

Create the Garden **Guide**



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Gardening Basics



Basic Garden Design Principles

Line

The visual line is formed by the contrast between features. Lines in a design help move our eye through the space, whether they be flowing curves or energetic angles.

Vertical lines move your eye up and down. (Don't forget opportunities to make use of vertical space in your garden, which can add a whole other dimension.) Horizontal lines draw your eye across the scene. Curving lines will tend to draw you into the space, as you want to see where it leads.

Example: A line is formed by the edge of the turf grass and the flowerbed.

Tip: Strong lines that denote the edge of beds are much easier for young students to identify. If kids can distinguish between spaces, they will stay on paths and out of the middle of beds, as long as they can make out the distinction.

Form

Design features perceived by our eye have an overall form and are used to add interest through contrast, harmony, or repetition.

Example: A pyramidal evergreen or a vase-shaped ornamental tree can draw our eyes in and create focal points in the landscape. Or, an arch or two upright scrubs can be spaced to create a visual "entrance" to the garden.

Texture

Rough or smooth, textures affect our perception of the relative distance of the object. Fine textures tend to recede and coarse textures tend to advance. Contrasting coarse and fine textures tend to provide energy.

Example: Magnolias, with their large leaves, are considered coarse-textured, while Japanese Maples, with their delicate, serrated leaves are fine-textured.

Color

Color can provide a subtle, soothing mood when used in monochromatic families or they can inject energy when used with contrasting, complimentary colors.

Example: Red, orange, and yellow are considered "hot" colors, appear to advance (appear closer), and are "excitable" colors. Blues, purples, and greens are considered "cool" colors, appear to recede into the distance, and are "calming" colors.

Tip: People tend to design landscapes around flower colors first, but really should focus on the lines, forms, and textures of the overall plants, as the flowers are only in bloom for a short time.

Did you know that most meditation gardens use cool colors, while large theme parks often use hot color schemes to keep people excited and moving? Perhaps the overall presence of green in any garden is one contributing factor to gardens being regarded as calming places.

How do I apply basic design to my garden?

Repetition

Add harmony to the design by repeating an element, particularly form or color, throughout the landscape.

Variety

Add energy and interest by varying the features so it's not all the same view; think in terms of seasonal variations and varying focal points at different times of year.

Balance

Place comparable "masses" on either side of a feature; may be symmetrical or asymmetrical.

Emphasis/Focal point

Create a spot in the landscape where the eye pauses and looks for a longer period, usually because something is particularly interesting or pleasing.

Sequence

Provide cues for the garden visitor on how to move through the various areas and what to do in each; refer to the sequence of the flowering and seasonal colors of the planting scheme.

Scale

Keep in mind the relative sizes of the areas within the garden and the features and plants used.

Garden-specific design issues

Choreography of experience

When designing a garden, the designer is in essence choreographing a "dance" of movement through a space; she is specifically planning how you will move through that space and what you will do in each area, for example. Do you meander slowly along a stepping stone path? Do you move quickly along a broad, paved walkway? Are there quiet alcoves with seating that entice you to pause and reflect? How the garden space is arranged creates a particular experience visitors will have as they move through it.

Transitions

Spatial transitions refer to how the various areas of the garden relate to one another. For example, how do you transition from the vegetable growing area to the prairie and butterfly meadow? Seasonal transitions refer to how the garden includes features and plant choices that keep the space interesting and functional in every season – even winter!

Gardening Basics



Movement

This is how you move through a space, but it also refers to plant movement. For example, ornamental grasses are great for adding movement to the planting design.

Focus

This is where your eye rests, which is often on the details of the plants or the added features (like arbors or artwork). The spot where your eye comes to rest naturally is called the "focal point." Too many focal points in a small space are mentally confusing, as the eye does not know where to rest.

Sense of space

This is the overall feeling the space conveys when you view it and when you're in it. For example, is the garden sunny, open, and colorful? Is it shady, secluded, and quiet? What atmosphere do you want to create?

Composition

This is the overall garden, the overall impact of the space, and how all of the features and areas work together to create a whole.

Understanding Your Climate

Where you are located in the country dictates your climate, or the overall weather and temperature conditions in your area. Climate also affects what activities you may be able to do during a given season.

The term "growing zone" is used by the nursery and gardening industry as a common reference point for determining the range of a plant.

For example, hibiscus (*Hibiscus rose-sinensis*) is "hardy" only to Zone 9 where the average low temperatures are 20-25°F. Gardeners in Chicago, which is Zone 5 (average low temperatures reaching -20°F), would be advised not to use this plant. Alternatively, if a gardener in Chicago was looking for a flowering shrub, they would be better advised to select Lilac (*Syringa vulgaris*), Althea (*Hibiscus syriacus*), or Abelina (*Abelia grandiflora*), all of which are "hardy" in Zone 5.

What is my microclimate?

Microclimate refers to the small-scale conditions specific to your site. For example, if your garden is on the east side of a large building, it likely will be sheltered from prevailing western winds during the winter and may only receive direct sunlight during the morning hours. Conversely, if your site is on the southern or western side of a brick building, it likely has hotter, drier conditions given the exposure to afternoon sun and radiant heat from the building.

Gardening Tools



d-handled cutting spades:

tools for digging and creating defined borders along gardens, walls, and drives; can be easily pushed into the ground with the foot



hoes:

tools for cutting and weeding in most soil types



hoses:

hoses for general watering and soaking, can be attached to a sprinkler



short-tined rakes:

tools for loosening and leveling peat moss, mulch, and loose soil



shovels:

tools for digging and moving soil, rocks, or dirt



sprinklers:

tools for watering large areas



trowels:

tools for digging holes to plant flowers and seeds



watering cans:

containers for watering



watering wands:

watering tools that attach to hoses, provide gentle watering, and provide easy control of flow and shut-off

Designing the Garden

Do I Really Need Drawings : Include Everyone in the Process



Do I Really Need Drawings?

Yes. A plan drawing of your school garden is a sketch of the space and your proposed use for it. It neither be an elaborate drawing, nor done by a professional. And, yes, you can do it! Plan drawings are not that complicated.

Materials you need:

- graph paper
- tracing paper
- colored pencils
- ruler

A plan drawing...

- is a critical and valuable communication tool
- allows you to show teachers and students what will be built, including the location and size of the individual classroom beds so they can start planning their crops

The first step in developing a good set of plan drawings is to develop a solid base map that shows the dimensions and existing conditions of your garden site. A base map is the point from which you are starting to build the garden, or the original site. You will refer back to it repeatedly. After developing your base map, you will create subsequent designs on tracing paper (placed over graph paper) and to be viewed as an overlay to the base map. This overlay is so that viewers can see the proposal design in relation to what's already there, as shown on the base map.

What is a base map and how do I develop one?

A base map is the result of a series of direct field observations of your site. The base map will serve as a foundation to guide your garden design, will help you choose the right features and plants for your site conditions, and will help you keep everything in scale. Use the information you gathered in Analyze the Site about size, climate, neighborhood, light, soil, drainage, traffic, and existing features to develop your base map.

Your base map can also be called a scale drawing, where: 1 foot in real life = 1/4 or 1/8 inch on graph paper

- These are the most common scales
- They allow you to use a basic ruler
- They work well to represent the average school garden on a piece of graph paper
- They are fairly straightforward to understand, with a little practice

Next, draw your bubble diagrams

Once the base map is drawn, you can use tracing paper overlays to draw simple bubble diagrams to experiment with ideas for different zones of use within the garden.

Bubble diagrams are simple circles on a piece of tracing paper that lay atop your base map in order to define the locations of the various garden features.

Since you have made the base map to scale, you can assess on paper if, for example, there is enough room for pathways or to plant a tree that will reach 40 feet across at maturity. Better to do this type of planning on paper than to plant a tree in the wrong location!

Then add another layer...

Another piece of tracing paper can be used to quickly draw another possible layout; just keep refining until you have a version that addresses each of the goals you have identified for your garden. You can create many bubble diagrams to experiment with different ideas. This is perfectly fine because now is the time to experiment with various placements of "use areas" rather than when the garden is being constructed!

Once the bubble diagram is developed, more tracing paper can be used to start planning the actual features of the garden—the paths, trees, planting beds, sundials, etc. The drawing will allow you to see how these areas and features relate to each other, and comprise the overall composition of the garden.

Tip: Having a plan drawing provides a great fundraising tool! If you can show potential funders your plan, then they know you are serious and have given careful consideration to your project, and therefore will be more likely to help with funding.

Include Everyone in the Process

It is highly recommended that a school garden team use an "inclusive design process" to collect input from all members of the school and incorporate the collective ideas into a design for the school garden that represents everyone who will be using it.

What is the Inclusive Design Process?

The inclusive design process invites teachers and students to contribute creative ideas and provide input in the final design before garden installation. It emphasizes consideration of how the garden will be used, rather than its appearance, and puts the creative power in the hands of the school team.

The inclusive design process can aid in developing the appropriate adaptations to the garden to meet the needs of individuals with special needs or disabilities. If you include in your design conversations an individual with disabilities, someone who can share first-hand knowledge of the importance of having the appropriate containers, access, and tools for all to enjoy and fully participate in the garden, then you can be sure to design with universal access in mind. For ideas to design a garden that includes children with disabilities, read *Kids with Disabilities Don't Like Radishes Either* by Gene Rothert from the Chicago Botanic Garden. If such an individual is not available to contribute to the design process, educate your development team about the concept of universal access so that you can embed it in your overall garden design.

Designing the Garden

Include Everyone in the Process : Working with a Professional Designer



Hold a Design Workshop

Organize a Design Workshop that relies on the inclusive design process whereby all participants can openly discuss ideas. A well-run Design Workshop generally results in strong feelings of ownership and pride in the garden and the school.

Tip: A Design Workshop is slightly different than a Vision Meeting, something we recommend you hold prior to holding a Design Workshop. The Vision Meeting is about the overarching goals and the character of the garden, its primary uses, and the school's priorities for the space. The Design Workshop is more about garden design, a plan for building it, and plant selection. The outcomes of the Design Workshop should be informed by the outcomes of the Vision Meeting.

Begin by deciding who will participate. The simplest way is to have the garden team invite representatives from the student body, faculty, neighboring community, and local businesses to meet for one or more half-day workshops to brainstorm ideas. In some cases, it might be more appropriate to have several different sessions that could accommodate the availability of participants.

Another approach would be to involve the entire school by having each classroom spend an hour generating ideas and then having a representative from each classroom participate in the half-day brainstorm session.

Logistics of a Design Workshop

Select a date, time, and location that suits everyone. Assemble the following materials for the workshop:

- several large copies of the base map of your school garden
- tracing paper
- pencils, markers, colored pencils
- flip-chart with paper, or a large chalkboard or dry-erase board

What goes on at a Design Workshop?

- Brainstorm ideas – Give everyone a chance to contribute ideas to the garden design
- Formulate a design concept – Sift through the brainstorm session and solidify everyone's ideas
- Create and approve a final design – Work closely on the drawings and design plans and reach a consensus to approve the final garden design

Get some professional help if you need it!

During the design process many school garden teams find it helpful to have professional advice. Developing a master plan for the space will ensure that all components of the garden design work together, even if the garden is to be built in stages over time.

A local landscape architect or designer might offer services to a school garden project at little or no cost. A Master Gardener or an experienced gardener in the neighborhood might be delighted to help with the design and plant selection.

Tip: Just make sure the “Design Facilitator” is an individual who will truly listen to your ideas, and not just tell you theirs. A landscape design for children (and lots of them!) will be different from traditional landscapes, and the designer should keep this in mind throughout the process.

Working with a Professional Designer

If possible, once design ideas have been generated, it is wise to have a professional garden designer draw a final map of the garden to scale, especially if there are modifications to the landscape. You can find a designer at a local landscape firm or nursery.

Tip: Most landscape architects and landscape designers have not worked specifically with school gardens or educational spaces for children. Designing such gardens is a very different task than creating a pleasing residential landscape.

Remember, learning is the point of it all

School gardens are meant to address educational goals first and foremost, and while we strongly believe that beauty happens anyway, the primary goal is not a picture perfect landscape. For example, open soil is a good thing, as it means there is a place for students to replant each year, and a few weeds mean they have maintenance tasks to do.

Seek advice

While it may be tempting to take advantage of a willing parent who is a landscape architect or designer, we encourage you to also seek advice from your local environmental education institution, whether a botanic garden or nature museum, and speak to someone in the education department.

Before you hire...

- Keep in mind that designing school gardens is a specialized set of skills
- Be sure to ask to see projects the designer has done for other schools
- Make sure you have the designer create a garden that is supportive of your educational goals, under your direction
- Make sure the designer is approachable, receptive to the team's ideas, and someone with whom the garden team is comfortable working

Designing the Garden

Approving Your Final Design



Approving Your Final Design

The school garden team should reach a consensus about the final garden design. If there are major objections to the garden plan, the team members must voice them at this preliminary stage and offer constructive ideas to bring the garden closer to the school's vision. Team members may need to accept that some ideas are not possible. Remember, you can do anything, but you can't do everything!

Once the team agrees on the garden plan, it is wise to have a professional garden designer draw a final map of the garden to scale, especially if there are modifications to the landscape. Read more about working with a professional designer.

Or, here's a hidden resource: Check with your local high school, vocational center, or community college to locate a drafting teacher who might be willing to draft the garden plan or make the task an assignment for a drafting class.

Drawing a final map of the garden to scale will:

- serve as a tool for the contractors
- enable the team to see more clearly if any problems exist with the design
- enable changes to be made before construction

Once a final design is approved, the school is ready to begin construction and organize planting day events.

Building the Garden



Working with a Contractor

Landscape contracting is a great service to find in-kind through parents or local contractors who are willing to support community-based projects. However, building school gardens requires a specialized approach.

Built to last!

School gardens take much more intense use and foot traffic than traditional landscapes, and construction techniques must yield super tough, durable features.

While a raised bed made of 2' x 6' lumber may work in your backyard, it will not withstand hundreds of little visitors over years of traffic in a school garden. Anchoring 6" x 6" beams with 30-inch rebar stakes may seem like overkill, but not when there may well be thousands of little feet walking along them.

Safety and universal access

The garden should be built with the appropriate safety measures and accessibility standards in place. Work closely with your contractor to ensure these elements are included in the overall design.

Before you hire...

- Area: Approximate square foot area the garden will cover
- Teachers: # of participating teachers
- Contributions: Financial and in-kind contributions you know are available to support the project

Make sure you ask to see other projects the contractor has done in your area.

Talk to previous clients to inquire about the service and communication. Did the contractor show up when they said they would?

Provide specific directions about how, and from what materials, you want the garden features to be built.

Get several estimates from reputable local businesses so that you have a basis for comparison, even though you may be seeking donated services.

Getting the Entire School Involved

The school garden will be at the top of your mind, but may not be at the forefront of the minds of those in the school less involved. The more you can bring it to their attention and get them thinking about it, the more connections will be developed, and the more the garden will be used.

Here are some ideas for keeping the garden on people's minds:

- Talk about the garden in every possible faculty meeting.
- Ask the principal for a time slot in the next school-wide assembly to promote the garden among the students.
- Incorporate the garden as a teaching tool even before it is built.

Ask the students for their ideas of what should be in the garden – and then really listen! Most students have great ideas about possible garden designs or features, but we tend to think that as adults we know what is best. For example, adults at one school did not think about developing a dragon garden, but their second graders did. The result was a tremendous level of ownership by the students.

- If the faculty has established the primary educational goals, put those forth to the students and invite their design ideas, so that the resulting garden will naturally support the underlying education goals with the students at the center.
- Ask for the students to develop their own garden design plan and discuss those plans that offer the best design solutions. Develop a composite plan based on the best student plans so it includes multiple ideas. Post the composite drawing in public places at the school so students can see the vision.
- Promote the project to parents in the school newsletter and the student newspaper.
- Put up a banner announcing the future site of the school garden.
- Recruit classes to sign up for Planting Day. Ask if they want to have ownership of a particular garden area for long-term maintenance.
- Involve the art classes in producing outdoor art for the garden.
- Ask younger students to start seeds on their classroom windowsills. It's difficult to grow seedlings without a grow light, therefore it's beneficial to have one in your classroom. If heavier construction projects are to be done by a contractor, have the students come out and take tours during this phase.
- Make sure the students do any work that is possible for them to do – including moving wheelbarrows or pails of compost to amend soil; planting the smaller shrubs, perennials, and annuals; and mulching the beds.
- Celebrate the garden with refreshments and special events once it's planted.
- Visit the garden regularly with your class, whether for active investigation, quiet reading time, or simply to observe and write in their journals.

Building the Garden



Safety and Universal Access

Safety parameters, like using untreated cedar lumber instead of standard pressure-treated lumber and providing universal access to certain features, are paramount in public spaces used by children. Be sure to work closely with your contractor to design the appropriate safety measures in your garden.

It is important to provide garden access to all individuals with all abilities. Building features of the garden that “enable” children with disability conditions from preschool to high school to enjoy and maintain is important.

Needs of children with disabilities to consider when building a garden:

- Physical space
- Individual strength and endurance
- Height and range of motion
- Mobility and balance
- Use of walking aids or wheelchairs
- *• Ability to use hand tools

An “enabling garden” includes:

- Paved surfaces
- Drop-off areas and parking
- Signage
- Entrances and exits
- Rest areas and comfort
- Containers and raised beds
- Drinking water
- Plants
- Emergency plans

For more information about accessible design standards and universal access, see the U. S. Government’s American Disability Act Web site

Planting Day



Organizing Planting Day

Once the infrastructure of the garden is in place, consider holding a one-day planting event for the students to plant the garden. This celebratory event is important, as it allows everyone to get their hands in the garden and claim part ownership.

Logistics

- Select a day with a backup rain date (just in case).
- Schedule classes to arrive at the garden and work in 30-40 minute shifts.
- Assign a specific area of the garden for each group to plant, preferably an area that relates to that group's curriculum or that they intend to care for throughout the year.
- Use any extra time to deliver a lesson plan on gardening, nature, or anything related to the work they are doing.
- Be sure to allow enough time for students to clean up before returning to their classrooms. (Otherwise, you've got a major chore at the end of your day!)

Assign adults to work with small groups during each planting period. Adults (parents, volunteer staff, and teachers) deliver instructions and assist students with more difficult tasks such as opening up the root systems of potted plants and monitoring plant spacing and depth of holes. Make sure all adult volunteers are trained first, not everyone knows how to properly remove plants from containers and loosen root balls.

Recruit as many parent volunteers as possible

Parents will ensure adequate supervision and should be familiar with the design and the plant materials to ensure proper layout of plants into the beds.

Consider partnering older students with younger students

This approach can unify your student body by providing younger students with one-on-one support they need to do the work while giving the older students an opportunity to build mentoring skills. It is fun for all students to mix and mingle in the garden.

Tips for Working with Children

They don't want to leave!

It is common for students to resist returning to class after planting and to ask if they might stay to work longer. Be ready to promise students a chance to do more gardening as the plants grow.

Sitting on the side lines

Allow reluctant students to sit by the side and observe because forcing them to participate does not work well. Often when they see and hear how much fun the other students are having, they change their minds and join the group.

They'll get dirty!

Sometimes children object to getting dirty. Having small garden gloves for students to use also encourages participation. Send a note home to parents to let them know about upcoming "gardening days" so that they can make sure students dress appropriately for outdoor garden work.

Worms and other critters

Anticipate an excited reaction to garden worms and be prepared to explain the important role of worms and other creatures in the soil. Students are generally fascinated to learn about them to the extent that finding a worm or beetle can become a highlight activity, not to mention a very "teachable moment."

It won't be perfect

A children's garden often includes a bit of whimsy, and may very well have crooked rows or radishes coming up in the middle of the tomatoes. This is okay! Children's gardens are like children's artwork, that is, beautiful in their child-like enthusiasm and obviously works of "masters-in-the-making." They have a charm all their own.

Make everyone feel included

Try to be sensitive to the needs of all children, whether they be kids who have little experience working in a garden or exposure to natural settings or kids who have special needs. All children should partake in the experience.