

It's Great to Grow UP↑!



What are the benefits of aeroponic gardening compared to soil gardening?

- **Increases crop yield by an average of 30%**
With aeroponic gardening, you can grow more food.
- **Plants grow up to three times faster**
That means you can harvest sooner and grow more often.
- **Uses as much as 98% less water**
Traditional gardening uses about 80% of our water. That's a lot of H₂O, which could be a big problem in areas where water is scarce.
- **Uses 90% less space than a traditional garden**
Developing less land as farmland is good for our environment. Plus more people will have space for gardening.
- **Fewer problems with pollution and pests**
Since aeroponic gardens don't use soil, you don't need to worry about pollutants getting into your food from contaminated soil. Plants are also less stressed when grown using aeroponics. That reduces the need for pesticides and herbicides—another earth-friendly benefit.

Less space
Less water
Faster growing
More food
More earth friendly





Fit Fact

Think the only benefit of a healthy diet is good nutrition? Think again. A diet rich with fruits and vegetables contributes to a better academic performance in school. Remember, about half of a child's mealtime plate should be filled with fruits and vegetables.

More Veggies, Please!

If students grow fruits and vegetables, they're more likely to eat fruits and vegetables. Even children who usually shy away from nutritious foods are more likely to eat fresh produce after they become involved in gardening. Keep your child's healthful habits growing with these simple ideas for adding more fruits and veggies to meals.

- Put veggie toppings on pizza.
- Serve sandwich wraps made with lettuce instead of bread or tortillas.
- Add shredded carrots or other veggies to your favorite meatloaf or burger recipe.
- Top cereal, yogurt, or oatmeal with sliced fruit.
- Add veggies—such as spinach, peppers, and tomatoes—to scrambled eggs.



Did You Know?

- Tower Garden® uses only 10% of the land and water used by a traditional garden.
- Plants grow up to three times faster in Tower Garden than in a traditional garden.
- Tower Gardens use the same gardening technology (aeroponics) that NASA uses.

Want to learn more about Tower Garden? Visit towergarden.com.



Our Class Is Growing a Garden!

Dear Family,

I'm so excited that we are incorporating gardening into our curriculum. We're growing much more than fruits and vegetables; we're growing students' math, science, language arts, and social studies skills. We're also promoting student responsibility and healthful eating.

Our garden isn't an ordinary garden with soil; it's Tower Garden®. This earth-friendly approach to gardening uses much less water and space than soil gardens. Plus we can grow our plants year-round. Read on to find out more about this fun way to garden and how you can support your child's learning at home.



What's Tower Garden?

Just as its name implies, Tower Garden is vertical. This gardening system grows plants in air rather than soil. The sides of the tower have pockets for holding seedlings. The base of the tower holds a water-nutrient mixture. An electric pump sends water upward inside the tower. Then the water drips down onto the roots of the plants. This is called aeroponics. Along with water, the plants also need consistent light to grow well.

Garden Talk

No doubt your child will be excited to talk about our garden. Get conversations rolling with questions like these:

- How are the plants alike? How are they different?
- How are the plants changing as they grow?
- What did you notice about the garden today?



Want to learn more about Tower Garden? Visit towergarden.com.



Make School a Growing Place!

Tower Garden® isn't just a no-mess, no-fuss way to grow fruits and vegetables; it's a powerful real-life teaching tool. It's packed with engaging opportunities to bring science, math, and other curricular areas to life. High-interest lessons aren't the only rewards though. Count on students' self-esteem, responsibility, and healthful habits to grow right along with the garden.

Introduce, Intrigue, Inspire

No soil, no digging, no weeding. That's gardening? With Tower Garden it is! This method of gardening is bound to be an unfamiliar concept to many students. Use the tips below to build on what students know about gardening and spark enthusiasm about having Tower Garden at school.



1. Get students thinking and talking.

Ask young students questions such as the ones below.

- Where do fruits and vegetables come from?
- What do gardens look like?
- What is a tower?
- What do you think Tower Garden looks like?

Use these questions to spark discussion with older students.

- What do plants need to grow?
- What are some challenges of planting and maintaining gardens? Are the challenges different in urban areas than in rural areas?
- What are benefits of gardening?

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2. Show Tower Garden® at work.

Tell students that they will plant, tend, and harvest Tower Garden. Explain that, just as the name suggests, Tower Garden is vertical. Point out that since Tower Garden doesn't need soil, it can grow indoors and in small places, even inside schools! Then show students several photos of school Tower Gardens. You'll find some nice ones at towergarden.com.

3. Set students' sights on the harvest.

Here's what to do.

- Name each type of plant you plan to grow in the garden. Describe any plants that are unfamiliar to students and show pictures of them. Talk about different ways the fruits and vegetables can be eaten.
- If you plan to buy seeds rather than use the ones in Tower Garden Growing System, invite students to help you decide what types of plants to grow. Consider factors such as the popularity of the foods and how easy the plants are to grow.
- Talk about the potential harvest with great enthusiasm and suggest a celebratory garden snack or lunch after the harvest.

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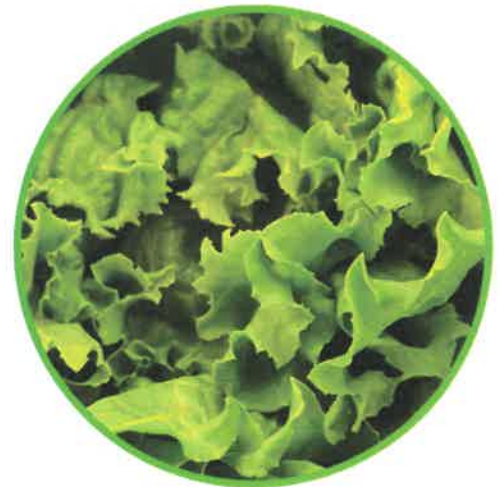


The Basics

Don't have a green thumb? No problem. Tower Garden® is a no-hassle approach to gardening. That makes it ideal for busy teachers and students of all ages. Set the stage for your young gardeners with the discussion guide below, adapting it for your grade level as needed.

Aero...What?

To introduce the concept of aeroponics to students, invite them to name various places they have observed plants growing. List the places on the board and then circle the ones that have soil. Point out that growing plants in soil is very common. Tell students there's another way to grow plants called *aeroponics*. Write the word on the board. Underline *aero* and explain that it means "air." Explain that *aeroponics* is the process of growing plants in air or a mist environment rather than in soil.



If There's No Soil, What Holds the Plants?

Show students the rockwool from Tower Garden Growing System and invite them to feel it. Explain that they will start growing seeds in the rockwool. When the plants are about three inches tall, students will transfer the plants to the net pots in Tower Garden. The net pots and rockwool will hold the plants in place.



How Do the Plants Get Water?

A mixture of water and nutrients is poured into the bottom of the tower. The water pumps upward and then drips down onto the roots of the plants that are exposed. The water and nutrient mixture helps the plants grow well.



What about Sunlight?

Most plants need light, and the plants in Tower Garden® are no exception. The plants need sunlight for about eight hours every day. That's why it's important to place the garden in a consistently sunny location or to use grow lights. Some plants grow best outdoors and others do well indoors or outdoors. Learn more at towergarden.com. Check out the blog post titled "Growing Tomatoes Indoors (Is It Worth It?)"

When Can We Harvest?

That depends. Different crops take different amounts of time to grow, so the garden needs to be observed closely. It's important to make sure it has plenty of water, nutrients, and sunlight and that it stays healthy. It's also important to keep an eye on the crops. Pay attention to the size, color, and hardness of the fruits and vegetables. Those details are important factors in deciding when the crops are ready to be harvested.



Share Your Successes!

How are you using Tower Garden? Tell us! Share on Facebook, Twitter, or Instagram. We love to hear your stories and see your photos!

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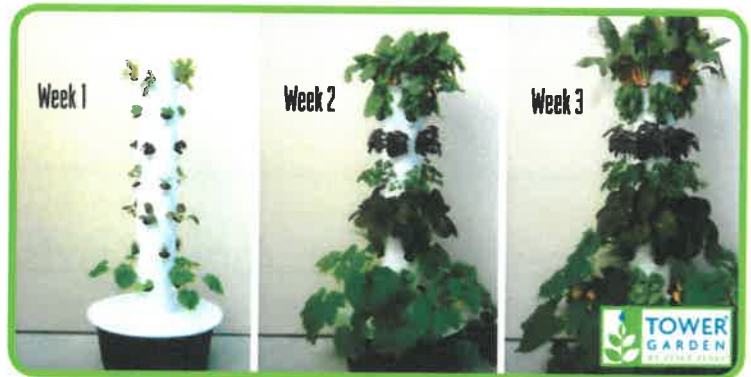
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Make Tower Garden® Part of Your Lesson Plans

Try these skill-based ideas for language arts, math, science, and social studies.

- **Crop Talk (Grades PreK–K):** Have students cut out pictures of fruits and vegetables from magazines and grocery store sale circulars. Organize the pictures by color on a bulletin board. Encourage students to name the foods and describe them using color, shape, size, and texture words. *Vocabulary*
- **From Tower to Table (PreK–Grade 5):** Take photos throughout the gardening and harvesting process. Sequence the photos on a bulletin board and add student-generated captions. *Shared writing, explanatory text*
- **Dinner Plans (Grades 1–5):** Have each student write and illustrate a restaurant menu for foods grown with Tower Garden. Encourage students to include an enticing description of each menu item. *Descriptive writing*
- **“Sense-ational” Crops (Grades 1–5):** Guide students to create a class chart of sensory words that describe the plants growing in the garden. *Sensory words*
- **In the Know (Grades 2–5):** Have small groups of students create pamphlets, posters, or class books to share information about Tower Garden with classroom visitors. *Informative writing*
- **Great Gardens (Grades 3–5):** Ask students to brainstorm the similarities and differences between aeroponic gardens and traditional gardens. Then have each student write a persuasive essay promoting gardens for schools. *Compare and contrast, opinion writing*





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Cultivate Students' Vocabularies

There's no better way for students to learn new words than by using them. Display vocabulary words relevant to Tower Garden® and add to the list throughout your class gardening experience. For younger students, increase print awareness by using the words to label plant diagrams. Encourage older students to keep a log of vocabulary words by completing copies of the reproducible provided on the next page. *Vocabulary*



Suggested Vocabulary Words

PreK–Grade 1

blossom
fruit
harvest
leaf
roots
seed
soil
vegetable

Grades 2–5

aeroponic
environment
herbs
horizontal
nutrients
photosynthesis
sustainable
vertical

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Name _____

Watch My Vocabulary Grow!

Word	Meaning





- **Count on Gardens! (PreK–K):** Throughout the gardening experience incorporate counting, from exploring one-to-one correspondence between the seeds and rockwool holes to counting the vegetables that students harvest. Be sure to have students compare the quantities of fruits and vegetables, too. *Counting, comparing sets, comparing numbers*
- **Size Them Up (PreK–Grade 2):** Help students keep a log that includes the length of vegetables such as cucumbers and eggplants. Guide younger students to directly compare the lengths by placing them side by side. *Linear measurement, comparing lengths*
- **Tipping the Scales (Grades K–5):** Each time students harvest, have them estimate the weight of the produce and then determine the actual weight. Help students graph and compare the information. *Estimating and determining weight, organizing and interpreting data*
- **Delicious Data (Grades K–5):** Have younger students use a class tally chart to record the results of a harvest taste test. Ask older students to survey classmates about their preferences and then make individual graphs or tally charts. *Organizing and interpreting data*
- **Shopping Savvy (Grades 3–5):** After students harvest their garden, have them use grocery sales circulars to determine how much it would cost to buy the same produce at a local grocery store. *Adding and comparing money amounts*



Tower Garden Challenge

Do aeroponic gardens produce more food using less land and water than soil-based gardens? That's the question students answer through the scientific experiment outlined by the Buck Institute for Education. The step-by-step teaching guide is geared toward middle school students but may be adapted for upper elementary classes. Get your free lesson here: pblu.org/projects/the-tower-garden-challenge.



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- **Fresh, Frozen, and Canned (PreK–Grade 5):** Guide students to compare and contrast frozen vegetables, canned vegetables, and vegetables grown in Tower Garden®. Encourage students to consider factors such as color, taste, and texture. Older students may also incorporate math by comparing the costs per serving. *Observation, compare and contrast, comparing costs*
- **Plant Investigators (PreK–Grade 5):** Invite each student to use a hand lens to periodically observe the garden plants. Instruct students to describe the similarities and differences among the plants. Then guide them to identify the basic structures that the plants have in common. *Observation, compare and contrast, plant parts*
- **Got to Have Plants (Grades K–5):** Describe a food chain and the essential role that plants play in sustaining animal life. Invite older students to use strips of paper and arts-and-crafts materials to make paper chains that show food chains. *Interdependence*
- **Growing People (Grades 1–5):** Create a class Venn Diagram comparing people and plants, including their needs and how they grow and change over time. *Comparing living things, comparing needs of living things*
- **Start With a Seed! (Grades 3–5):** Have students create posters that show the life cycles of different plants. Discuss ways in which the life cycles are alike and different. *Plant life cycles*



Inquiring Minds

What's inside a seed? Why do plants need leaves? These are just two questions that students explore through lessons created by Seton Hall University. The lessons support Next Generation Science Standards and are designed for grades 2 and up, grades 5 and up, and grades 7 and up.

Find the lessons here: towertalk.jiveon.com/community/technology-showcase.

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- **Everyone Has a Role (PreK–Grade 2):** Add the tasks involved in tending the garden to your class jobs. Give each role a kid-pleasing name, such as Awesome Observer, Water Crew, and Happy Harvester. Rotate the jobs among students. *Participating in a classroom community*
- **On the Job (PreK–Grade 2):** Take a class field trip to a local fruit or vegetable farm. Ask the farmer to talk about his or her growing practices and discuss challenges such as weather and producing more food in less space. *Economics*
- **Tower Power (Grades K–5):** Ask students to brainstorm ways Tower Garden® can be used to make a positive impact on the community. Create a web of ideas and then challenge the class to plan and carry out a garden-related service project. *Contributing to the well-being of a community*
- **Towers Everywhere! (Grades 3–5):** Have students research and chart various locations where people use Tower Garden, including on rooftops, in schools, on apartment balconies, and on farms. *Understanding how people adapt to their environments*
- **Growing Changes (Grades 4–5):** Introduce the word *agriculture* to students. Guide them to research how agriculture has changed over time. Ask students to create a poster-size timeline to showcase what they learn. *Understanding how events influenced the history of agriculture*



People Farmer

Don't underestimate the power and influence of gardening in the classroom! Bronx educator Stephen Ritz refers to himself as the CEO (Chief Eternal Optimist) of the Bronx for good reason. After he incorporated gardening into the curriculum at his high school, discipline problems decreased and attendance and graduation rates climbed. Ritz's innovative and inspiring programs have been celebrated around the world and include Tower Garden.

Learn more here: towergarden.com/grow/school-gardens.

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No doubt you and your students are excited about Tower Garden®. Now it's time to spread the word to your community!

Meet with your principal and share ideas like these:

- **Send a press release.** Contact local newspapers, TV stations, radio stations, and websites that feature community information. You'll find a sample press release template on page 12.
- **Post to social media.** Share photos when Tower Garden arrives; then periodically post photos as students plant, harvest, and taste what they've grown. See the next page (page 12) for a few sample Facebook posts.
- **Feature updates in your class newsletter and class or school website.** Everyone will enjoy seeing your progress.
- **Do a presentation at a PTA meeting or conference.** Show what Tower Garden is and share the valuable lessons your students have learned.
- **Share the bounty.** Hold a produce sale, use your harvest in the cafeteria, serve it at a school event, or donate it to a food bank. For something really special, invite a local chef to visit the school and cook what you've grown. No matter what you do, take and share photos on your school's Facebook page and website.



One fun way to get the community involved in Tower Garden is to hold a contest. Invite community members to vote on what you should grow next or ask them to submit favorite recipes that use your produce. Be sure to congratulate your winners and share your results.

Sample press release

Here's what to include:

- Date
- Your name, your title and school, and your contact information (phone or email)
- Headline—Share what makes your school Tower Garden® program newsworthy. For example, “Jones Elementary Enjoys Record-Breaking Harvest” or “Jefferson Elementary Grows and Donates Vegetables to Johnstown Food Bank.”
- An introductory paragraph with an overview of your program
- A quote or two. Include your principal, PTA leaders, students (with parent permission), or community members involved in the program. Be sure to include the person's title.
- A few sentences about how Tower Garden works. For example, “Tower Garden is a vertical, aeroponic growing system that allows you to grow up to 20 vegetables, herbs, fruits, and flowers in less than three square feet—indoors or out. With aeroponic systems, plants grow in air or a mist environment rather than soil. Learn more at towergarden.com.”
- Several photos showing students caring for or harvesting your Tower Garden. As always, be sure you have parents' permission to photograph students.

Sample Facebook posts

- When Tower Garden arrives, before you even open the box, take a photo and post this teaser: “What's in this box? Here's a hint: Our school is GROWING very excited about it!”
- Once Tower Garden is set up, snap another photo. Include a close-up of the seeds and rockwool. Post this: “Introducing our Tower Garden! It's a vertical growing system that we can use all year long. Stop by room 302 to see it in action. We'll be growing lettuce and dill.”
- With parent permission, periodically post photos of students caring for the garden. Here's sample text: “Ian spotted the first blossoms on our Tower Garden. It won't be long now until we're eating fresh strawberries!”
- Also with parent permission, post photos of students interacting with Tower Garden as part of their lessons. “First graders in Ms. Johnson's class practiced new vocabulary words, such as ‘harvest’ and ‘blossom,’ with their class's Tower Garden” or “Third graders weigh and measure the cucumbers they've just harvested from their outdoor Tower Garden.”
- Have a little fun. Post a photo of a plant blossom and ask Facebook friends to guess what's growing.
- Show off your harvest. Post photos of what you've grown and celebrate the biggest strawberry or the crazy-shaped squash. Be sure to share what you do with the produce.
- Don't feel limited to Facebook. Tweet links to news stories about your class's Tower Garden, upload stunning garden photos to Instagram, and save your favorite garden-related classroom activities to Pinterest.

Tag “Tower Garden” in your posts so we can share them with our friends and fans too.