FIVE STEP GUIDE TO SOW IT FORWARD

AZSA

Sow it Forward

Vertical Garden Program

changeX

WELCOME

“We are on a mission to empower teachers and students to grow their own food right in the classroom! We believe that every student should have the opportunity to learn about food growing and have access to fresh, healthy fruits and vegetables. Find out here how to support this mission and start a food growing project in your school. You’ll get all the info, support and the funding you need to get started.”

Tearsa Saffell - Arizona Sustainability Alliance

Introduction to the Idea

What is Sow it Forward?

Sow it Forward is a school program that allows you to teach kids about growing food using vertical, aeroponic gardens. This project allows your school to explore food growing in the classroom, educating kids on where food comes from and learning about the nutritional and environmental impacts of different food types. The gardens come equipped with lights for optional indoor growing, a dolly so that it can be transported easily, and a cage to support plant growth. Water is housed in the base of the garden and is distributed to the plants through a pump mechanism that runs water to the top of the garden. When the water trickles down from the top of the garden it nourishes roots with mineral inputs. Applying water directly to the roots helps to conserve water and support accelerated plant growth.

The versatility of the garden is what makes it ideal for a classroom setting. The garden can grow indoors or outdoors, it can be moved from place to place, and can grow most fruits, vegetables, and herbs, excluding root crops. All plants grow in a net pot that can be easily removed from the garden frame for educational purposes, or to replace it with a new plant. All the garden requires is water and nutrient inputs every 2-4 weeks, depending on what is being grown and where.

The background and why it’s important?

This project was inspired by The Green Bronx Machine (GBM) developed by Stephen Ritz in The Bronx borough of New York. This program transformed an entire school district and community by engaging students in vertical, aeroponic gardening. Stephen Ritz employed troubled high school students to help grow food, and as a result he improved their classroom engagement, attendance, and attitude towards education, the district also noticed a 45% school-wide increase in passing rates on NYS Science exams.

GBM has served as our inspiration for the Sow it Forward: Vertical Garden project, as we hope to impact students all across Arizona, not only nutritionally but also developmentally. It is our belief that the food-growing experiences, and interactive classroom gardening activities help to inspire children to appreciate healthy foods, and grow to make better food choices. It also allows students with limited food access a convenient source of fresh, healthy produce. This program has been implemented at nine schools throughout the Phoenix Metro region. The gardens have been installed in classrooms of students K-8, and have been successful installed in a variety of classrooms K-8.

STARTING SOW IT FORWARD

EVERYTHING YOU NEED

TIME

You'll need 4-5 hours to research, order and set up your garden. Ongoing maintenance takes very little time and you can incorporate the vertical garden into many subjects and lessons during the school day.

PEOPLE

You can nominate a team of 3-4 students to help maintain the garden and it's always a good idea to have other teachers, parents and adminstrators at school on board with the project.

FUNDING

The garden itself along with supporting materials costs $1,100. Additional funding of $400 can be used for ongoing maintenance, buying seeds & pH, printing materials etc.

Who typically starts Sow it Forward?

Teachers who:

- are passionate about giving kids the opportunity to learn about healthy food
- want to do a gardening at school project without the messiness of soil

5 Step Summary

1. Complete the 30 Day Challenge
2. Learn more about Vertical Gardening
3. Purchase your Tower Garden
4. Setup the Garden
5. Start growing, ongoing maintenance

Support and Additional Resources

Tearsa from the Arizona Sustainability Alliance will be your on the ground mentor. Reach out to her any time at: Tearsa.Saffell@azsustainabilityalliance.com

A full list of free downloable lesson plans can be found at https://www.towergarden.com/grow/lesson-plans

More info on ChangeX at http://www.changex.org/sow-it-forward or email us any time at info@changex.org

STEP 1: COMPLETE YOUR 30 DAY CHALLENGE

The 30 Day Jumpstart Challenge has been designed to get your project off to the strongest possible start by building momentum in the first month. Once you have completed your challenge your first funding payment will be unlocked.

- **Learn more about the idea you're starting**
  This '5 Step Guide' includes all you need to know about the specifics of starting your project.
- **Schedule a Call**
  Pick a time that works for you to talk to a ChangeX team member about what's involved in your chosen project as well as to ensure that you understand the Guidelines & rules associated with the Challenge.
- **Find 5 interested people**
  You already have your own project page on changex.org. Use the site to share the project with others in your school to get get started together.
- **Set up a casual kick-off meeting**
  Host a meeting with your team at your school, at a community center or in a coffee shop and come up with an action plan. You can use your page on changex.org to set up an event and invite people.
- **Share a team photo and your plan of action**
  Upload a team photo taken at your first team meeting to changex.org. In addition, provide us with a narrative on what you will spend the funding on, what your next steps as a group will be, and how you hope the project will ultimately benefit your school community.

STEP 2:
LEARN MORE ABOUT VERTICAL GARDENING

Thousands of schools across the US are using vertical tower gardens to grow food in the classroom. The aeroponic technology — compared to soil gardening — has been shown to increase yields by as much as 30% and triple the speed of plant growth, while using only 10% of the water and space.

This project gives you the opportunity to teach students about a variety of subjects including science, math, literacy, and, of course, healthy eating! The program allows you to engage your class with a hands-on, project-based learning experience that has been shown to improve school attendance and student test performance.

It allows you to elevate diets as well as minds as students learn about the benefits of healthy eating. You can grow where the learning happens, whether that's in a classroom, greenhouse or laboratory it's up to you! The aeroponic system lowers the likelihood of bugs and doesn't use soil (so, no messy students!)

TowerGarden.com is the go to place for all things vertical gardening and there you can find videos, blogposts and lesson plans that will bring you and your students on a successful and fun vertical gardening journey.

Find lots more info and resources at:
https://www.towergarden.com/school-gardens

STEP 3: PURCHASE YOUR GARDEN

Once you've completed your 30 Day Challenge to unlock the funding available for you to kick-start this project in your classroom, you'll be ready to purchase your garden!

The initial costs listed below will provide you with a full tower garden growing system (pictured here to the right). This is equipped with enough materials to support growth for approximately 3 months. There are many variables that determine how long initial materials will last, such as classroom temperature, humidity, tap water pH, and which plants you decide to grow (some are much thirstier than others).

Here's a list of the items you should buy up front:

1. Tower Garden Growing System - tower garden itself, along with a 20 gal reservoir to house water and nutrients. The following are included with the growing system: water pump & timer, pH kit, Mineral Blend A & B, Seed starting kit, Seeds, Rockwool, Net pots
2. LED Lighting Kit - the lighting kit allows indoor plant growth. It comes with a timer so that the lights are automatically controlled, and can be adjusted to be on during the day, or at night while students are away.
3. Tower Garden Dolly - The garden can be set up on top of a dolly with wheels, so that the garden can be easily transported around the classroom or throughout the school.
4. Tomato Cage - The tomato cage allows support for plant growth. The cage ensures that the plants are supported and do not shade out other plants as they grow bigger.

Ongoing items you'll need to purchase Rockwool, Net pots, Seedling Starting Kit, Tower Garden Mineral Blend, Tower Garden pH kit.

The total price should not exceed **$1,100** (including shipping)

All of the above can be purchased at Tower Garden's Online Shop - https://www.towergarden.com/shop

STEP 4:
SETUP THE GARDEN AND START GROWING

Setting up the tower garden in your classroom will take approximately 20-60 minutes depending on how much you'd like to engage students.

Tearsa from the Arizona Sustainability Alliance will come to your classroom and help you get set up for success! Once you're ready to schedule a time with her, you can drop her a line to arrange a suitable time for you both at Tearsa.Saffell@azsustainabilityalliance.com.

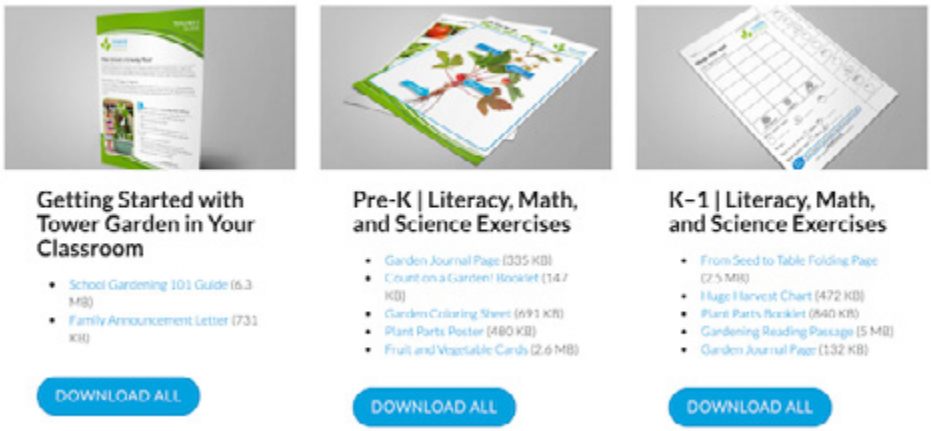
You'll need to allocate a space in the classroom for the garden, a 3x3 foot space near an open outlet is most convenient.

Once your garden is set up, it's time to start planting seeds and growing food!

TowerGarden.com has a host of resources that will help you to incorporate the gardening and food growing into your daily lesson plans. In the resources section on your ChangeX project page you'll find the food Growing 101 Guide which gives you an overview of how to bring science, math, and other curricular areas to life through your vertical garden.

You can also find a full suite of CCSS and NGSS aligned lesson plans and learning materials on the tower garden website.

You can harvest food from the garden when it fruits or when leaves are large enough to eat. This can be done regularly as a whole classroom activity.



You can dowload these lesson plans directly from towergarden.com

STEP 5:
ONGOING MAINTENANCE AND HARVESTING

Caring for a Tower Garden is relatively simple and one of the best things about having a tower garden in the classroom is that they are easy enough for students to help maintain. The garden needs one weekly check in to monitor the water pH and adjust it with the pH solution if necessary.

The water level also needs to be checked, if the water is low enough that it is exposing the pump, then the reservoir needs to be filled back up and more minerals need to be added. In the past, we have found it successful to assign willing students the task of checking the garden each week, and monitoring pH and water level. When it comes time to fill the garden, or harvest the delicious food, the class can complete this as a group activity, with teacher help and supervision.

Food can be grown in your tower garden all year round, do all you need to do is repeat steps 4-5 and continue to learn and grow with your students.

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