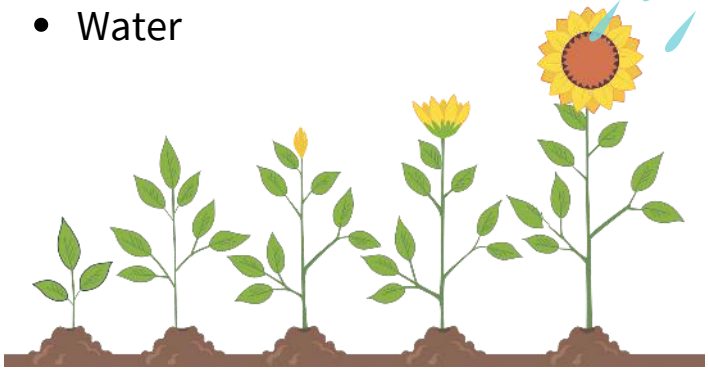
Plants Want to Grow: Garden Basics for Beginners

The right answers are few and far between and are nearly always very much less interesting and informative than the right questions. Failure teaches much more than success. Everyone makes mistakes all the time. Not making the same mistake twice is the key. - Monty Don

There's a lot of information out there about the best way to garden. Countless websites and books, and even more opinions about the 'right' way to go about growing things. It can be very overwhelming! **But the truth is, plants want to grow!** Your job as a gardener is more often about choosing the right conditions and making gentle adjustments than having all the information or fanciest tools. Gardening, especially with young learners, is a journey best enjoyed with messiness, humor, and grace. Below is some of the basic information you need to start exploring gardening at your program!

Plants only need 4 things:

- Sun
- Soil Nutrients
- Air
- Water



Whether these are given by nature or substituted with grow lights and compost, this is all your plants should need. **Seeds contain all the information required to become mature plants**, and given proper conditions they are enthusiastic about becoming their biggest and best selves.

Getting Started

You don't have to have a huge garden your first year, or even grow all the crops you want to eat. If you're totally new, start out with one or two crops and get to know them throughout the season. **You also do not need a large space to start a garden!** There can be plenty of opportunity for learning and snacking in a couple of 5 gallon buckets (with drainage holes) or a small corner garden in your playground area.

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Seed vs Transplants

Garden plants can be started from seed or purchased as transplants (also called seedlings or starts). One may be a better option for you depending on your time, budget, and planning needs.

Seed Pros

- Cost effective
- Awesome learning opportunity watching them sprout
- Wider variety available
- Shelf stable

Seed Cons

- May require starting indoors or in a greenhouse before transplanting
- Not 100% guaranteed to germinate, can be finicky

Transplant Pros

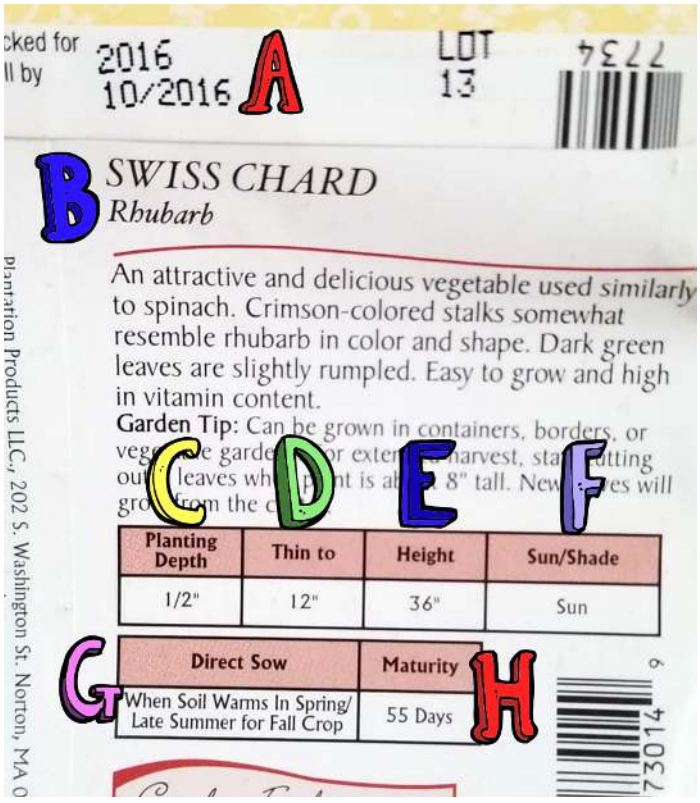
- Plants are ready to go when you buy them
- May be bigger and heartier than home-started seeds
- Can shorten time until harvest

Transplant Cons

- Expensive. Starts often cost more than $3 per plant.
- Time sensitive - need to be transplanted into the garden soon after purchase

How to Read a Seed Packet

- **A - Expiration date**. After a few years, many seeds lose their viability and will not sprout.
- **B - Species name and variety**. This can affect flavor, size, and harvest time.
- **C - Planting depth**. Most seeds like to be planted 1-2 times as deep as they are wide.
- **D - "Thin to" spacing** applies to crops like carrots that would be seeded in a row and thinned out by pulling every few sprouts.
- **E - Mature spacing** and height. Make sure your containers and beds have enough room for plants at their biggest size!



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- **F - Light requirements**. Plants can be full sun, part sun, or shade.
  - Full sun means at least 8 hours per day of unobstructed sunlight, but 10-14 hours is ideal. Most common vegetable garden species are full sun plants.
  - Part sun or part shade means the plants will tolerate some shade, needing about 4-8 hours of sunlight for best growth. These include broccoli, chard, lettuce, and spinach. Giving them shade in the hottest part of summer can keep them from bolting (getting bitter and going to seed).
  - Shade plants like to have less than 4hrs of direct sunlight per day. These are rare in the vegetable garden, but more common in ornamentals like bluebells and hostas.
- **G - Planting time**. This can be a specific date or in relation to your last expected frost. It's vital to know when to start or transplant your seeds so that they have enough warmth to sprout and are not harmed by frost.
- **H - Days to maturity**. An average of how long it takes this seed to grow to a mature plant, or to bear fruit. This metric is very important for youth gardens to make sure that your harvest will fit within your curriculum. Some varieties of the same species have different maturity times. Your garden could have carrots in 50 days or 90 days depending on the seed you select.

Perennials vs Annuals

Most garden plants grown in Wisconsin are annuals, like corn, squash, tomatoes, and peppers. They go from seed to fruit within one growing season. It is possible to save seeds from your annual crops, but the individual plants cannot survive the winter.

There are a few plants that are biennials, meaning their full life cycle takes two years, but they are usually grown as annuals for food production. This includes beets, cabbage, and onions.

Perennials are plants that come back year after year, and if not native to Wisconsin are at least adapted to our climate. They must stay in the same place in the garden each year, so take that into account when planning your space. There are a few perennial crops that are great for youth gardens: asparagus, rhubarb, blackberries, grapes, strawberries, and some herbs. Most of these need to be purchased as transplants or root bundles, but will pay for themselves after a few seasons!

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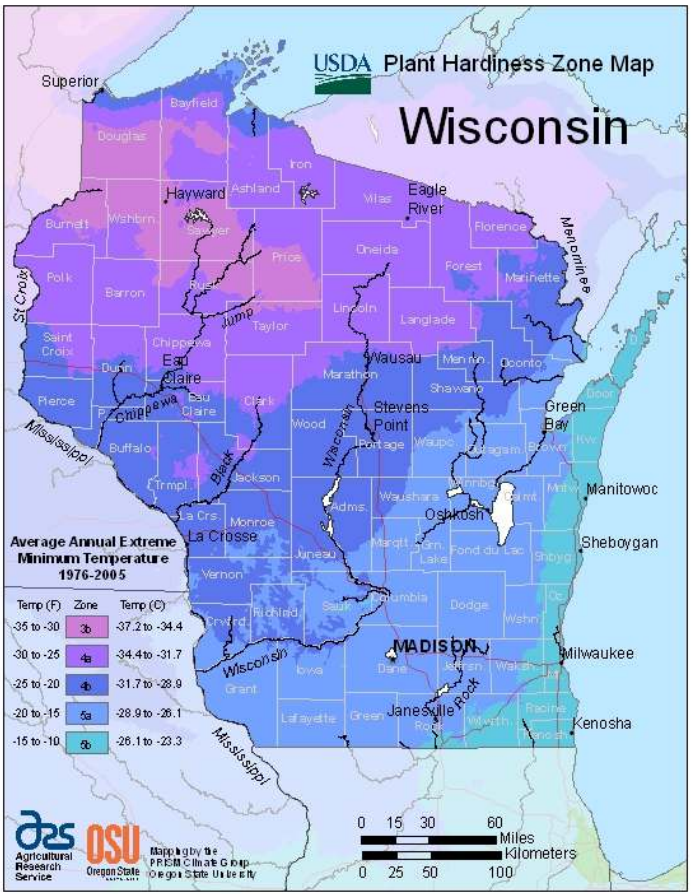

Zones and Frost Dates

Zones are created by the USDA in order to quickly communicate to growers which plants will thrive in their region, as well as their expected seasonal temperatures.

Frost dates are an estimate, based on historical averages, of when the last frost of spring and first frost of autumn will occur. They help us plan when to transplant and harvest tender crops that would be harmed by the frost. Many planting instructions will refer to these dates, such as “plant after final frost date” or “seed 8 weeks before fall frost.” You can use this website to find your average frost dates.

Seed Starting

Some seeds can go directly into your garden, but others will need to be started indoors and transplanted after the danger of frost has passed. Things like spinach and peas can be planted into the garden directly in late spring, as they can tolerate a light frost. Summer squash, corn, and many types of beans can be direct-seeded after the last frost date. There are a few plants that will always have to be started indoors in Wisconsin, like tomatoes and peppers, unless purchased as transplants.

Check your seed packet for best starting dates. Many will have you count back from your expected last frost date by a certain number of weeks. For example, tomatoes that need to grow 6 weeks before transplanting in a zone with the last frost date June 2nd should be started by April 21st.

- To start seeds indoors, you will need clean soil, small containers, grow lights, and possibly a supplemental heater. Most seeds need to be at least 65F to sprout, and some may prefer it even warmer. By placing your seed starting shelf near a heat vent or southern window you can improve your germination rate.

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- Fill your containers with soil -- for many plants, empty egg cartons will work great, but for bigger plants like tomatoes it can help to start in bigger pots, at least 3” in diameter. Used yogurt cups (with added drainage holes) are a good option!
- Place the seeds into the soil at the recommended depth. Water well. Then cover them in a loose, breathable layer of canvas or plastic to keep the soil from drying out.

- Check them every 12hrs or so, making sure that your soil is staying moist. Use a spray bottle to mist the seedlings as needed. Once most of your seedlings have emerged, you can remove the covering.
- There are great indoor greenhouse kits that you can get for your classroom for under $40. These are shelving units with well-fitting plastic tents to help maintain moisture for your baby plants. Those plus a good full-spectrum grow lamp should last you through a couple of growing seasons and can pay for themselves quickly!

Transplanting

If indoor-grown plants are set outside without preparation, it can shock them. To avoid this, plants must be **hardened off**. This means exposing them gradually to wind and sun. Start by placing your plants in a semi-protected outdoor space, such as a porch or beside a building, for 3-4 hours on the first day. Increase the amount of time they spend outside every day for a week until they can stay outside for 10-12 hours without harm. After this, they can be transplanted to their final home for the season.

Keep an eye on planting depth and the space between individual plants. The final spacing recommendations may be found on the seed packet or tag from your nursery, but when in doubt give them a bit more space than you think they’d need. This is especially true for fast-growers like squash and tomatoes, which can easily overwhelm a garden bed.

Dig a hole slightly deeper than the plants’ current pots, and about 1.5 times as wide. Plop your transplants out of their containers by gently inverting them and tapping on the bottom of the pots. Set them into the garden so that the soil level is about equal to the top of their potting soil. Burying them too deep can interfere with growth and cause water damage. Fill the soil back in around the plant, making sure that it is firm enough that the plant can support itself. Do not smush the soil tightly around the roots, as this can suffocate your plants. Then give them a generous helping of water!

Growing Seasons

Wisconsin has two cool seasons and one longer warm season.
Cool seasons take place in spring and fall, approximately March-June and August-October. These seasons are ideal for crops that can tolerate some frost and lower light, such as spinach, lettuce, radishes, and kohlrabi. The warm season runs from approximately June to September -- it is when we grow some of the most well known garden veggies like tomatoes, melons, and sweet corn.

If you are working within the K-12 academic schedule, it's often easier to fit cool season crops into curriculum at the end or beginning of school years. If you want to cultivate warm season crops, make sure you have enough staff or volunteer time to keep the garden well tended throughout the summer.

There are longer season crops like winter squash that can be planted in spring and harvested in September or October, then stored for a few months for midwinter cooking and exploration. **Greens and cabbage-family crops thrive in simple cold frames (pictured here) in all but the harshest of winter weather.** If your garden site has access to a greenhouse or hoop house, your class can grow greens and start seeds even earlier in spring or later into winter.

Maintenance and Care

- **Weeding** -- weed early and often, especially when your plants are still young. It only takes a few weeks of neglect to lose your seedlings in a jungle of grass! Laying down some composted wood chips, straw, non-waxed newspaper, or grass clippings as a mulch can help suppress weeds and retain extra water. For youth gardens, weeding by hand is usually best as hoes can easily damage young plants.
- **Watering** -- direct water to the bottom of the plant, at the roots. Wet leaves can contribute to disease or sun damage. When working with young children, it's best to give them small cups for watering and instruct them to only give 1-2 scoops for each plant to avoid overwatering.

- **Disease and pests** -- the best way to prevent diseases and pests is to have strong and healthy plants! Having adequate spacing between plants, maintaining nutrient rich soil, and keeping an even moisture level ensures they are less stressed and therefore less prone to disease. Still, sometimes disease will happen, especially in crops like tomatoes and potatoes. Some issues may affect plants cosmetically, but don't harm your harvest. Others may require intervention. Reach out to your local Extension office for help in diagnosing and treating plant diseases!

  Bugs and critters are part of a healthy ecosystem, and you should expect to share your garden with these wild neighbors. Major pests like Japanese Beetles can be managed with physical barriers such as cloth row cover. There are organic treatments for insect pests, but do keep in mind that **pesticides affect annoying bugs and beneficial pollinators equally**! Try to avoid using them if you can, or time applications to avoid bumblebee and butterfly active periods and reproduction.

Common Mistakes

- **Overwatering!** Test the soil moisture with your finger before adding more. Make sure pots have drainage holes, but don't add rocks on the bottom.
- **Not enough space or airflow.** Follow planting instructions and remember the size of mature plants.
- **Poor soil.** Amend rocky or clay beds with compost, and top off all gardens with compost at least once every 3 years.
- **Neglect.** Weed early and often. They start out small in May, but once those summer rains hit and the weeds are 2ft tall it's much harder to clean out your beds. Mulching can help reduce the amount of weeding you have to do.
- It's okay to lose a plant, and common for bugs and critters to share in your harvest! If insects or disease become a big problem, reach out to your local UW Extension office or Master Gardeners.

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Sourcing Supplies on a Budget

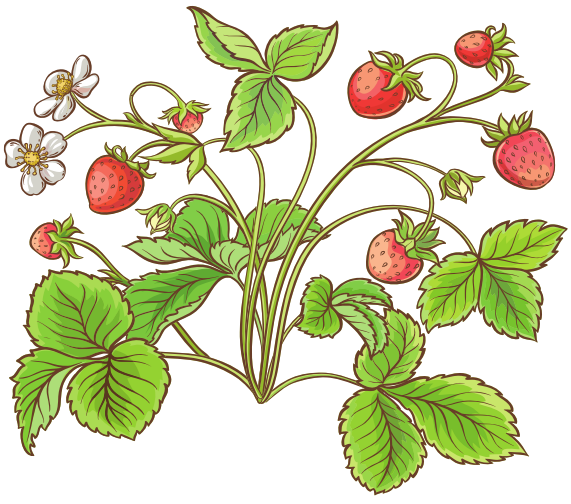
- Lumber, tools, and seeds may be donated from local hardware stores. If your childcare site is a nonprofit, stores may be able to write off supplies as a donation. Some local chains may have scholarships for schools and early care programs that sponsor all or part of your purchase.
- Seeds, plants, and some garden materials may be covered by SNAP or CACFP funds -- check with an advisor to see what is allowable under your funding.
- Families and community members are often glad to share their extra gardening supplies, or to help collect donated containers like sour cream tubs and egg cartons. Ask around and see what you can source from your community. You can make an event of garden building, cleanup, and transplanting days to help share in the joy and lighten the labor!
- Ask your municipality if they are able to donate leaves and other yard waste for composting. If you are able to compost your own materials on site, you can collect leaves and safe food scraps throughout the year to create your own fertilizer.

Questions? Comments? Get in touch!

Reach out to us at Rooted at wifarmtoece@rootedwi.org -- we'd love to provide support for your gardening adventures! Visit our website at rootedwi.org for more Farm to ECE resources such as:

- Got Dirt? - Provides step-by-step plans for starting a garden. Also available in Spanish.

- Safety in the Little Gardeners' Garden - Building and using a garden that meets the safety and licensing requirements for child care programs in Wisconsin.



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