

# Indoor Growing How-Tos

## Training Notes for Schools

### How Tower Garden Works

- The reservoir holds 13 (HOME) to 20 (FLEX) gallons of water.
- Nutrient solution is added to the water to “feed” the plants.
- The water solution pH levels must be checked weekly and adjusted when they are not within range.
- A pump in the reservoir pushes the water solution up a central column, so the water reaches the very top of the Tower.
- From the top of the Tower, the water solution “rains down” on the roots through holes located in each section.
- There is no soil and no weeding required.

You can also [watch this video](#) to see how Tower Garden works.

### DISASSEMBLY/REASSEMBLY + LED LIGHT SETUP

#### How to Disassemble Tower for Cleaning

- Dismount the LED Indoor Grow Lights and lay them aside carefully.
- Remove the wing nuts in the top section of the Tower.
- Carefully remove each section of the Tower from the top down. Leave the last section attached to the reservoir lid.
- Remove the net pots as you go.
- If using an extension kit, unscrew the support rods as you go.
- After all the sections of the Tower are removed, remove the lid of the reservoir.
- Reach under the reservoir lid to unscrew the final support rods.
- Unscrew the pump swivel hose from the bottom of the reservoir lid.
- Discard all old plant material and used rockwool cubes.

#### How to Reassemble Tower Garden After Cleaning

- Connect the pump swivel hose to the bottom of the reservoir lid.
- Position the two longest support rods into the holes marked “A” inside the section attached to the reservoir lid.
- Use the wing nuts to secure the support rods.
- Secure the reservoir lid by placing it on top of the reservoir.
- Thread the sections onto the support rods, alternating the holes marked “B” and then the holes marked “A.”
- The sections should slide onto the rods without needing to be forced.
- The support rods should easily remain vertical while you are threading the sections onto the rods.
- If using an extension kit, screw the extension rods onto the longest support rods for the top two sections.
- Securely mount the lights to the top of the Tower.
- Be sure the lights are equally spaced around the Tower.
- Lastly, insert the net pots into all growing ports. (Tip: For an easy insert, squeeze the lip of the net pot while placing it into the port.)

[Watch this video](#) to see how to assemble your Tower.

#### How to Properly Set Timers for Water & Light

Think about natural water and light sources when plants grow outdoors. The amount of moisture in the soil varies throughout the day, whereas the sunlight is continuous all day. The same thing goes for growing plants indoors. The water will need to cycle on and off throughout the day and night, but the lights will need to stay on throughout the day and then stay off during the night. Plants need “light rest.” It is possible to give your plants too much light and too much water. But good news! The timers are going to do all the work for you!

## Water

- Plug your pump cord into the digital timer. Then plug the timer into the wall outlet.
- Click the button until it reads "I" for indoor setting, and that it is automatically set for the water to run 5 minutes of every hour.

## LED Indoor Grow Lights

- The lights timer has 2 options: ON/OFF TIMER (power on/off according to the timer settings you determine) and BYPASS (override the timer setting).
- The timer settings are determined by adjusting the little "tick markers." You do this by pushing the markers out when you want the power source on, and push them in when you want the power source off. Each "tick mark" represents a set amount of time.
- Set your timer to keep the lights on for 12-14 hours and off the remaining hours of the 24-hour period.

Once your timers are set, they will never need to be adjusted again for as long as you continue to grow indoors

- Check your timers every now and then, especially if you notice any issues with your plants — just in case someone tampered with the settings.
- If there is ever a time that the lights or sound of the water is a distraction to others, it is easiest to just unplug them instead of adjusting the timers temporarily. You'll need to plug the water and lights back in as soon as you can, though!
- If the timer loses power, it will default to the "O" or outdoor setting and will need to be reset to the "I" for indoor growing.

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## SEEDS AND SEEDLINGS

### How to Plant Seeds

- Determine how many rockwool cubes you will need.
- Separate the rockwool cubes by folding the rockwool sheet backward along the seams. (The rockwool cubes should easily separate from the sheet.)
- Saturate the cubes you want to plant by soaking them in fresh water for 30 minutes.
- Determine how many seeds to place in each cube by reading the back of the respective seed packet. The number of seeds differs depending on plant type.
- If you use seeds from other places, the number of seeds to plant may not be noted on the seed packet. In these cases, you can look up the information online — or simply go with a good rule of thumb to plant approximately 4-6 seeds per cube.
- Lastly, lightly sprinkle vermiculite over the top of the planted seeds in each cube. (The vermiculite will help keep the seed from drying out.) Remember, a little vermiculite goes a long way! You only need to sprinkle a little bit of vermiculite over the seeds so that you can no longer see the seeds. Note: When you are growing indoors, the vermiculite is not necessary to use.

### How to Transfer Seedlings into the Tower

- Be sure net pots are in each port on the Tower.
- After your seedlings are approximately 3 inches tall, they are ready to transplant into the net pots.
- Gently press each seedling cubes into a net pot until it touches the base of the net pot to ensure the seedlings get watered. It is important that the cubes and future roots of the plants are in the stream of water inside the Tower.
- If this is your first time to transplant seedlings into the Tower, utilize the Maintenance Checklist for information on appropriate nutrient solution amounts and pH adjustments.

You can also [view this video](#) on how to start seeds and transplant seedlings.

## HARVESTING AND HARVEST EVENTS

### How to Harvest

There are many varieties of plants grown in many types of gardens, so you can imagine that harvest procedures differ greatly from plant to plant. When growing plants indoors on Tower Garden, though, most of your plants will be harvested in one of two ways: one leaf at a time or the entire “head” of leaves.

- **Kale, Swiss chard,** and **bok choy** are harvested best by cutting one leaf at a time. Start with the leaves on the outer edges, as the outer leaves are the most mature. The newest leaves grow into the center of the plant. When cutting each leaf, always cut at the bottom of the plant.
- **Lettuce** can be harvested by cutting individual leaves or by cutting the entire head at the bottom just above the net pot. **Watch this video** to learn more about harvesting lettuce.
- **Herbs** are best harvested as needed and can be harvesting using either method. You can get more tips for harvesting herbs in **this video**.

Lettuce, greens, and herbs will regrow several times after cutting. Keep it simple. Allow the plant to regrow as many times as it will. You will know when the plant is done growing if there is no new growth within 1 week after cutting. At that time, follow the Maintenance Checklist to help guide you on how to properly remove old plant material.

### Tips for Celebrating Harvests with Salad Parties and Smoothie Parties

Harvest events are so much fun! It is fun way to celebrate the harvests from the students' plantings. These events help with planning, and, more importantly, students look forward to them!

Students can start planning a harvest event at the time of planting, choosing seeds for crops to include in their harvest event.

A **Salad Party** is a favorite harvest event! It is simple, fun, and provides excellent exposure to eating a variety of raw vegetables.

- Along with lettuce harvested from the Tower, other raw veggies — like carrots, cherry tomatoes, yellow bell peppers, cucumbers, and celery — can be purchased and prepped for the party.
- Students choose what to put on their plate and if they want to add dressing.
- Then sit back and be amazed as you watch the kids who you thought would never touch a salad are bragging about all the veggies they are eating.

A **Smoothie Party** is like a Salad Party, but a blender is needed. And instead of lettuce, kale is grown on the Tower to provide greens for the smoothie.

- Favorite party recipe = 1 cup fresh kale, 1 banana, 3 cups frozen pineapple, 2 cups coconut milk

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## TOWER CLEANING

### How to Do a Spot Cleaning to Remove Old Plants and Replace with New Plants

If most of your plants are still growing strong and you only need to remove and replace a few plants, follow these steps to perform a “spot cleaning” before replanting:

- **When an older plant is no longer thriving on the tower,** simply remove the plant by grabbing the lip of the net pot and lifting upward.
- After the net pot and the entire plant and roots are removed, use your fingers to swipe the inside of the port to be sure it is clear of all old, dead root materials.
- Replant with a new seedling cube. Follow the directions for planting.

Net pots may be used for up to year before needing to be replaced.

### How to do a Full Cleaning of the Tower Garden (recommended every 5-6 months)

- After following the steps for disassembly, place the Tower sections into the reservoir. The sections should fit nicely in the reservoir.
- Fill the reservoir with water and add 2-3 gallons of vinegar to create a vinegar-water solution.
- Soak all sections for 24-48 hours. (You may need to take turns soaking the sections, swapping some of them out after 24 hours. )

- After 24-48 hours, take out the sections, wipe clean, and rinse well with water. Net pots, rods, and the pump will also clean well in the vinegar-water solution. For tougher stains, 100% Pure Food Grade Citric Acid may be used (1 cup/Tower).
  - After all parts have been rinsed well and dried, reassemble the Tower.
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## How to Have a THRIVING Tower by Utilizing Weekly Maintenance Checks

- Each week, you may assign one student or a student group to be responsible for the weekly maintenance checks. These weekly checks will go a long way to make sure your garden thrives!
- Each week, perform maintenance checks outlined on the Maintenance Checklist.
- The key to a beautiful Tower Garden throughout the entire school year is WEEKLY checks. Your students will work together each week, each having an important role in bringing beautiful greens to your classroom and school!

## Student Engagement Ideas

- When your students can plant their own seeds and label the plants with their names, they quickly get excited about watching their plants grow. It is strongly recommended to involve your students in the planning and planting process. They will be much more engaged if they help decide which plants to grow.
- Incorporate weekly maintenance checks into your classroom routines, giving students or student groups jobs for caring for the Tower each week. The Maintenance Checklist and Maintenance Log are great resources and will help guide students.
- You may choose to team up with another teacher to have your students work together for planting and harvest days. The Tower Garden Dolly makes it possible to easily wheel the Tower from one classroom to the next.
- Students often enjoy documenting the growth of their plants. Depending on your students' ages and skill levels, you may choose to incorporate the following in your daily/weekly Tower interactions: measuring plant lengths, taking photos of growing plants, documenting changes as the plants grow, graphing plant observations over time.

If you need lesson plans, you can [find free plans](#) on the Tower Garden website.

## Reordering Supplies

The following materials will likely need to be replaced each year:

- Rockwool cubes
- Seeds
- Test Kit and Adjusters for pH
- Nutrient Solutions (Mineral Blend A & Mineral Blend B)
- Net pots
- Vinegar

Other materials that may need to be replaced years down the road

- Pump
- Timers
- Vermiculite (optional)
- LED Grow Lights replacements

Remember to keep tabs on your year-to-year supplies so you have them when you need them.

Reference the Reordering Supplies information sheet for details about how to reorder these materials and prices to expect.

## Additional Resources + Support

- [Tower Garden website](#)
- Facebook Group: "Tower to Table #towergarden"
- [Tower Garden YouTube channel](#)
- Tower Garden [Resource Guides](#) and Plant Guides
- Email: [schools@towergarden.com](mailto:schools@towergarden.com)