



Youth Climate Action Grants

Project Template: Solar Potential Mapping and Solar Energy Demonstration

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

Project Overview

Solar energy is a clean and renewable source of power and can help reduce greenhouse gas emissions that cause climate change.

In this project, students will learn how solar energy works and find out if their school roof could be used for solar panels. Using online tools and real data, students will estimate how much electricity solar panels could make and how much pollution they could help reduce.

Students will also take part in hands-on activities and share what they learn with their school community.

Why This Project Matters

Solar energy is a clean and renewable source of power that can help reduce pollution and greenhouse gas emissions. Through this project, students will learn about renewable energy, explore solutions for their school, and become leaders in creating a more sustainable future.

Project Goals

Students will:

- Learn how renewable energy can help fight climate change.
- Discover how solar panels turn sunlight into electricity.
- Explore ways their school and community can use renewable energy.
- Build skills in research, teamwork, communication, leadership, and problem-solving.
- Teach others about solar energy and climate action.

Project Results

By the end of the project, students will:

- Complete a solar energy investigation for their school.
- Estimate how much electricity solar panels could produce.
- Learn how solar energy can reduce greenhouse gas emissions.



- Create posters, presentations or displays to teach other about renewable energy.
- Share their findings with students and the community.
- Share ideas for how solar energy could be used in their school or community.

Data Collection:

Students may collect and track:

- Estimated solar energy generation at their school.
- Possible greenhouse gas emissions reductions.
- Possible electricity cost savings.
- Number of people who take part in project activities.
- Survey results about solar energy knowledge and awareness.
- Photos, videos, and notes from activities and events.

What You'll Do

Get Organized

- Create a team and find a staff supervisor.
- Decide what you want the project to achieve.
- Give each team member a role.
- Create a project timeline.

Learn and Explore

- Learn how renewable energy helps the environment.
- Explore how solar panels work.
- Compare solar, wind, hydro, and geothermal energy.
- Learn about the benefits and challenges of solar power.

Explore Your School's Solar Potential

- Estimate how much electricity your school uses each year.
- Learn about where your school's electricity comes from.
- Use the SolarTO Map or other solar mapping tools to estimate how much solar energy your school's rooftop could make.
- Record:
 - Estimated yearly electricity generation
 - Potential greenhouse gas reductions
 - Estimated solar system size
 - Estimated cost savings
- Create maps, charts, or summaries of your results.

Study Your Results

- Compare the solar energy your school could produce with the amount of electricity it uses.
- Calculate how much of your school's electricity could come from solar power.
- Explore the environmental and financial benefits of solar energy.
- Discuss challenges that may make solar panel installation difficult.
- Brainstorm ideas to increase renewable energy use at school.

Host Solar Energy Demonstrations

- Build or use solar energy kits and try activities such as:
 - Solar ovens
 - Solar-powered fans
 - Solar-powered chargers
 - Small solar panel kits
- Observe how weather, sunlight, and panel direction affect how well they work.
- Record observations with notes, photos, and videos.

Share What You Learned

- Present your findings to students, staff, and families.
- Create posters, videos, displays, or social media posts.
- Host a renewable energy information booth or awareness event.
- Teach students about solar energy through activities and demonstrations.
- Share recommendations with school leaders.
- Celebrate your team's accomplishments and encourage others to take climate action.

Suggested Project Timeline:

Time	Activities
3 Weeks	Plan the project, learn about renewable energy
1 Week	Assess your school's solar potential
2 Weeks	Analyze results, create maps/posters/reports
2 Weeks	Host solar energy demonstrations and experiments
2 Weeks	Share findings with the school community, complete final reporting

Suggested Project Supplies:

- Solar energy learning kits
- Materials for solar ovens or other solar demonstration projects
- Poster boards, display materials and presentation presentations
- Educational handouts



Sample Project Budget:

Budget Item	Description	Amount
Materials/Tools/Equipment	Solar kits and project materials	\$500
Education & Awareness Materials	Posters, displays, and outreach materials	\$150
People/Labour	Guest speaker or renewable energy expert	\$250
Barrier Reduction	Hospitality and participant support	\$100
	Total Budget	\$1000

Project Team Roles:

Project Coordinator – Keeps the project organized and schedules meetings.

Research Lead – Helps team research solar energy and complete the solar assessment.

Demonstration Lead – Plans and runs solar energy activities.

Outreach Lead – Creates educational materials and shares project results.

Data and Reporting Lead – Tracks project data and helps prepare reports.

Safety and Accessibility

- Always have an adult supervising activities.
- Follow all instructions when using solar kits or equipment.
- Wear protective equipment when needed.
- Never look directly at reflected sunlight from mirrors or solar devices.
- Offer different ways for people to take part in the project.
- Use clear, age-appropriate learning materials.

Reflection Questions

- What did you learn about renewable energy and climate change?
- What are some challenges using solar energy? What are some advantages?
- Could your school install solar panels?
- How can solar power be used at home?
- What skills did you build through this project?
- What would you do differently next time?

More Project Ideas:

- Visit a solar energy site or sustainability centre.
- Invite a renewable energy expert to speak with students.
- Run an energy saving campaign at school.



- Organize a renewable energy awareness week or sustainability fair.

Project Resources:

- [SolarTO Map](#)
- [Exploring Solar Energy, Guide for Students](#)
- [Relay Education Renewable Energy Programs](#)
- [SolarTO](#)
- [TransformTO Net Zero Strategy](#)
- [Natural Resources Canada – Renewable Energy](#)