting and Transplanting Table	97
Outdoor Direct Seeding Table	98
Appendix B	99
Identifying Common Garden Pests	99
Appendix C	100
Cool-Season Vegetable Gardening Guide	100
Appendix D	107
Indoor Gardening Guide	107
Additional Resources	113



APPENDIX A

INDOOR SEED STARTING AND TRANSPLANTING TABLE

Type of plant	Number of weeks before last spring frost date to start seeds indoors	Earliest date to transplant hardened-off seedlings outside relative to last spring frost date
Basil	5	1 week after
Broccoli	6-8	2 weeks before
Cabbage	8-10	4 weeks before
Cauliflower	6-8	2 weeks before
Cucumber	2-3	1-2 weeks after
Eggplant	6-8	2-3 weeks after
Kale	8-10	4 weeks before
Lettuce	7-8	3-4 weeks before
Melon	1-2	2 weeks after
Onion	10-12	4 weeks before
Parsley	10-12	2-3 weeks before
Pepper	6	2 weeks after
Pumpkin	1-2	2 weeks after
Squash	1-2	2 weeks after
Swiss Chard	6-8	2 weeks before
Tomato	6-8	1 week after



APPENDIX A

OUTDOOR DIRECT SEEDING TABLE

Type of plant	Earliest date to direct sow seeds relative to last spring frost date
Beans	On last frost date
Basil*	1 week after
Beets	2-4 weeks before
Carrots	2-3 weeks before
Cilantro	1-2 weeks before
Corn	On last frost date to 1 week after
Cucumber*	1-2 weeks after
Dill	1-2 weeks before
Lettuce*	3-4 weeks before
Melon*	2 weeks after
Peas	6 weeks before
Pumpkin*	2 weeks after
Radish	4-6 weeks before
Spinach	4-6 weeks before
Swiss Chard*	1-2 weeks before
Squash	2 weeks after

*May also be started early indoors.



APPENDIX B

IDENTIFYING COMMON GARDEN PESTS

APHIDS

1/16"–1/8"

Favorite vegetables: Cabbage, cucumbers, melons, peas, potatoes, tomatoes

What to look for: Tiny, soft-bodied, pear-shaped, insects may be pale green, yellow, reddish-purple, or black. They feed by sucking plant juices, stunting plants, and causing leaves to turn distorted and yellow. Aphids can also spread plant diseases.

CUTWORMS

1/2"–2"

Favorite vegetables: Cabbage-family crops, tomatoes, beans, peppers

What to look for: Fat gray, black, or brown caterpillars that curl up when disturbed. They feed at night, cutting off young plants just under or above the soil surface.

FLEA BEETLES

1/16"

Favorite vegetables: Many crops

What to look for: Tiny, active black beetles feed on leaves, leaving numerous, small (1/8-inch diameter) holes. When disturbed, they jump like fleas. Their feeding damage is especially harmful to young plants.

JAPANESE BEETLES

3/8"

Favorite vegetables: Many crops

What to look for: The larvae are white grubs that live in the soil and feed on the roots of grasses. Metallic green-and-copper adult beetles emerge in early summer and feed on leaf tissue between the veins, leaving a lacy-looking leaf skeleton.

STRIPED CUCUMBER BEETLES

Adults: 1/4"

Favorite vegetables: Vine crops, such as cucumbers, squash, melons, and pumpkins

What to look for: Adults are yellow with three black stripes on wings. Beetles feed on the leaves and stems of young plants and transmit the disease bacterial wilt as well as viruses as they feed.

TOMATO HORNWORMS

3"-4"

Favorite vegetables: Tomatoes; less commonly potatoes, eggplant, peppers

What to look for: The larval or immature stage of the hawk moth (also called sphinx moth), these large, fat green caterpillars feed greedily on foliage as well as fruits, especially green ones. They have white bands along each side and a horn at the tail end of their bodies. Look for black droppings on leaves to locate these well-camouflaged pests. The grayish-brown, night-flying adult moths have a wingspan of up to 5 inches.



APPENDIX C

COOL-SEASON VEGETABLE GARDEN GUIDE

Planning for Fall Harvests

Youth garden programs that want to enjoy a fall vegetable harvest need to think ahead during summer's heat to cooler times to come. A little planning and planting beginning in midsummer can pay big dividends when youth return at the end of the summer by allowing your garden harvest to continue into the fall or even winter months, depending on your climate and the protection you give your crops.

There are two broad categories of plants that can be planted in midsummer for a later harvest:

- 1 Those that can't tolerate any frost but mature quickly enough to be ready for picking before frost shuts them down, like bush beans and basil.
- 2 Those that tolerate some frost and will keep growing — sometimes even improving in quality — until cold temperatures hit in mid to late fall.

Beets, cilantro, kohlrabi, broccoli, spinach, carrots, chard, cabbage, Chinese cabbage, bok choy, radishes, turnips, lettuce, and hardy greens like arugula and mizuna are all cold-tolerant plants that will take light frost.

And some crops, such as kale and Brussels sprouts, actually taste sweeter when harvested late in the season after they have been touched by frost. In areas with mild winters, like southern California,

the Gulf Coast, and warm parts of the Southwest, you may even be able to grow cold-tolerant crops throughout the winter.

Fall Planting Formula

To figure out when to start what in your climate, begin by finding out the average date of the first hard frost in your area. While tender crops like beans and basil will be killed by light frost (32 degrees F), many cool-season crops survive until hard frost, when temperatures dip to 28 degrees F or lower. Especially hardy kale, cabbage, collards, and Brussels sprouts can withstand hard frosts, but will usually be killed when temperatures get down to 20 degrees F or lower. To determine when these temperatures arrive in your area, check with your local Extension Service.

Next, find the days to maturity (DTM) for the particular crop and variety you plan to grow. You can find this information on the seed packet, plant tag, or in the seed catalog. (Check to see if the days to maturity are from direct seeding or transplanting. For most of the crops you'll be planting for fall harvest, the DTM will be from seed, except for cabbage, broccoli, and other cole crops, which will be from transplant. If the DTM are from transplant to harvest, add another 2-4 weeks if you are growing your own transplants from seed.)

When possible, choose varieties with the shortest DTM for fall harvests. Then add in a "fall factor" of 10 to 14 days. This takes into account the slower growth of plants as the



days get shorter and cooler in late summer and fall. Add to this the length of the average harvest period, usually 7 to 14 days.

When you arrive at the total (days to maturity + fall factor + harvest period), count back this number of days from the fall frost date to arrive at your planting date. If you plan to protect your crops with a cold frame, cloche, or low tunnel, you can plant 2 to 4 weeks later than you would for unprotected crops. If you garden where frost comes in early fall, you'll need to start planning for and planting fall crops earlier in the summer than gardeners in milder areas, who may wait to plant until late summer or early fall.

Here is an example, using a hard frost date of October 25:

Bloomdale Long Standing Spinach (DTM 42 days from seeding)

42 days (DTM) + 14 days (fall factor) + 14 days (harvest period) = 70 days

October 25 minus 70 days = August 16 (date to plant seeds to harvest mature leaves)

Because plants like broccoli, cabbage, and Brussels sprouts take a long time to mature from seed, it's more practical for many gardeners to purchase transplants from a greenhouse or garden center to plant at the appropriate time for fall harvest, rather than growing the plants from seed themselves. A common quandary for many gardeners when planning for fall vegetable crops is where to put them when all the garden space is still taken up with summer-producing crops. While it won't work for everything, many crops can be started in flats or cell packs and transplanted into the garden as space opens up at the end of the season. Even plants that are traditionally direct-

sown, such as beets, can be successfully transplanted if care is taken to disturb their roots as little as possible.

Crops for Fall Harvest

Although the best fall crops vary by region, here are a few suggestions for plants that grow well in most areas of the country:

Salad greens: Crops such as lettuce, spinach, arugula, endive, mache, and mesclun are great for fall harvest because they mature quickly, grow well when the weather is cool, and are less likely to bolt or go to seed than spring-planted crops. Both spinach and lettuce germinate poorly in warm soil (above 60 degrees) so if you are starting plants in late summer, cover beds with shade cloth after planting or start seeds indoors and transplant.

Hardy greens: Fall is a great time to grow these nutritious crops. Kale, collards, Swiss chard, mustard greens, and bok choy all thrive in cooler weather. A few frosts will even sweeten the taste of your kale. If you are growing these crops as "baby" greens, you can sow seeds just a few weeks before frost. Some varieties of kale, such as 'Siberian', are especially cold tolerant and can be harvested even after snow covers the ground.

Cole crops: Like kale, Brussels sprouts taste best after it's sweetened by a light frost. But they take a long time to mature, so be sure to get them on your planting schedule in early to mid-summer if you plan to grow from seed. Other cabbage family members that are suited to fall harvest include broccoli, cabbage, Chinese cabbage (napa), kohlrabi, and cauliflower.



Root crops: Beets, carrots, turnips, and radishes are all suitable for fall harvests. Root crops that mature in the cooler weather of fall will be sweet and mild. In the warmest areas, you can grow these crops right through the winter months.

Peas: These grow well in the cooler weather of fall, but can be damaged by frost, especially the developing pods. Try to time your fall pea sowing so plants mature a week or two before the fall frost date and be prepared to cover plants if an early frost threatens. Keep the seed bed well-watered to ensure good germination.

Herbs: Dill, cilantro, and chervil all grow well in cool fall weather and, unlike spring crops, are less likely to bolt or go to seed quickly. Make successive sowings of these crops every few weeks from midsummer up until about 6 weeks before your frost date. In mild winter areas, these herbs can be harvested through the winter months.

Leeks and onions: Sow seeds of scallions or bunching onions about 8 to 10 weeks before your fall frost date; then begin harvesting when plants reach about 6 inches tall. In mild winter parts of the country, leek seeds may be started in late summer or early fall for harvest in the winter and spring. In cold winter areas, leeks may be harvested in the fall, but because they take a long time to mature they are planted in spring.

Extending the Growing Season

In addition to careful plant selection, you can also extend your season by finding ways to protect your plants by shielding them from cool temperatures using covers. While

there are many coverup options that can be purchased, with a little ingenuity and some basic tools you can also construct your own.

Engaging youth gardeners in using coverups, building them from available plans, or, better yet, creating their own setups, does as much for the youth as for the plants. As they muse about design solutions, they hone math and problem-solving skills. Even simple setups can be a springboard for monitoring air and soil temperatures and otherwise exploring the physics principles behind the greenhouse effect.

Creating Plant Coverups: The Basics

Most plant cover-ups, such as cold frames, hoop houses, row covers, hot caps, and so on, whether commercial or homemade, work on the same general principle – they trap the sun’s heat and keep the air temperature around a plant higher than the ambient outside air temperature. This is due to the “greenhouse effect,” where the short wavelengths of sunlight pass through the covering material and are absorbed by the plants and soil inside. The longer infrared rays that re-radiate from these heated objects do not pass back out readily through the covering, trapping the heat inside.

Some coverups protect individual plants, while others may cover an entire row or bed of plants. Depending on your climate and gardening focus, you can use coverups to start or harden off seedlings for transplanting, boost plant growth, hasten fruit production, or protect plants from cold temperatures.

Whichever type of coverup your students create or use, it helps to know a few basics.



Although most plant cover-ups are designed to trap heat, too much heat can be harmful to plants. So it is important to have some way to vent your coverup to release excess heat, and to have your keen observers monitor temperatures. Even in the middle of winter, the temperature inside a cold frame can climb above 100 degrees when the sun is shining! Ventilation also helps prevent diseases encouraged by high humidity, such as damping off of seedlings.

Different materials have different abilities to insulate and therefore protect plants from cold temperatures. A plastic milk jug placed over spring seedlings may only offer a couple of extra degrees of protection, for instance, but a cold frame with insulated sides or a double layer of glass offers a much larger boost. The more airtight your covering is, the better protection it offers on cold nights, but the more it will heat up during the day.

It's also important to remember that some crops, such as cucumbers and squash, rely on bees for pollination, so when blossoms appear you'll want to remove any covering so bees can reach flowers.

Below are several approaches to extending the season by covering plants. But don't feel limited. Once youth understand the basic concepts, they can invent their own setups from recycled materials. Here are a few common coverup examples:

Protecting Single Plants

One of the oldest strategies for boosting plant growth and protecting them from cold is covering them individually with a type of mini-greenhouse. French gardeners in the

19th century used glass domes or bell jars, called cloches, the French word for bells. Today, commercial versions of these individual coverings are made of lighter-weight materials and are easier to vent. These include umbrella- and lantern-shaped cloches, plastic "bells," and waxed paper "hot caps."

Rather than buying such devices, why not challenge your students to invent their own from recycled materials? Plastic gallon milk jugs with bottoms cut out can get garden seedlings off to a good start. (Removable lids or holes in the sides make great vents.) Tomato cages covered with plastic are an elegant solution for protecting larger plants. What else can your young designers come up with? As plants grow larger, be alert for heat-damage that can occur as leaves touch the sides.

Covering Garden Beds

When you want to extend the season, or urge it onward, and have wide rows or beds, you have a few general options including:

Using Floating Row Covers

You can lay floating row covers made from lightweight spun-bonded polyester or polypropylene fabric right on top of most plants, securing the edges with rocks or boards, or burying them in soil. These covers are available in a variety of thicknesses. All let water pass through. The lightest weight covers (under 0.5 oz./sq. yard) let the most light through but provide little heat retention and are used mainly to exclude insect pests during the growing season (be sure to completely seal edges at the soil to keep pests from sneaking under). Mid-weight covers (0.5 to 1.25 oz./sq. yd.) offer good frost protection in spring and fall while still letting a



reasonable amount of light through (they also exclude pests). Covers made of the heaviest weight fabric (over 1.75 oz./sq. yd.) are used for nighttime frost protection but need to be removed during the day because they let little light pass through.

Building a Low Growing Tunnel

Perhaps a more interesting (and challenging) means of extending the season for beds and rows full of vegetables, flowers, and herbs is to create low tunnels. This typically entails placing semi-circular hoops over garden beds and covering them with plastic sheeting or garden fabric. Hoops can be made from sections of heavy-gauge galvanized wire or plastic or metal tubing that are bent into semi-circles. The hoops are placed at intervals over the garden bed with each end of the hoop inserted 6 to 8 inches into the soil or fastened to the frame of a raised bed. The covering is then stretched over and attached to this framework. Covering can be made from solid plastic sheeting (1.5 to 3 mil thick), pre-slitted plastic row covers or garden fabric (described above). Be aware that if you use solid plastic sheeting without ventilation holes or slits, you'll need to ventilate the tunnels during the day as the weather warms. To provide ventilation, you can pre-drill or slit aeration holes in the roll of solid plastic before unfurling it.

Here are instructions for creating a basic tunnel:

Decide the length and width of your growing tunnel. For every 2 to 3 feet of length you'll need one section of 1/2-inch PVC pipe, black polyethylene pipe, or 9-gauge galvanized wire to form a "hoop" to support your covering. The length of each section of pipe or wire will

depend on the width of your beds and height of the plants you'll be covering. The height of the hoops should be at least 6 inches higher than the tallest plants you plan to grow in the tunnel. You'll also need enough row cover material for the length of your bed plus 4 to 8 feet on either end for ventilation and wide enough to cover the hoops with enough extra to secure the edges at soil level.

Bend the plastic or wire to form semi-circular hoops and push them into the ground or connect them to the sides of a raised bed at 2- to 3-foot intervals. (It is helpful to cut the ends at a diagonal.) If your ground is too hard to push the hoop ends in easily, you can pound in short stakes or lengths of rebar at 2- to 3-foot intervals and push the ends of the pipes over them. Or create a wooden perimeter frame with dowels spaced at the same intervals and push and secure the plastic hoops over them.

Unroll the plastic sheeting or row cover fabric over the hoops and bury the edges in the soil or anchor them securely with rocks or earth staples (available at garden supply and hardware stores). To keep the covers from flapping in strong winds, purchase or have your students create clothespin-like clips to secure the fabric to the hoops. To close the ends, gather up the covering, cinch it together with rope or a spring clamp, and secure it to the ground.

Gardeners can keep track of temperatures inside the tunnel and decide what they need to do to maintain an environment to help plants thrive. Depending on weather conditions, you may want to leave at least one end open for ventilation during the day but close it up at night if frost or cold temperatures threaten.



Building Cold Frames

Cold frames are mini greenhouses that are close to the ground. They are typically used to start or harden off seedlings in containers or grow cool-weather crops, such as lettuce, directly in the soil in spring, fall, and winter (depending on the region). You can also use them to root cuttings of perennial flowers or shrubs, store root crops in the winter, or chill bulbs for forcing.

A standard cold frame is 3 feet deep and 4 to 6 feet wide rectangle made from hay bales (the simplest system), 1- to 2-inch lumber made from rot-resistant wood (such as cedar), concrete blocks, or lumber made of recycled plastic. The front is 10 to 12 inches high and the back is 18 inches high. (This slope is not necessary, but having a sloped lid helps catch more sunlight during cooler months.) A couple of inches usually extend below the ground level for extra insulation. It is covered by a lid made of glass, rigid plastic, Plexiglas, or 3-mil plastic sheets that is either hinged or can be slid open. Old window sashes can be recycled into cold frame tops. To prevent excessive heat build-up inside the cold frame, depending on weather conditions, you need to be able to vent the frame by propping the lid up, sliding the lid off partway, or using purchased thermostatically controlled arms that will open the lid when temperatures reach a specified level. Be sure to place a thermometer within the cold frame so your students will know when venting is needed. There are certainly many possible variations on this theme. An internet search can supply young minds with creative ideas or step-by-step plans.

If possible, place your cold frame with its lower side facing south in a spot that is somewhat sheltered from the wind. Consider placing it up against a wall or fence, or even using a wall as the back part of the structure. If you want to grow plants directly in soil in your cold frame, loosen the soil 4 to 8 inches deep and add compost.

One of the challenges will be to ensure that plants do not overheat on sunny days and that temperatures inside the frame don't drop too low on cold days or at night. In general, when outside temperature reaches 40 degrees, it's time to check the temperature within the frame and vent as needed. A good rule of thumb is to vent sufficiently to keep the temperature inside the frame no higher than 60 degrees F for cool season plants such as cabbage and 75 degrees for warmth lovers like tomatoes. You'll typically want to close the lid in late afternoon before the sun sets in order to trap heat in. If cold temperatures threaten, you can add additional insulation by covering the lid with a blanket, roofing paper, a tarp, or rigid foam sheets weighted down with rocks. Another way to hold in heat is to keep plastic milk jugs of water inside against the back or north side. If you paint them black, they'll absorb even more heat and release it at night.

If you want to use your cold frame to store root crops, such as carrots and beets so you can harvest them, unfrozen, into the winter months (the length of the storage season will depend on the severity of your climate), dig a hole a foot deep in the bed and line it with straw. Put in the vegetables and cover them with 12-18 inches of additional straw, then cover the frame with a tarp.



Additional Season-Extending Strategies

Beyond the construction of coverups, you may also want to extend your season by:

- Putting mulch on your garden in the winter. Pull it off early in the spring so the soil warms up and dries out more quickly. (Raised beds also dry and warm quickly, enabling you to plant earlier.)
- Using black plastic or IRT (infrared transmitting) mulch to warm the soil prior to planting in the spring. Cut holes in the plastic for planting seeds or seedlings.
- Storing root crops, such as carrots, beets, and parsnips, right in the ground. Cover a

section of a bed with at least 12 inches of organic mulch (chopped leaves or straw), extending the mulch out about a foot and a half on either side of the planting. To harvest, pull off the mulch and dig them, unfrozen, into or even through the winter months, depending on your climate.

APPENDIX D

INDOOR GARDENING GUIDE

Introduction

Don't let cold weather slow down your classroom's gardening efforts! Use winter months to cultivate your green using indoor gardens.

Many schools garden during the fall and spring; however, incorporating indoor plant activities as well allows you to reap the benefits of hands-on, interdisciplinary horticulture lessons year-round. Using grow lights or even just a sunny windowsill, your class can experiment with growing a wide range of plants, from common houseplants and blooming bulbs to edible crops like radishes and lettuce. Nothing is more exciting than the opportunity to watch nature in action indoors, when most of nature is hibernating outdoors.

Growing Plants Indoors

Bring life to your winter classroom by filling it with vibrant plants and incorporating indoor gardening activities into your curriculum. Although not a natural environment, an indoor space that provides the right conditions allows many plants to thrive, providing opportunities for hands-on science experiments and exploration. Taking advantage of indoor growing opportunities is especially important for those of you experiencing long winters and short growing seasons during the school year.

Indoor Garden Options

The simplest form of indoor gardening is to

place plants in front of windows that receive a decent amount of light. Windows that face south and west are best and they usually receive enough light to grow leaf and root vegetables (beets, carrots, lettuce, onions, and radishes) and herbs. East- and north-facing windows do not receive as much light, so they will limit your planting options to mostly houseplants; however, houseplants can be an exciting and rewarding crop. You will need to spend a few days monitoring your window space to determine how much light is naturally available for an indoor garden.

Grow lights (LED or fluorescent lights designed to hang low over growing areas) are a more effective way to produce indoor crops. You can purchase prefabricated grow light set-ups or you can make your own. With grow lights, you can control the amount of light your plants receive and can expand your crop options to fruit crops like tomatoes and strawberries.

Preparing Indoor Growing Spaces

If you are creating a windowsill garden, your main preparation for installation will be to find a way to protect the windowsill or table from water damage. You can place your pots in individual plant saucers or in a large plastic tray to catch drainage.

If you are installing grow lights, use the directions included with the equipment or research an approved design. Make sure to follow all safety precautions and, if possible,



see if your school district has an electrician to review your construction.

Indoor Garden Supplies

The main supplies you will need for your indoor garden include plants, growing medium, and containers.

Plants

Plants may be started from seed, cuttings, or purchased as mature plants. Most classrooms begin their gardens by planting seeds because they are relatively inexpensive and their growth helps students to visualize the full lifecycle of a plant. It is often easy to find donations of seeds from local garden centers or seed companies because near the end of the summer many companies want to get rid of excess stock. Seed is dated when packaged and even though most garden centers and seed companies will not sell seed with older dates, as long as packets are kept in a cool and dry location, they will have high germination rates for many years.

If you want to grow annual plants to maturity in your indoor garden, make sure to select varieties that are compact and perform well in containers. The following charts (on pages 114-116) provide recommended vegetable, flower, and herb plants for growing under lights from the *GrowLab®: A Complete Guide to Gardening in the Classroom*.

Growing Medium

The growing medium in which you raise your plants is important. It anchors the roots so the plants don't fall over and serves as a reservoir for the water, air, and nutrients taken up by the roots. The best medium to use is soilless potting mix, made from peat moss (or coco peat), vermiculite, and/or perlite (it does not

contain any true soil). Soilless potting mix is light enough to allow for good water drainage, root aeration, and root movement, yet heavy and spongy enough to provide anchorage and to hold onto adequate water and nutrients. Additionally, it is easy to transport and readily available in most garden stores. Another good feature is that most are sterilized so that they do not contain weed seeds, insects, or diseases that could flourish in the favorable conditions of an indoor garden. A final benefit is that it doesn't produce mud, so if it gets on clothing, it brushes off easily.

Containers

There is a wide variety of containers available to grow indoor plants; just make sure they have drainage holes or add drainage holes at the bottom to avoid waterlogging the plant roots. Plastic pots are the most common containers because they are generally inexpensive, can be reused, and are lightweight. You can also use clay or peat pots, school milk cartons, plastic yogurt cups, shallow rectangular growers' flats, egg cartons, and plastic soda bottle bottoms.



Flower Planting Chart

Crop	Varieties	Days to Germinate	Weeks to Maturity	Plants Per 6" Pot	Depth* (Inches)
Ageratum	Blue Mink Blue Danube	5-10	9	4-6	0
Alyssum	Easter Basket Mix Carpet of Snow	5-14	10-12	6-8	0
Coleus	Rainbow	10-14	—	4-6	0
Dianthus	Snowfire	10-14	9	4-6	1/8
Impatiens	Blitz Super Elfin	10-20	9	4-6	0
Marigold	Petite Mix Inca Gold	5-7	11	4-6	1/8
Morning Glory	Heavenly Blue	5-7	6-8	3-4	1/4
Nasturtium	Dwarf Jewel	7-14	8-10	1-2	1/2
Petunia	—	10	10-12	3-4	0
Snapdragon	Floral Carpet	10-15	10	3-4	1/8
Zinnia	Thumbelina	5-7	10	4-6	1/8

* Some seeds require light to germinate or are too tiny to be buried under soil. A "0" in the "Depth" column indicates that you should plant these seeds on top of the soil, pressing down lightly on them with a smooth surface. Do not bury them.

Herb Planting Chart

Herb	Type	Days to Germinate	Plants Per 6" Pot	Depth* (Inches)
Basil	annual	7-10	2-3	1/8
Catnip	perennial	5-14	3-4	1/8
Coriander/Cilantro	annual	10-12	3	1/2
Chives	perennial	5-14	20-30	1/4
Dill	annual	5-10	3-4	1/4
Marjoram	perennial	10-16	2-4	1/8
Spearmint	perennial	10-16	3-4	1/8
Oregano	perennial	7-14	2-4	1/8
Parsley	biennial	10-20	4-6	1/4-1/2
Sage	perennial	14-21	3-4	1/4
Summer Savory	annual	14-21	1-2	1/2
Thyme	perennial	20-30	4-6	1/8



Vegetable Planting Chart									
Herb	Varieties	Days to Germinate	Weeks to Maturity	Plants Per 6" Pot	Plants Per Smaller Pot	Depth (Inches)	Low Light	Yield (Approx.)	
Beans	Contender Bush Blue Lake	4-8	8-9	1-2	-	1 to 1-1/2	no	6-10 per plant	
Beets	Early Wonder Cylandra Mini-Ball Ruby Queen	5-12	9-12	4-5	2	1/2	yes	1 to 1-1/2 diameter roots	
Carrots	Little Finger Short 'n Sweet Baby Finger Nantes Thumbelina	8-16	10-11	4-6	-	1/2	yes	1/2 diameter, 2" roots	
Chinese Cabbage (nonheading)	Mei Quing Choi Joy Choi	5-8	9-12	1	-	1/2	yes	2 cuttings	
Collards	Vates	4-6	11	1-2	-	1/4-1/2	yes	2 cuttings	
Cucumbers	Lemon Salad Bush Suyo Fanfare	5-10	9	1	-	1/2-1	no	1-3 6" cukes per plant	
Eggplant	Little Fingers Bambino Ichiban Green Goddess	20+	12+	1	-	1/4-1/2	no	1-2 small fruits per plant	
Lettuce	Tom Thumb Black Seeded Simpson Salad Bowl Red Salad Bowl	4-8	7-8	4	1-2	1/4-1/2	yes	4 small plants	



Vegetable Planting Chart (continued)									
Herb	Varieties	Days to Germinate	Weeks to Maturity	Plants Per 6" Pot	Plants Per Smaller Pot	Depth (Inches)	Low Light	Yield (Approx.)	
Mustard Greens	Green Wave Tendergreen	4-10	6-8	1-2	1	1/4-1/2	yes	2 cuttings of 6" leaves	
Onion Tops	Southport Yellow Glove White Sweet Spanish	7-14	6-8	12+	6+	1/2	yes	continuous cuttings	
Parsley	Extra Curled Dwarf Italian (flat)	10-20*	8-10	4-6	1/2	1/4-1/2	yes	continuous cuttings	
Peanuts	Early Spanish	7-14	20+	1	-	1-1/2	no	3-6 per plant	
Peas	Green Arrow Laxton's Progress	5-10	8-10	1-2	-	2	no	4-6 pods per plant	
Peppers	Ace Sweet Red Cherry	8-14	9-12	1	-	1/4-1/2	no	2 small fruits per plant	
Radishes	Cherry Belle Early Scarlet Globe Easter Egg French Breakfast	3-5	4-5	6-8	3	1/4-1/2	yes	1/2"-1" diameter roots	
Strawberries	(Alpine)	20	12+	2	1	1/8	yes	4-8 tiny berries	
Swiss Chard	Fordhook Giant Bright Lights	7-14	8-10	1-2	-	1/4-1/2	yes	continuous cuttings	
Tomatoes	Tiny Tim Patio Hybrid Pixie Hybrid Red Robin	6-10	10-12+	1-2	-	1/4-1/2	yes	6-15 small fruits per plant	
Turnips	Purple White Top Globe Tokyo Cross	3-7	6-8	4	1-2	1/4-1/2	yes	1"-2" diameter roots	



Additional supplies you may need are plant labels (popsicle sticks work great), watering cans (plastic water bottles or milk jugs can be used), and fertilizer (liquid or slow release).

Tips for Indoor Gardeners

There are a few things to keep in mind as you garden indoors:

- The indoor environment does not provide as much light as an outdoor garden. Grow plants with lower light requirements or provide additional lighting with grow lights. If you are moving plants from outdoor lighting to indoor lighting, they may go into a bit of shock at first and lose some leaves. Give plants time to adjust to the new light level before giving up on them.
 - The air in the indoor environment is often drier than outdoors. You may need to increase the humidity around your plants by covering them with clear plastic or misting the air around the plants on a regular basis.
 - Indoor plants will not need as much water as those in an outdoor location. Use your finger to check on soil moisture and only water when the soil is dry. Apply water directly to soil and allow excess water to drain. Discard excess water from plant saucers so that soil does not stay too wet.
 - Check plants for pests such as aphids and fungus on a regular basis. Remove plants with problems quickly to avoid spreading to others.
- When choosing a location, consider accessibility. Students will need room to water and monitor plants and custodians will need room to clean around your indoor garden. Make sure there is plenty of room so plants are not knocked onto the floor by accident.
 - As with any youth gardening enterprise – remember to HAVE FUN

For More Information About Indoor Gardening:

One of our best indoor gardening resources is our comprehensive GrowLab® Program. Developed by KidsGardening and written and field-tested by educators across the country, the program includes two books: *GrowLab Activities for Growing Minds* and *GrowLab®: A Complete Guide to Gardening in the Classroom*. The *Activities for Growing Minds* brings plant-based explorations to life through 46 lesson plans and hundreds of extension activity ideas that spark students' curiosity about plants and invite them to think and act like scientists. The *Complete Guide* provides everything you and your students need to know about indoor gardening, from planning and planting an indoor garden to tackling pests and other challenges.

