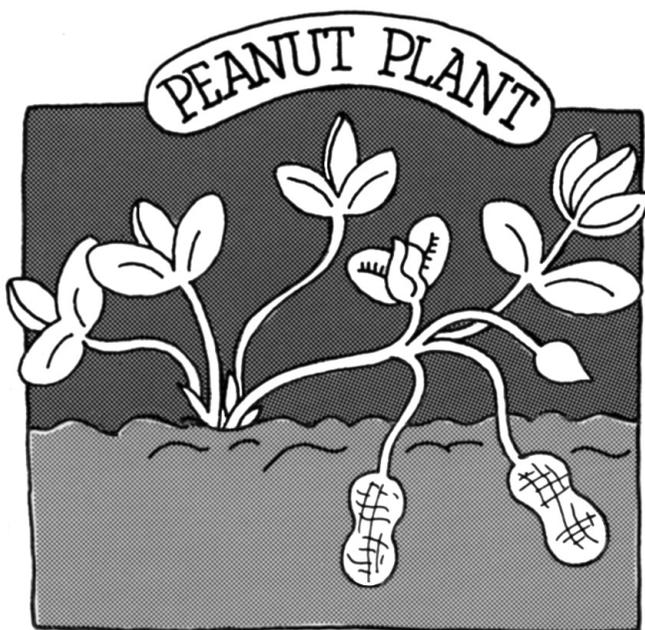


# Appendix A

## Indoor Garden Growers' Guide

**T**he classroom garden Growers' Guide is a general reference that provides information on growing and harvesting vegetables, flowers, and herbs in your classroom. This guide suggests specific, well-suited varieties. If you follow the guidelines in the Growers' Guide table, the growing and harvest information, and the management information in the main text, you should be rewarded with a successful garden.

We encourage you to use this guide as a springboard. Read through other gardening references for additional information and experiment on your own with new crops, varieties, and growing techniques.



# Growing and Harvesting Vegetables

The following list provides information about vegetables that can be successfully grown in an indoor garden. It does not include corn and potatoes, or heading crops such as cabbage, cauliflower, and head lettuce, because these vegetables won't grow to maturity indoors. However, you can start seedlings of any crops that transplant well to outdoor gardens.

**Beans** — Choose bush beans over pole beans, since most will grow only to 18 inches and will remain compact enough to benefit from the fluorescent lights. If you are gardening on the windowsill, try growing pole beans and training them to climb up strings by the windows.

**Harvest:** Harvest beans when the pods are full but before the outline of the enclosed seed shows. Continue to harvest as pods mature to encourage more pods to form. You should be able to pick beans for several weeks.

**Beets** — Beets are easy to grow indoors, but tend to grow more slowly and yield smaller roots than those grown in outdoor gardens.

**Harvest:** Beet greens are best harvested and eaten when young and tender. They are rich in vitamins and minerals, and are delicious cooked or raw in salads. Leave some greens to continue supplying food to the roots. Harvest roots, which you can feel under the soil with your fingers, when they are just over 1 inch in diameter.

**Carrots** — Carrots, like beets, are easy to grow indoors, but grow rather slowly. The most helpful thing you can do to encourage a good crop is to thin seedlings properly, since crowding hinders healthy root growth. If the carrot shoulders push out of the soil, cover them with more soil to prevent the exposed parts from becoming dry and green.

**Harvest:** Pull carrots when they are  $\frac{1}{4}$  to  $\frac{1}{2}$  inch in diameter.

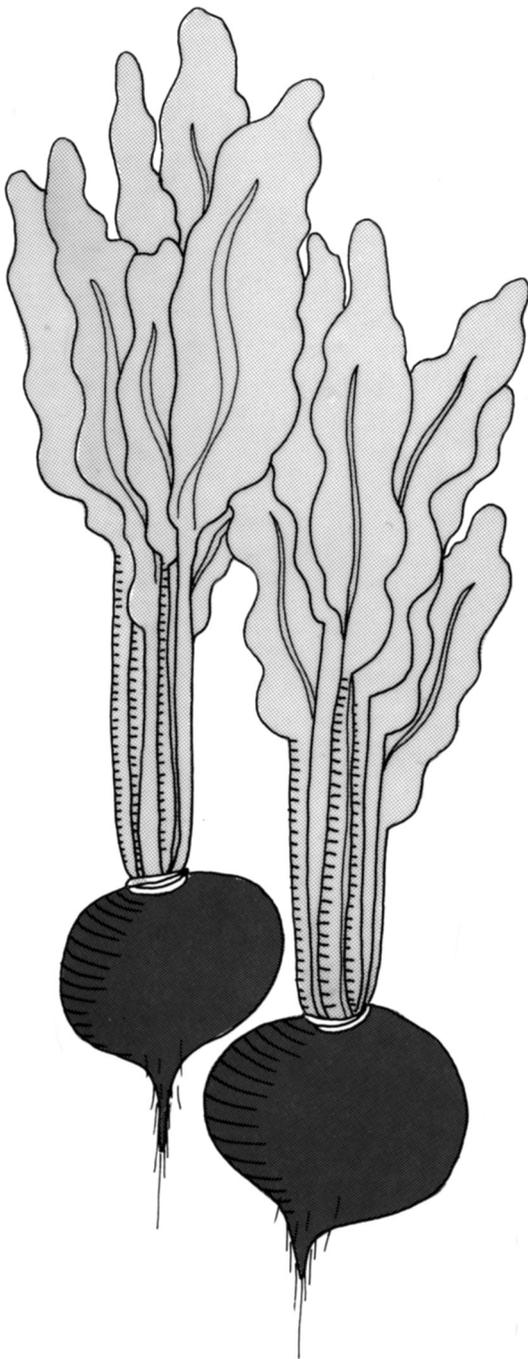
**Chinese Cabbage** (Bok Choi, Pak Choi) — This is a nonheading type of Chinese cabbage with thick, celery-like midribs and tender, dark green leaves that grows to about 16 inches. The stems and leaves are good raw in salads or cooked.

**Harvest:** Pick young leaves to eat raw and use larger leaves and stems for cooking.

**Collards** — Collards have coarse cabbage-like leaves. Unlike other members of the cabbage family (cabbage, broccoli, and cauliflower), collard plants do not form heads, so they grow well under lights.

**Harvest:** Pick young greens for eating raw in salads; harvest older leaves for hot dishes. If you pick just the leaves and leave the main stem, the stem should produce another crop.

**Cucumbers** — Choose seed varieties labeled “compact” or “bush-type,” though even these types can take up a lot of space. Cucumbers have separate male and female flowers. Male flowers will appear first and will greatly outnumber the female flowers. Once you have some of both, hand-pollinate them as described on page 53. Plant breeders have developed gynoecious (self-pollinating, all-female) cucumber



varieties that do not require germination, so you might want to try them as well.

**Harvest:** Pick fruits when they reach the mature size described on the seed packet. Keep picking to encourage more fruit to form.

**Eggplant** — These warm-weather plants have deep root systems, but will produce fruit in containers indoors. Look for dwarf varieties when buying seed.

**Harvest:** Pick fruits when they reach the mature size described on the seed packet and the skin is glossy.

**Lettuce** — Looseleaf varieties grow best under lights. Heading types won't form heads indoors. Lettuce prefers cool temperatures and plenty of water. Keep soil moist to prevent leaves from becoming bitter.

**Harvest:** Pinch off or snip outer leaves as needed or cut whole plants at soil level for a larger harvest. If you leave the roots in the soil and keep fertilizing and watering them, they will produce another crop in about eight weeks. If lettuce is left growing for too long, particularly in hot temperatures, it will become bitter.

**Mustard Greens** — Mustard is a beautiful, vitamin-rich, green, leafy plant. Its appearance contrasts nicely with many of the other indoor garden crops and its sharp flavor will be a novelty for some students.

**Harvest:** Cut leaves when they are 4 inches or smaller for salad; cook larger leaves. If you leave a short piece of stem when cutting leaves, you can harvest again in about four weeks.

**Onion Tops** — An advantage of growing onions is that you can use any part of the plants at any time in their life cycle. We do not recommend growing onions to mature bulbs in the indoor garden because this takes so long. Bunching onions, grown for scallions, also have a long growing season and we don't recommend them, either. Instead, plant regular onion varieties from seeds or sets and harvest them as greens. Onion seeds generally do not remain viable for more than a year, so be sure to plant fresh seed each season.

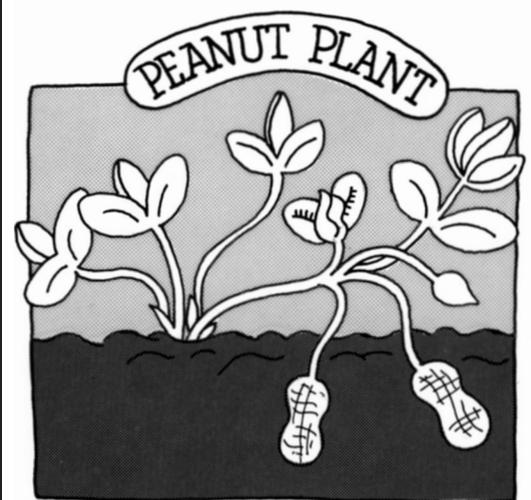
**Harvest:** Snip tops during the young, tender green stage.

**Parsley** — This is a slow-growing crop, but it can produce a reasonable harvest in a single pot. Once sprouted, it is relatively trouble-free and can continue producing throughout the year. Soak seeds overnight in water before planting to stimulate germination.

**Harvest:** Snip sprigs as needed. As long as some foliage is left, the plant will continue to produce more leaves.

**Peanuts** — Although these may take up to five months to mature indoors under lights, they are beautiful plants and can be an exciting addition to the indoor garden. A couple of months after planting, bright orange/yellow, pea-like flowers will form. The small flowers that form lower on the plant are the ones that will be fertile. After self-fertilizing, they will bend downward and bury themselves. Add soil to the top of the pot to help bury them.

**Harvest:** Look periodically at the developing peanut under the surface. When mature, the kernels will look plump and will have the distinctive peanut texture with pronounced veins. If left too long, young peanuts



of some varieties will sprout and begin to grow new plants. Shell and toast the raw seeds. Warm a pan over low heat, add seeds, and stir constantly for ten to fifteen minutes. Sprinkle with salt and enjoy!

**Peas** — There are a number of short pea varieties that you can raise under fluorescent lights. Peas require cool conditions; growth slows considerably when temperatures exceed 60°F. Unless your room is very hot, however, you should be able to get a small, token harvest indoors.

**Harvest:** Start picking when pods have swelled to an almost round shape. Don't let mature pods stay on the plant; this will cut down on your yields.

**Peppers** — Although peppers are relatively slow to mature, they produce a nice crop of rather small fruits and provide an interesting addition to the indoor garden. They do require warm temperatures (between 65° and 80°F) at blossom time in order to produce fruit. If your room isn't consistently warm, we do not recommend that you grow them. Ornamental peppers, available in most seed catalogs and garden centers, are even slower to mature, but they make very nice gift plants. The tiny, colorful fruits are edible and very spicy.

**Harvest:** Clip peppers from stems as soon as they reach usable size (2 inches in diameter). You can also leave them on the plants until they turn their mature color (red, yellow, etc.).

**Radishes** — Radishes give the quickest results of all indoor garden crops, producing a large number of roots in a single pot just four weeks after planting. Keep soil moist, thin the seedlings, and keep them close to the lights to promote good root development.

**Harvest:** Pick radishes when you see from the shoulders that they are the size of a small marble. They become woody when left in the soil for too long.

**Strawberries (Alpine)** — These are small strawberries, grown from seed, with a flavor reminiscent of wild strawberries. You can raise them as indoor plants or move them out to a garden or flower border. The seeds take quite a while to germinate, so make sure to keep them moist.

**Harvest:** Harvest berries as they ripen. Plants will bear small fruits over a period of several months.

**Swiss Chard** — This is a good indoor crop since you can use it raw or cooked, like spinach. Unlike spinach, Swiss chard grows well in warm indoor environments.

**Harvest:** Pick the outer leaves before they get tough, and new leaves will grow from the center. For a continued harvest, don't pick all of the leaves.

**Tomatoes** — When buying tomato seed, look for designated container varieties, such as 'Tiny Tim'. You can stimulate more fruit production by carefully pinching back the little shoots (suckers) that grow between the main stems and the branches. You may need to stake tomato plants or tie the vines to the light garden frame for support.

**Harvest:** If you want to hasten the ripening process, try placing a very ripe apple in a pot of green tomatoes. (The ethylene gas produced by the ripening apple will stimulate tomatoes to turn red.) Although

tomatoes will ripen off the vine, allowing them to ripen on the vine will provide best flavor and maximum production of vitamin C. Twist the fruit carefully from the stem when it's ready to pick.

**Turnips** — It's easy to grow turnips to a reasonable size indoors. Eat these white-fleshed roots raw or cooked. Young turnip greens are very nutritious, and like beet greens, are tasty when eaten raw or cooked.

**Harvest:** Harvest as you would carrots, when the roots are between 1 and 2 inches in diameter.

## Key to Planting Chart Headings

**Suggested Varieties** — We recommend these varieties because they perform well indoors in containers. If you choose other varieties, keep in mind factors such as number of weeks to maturity, special cultural requirements, and, most importantly, size and growth habit. Because you need to keep the lights close to all the plants in your garden, look for compact, low-growing varieties. Fortunately, there are miniature types of many vegetables and flower plants. Seed catalogs and packets often indicate which varieties are specifically suited for container growing.

**Days to Germination** — This will give you an approximate idea of when to expect your seeds to germinate, given reasonable conditions. Room temperature, moisture levels, and a number of other factors affect germination.

**Weeks to Maturity** — Again, these are approximations of the number of weeks from planting until harvest.

**Plants Per 6-inch Pot** — We recommend this size pot. This column lists the number of plants that can be reasonably grown in each 6-inch diameter pot. Overcrowding in pots results in poor growth.

**Plants Per Smaller Pot** — Many teachers use small (3- or 4-inch pots) or 1/2-pint school milk cartons for planting, so we've included, for the vegetable crops, numbers of plants you can grow in these. **Note:** Many plants cannot be grown to maturity in such small pots.

**Depth of Planting** — Generally you should plant seeds at a depth three times their width. This column lists specific planting depths. Some of the annual flower crops listed require light to germinate or are too tiny to be buried under soil. A "0" appearing in this column indicates that you should plant seeds on top of the soil and press them down lightly with a smooth-surfaced object.

**Low Light** — You can grow many crops successfully on a windowsill or under only one or two light fixtures, but some will not produce well under these circumstances. Use this column to determine which crops will be more likely to thrive under lower light conditions.

**Yield** — The yields you can expect in an indoor garden are considerably less than you would expect outdoors, so for many crops we have included a rough idea of the amount that you can expect to harvest from each 6-inch pot.

**Nutrients** — This column lists the vitamins and minerals each vegetable provides in substantial amounts.



In the “Days to germination” column at right, soak seeds designated with an asterisk in water for 24 hours before planting to stimulate germination.



## Vegetable Planting Chart

Crop	Varieties	Days to Germination	Weeks to Maturity	Plants Per 6” Pot
BEANS	Contender Bush Blue Lake	4-8	8-9	1-2
BEETS	Early Wonder Cylindra Mini-Ball Ruby Queen	5-12*	9-12	4-5
CARROTS	Little Finger Short 'n Sweet Baby Finger Nantes Thumbelina	8-16	10-11	4-6
CHINESE CABBAGE (nonheading)	Mei Quing Choi Joy Choi	5-8	9-12	1
COLLARDS	Vates	4-6	11	1-2
CUCUMBERS	Lemon Salad Bush Suyo Fanfare	5-10	9	1
EGGPLANT	Little Fingers Bambino Ichiban Green Goddess	20+	12+	1
LETTUCE	Tom Thumb Black Seeded Simpson Salad Bowl Red Salad Bowl Oak Leaf	4-8	7-8	4
MUSTARD GREENS	Green Wave Tendergreen	4-10	6-8	1-2
ONION TOPS	Southport Yellow Globe White Sweet Spanish	7-14	6-8	12+
PARSLEY	Extra Curled Dwarf Italian (flat)	10-20*	8-10	4-6
PEANUTS	Early Spanish	7-14	20+	1
PEAS	Green Arrow Laxton's Progress	5-10	8-10	1-2
PEPPERS	Ace Sweet Red Cherry	8-14	9-12	1
RADISHES	Cherry Belle Early Scarlet Globe Easter Egg French Breakfast	3-5	4-5	6-8
STRAWBERRIES	(Alpine)	20	12+	2
TOMATOES	Tiny Tim Patio Hybrid Pixie Hybrid Red Robin	6-10	10-12+	1-2
TURNIPS	Purple White Top Globe Tokyo Cross	3-7	6-8	4
SWISS CHARD	Fordhook Giant Bright Lights	7-14	8-10	1-2

Plants Per Smaller Pot	Depth (Inches)	Low Light	Yield (Approx.)	Nutrients
-	1-1 <sup>1</sup> / <sub>2</sub>	no	6-10 per plant	Protein; Vitamins B, C
2	1/2	yes	1"-1 <sup>1</sup> / <sub>2</sub> " diameter roots	Greens high in Vitamins A, C; iron; calcium
-	1/2	yes	1/2" diameter, 2"-long roots	Vitamin A
-	1/2	yes	2 cuttings	Vitamins A, C; calcium
-	1/4-1/2	yes	2 cuttings	Vitamins A, C; calcium
-	1/2-1	no	1-3 6" cukes per plant	small amount of Vitamin C
-	1/4-1/2	no	1-2 small fruits per plant	small amounts of Vitamin C; potassium
1-2	1/4-1/2	yes	4 small plants	Vitamin A; potassium; calcium
1	1/4-1/2	yes	2 cuttings of 6" leaves	Vitamins A, C, Bs; calcium; iron
6+	1/2	yes	continuous cuttings	potassium
1-2	1/4-1/2	yes	continuous cuttings	Vitamins A, C
-	1 <sup>1</sup> / <sub>2</sub>	no	3-6 per plant	protein, Vitamin B
-	2	no	4-6 pods per plant	protein; Vitamins B <sub>1</sub> , C; iron
-	1/4-1/2	no	2 small fruits per plant	Vitamins A, C
3	1/4-1/2	yes	1/2"-1" diameter roots	Vitamin C
1	1/8	yes	4-8 tiny berries	Vitamin C; iron
-	1/4-1/2	yes	6-15 small fruits per plant	Vitamins A, C; potassium
1-2	1/4-1/2	yes	1"-2" diameter roots	Greens high in calcium; Vitamins A, C; iron
-	1/2	yes	continuous cuttings	Vitamin A; calcium; iron

# Growing Flowers

You can grow many annual garden flowers from seed to brighten the classroom. This section provides basic cultural information and suggested varieties. As with vegetables, when choosing varieties of annual flowers for indoors, look for relatively low-growing or dwarf types.

**Ageratum** — Ageratum are low-growing plants, so nearly any variety will do. The flowers are compact, dense, woolly looking blue, pink, or white puffballs.

**Alyssum** — Alyssum is another low-growing border plant that comes in a variety of cool colors from white to deep purple. Delicate, honey-scented flowers take a while to bloom, but will bloom for a long time.

**Coleus** — This attractive plant is grown for its brightly colored variegated leaves. Although you can easily propagate coleus from stem cuttings, it's fun to start these plants from seed. Press the tiny seeds into place on your growing medium and mist carefully. Pinch back the main stems to encourage branching and bushy growth. To keep leaves looking their best, pinch off the small blue flowers as they develop.

**Impatiens** — Impatiens are among the most difficult flowers on this list to grow from seed, but they are easy to grow from cuttings. Seeds are extremely small and the seedlings are often susceptible to damping off. Nonetheless, their succulent stems and colorful flowers earn them a place on this list.

**Marigolds** — Dwarf marigolds are a great addition to the indoor garden. Once the seeds germinate, the plants grow well and produce a profusion of blossoms ranging from almost red to pale yellow. Pinch back main stems to encourage branching.

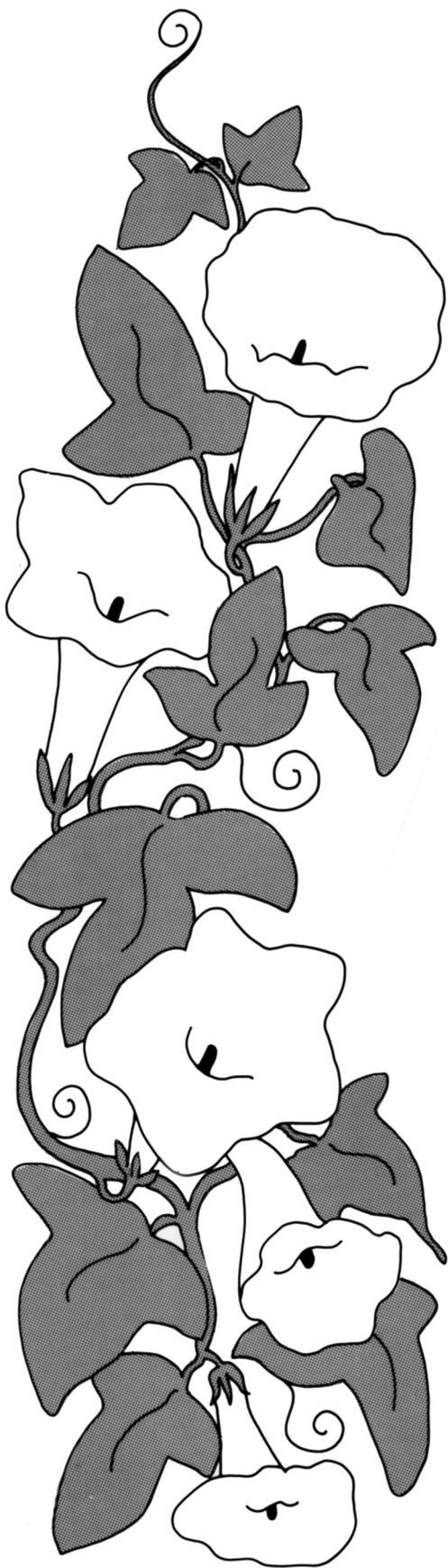
**Morning Glories** — Although these plants twine and vine so much that you can't grow them for long in a light garden, the trumpet-shaped blue flowers add a nice accent to the gardening classroom when you grow them up strings near the window.

**Nasturtiums** — These plants serve a double purpose in your garden: They produce brightly colored flowers, ranging from cream to dark red, and rounded leaves, all of which are edible. The lovely flowers and peppery-flavored leaves add zip to garden salads.

**Petunias** — Petunia seeds are very fine and difficult to work with. Scatter them on top of the soil mix and mist them until they germinate. These sturdy flowers will bloom for a long time in the classroom or outside.

**Snapdragons** — These colorful, dragon-like flowers add a unique touch to classroom gardens. Choose dwarf varieties if you plan to keep them under lights. If your flowers are sparse, your indoor garden may be too warm for their liking.

**Zinnias** — Zinnias are often the bright stars of indoor gardens. A dwarf mix will yield a wide range of colors over a long period. Seeds are large and easy to handle. Their main disadvantage is their susceptibility to fungus problems.



You can bring many other garden annuals to flower in the indoor garden, including those listed below. We encourage you to experiment.

- |                          |           |
|--------------------------|-----------|
| asters (Color Carpet)    | geranium  |
| begonias (fibrous dwarf) | portulaca |
| celosia                  | primula   |
| creeping phlox           | salvia    |
| dianthus (Snowfire)      | verbena   |

You may find that certain plants produce lovely foliage and even buds, but fail to flower. This may have to do with the amount of light they receive. Some species are short-day plants, meaning that they flower when they receive about ten hours of daylight. Since you will be leaving the lights in your garden on for fourteen to sixteen hours, short-day flowers may not bloom under these conditions. Some flowers also blossom best in cool conditions, and your environment may be too warm.

**Perennials** — You can start many perennial flowers in an indoor garden for transplanting outdoors the following year. Ask children to bring in dried seeds of various wild or cultivated perennials and experiment to see if you can germinate and grow them. Some of the easiest perennials to grow include: black-eyed Susan, Shasta daisy, coral bells, baby’s breath, lupine, poppy, and foxglove.

### Flower Planting Chart

Crop	Varieties	Days to Germination	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



**Note:** \*Some seeds require light to germinate or are too tiny to be buried under soil. A “0” in the “Depth” column at left 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.

# Growing Herbs

Herbs add a fragrant dimension to the indoor garden. In addition to their culinary uses, many are ideal for craft projects such as wreaths, flavored vinegars, sachets, and the like. You can use herbs at all stages of growth and they do well under lights or on a windowsill. Most herbs grow more slowly than vegetable plants.

You can grow all of the herbs listed in the Herb Planting Chart from seed or from plants purchased at a nursery. When purchasing seed, look for dwarf or compact varieties.

## Herb Planting Chart

Herb	Type	Days to Germination	Plants Per 6" Pot	Planting 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	8-14	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



Some of the herbs listed as perennials may be grown as annuals, depending on your region's growing conditions and the plant variety.

Another way to propagate perennial herbs is to pot up divisions. Make divisions by cutting pieces, roots and all, from existing plant clumps.

Although many herb plants can grow quite large if left to their own devices, you can control them and encourage bushy growth by pinching back new top growth periodically. (Use the trimmings in recipes.) Also pinch back developing flower buds to encourage the growth of flavorful foliage.