



Youth Climate Action Grants

Project Template: Hydroponic Garden

This template can help you get started. Feel free to change it and add your own ideas!

Project Overview

Create an indoor hydroponic garden where students can grow fresh fruits, vegetable and herbs indoors while learning about food, climate change, and the environment.

Students will help build, care for and monitor the hydroponic garden at their school. They will track plant growth, measure how much food they harvest, and learn how growing local food helps reduce greenhouse gas emissions and strengthen food security.

Students will share what they learn through presentations, displays, workshops, and garden tours to encourage others to support local and sustainable food.

Why This Project Matters

Climate change is increasing the frequency and intensity of weather events like storms, droughts and hot weather, which can make it harder to grow food. Growing food close to where people live can reduce pollution from transportation, help communities become more prepared for climate change, and teach people about healthy and sustainable food choices.

Project Goals

Students will:

- Learn about food systems and climate change.
- Discover how hydroponic gardens grow food using less water and space.
- Grow fresh food and learn how to care for plants.
- Collect information about plant growth and food production
- Build leadership, teamwork, communication, and project management skills.
- Share knowledge and inspire climate action.

Project Results

By the end of the project, students will:

- Set up and care for a hydroponic garden.
- Grow and harvest fruits, vegetables, herbs, or leafy greens.
- Create learning materials about food and climate change.
- Lead at least one activity, workshop, presentation, or garden tour.



- Share project results with the school community.

Data Collection

Students may collect and track:

- Photos of plant growth
- The number and types of plants grown.
- The amount of food harvested.
- The number of students, staff and community members who participated.
- Comments or stories from participants

What You'll Do

Plan Your Project

- Create a project team and choose a staff supervisor.
- Give each team member a role.
- Decide what you want the project to achieve.
- Talk with your teacher/principal about where the indoor garden will go.
- Choose a hydroponic growing system that fits your space.
- Check whether there is water and electricity nearby.

Learn and Explore

- Learn how local food can reduce greenhouse gas emissions.
- Learn about food security and climate change.
- Explore how local food production can help communities.
- Research which fruits, vegetables, and/or herbs grow well indoors.
- Consider easy and fast-growing plants like leafy greens, herbs, microgreens.
- Learn about how the garden system works and how to care for plants.

Set Up Your Hydroponic Garden

- Follow the instructions to build the hydroponic system.
- Add growing material and plant seeds or seedlings.
- Set up grow lights, timers, and monitoring equipment if needed.
- Label your plants.
- Create a plan for checking water, nutrients, and plant health.

Maintain and Monitor

- Check water, nutrients, and lighting regularly.
- Measure and record plant growth.
- Watch for signs of unhealthy plants.



- Record how much food is harvested.
- Take photos and videos throughout the project.

Share What You Learned

Share your project and show how local food production and climate action are connected through:

- Displays, posters, videos, or social media content
- Classroom presentations and workshops
- Garden tours
- School newsletters, assemblies, or announcements

Reflect and Plan for the Future

- Talk about what went well and what was challenging.
- Discuss what you learned about growing food and climate change.
- Share ideas for future student groups.
- Create a plan to keep the hydroponic garden running.

Suggested Project Timeline

Time	Activities
3 weeks	Planning, research, training, and setting up the hydroponic system
6 weeks	Planting, garden care, monitoring, and data collection
3 weeks	Harvesting food, educational activities, outreach, and community engagement
1 week	Reflecting on the project and sharing results.

Suggested Project Supplies

- Hydroponic growing systems
- Plant seeds or seedlings (leafy greens, herbs, microgreens, vegetables)
- Growing medium (rockwool, sponges, clay pebbles, etc.)
- Liquid plant nutrients
- LED grow lights
- PH testing kit
- Water and nutrient monitoring tools
- Materials for signs and displays.
- Safety supplies (gloves, eye protection)

Sample Project Budget

Budget Item	Description	Amount
Materials/Tools/Equipment	Hydroponic growing system	\$500
Materials/Tools/Equipment	Seeds and seedlings	\$100
Materials/Tools/Equipment	Liquid plant nutrients	\$50
Materials/Tools/Equipment	Growing medium	\$50
Materials/Tools/Equipment	LED grow lights	\$100
Materials/Tools/Equipment	Water monitoring equipment	\$100
Education & Outreach	Educational signage and learning materials	\$50
Education & Outreach	Documentation and showcase materials	\$50
	Total Budget	\$1000

Project Team Roles

Project Coordinator – keeps the project organized, schedules meetings, and helps the team stay on track.

Activity Lead – leads hands-on activities and helps everyone take part safely.

Data Collection Lead – takes photos, records results, and tracks who is participating in the project.

Education & Outreach Lead – shares information about the project through announcements, newsletters, displays or social media.

Reporting Lead – helps summarize what the group learned and shares results with the school community.

Safety and Accessibility

- Follow all instructions for the hydroponic system.
- Make sure an adult is present during project activities.
- Be careful around electrical equipment, water, and grow lights.
- Wear gloves when handling plant nutrients.
- Keep cords and equipment tidy to prevent trips and falls.
- Place the hydroponic system in a safe and easy to reach location.
- Wash hands and keep equipment clean when handling plants and food.

Reflection Questions

- How is hydroponic gardening different from growing plants in soil?
- Why is food security important?
- Where does most of our food come from?
- What have you learned about growing your own food?
- How does indoor gardening help with food security?
- What new skills did you learn?
- What did you learn about growing food locally and climate change?

More Project Ideas

- Compare how much water hydroponic gardens use compared to regular gardens.
- Invite a gardening or food expert to speak to students.
- Host a cooking workshop using food grown in the garden.
- Share healthy recipes featuring the harvested food.

Resources:

- [Subject to Climate – Lesson Plans, Units & Activities about Climate and Food](#)
- [Food and Climate Change](#)
- [City of Toronto - How to Buy and Grow Local Food](#)
- [Cooking Up Local Food Literacy: Tips for Schools](#)
- [Get Growing Toronto](#)
- [Cut Down on Food Waste](#)
- [Rethink Food for a Greener & Healthier Toronto](#)
- [Toronto Food Policy Council](#)
- [Canadian Organic Growers](#)
- [Urban Garden Organizations in Toronto](#)
- [TRCA - Urban Agriculture](#)
- [Sustain Ontario](#)