

Gardening with Kids

The Fundamentals of K-5 Food Education

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Foundations of School Garden Work



Every school garden begins with a shared purpose: to create a living space where students and community can grow and learn together. While the vision for a flourishing mini-farm or a year-round greenhouse provides the inspiration to dream big, the most sustainable way to reach that goal is to start small. Whether beginning with a single raised bed or a simple compost bin, every action in the garden serves as a foundation for hands-on learning and environmental stewardship.

The Garden as a Learning Space

A school garden is more than a beautification project. It is a powerful outdoor classroom that supports academic learning through hands-on experience. Moving beyond a fun experience, effective experiential learning in the garden allows students to:

- **Cultivate Food Literacy:** Students learn where their food comes from and the effort required to produce it.
- **Build Agency:** By caring for living things and seeing the results of their labor, students gain confidence and a sense of responsibility for their environment.
- **Foster Community:** The garden is a place of belonging where students and community members can practice and feel the benefits of teamwork.
- **Promote Wellness:** Students are invited to taste and enjoy their harvest, fostering a positive relationship with food and a lasting appreciation for how it nourishes the body.

This work relies on a collective effort rather than a single individual. A thriving, student-centered garden brings together teachers, families, and community members to turn a shared mission into a vibrant reality.

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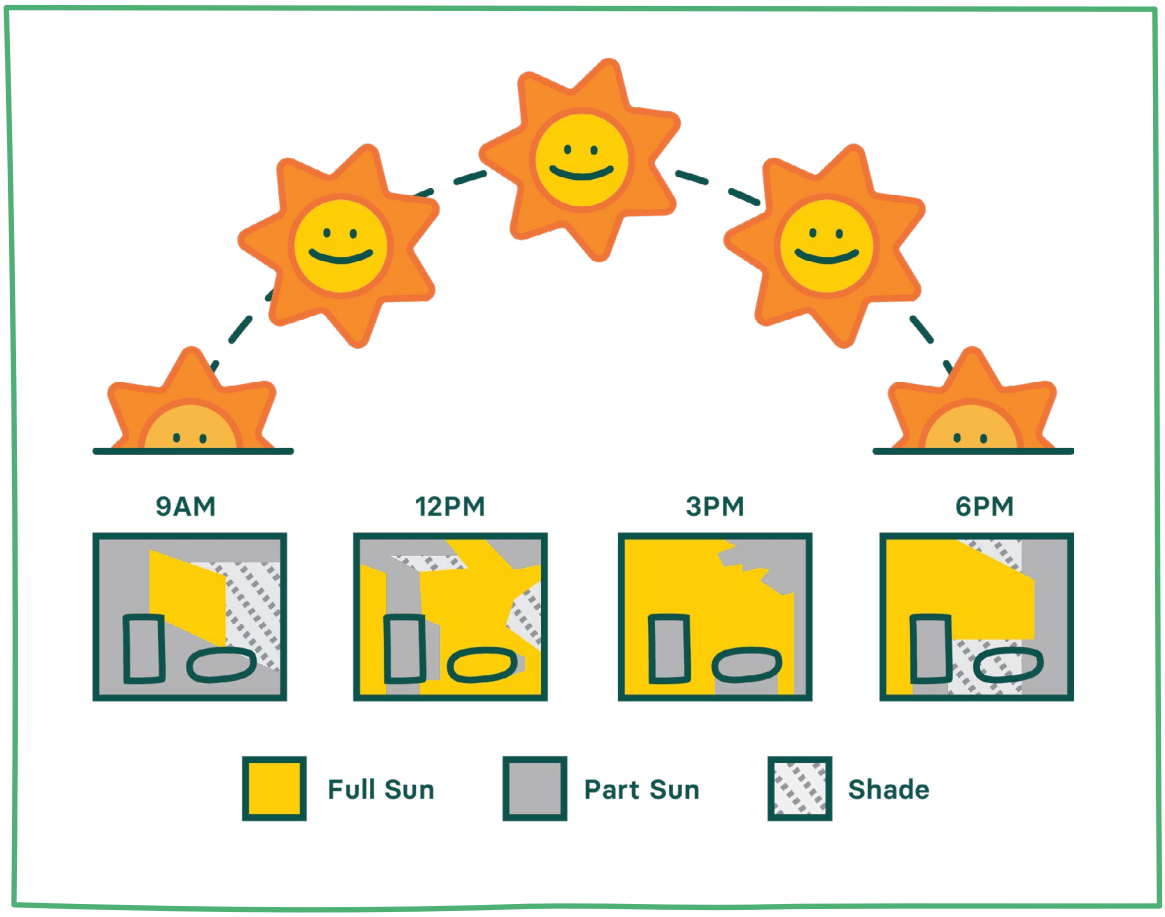
Designing a School Garden

Choosing a Site for a New Garden

When establishing a new outdoor garden, keep these features top of mind:

- **Sunlight:** Select a site with at least 6 hours of direct sunlight. Observe light patterns throughout the day to create a sun map.



Sun Mapping

To make a sun map, observe and record the patterns of sunlight and shade in the garden space at three-hour intervals throughout a single day.

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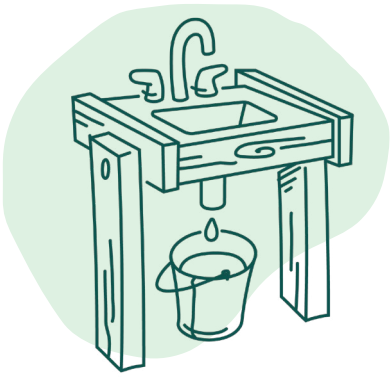
Choosing a Site for a New Garden

- **Water access:** Have a water source nearby. Identify the closest spigot to determine hose length and consider setting up a sink with water that comes from a safe drinking source (potable) for hand washing and rinsing produce.



Simple Sink Stations

Build a simple wash station using a secondhand or donated sink and a basic wooden frame. Make sure the water is potable and the drain pipe leads to a bucket or a mulched area to keep the ground from getting muddy and slippery.

- **Drainage:** Choose level ground with well-draining soil to prevent standing water or runoff.
- **Soil:** Test soil for contaminants and heavy metals before planting in the ground. *See Section 3* for more on soil composition and health.
- **Accessibility:** Establish the garden near classrooms to encourage frequent use. Space beds or growing areas to accommodate wheelchairs and equipment; keep bed heights under 3 feet and widths under 3 feet to ensure all students can reach the center.



Garden Pathways

Create pathways by laying cardboard to block weeds and then topping with wood chips or mulch.

- **Safety:**
  - Plan for secure tool storage and follow local school and building codes for fencing and structures.
  - Research which materials to use to build garden beds. Note that treated lumber, granite, and rubber tires, among other materials, often contain toxins and are not safe for growing food.

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Design Features for Outdoor Classrooms

To transform a standard garden into an outdoor classroom, incorporate these learning-focused elements:

- ✓ **Outdoor meeting area:** A shaded gathering spot with seating for group discussions, journaling, and sketching
- ✓ **Instructional space:** A weather-resistant whiteboard, chalkboard, or signage area to display daily goals, visuals, and instructions
- ✓ **Activity stations:** Open spaces designed for small-group rotations or collaborative team projects
- ✓ **Work tables:** Durable, height-appropriate tables for potting, dissections, and other hands-on learning
- ✓ **Class or theme beds:** Dedicated plots for specific classes or subjects, such as "pizza ingredient" beds, pollinator habitats, or "tea" gardens
- ✓ **Compost area:** A designated area for managing organic waste and observing the decomposition cycle (see Compost Systems, p. 13)
- ✓ **Animal habitats:** Features like birdbaths, shrubs, and trees to welcome beneficial wildlife and provide opportunities for ecological observation



STUDENT CENTERED

Support student agency and fun through murals, wind chimes, student-created signs, and established classroom agreements to make the space unique to the school community.



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Alternative Growing Methods: Containers and Hydroponics

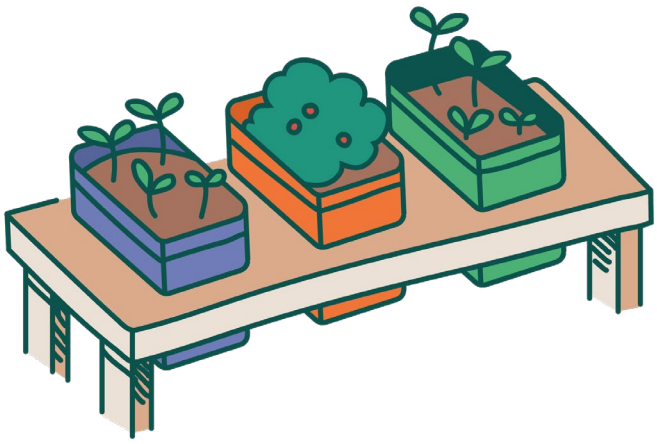
Container Gardens

A flexible solution for **indoor classrooms** or schools with **limited land** or **soil quality concerns.** Things to consider:

- **Potting mix vs. garden soil:** Use a lightweight potting mix to keep the soil loose and airy for the roots; standard garden soil is too heavy and will compact in a container.
- **Water management:** Check moisture levels **daily**, as containers dry out much faster than in-ground beds. Only use containers with built-in drainage holes (or drill your own) to prevent waterlogging and root rot.

Hydroponic Gardens

A soil-free systems that grow plants in nutrient-rich water, ideal for indoor STEM integration. Things to consider:



Best Plants for Hydroponic Gardens
Lettuce, basil, spinach, herbs, and leafy greens are all easy options for beginners.

- **Supply list:**
  - A container (reservoir)
  - Water pump/air pump
  - Nutrient solution (fertilizer)
  - Grow lights (if indoors)
  - Substrate (like rockwool or clay pebbles)
- **Maintenance:** Hydroponic gardens require regular check-ups on water levels and nutrient concentration. Systems can be set up indoors or outdoors. Monitor the nutrient solution's pH (keeping between 5.5 and 6.5) and PPM/EC levels to measure nutrient concentration.

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Assessing and Improving Soil Health

Soil is more than just dirt. It is a complex living ecosystem. Soil health is determined by the balance of five elements. When balanced, the soil can effectively store nutrients and manage water.

Soil is a Living System



Minerals

Provides structure through sand, silt, and clay to support plant growth



Organic Matter

Feeds the soil using **green nitrogen sources** (e.g., grass clippings, kitchen scraps, coffee grounds), **brown carbon sources** (e.g., dead leaves, woodchips, sticks), and compost



Living Organisms

Breaks down material to turn organic matter into nutrients that plants can access



Water

Transports nutrients and moisture directly to the roots



Air

Allows roots to breathe by providing essential oxygen pockets in the soil

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Soil Safety

Contamination

School and urban sites may contain legacy contaminants like lead or heavy metals. **Always test the soil before planting crops intended for consumption in the ground.**

How to Test

Contact the local **University Cooperative Extension** office for a low-cost testing kit with instructions.

Safe Planting

If tests reveal high contaminant levels, do not plant in the ground. Instead, use **raised beds** with a bottom barrier (like landscape fabric) or **containers** filled with fresh, OMRI Listed (Organic Materials Review Institute) potting soil.

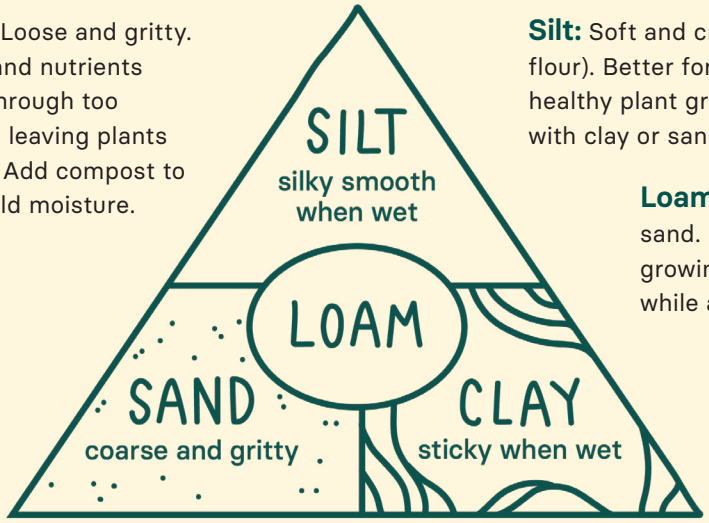
Manure

Only use manure labeled **"fully composted"** or **"bagged."** This ensures the soil is safe for kids to touch and free of germs or weeds.

Soil Texture

Identifying soil texture early can ensure the ground remains loose enough for air circulation and proper drainage, preventing plant loss and helping to establish effective watering routines.

Sand: Loose and gritty. Water and nutrients leach through too quickly, leaving plants thirsty. Add compost to help hold moisture.



Loam is a combination of all these

Silt: Soft and crumbly (feels like flour). Better for easy digging and healthy plant growth compared with clay or sand.

Loam: A balanced mix of clay, silt, and sand. Considered the "gold standard" for growing food because it retains moisture while allowing for proper drainage.

Clay: Sticky and dense. It holds nutrients well but can "drown" roots or become too hard for students to dig. Add compost to improve airflow.

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DIY Soil Composition Test

Materials

- ☐ Quart-sized jar
- ☐ Water
- ☐ Soil sample
- ☐ Masking tape and marker

Phase 1: Collection & Sampling

1. **Select Site:** Choose a location to collect a sample; use multiple spots for larger areas.
2. **Dig:** Clear surface mulch and dig 1 inch deep to reach active soil.
3. **Prep Jar:** Fill a clear jar 2/3 full with water.
4. **Add Soil:** Scoop in soil until the jar is nearly full.
5. **Label:** Seal the lid and mark with the date and location.
6. **Agitate:** Shake vigorously for one minute to create a consistent slurry.

Phase 2: Settling & Observation

1. **Rest:** Leave the jar undisturbed for at least 24 hours.
2. **Analyze:** Without moving the jar, examine the settled layers:
   - **Bottom (Sand):** largest, heaviest particles
   - **Middle (Silt):** medium particles
   - **Top (Clay):** smallest particles (may stay cloudy)
   - **Surface:** floating organic matter (roots/leaves)

Phase 3: Interpreting Results

1. **Identify Soil Type:** Compare percentages of sand, silt, and clay (see illustration on next page with percentages). Aim for loam, a balanced mix of all three.
2. **Make Improvements:** Make improvements using the below table as reference.

Soil Type	Problem	Solutions
Clay Soil	Clay soil has tiny, tightly packed particles. It holds onto nutrients well, but it drains poorly, warms up slowly in spring, and turns into hard brick when dry.	• Add horticultural sand to increase drainage. • Add compost to create air pockets. • Cover soil with wood chips or straw to prevent the surface from hardening in the sun. This also encourages earthworms to tunnel through and loosen the clay.
Sandy Soil	Sandy soil has large, loose particles. Water and nutrients wash right through it like a sieve, meaning plants dry out fast.	• Add moisture-holding organic matter like compost, peat moss, or coconut coir. • Cover soil with wood chips or leaves to keep the sun from drying out the sand.
Silty Soil	Silty soil feels smooth or powdery (like flour) when dry and slippery when wet. It holds nutrients well, but it compacts and erodes very easily.	• Add compost to help the silt stick together in healthy clumps, keeping it loose and airy. • Try to disturb the soil as little as possible by practicing no-till gardening.

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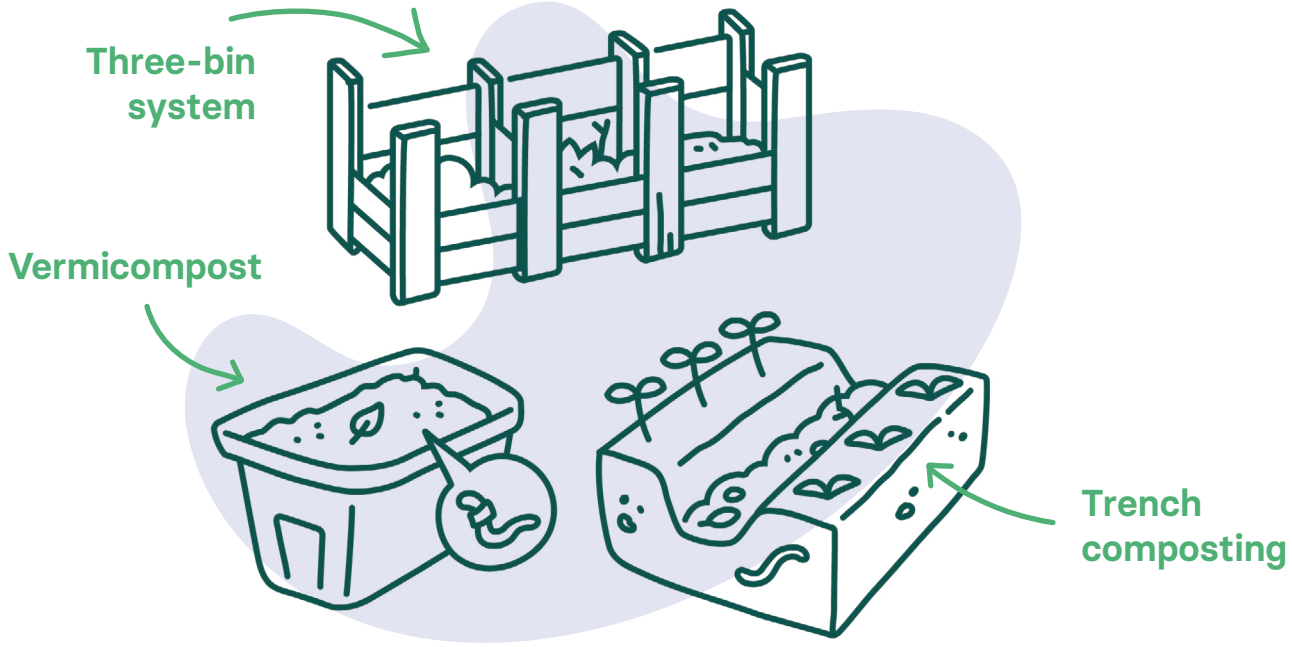
Compost

Composting turns garden waste into a nutrient-rich addition that **improves soil structure and water retention.** Setting up a compost area supports the garden's health and provides a hands-on opportunity for students to observe the cycle of decomposition and nutrient recycling firsthand.

Types of Composting Systems

- **Open piles:** Low-cost and simple. Best for large amounts of yard waste. Must be turned regularly to decompose properly.
- **Three-bin system:** Easy to build (wood/pallets). Allows for staggered decomposition. Must be turned regularly to decompose properly.
- **Tumbling composter:** Enclosed and easy to turn; ideal for small spaces and pest prevention.
- **Vermicomposting:** Uses red wiggler worms for food scraps. Compact for indoor or outdoor use.
- **Trench composting:** Burying waste directly into the soil. Low maintenance and nutrient rich (also known as keyhole gardening).
- **Sheet composting:** Layering organic materials on top of soil to decompose in place as mulch.



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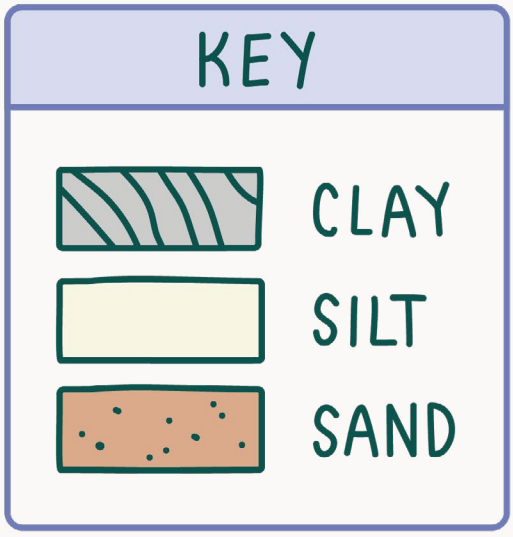
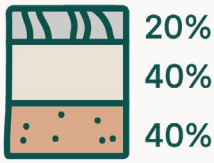
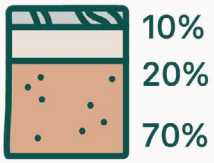
Identify Soil Type



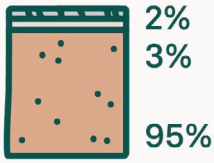




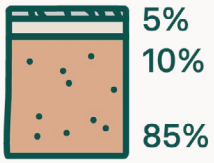
Loam



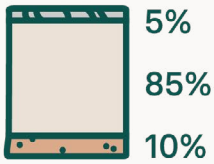
Sandy Loam



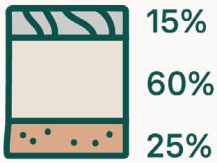
Sand



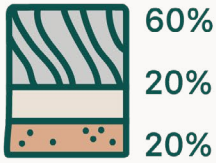
Loamy Sand



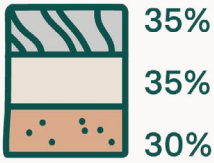
Silt



Silt Loam



Clay



Clay Loam

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Why Compost with Students?

Composting is more than just managing food waste. It's a hands-on tool for social-emotional learning and STEM integration.



Empathy and responsibility: Caring for worms helps students develop awareness and respect for other living things. Assigning "Worm Ambassadors" to feed the bin builds a sense of ownership.



Math in action: Turn feedings into a data lesson by weighing food scraps and estimating weekly consumption based on worm population.



Scientific inquiry: Use the bin to explore biology (observing food preferences) and chemistry (testing soil pH and nutrient levels).



Systems thinking: Connect the full life cycle by showing how classroom food waste becomes the fuel that grows new food in the garden.

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Vermicomposting with a Worm Bin

If there isn't enough space to construct an outdoor compost bin, try composting indoors using a worm bin. A shoebox-size bin can work as a traveling system for classes.

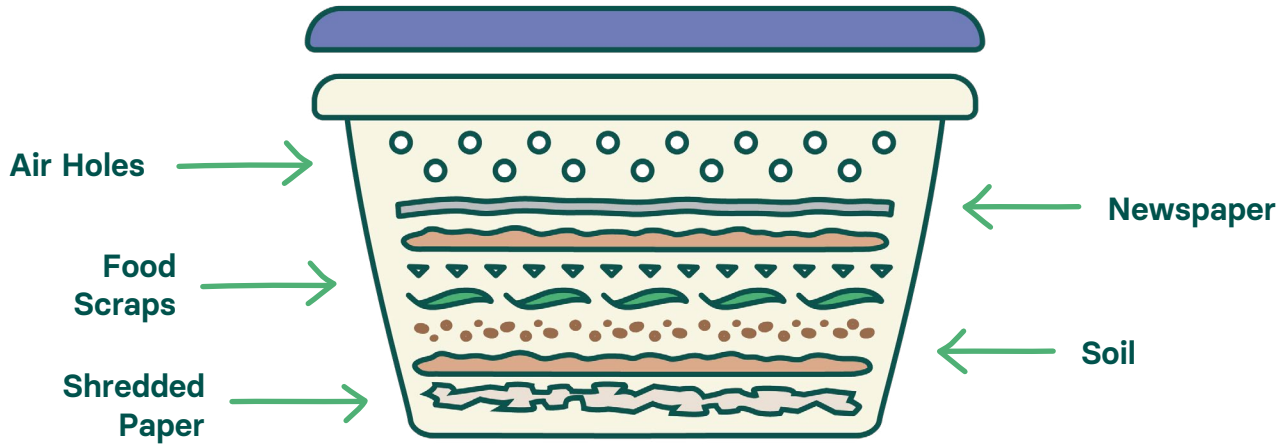


Materials

- ☐ Dark plastic storage container with lid
- ☐ Drill
- ☐ Piece of fine screen
- ☐ Newspaper
- ☐ Spray bottle of water
- ☐ Food scraps
- ☐ Red wiggler worms
- ☐ Something to catch excess liquid under the container (e.g., another storage container, pan, tray)

Setup

1. **Prepare the bin:** Use a plastic storage container with a lid. Drill about 10 small holes in each side (for air) and the bottom (for drainage).
2. **Create bedding:** Fill the bin 1/2 to 3/4 full with shredded newspaper. Use the spray bottle to dampen the newspaper until it feels like a wrung-out sponge.
3. **Add worms:** Place red wigglers into the moist bedding.
4. **Choose a spot:** Keep the bin in a warm, dark or shaded area (with temperatures between 55 degrees F and 80 degrees F). Place a tray underneath to catch any drainage.



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Worm Bin Maintenance

- **Feeding:** Feed worms once a week. Worms can eat half their body weight in food per day. A pound of worms can process roughly 3.5 pounds of food weekly.

Add: fruit and vegetable peels, eggshells, coffee grounds, tea bags, garden trimmings

Do not add: dairy products, oils, or meats



- **Monitor Portions:** If scraps remain after a week, reduce the food amount or increase the worm population.
- **Rotation Method:** Dig a small hole on one side of the bin, bury the scraps, and cover them. The following week, check the previous spot. If the food is gone, dig a new hole next to it. Repeat this across the bin to ensure even processing.
- **Moisture Check:** The bin should stay damp. If too wet, add more dry cardboard.
- **Harvesting:** After 3 to 4 months, start harvesting the worm castings (compost). Use a spoon to scoop out the castings (leave the worms in the bin) and add to the soil around the plants.

Troubleshooting

Problem	Problem Cause	Solutions
Worms are dying or trying to escape	• Too wet • Too dry • Bedding is used up	• Add more bedding • Moisten bedding • Harvest the bin
Bin stinks	• Not enough air • Too much food • Too wet	• Drill more ventilation holes • Do not feed for 1–2 weeks • Add more bedding
Fruit flies	• Exposed food	• Bury food in bedding

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Planting

Where to start ... planting seeds or transplanting live plants? Choose the planting method based on how well the plant handles being moved (its "transplant shock" level) and local growing conditions:



- **Planting seeds or "Direct Sowing":** Best for crops that dislike root disturbance, such as root vegetables (e.g., carrots, radishes), beans, peas, and corn. Sow seeds directly into the garden soil at the depth and spacing.
- **Transplanting live plants:** Best for long-season crops (e.g., tomatoes, peppers, broccoli) or for getting a head start on the growing season. This involves moving young plants (starts) from small containers into the garden (see "Transplanting, p. 22).

Pro Tip: Planting with Students

Engage kids and keep plants safe by using a **"demonstrate-then-do"** approach:

- **Model First:** Show the entire process, from making the hole to tucking in the seed, before handing out materials.
- **Small Groups:** Work with 3 to 5 students at a time while the rest of the class does an independent garden activity or observation.
- **Age-Appropriate Tasks:** Younger students excel at large-seed sowing, while older students can handle the delicate root systems of transplants.

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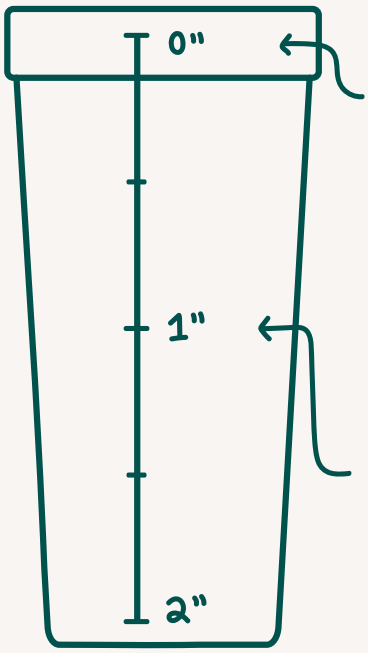
Planting Seeds

- **Firming the Soil:** After sowing, lightly tamp down the soil with a hand or a trowel to eliminate air pockets and keep the seeds hugged by the soil.
- **First Watering:** Use a "mist" or "shower" setting on the nozzle. A heavy stream of water will wash away small seeds or bury them too deeply.
- **Thinning:** When multiple seeds sprout in one spot, cut the smaller seedlings at the soil line to give the strongest plant room to grow.



TINY SEEDS

(e.g., carrot, basil, lettuce)

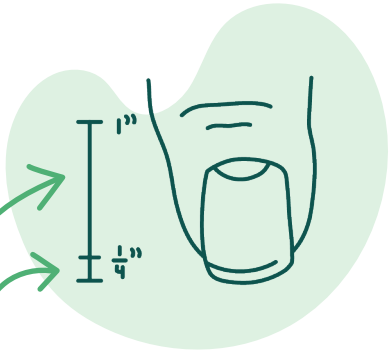
need light to germinate. Press them gently into the surface of the soil so they make contact, but do not bury them. A light dusting of fine compost can help retain moisture without blocking light.

LARGE SEEDS

(e.g., beans, peas, squash)

should be planted roughly one inch deep. This protects them from birds and keeps them in contact with moist soil.

The "Finger Ruler" Method



Small seeds: tip of the fingernail (~1/4 inch deep)

Large seeds: first knuckle (~1 inch deep)

Indoor Seed Planting

Starting seeds indoors provides a controlled environment for young plants and allows students to observe germination. This head start in the spring will help get the garden ready to grow as soon as the weather is warm enough. Use any container 2 to 3 inches deep with drainage holes. Recycled items like yogurt containers or small milk cartons work well.

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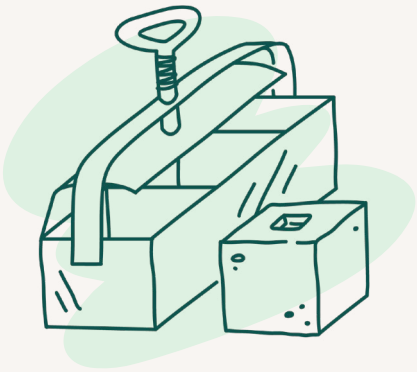
Soil

Preparing a dedicated seed starting mix is best for indoor propagation, but potting soil is a good alternative if ingredients are unavailavble. Avoid standard garden soil as it is too heavy and contains bacteria that can kill young sprouts.



DIY Seed Starting Mix Recipe

- ☐ **1 part coconut coir:** Provides moisture retention and a fluffy structure (sustainable alternative to peat moss)
- ☐ **1 part perlite:** Adds air pockets to ensure roots can breathe and improves drainage
- ☐ **1 part vermiculite:** Holds water and nutrients near the seed to prevent drying out
- ☐ **½ part worm castings (optional):** Adds a gentle, natural boost of nutrients for the plant's first "true leaves"



Soil Blocking

Soil blocking lets roots naturally stop growing when they reach the edge and hit the air. This "air-pruning" creates a stronger root system without needing plastic starter trays. To soil block, use a metal blocker tool to compress seed starting mix that has been hydrated to the consistency of wet oatmeal into self-standing cubes.

Pre-Wetting: Always hydrate the seed starting mix with warm water before putting it into trays. If it's watered for the first time after planting the seeds, the lightweight mix will often float or repel the water, dislodging the seeds.

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Transplanting

Transplanting is the process of moving young plants from indoor containers into the outdoor garden.

Tips: Reduce "Transplant Shock"

- Wait until plants have at least two sets of true leaves
- Transplant in the **late afternoon or on a cloudy day** to avoid midday sun
- Avoid transplanting right before heavy storms or high winds

How to Transplant

1. **Harden off:** Gradually acclimate plants to the outdoors over 7 to 10 days before planting.
2. **Prep the hole:** Dig a hole in the soil roughly the same size as the plant's current container.
3. **Remove gently:** Turn the container sideways and squeeze the sides to wriggle the plant out. Never pull the plant by its stem.
4. **Set the depth:** Place the plant in the hole and fill with soil until it is at the same depth it was in the pot.
5. **Water:** Firm the soil to remove air pockets. Use a gentle spray or trickle water directly around the root zone. Make several passes to ensure moisture reaches the full depth of the roots.

Schedule for Acclimating Transplants

Days 1–3	Days 4–7	Days 8–10
Place plants in a sheltered, shady spot outside for 1–2 hours.	Increase outdoor time by 2 hours each day, gradually moving them into direct sunlight and wind.	Leave plants out all day and overnight (as long as there is no frost) before transplanting them into the garden.

Check the seed packet or a planting guide to ensure enough spacing between each plant.

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Crop Planning

Choose crops that align with the school year and climate. Consider when you would like to harvest during the school year and use succession planting (planting crops at different times) to allow for a continual harvest throughout the year.

Pro Tip

Planting and harvest dates vary based on the local climate. Use this table as a general guide, but check a local planting calendar (like the Old Farmer's Almanac) for dates by region or zip code.

Crop Type	Examples	Planting Window	Harvest Window
Quick Wins *(fast-growing foods)*	Radishes, Lettuce	Early spring or early fall	4–6 weeks after planting
Student Favorites *(best for garden snacking)*	Snap Peas, Carrots	Spring (cool weather)	Late spring or fall
Heat Lovers *(best for garden snacking)*	Tomatoes, Peppers	Late spring (after frost)	Late summer or fall
Long Game *(patience for big harvests)*	Potatoes, Pumpkins, Garlic	Spring or fall	Late summer or fall (or next summer for garlic)

Crop Planning Tips

- **Succession Planting:** Plant a small row of lettuce every two weeks to have a steady supply instead of one giant harvest.
- **Space Savers:** Plant quick-growing crops (like radishes) in the gaps between slow-growing ones (like peppers). By the time the peppers need the room, the radishes are done.
- **Companion Planting:** Pair plants together that naturally help each other grow through:
  - **Pest control:** Some plants, like garlic and marigolds, have strong scents that naturally repel garden pests.
  - **Pollinator power**: Flowers like borage attract bees and butterflies, which help vegetables grow.
  - **Nutrient support:** Certain combinations, like the "Three Sisters" (corn, beans, and squash), work as a team to keep the soil healthy and provide structural support for one another.



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Maintaining



Watering

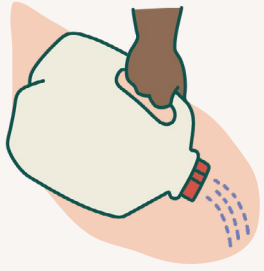
To help the garden thrive, choose a method that balances efficiency with student engagement:

- **Drip irrigation:** Use perforated hoses to slowly drip water directly onto the soil, saving time and water while preventing weeds in non-crop areas.
- **Hand-watering:** Using a watering can is a fun, easy activity for students that teaches caretaking.

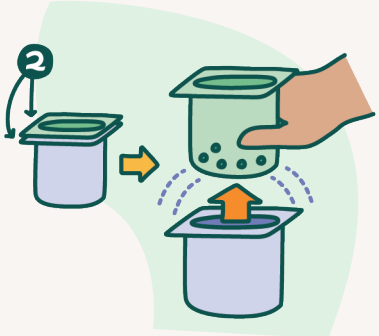
Tips: Watering with Students

- Teach students to make a gentle pass with water, wait for it to sink in completely, and then repeat. This prevents seeds from washing away and ensures deep hydration.
- Have students poke their finger into the soil down to the root level. If the soil feels dry at their fingertip, the plant needs more water; if it's moist, they've done their job!
- When watering seedlings indoors, have students use a spray bottle to avoid over-watering.

Create DIY Watering Cans



Milk jug watering can



Nested yogurt cups

Use recycled milk cartons or nested yogurt cups (stack a cup with drainage holes inside one without, scoop water, and then use the perforated cup to sprinkle water over the plant.) Students dip their "can" into a central water bucket, then carry it to a specific plant.

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Weeding

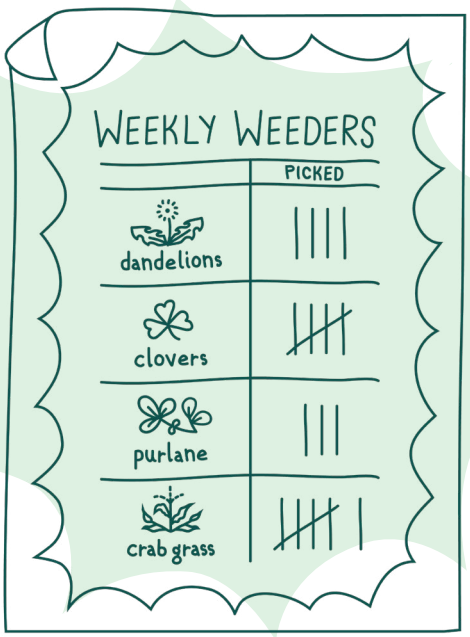
Weeding is a constant and essential garden task. While weeds compete with crops for light, water, and nutrients, they also offer learning opportunities and some ecological benefits.

Preventing Weeds

- **Targeted watering:** Water only the crops. Keeping paths dry prevents weed seeds from germinating in non-crop areas.
- **Sheet mulching:** Cover paths with cardboard or landscape fabric, then top with wood chips to suppress growth.
- **The "small weed" rule:** Pull weeds while they are young. It is much easier to remove a seedling than a deep-rooted adult.
- **Stop the seeds:** Always remove weeds before they flower and go to seed to prevent future outbreaks.

Weeding Methods

- ☐ **Manual:** Hand-pulling (great for students) or digging (necessary for deep roots)
- ☐ **Tools:** Hoeing for surface weeds or mowing for large, grassy areas
- ☐ **Covering:** Mulching thickly to "smother" weeds, or solarizing (covering soil with clear plastic for several weeks in summer to let heat kill seeds)



Tips: Weeding with Students

- **Presoak the soil:** Water the area well before weeding. Students feel much more successful when weeds slide out easily rather than snapping off at the stem.
- **Mark the keepers:** Clearly label or flag crops so students don't accidentally pull the wrong plant.
- **Make it a game:** Have students count their weeds or create a "Weed Chart" to track which types are most common in different parts of the garden.

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Harvest to Keep Crops Growing

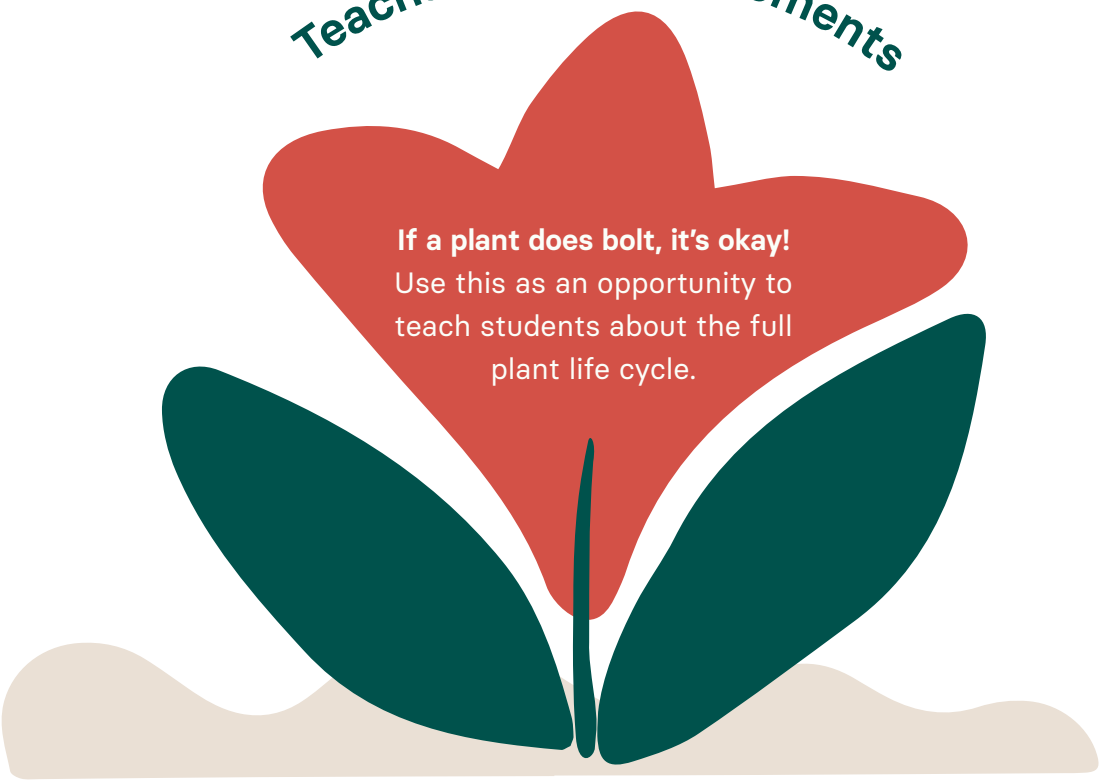
- **Harvest often.** Frequent picking signals the plant to keep growing produce. The more you harvest, the more the plant will produce.

- **Prevent plants with edible leaves and roots from "bolting" or "going to seed."** "Bolting" is when a plant stops growing leaves or roots and starts growing flowers and seeds. This usually happens during sudden heat waves.

Yuck Alert!
A bolting root vegetable turns hollow and tastes bitter.

- **To prevent bolting:**
  - **Keep soil cool** with mulch and use row covers to protect plants from rapid weather shifts.
  - **Pinch off flowers.** If you see flowers starting to form on leafy greens, like lettuce or basil, immediately pick them off. This redirects the plant's energy back into producing edible leaves.

Teachable Garden Moments



If a plant does bolt, it's okay! Use this as an opportunity to teach students about the full plant life cycle.

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Pest Management

The best defense against pests is a healthy garden. Maintaining fertile soil and proper irrigation prevents most issues before they begin.

Common Garden Pests



Aphids
Small insects that suck sap from stems and leaves, causing stunted growth



Japanese Beetles
Invasive pests that "skeletonize" leaves by eating the tissue between the veins



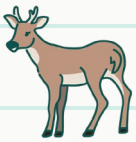
Slugs and Snails
Nocturnal mollusks that chew large, irregular holes and leave slime trails



Tomato Hornworm
Lightgreen caterpillar with eight V-shaped white stripes and a "horn"; a pest capable of defoliating a plant in days



Squash Beetle
Rounded, orange-copper insect with 12 to 14 black spots on its wing covers, larger than ladybugs; a pest that skeletonizes squash, melon, and cucumber leaves



Deer
Herbivores that can quickly graze down entire crops and fruit tree branches



Squirrels
Agile foragers known for digging up bulbs and taking single bites out of ripening fruit



Rodents
Opportunistic pests like voles, gophers, and mice that damage roots and seeds

Garden Helpers



Bees
Essential pollinators that enable the garden to produce fruit, vegetables, and seeds



Ladybugs
Beneficial predators that naturally control pest populations like aphids and mites



Butterflies
Helpful pollinators that facilitate plant reproduction while feeding on nectar



Lacewings
Beneficial insects that naturally control pest populations like aphids, whiteflies, thrips, spider mites, small caterpillars, and insect eggs

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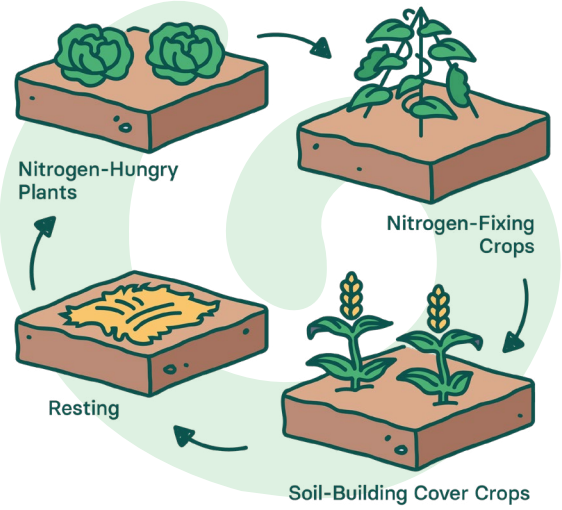
Preventing Pests

- **Choose wisely:** Plant varieties suited to your specific region and current season. Select seeds or seedlings labeled as disease- and pest-resistant.
- **Clean up:** Regularly remove dead or infected plant material and keep weeds to a minimum to eliminate pest habitats.



- **Rotate crops:** Avoid planting the same thing in the same spot repeatedly, as this drains specific nutrients and invites "specialist" pests to stay. Instead, rotate where you plant crops every three years to keep soil fertile and break the life cycle of pests and diseases.

Natural and Physical Controls

Traps and poisons can be hazardous to students. Always check district policies before use and prioritize other methods:

- **Attract garden helpers:** Plant diverse flowering perennials instead of using harmful insecticides.
- **Add physical barriers:** Use row covers to protect against birds and squirrels, and line beds with hardware cloth or gopher baskets to block burrowing pests.

Tips: Pest Control with Students

- Use “student power” to find and remove garden pests. If the school keeps chickens, students can feed the bugs they find to the birds.
- Place a flat board or damp, rolled-up newspaper on the ground. Students will love flipping it over the next morning to find and remove hiding slugs and snails.
- Encourage students to research insects to help them spot the difference between garden pests and friendly bugs.

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Seasonal Care

Winter Prep and Reset

To keep your garden healthy through the cold and ready for spring, follow these steps:

Winter Protection



- **Insulate the soil:** Spread a thick layer of mulch or landscape cloth over garden beds to keep soil temperatures stable and prevent erosion.
- **Build a safety net:** Install hoops with row covers or cold frames to shield sensitive plants from frost and extend the garden harvest.
- **Drain the lines:** Disconnect hoses and drain any irrigation systems before the first hard freeze to prevent burst pipes.

End-of-Season Reset

- **Remove dead foliage:** Clear out yellowing or dead plants to stop pests and diseases from "overwintering" in the garden beds.
- **Chop, don't pull:** For "feeder" crops (like beans or peas), cut the stems at the soil line but leave the roots in the ground to rot; they act as a natural fertilizer for next year.
- **Protect soil life:** Do not till or dig unnecessarily. Keeping the soil intact protects the worms and microbes that will revive your garden in the spring.



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Summer Garden Maintenance

Summer is the biggest challenge for school gardens. Without students around, a few weeks of heat can undo a year of hard work. Use this checklist to bridge the gap:

☐ Build Your Summer Team

- **Recruit volunteers:** Use a shared calendar to sign up families, staff, and/or neighbors for one-week "watering shifts."
- **Coordinate access:** Confirm with administrators that volunteers have gate codes, water key access, and permission to be on school grounds during the break.

☐ Prepare the Plants

- **Deep mulching:** Apply 2 to 3 inches of straw or wood chips to all beds. This keeps roots cool and traps moisture in the soil.
- **Automate watering:** Set up simple battery-powered hose timers to ensure watering happens early in the morning, even if a volunteer misses a day.
- **Harvest early and often:** Encourage volunteers to take home whatever is ripe. This prevents rotting fruit from attracting pests and keeps the plants productive.

☐ Protect the Space

- **Plant summer "cover crops":** If you aren't growing vegetables, plant buckwheat or clover. They shade the soil, prevent weeds, and improve the dirt for the fall.
- **Landscape cloth for paths:** Use landscape cloth or cardboard on walkways to stop weeds from taking over while the garden is less supervised.

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Sustaining Community Engagement

A thriving school garden relies on shared ownership. Involving students, families, and local experts helps make the garden a vibrant part of the community,



Collaborative Design and Care

- **Student voice:** Encourage classes to draft their own vision for the garden and merge ideas into a final plan.
- **Expertise mapping:** Seek out local specialists, such as carpenters, irrigation experts, or garden center owners, to lend technical skills to the garden.
- **Garden care:** Integrate daily maintenance (watering and weeding) into student activities to foster stewardship.



Ongoing Communication

- **Newsletters with impact:** Use the school's newsletter to share more than just gardening dates. Include a "What's Sprouting" section with a photo of a student harvest and a simple recipe using a current garden crop.
- **Interactive signs:** Place a chalkboard or "What to do today" sign at the garden entrance. This makes it easy for passersby to engage with the space—even for five minutes—by pulling a few weeds or spotting a specific pest.



Family Activities

- **Host volunteer days:** One-time volunteer events are excellent for heavy lifting, while recurring "Garden Days" build good community habits.
- **Skill shares:** Turn a work day into a learning day, by inviting families and caregivers to share their skills with short demonstrations, like pruning tomatoes or building a trellis.
- **Adopt the garden:** During the summer, invite families or neighbors to "adopt" the garden for 1 to 2 weeks. Provide a brief training and a clear task list. Encourage them to harvest any ripe produce or flowers as a thank you.



Celebrate Success

- **Harvest festivals:** Host an annual event where the community prepares a meal together using garden produce. This is the ultimate "thank you" to volunteers, students, and families.
- **Student tours:** During school events, have students act as "Garden Docents" to lead their families through the space. When a child explains how the irrigation works, it cements their learning—and the garden's value to families.

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Safety in the Garden

To ensure a safe, productive, and inclusive outdoor learning environment, take these safety measures:

General Garden Safety

- ☐ **Hazard assessment:** Regularly scan for risks and avoid poisonous plants, sharp debris (like nails or rusted metal), animal waste, or chemically treated materials.
- ☐ **Safe tools:** Use age-appropriate, kid-friendly tools (e.g., hand trowels). Store sharp or motorized adult equipment securely out of reach.
- ☐ **Plant identification:** Teach students to harvest only positively identified plants and edible parts (e.g., rhubarb stalks, not leaves) and to always ask an adult if they are unsure.
- ☐ **Harvest hygiene:** Require students to wash hands thoroughly before handling produce. Collect all harvested items in clean, food-safe containers.

ALWAYS MODEL SAFE TOOL USE!



Trowels and Hand Tools

Carry by the handle with the point toward the ground. Keep the blade away from fingers and toes while digging. Never lift the tool above shoulder height.



Long-Handled Tools (Shovels/Rakes)

Walk with the tool held at the side, blade or tines facing down. Never lift the blade above waist height to keep others safe nearby.



Hand Shears and Pruners

Carry by the handle with the point facing down. Keep blades clear of hands and feet, and keep shears locked when not in use.



Hammers

Maintain focus on the target at all times. Use two hands for maximum control and keep fingers clear of the target area.

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Student Safety and Expectations

- [ ] **Create norms:** Set clear boundaries, behavioral expectations, and supervision routines before entering the garden.
- [ ] **Physical readiness:** Make sure students have proper clothing, sun protection, and hydration.
- [ ] **Hygiene:** Set up a consistent hand-washing routine when transitioning between the garden and the classroom.
- [ ] **Emergency essentials:** Keep a "Garden Kit" on hand containing a first-aid kit, sunscreen, and extra water to flush eyes if needed.



Give Bees Space

Most bees in the garden are not aggressive and only sting if they feel threatened. Advise students to remain calm and avoid swatting at them. In the event of a sting, follow your school's medical plan and escort the student to the nurse immediately.

Prepare for All Weather

When using the garden as an outdoor classroom, it is important to prepare students for the elements. Consider:

- **Hydration and shade:** Provide constant water access and scheduled breaks in the shade.
- **Heat monitoring:** Watch for fatigue, weakness, irritability, sweating, or fever.
- **Cold/Wet gear:** Ensure students have warm layers, hats, and rain gear.
- **Indoor access**: Allow students to go inside if too hot or cold (with supervision).
- **Backup plan:** Always have a pre-planned indoor activity ready in case of bad weather.

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Appendices

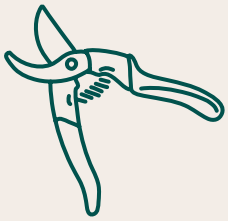


Basic Garden Tools and Supplies

Use community donations, grants, and repurposed materials to reduce costs. Prioritize durable, student-friendly tools.

Essential supplies include:

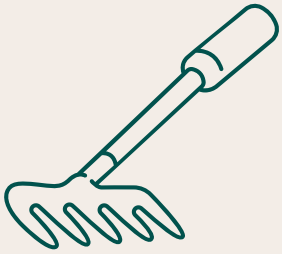
- Trowels
- Watering cans
- Hoses
- Loppers
- Pruning shears
- Wheelbarrow
- Leaf rake
- Open hoe
- Gloves (youth and adult sizes)
- Shovel (round/spade)
- Handheld soil blocker
- Mulch
- Compost



Garden Infrastructure

- Beds
- Irrigation
- Fencing
- Hoops and clear tarp
- Landscape cloths
- Tomato cages
- Frame trellis
- Greenhouse or cold frames

Additional Online Resources



Lifelab School Garden Design and Care

lifelab.org/resources/category/Plan+and+Design

School Garden Network

schoolgardens.org/resources

Kids Gardening Starting a School Garden Program

kidsgardening.org/resources/create-sustain-a-program-starting-a-school-garden-program-overview/

Whole Kids Foundation School Garden Resource Guide

wholefoodsmarketfoundation.org/school-garden-resource-guide

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