14 Starting a Climate Service-Learning Project

Students use the knowledge gained throughout this module to plan and complete a climate service-learning project related to forests in their community.

Subjects
Agriculture, Biology, Environmental Science, Social Studies

Skills
Communicating, Defining Environmental Issues, Evaluating, Investigating, Planning, Problem Solving, Working in Groups

Materials
Student pages (see Activity Webpage link below); other materials dependent on project

Time Considerations
Varies, dependent on project

Related Activities
This activity helps culminate your unit on forests and climate. Students should have an understanding of how forests affect and are affected by climate change (Activities 1, 3, 4, 5, 6, 7, or 8) and what people can do (Activities 2, 9, 10, 11, 12).

Research Connection
Student class projects have been found to increase interest and motivation in school and improve academic performance in standard subjects. Students gain problem-solving and critical-thinking skills and may develop a more nuanced and mature view of their communities when engaged in authentic action projects and research.

Activity Webpage
Find online materials for this activity at https://sfcc.plt.org/section5/activity14

Objectives
By the end of this activity, students will be able to
- identify at least two feasible projects they can do to address forest health and climate change, and
- explain the value of individual and community action to promote environmental quality and community wellness.

Assessment
- Ask students to write one or two paragraphs describing the need for the project based on the data collected and how the proposed project will meet the identified need.
- Once the project is complete, ask students to respond to the following prompts: (1) evaluate the effectiveness of the project based on the criteria they identified in the plan, (2) describe intended and unintended consequences of the project, (3) reflect on ways the project could be more effective by providing either next steps or tips for others trying to do a similar project.

Background

Congratulations! You have taught your students a number of key concepts about the future of forests in the Southeast United States, including the role of forests in **climate change**, the **carbon cycle** and **carbon sequestration**, **forest management** strategies, and the role of consumer choices in climate change through **life cycle assessment** and product comparisons.

Now what? Your students can apply what they have learned in this module to establish a climate-related action project. Service-learning projects engage students in tackling an issue or problem with the goal of improving their community. Projects can be related to many topics and be implemented in many ways. For this activity, the projects should relate to improving nearby forests and/or working locally to address climate change.

Components of Successful Service-Learning Projects

Service learning is a teaching strategy that integrates meaningful community activity with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. Through service learning young people apply what they learn in the classroom to help address problems in their communities, regions, and the world. They gain from the practical applications of their studies, and they become active citizens contributing through the services they perform. Important components of service-learning projects include the following:

- **Ideally, students play a key role in designing and implementing the project**. The student voice is a key part of service-learning projects. Students should identify community needs and issues, help choose

ADRIAN DELGADO, FRIENDS OF THE NATIONAL FORESTS AND GRASSLANDS IN TEXAS

This activity allows students to apply their knowledge to plan and complete a service-learning project related to climate change and forests.

and plan the project, reflect on each stage of the project, evaluate it at the end, and celebrate its success. Teachers can facilitate the discussions about project ideas, available resources, project timeline, implementation strategies, and evaluation of results.

- **Encourage students to choose a project that will benefit the community and meet an identified need**. Service learning tackles complex problems in complex settings, not simplified (or hypothetical) issues in isolation. Students learn that they can affect their community and make meaningful change.

- **Teachers can integrate the project into the curriculum**. When service-learning projects are connected to curriculum, students experience a deeper understanding of the material. The results are immediate and meaningful; students are not simply trying to find the right answer. The project should engage students in active problem solving and encourage them to gain specialized knowledge, rather than generalized knowledge such as might come from a textbook. Service learning promotes social, emotional, and cognitive learning and development.

- **Relevant community partners are involved**. Community partners can include students from local universities

or colleges, parents, community based organizations, teachers, school administrators, and service recipients. All partners should contribute to the planning and implementation of the project and benefit from it. Teachers can either contact these community partners directly or work with students to develop a list of relevant community partners to contact.

- **Students are given time to evaluate, reflect, and celebrate project achievements**. Teachers should give students time to reflect before, during, and after the project. Students should evaluate the progress they have made toward the learning and service goals of the project. Achievements should be celebrated to reinforce the good work students are doing.

This means that educators, students, and local partners must be involved in helping to select a project appropriate for your community— and one that all partners can embrace.

Project Ideas

Environmental action projects can take many forms, cost various amounts of money, and take different amounts of time to complete. For example, with relatively few funds, your students can establish an appropriate carbon-emission reduction plan for the school grounds or the local community. They could also develop forest and climate outreach activities for elementary or middle school students. For projects that require more funding, such as buying and planting trees, you can help students seek grants from the PLT Greenworks! program, the local school board, or an environmental organization or local business.

The following list provides a few ideas that may help get you get started on a brainstorming session with students.

- Explore student or community attitudes and knowledge about climate change, local forests, and climate change solutions. Based on the results, students could create educational materials and events (e.g., video, brochure, school festival, media

event, or a presentation to community leaders) to increase knowledge, awareness, or encourage behavior change of other students, parents, or community members.

- Calculate the personal *carbon footprint* of students in one class, grade level, or the entire school and determine strategies for reducing carbon footprints by certain amounts. Students can organize competitions among classes or grades and track progress over time. There are many possibilities for energy saving projects from campaigns for turning off lights to changes in air conditioning and heating practices. Students may also be interested in raising funds to offset carbon *emissions* from various school activities by purchasing carbon credits through an organization that plants trees for carbon sequestration purposes. The following are useful personal carbon footprint calculators for students:
  - U.S. EPA, Carbon Footprint Calculator: http://epa.gov/climatechange/kids/calc/index.html
  - The Nature Conservancy, Carbon Footprint Calculator: http://www.nature.org/greenliving/carboncalculator/index.htm
- Create a plan for managing a nearby forest with a climate *mitigation* objective. This could involve measuring and monitoring tree growth, calculating carbon sequestration, assessing potential impacts from climate change, and recommending management actions. Students could then present the plan to the landowner, organization, or agency.

- Determine a public area that could be improved with more trees and work with community partners to create a plan and hold a tree-planting event.
- Learn about and assess *forest health* issues related to climate change in the area (e.g., *wildfire* risk, *invasive species*, insects, diseases) and obtain permission and cooperation from the managing agency to plan a community work day to raise awareness and improve conditions at a specific forest or natural area.
- Explore the purchasing process for the school (or another organization) and determine a set of criteria that emphasizes carbon sequestration, substitution, and reductions. Present these criteria to the people who make purchasing decisions.

PLT Greenworks!

The PLT Greenworks! program provides grants to schools and youth organizations to engage students in service-learning projects. Applicants for this grant must

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Systems Thinking Connection

TEACHERS REPORT that one of the most important benefits of *systems thinking* is enabling their students to ask better questions. When designing their own environmental action project, students may be able to ask exceptionally good questions about how changes might affect the *system*. You may want to have students consider the following systems-related questions as they develop their project:

- What are the key *stocks* in the system that you are trying to affect? One of the likely stocks targeted in these projects is atmospheric carbon. There are other important factors that can be considered stocks and can play a role in the success of the project, such as public knowledge of the need to address climate change, student enthusiasm for maintaining a long-term project, and administrative support from the school or local community.

- What are the cause-effect relationships that affect the system's behavior? What are the reinforcing and balancing feedback loops in the system? Capturing the power of the right *reinforcing feedback loop* may help your project achieve outcomes you never expected. What indirect effects might result from the project? Are there unintended effects or consequences that are potentially or likely to occur?
- What are the potential impacts of the project at different scales? Conducting a project will likely affect individual students (e.g., learning outcomes, skill building, self-confidence), the class (e.g., classroom management, enthusiasm), and the environment—which might be within the school or the community. How can students plan and carry out the project to attain the hoped-for impacts at each level?

have completed a PLT workshop, and the grant must be completed in one year. The project should involve service learning, exemplify student voice, involve at least one community partner, and secure 50 percent matched funds (in-kind resources are acceptable). Check out the PLT GreenWorks! webpage (http://www.plt.org/greenworks) for tips and ideas for your project and to see examples of past projects. Past projects include creating outdoor classrooms and nature areas, planting trees and hosting public events on forest conservation, and restoring habitat, among many other examples.

> An important aspect of service-learning projects is to allow students to play a key role in designing and implementing the project.

PROJECT LEARNING TREE

Teaching This Content

Facilitating an action project can be a challenge. On the one hand you want students to embark on a project that they can complete successfully. On the other hand, the more you direct their project, the less powerful the learning experience for the students! As a result, teachers often adopt a style similar to inquiry teaching where they ask questions that prompt student observations and deliberation. You can make sure students assess their skills and resources and consider their likelihood of success. You can ask that they contact local resource people to obtain advice. In the end, you want students to feel that they made a

difference, so both protecting and empowering your students may be important objectives. The Youth and Leader Guides to Give Forests a Hand provides step-by-step suggestions for conducting and facilitating action projects (http://edis.ifas.ufl.edu/fr117 and http://edis.ifas.ufl.edu/fr118).

Getting Ready

The Activity 14 webpage provides **Teacher Tools** that you can use to become more familiar with this activity's background and procedure (https://sfcc.plt.org/section5/activity14).

Review the documents and websites in the Resources section of this activity so you know where to go for questions and assistance along the way.

Before selecting and launching a project, help your students consider the scope of the project and possible limitations of what they can do. If you are considering a school-based project, you may wish to talk to your administrator and maintenance staff about the types of projects that would be welcomed. Make sure that students speak to appropriate advisors so that everyone shares an understanding of the potential project opportunities and limits or barriers to success.

Make copies of the student page.

Doing the Activity

1. Ask students to brainstorm and list as many ideas as possible that describe potential environmental action projects that their school or community could complete related to forests and climate change. What are the potential objectives for project ideas? How would the project benefit the community? What are the climate change implications of the project? If the school has a school forest, is there anything students can do to help manage the area? Are the suggested projects feasible? What barriers might exist?

2. As a class, select a few of the best ideas to investigate further. Help your students survey the proposed area, collect relevant data, and/or interview others about the project ideas. They should be seeking information and opinions on how the proposed environmental action ideas might be improved.

3. After the initial data collection, help students select the idea that has the most potential for success within the timeframe available and then create a plan for the project. They may wish to divide into teams based on interests in order to carry out specific components of the project.

4. Determine the ways in which this project can be connected to your curriculum and the learning objectives for students.

5. The Planning Your Project student page is available to help students finalize the objectives for the action plan and evaluate the resources, approval, or support required for carrying out these objectives. Decide whether you'd like students to complete this student page individually or in teams and pass out copies.

When students have finished a draft of the plan, they should evaluate it using the following questions:

- Is any additional information needed before we begin the project?
- What alternative actions could be taken to solve the problem?
- Is the action that we propose the best one? Why?
- What are the ecological, social, and economic impacts of this project?
- Do we have the skills, time, and materials needed for the project? If not, who can help?
- Who should review and approve the plan?

6. Using the evaluation, students can make adjustments to the plan.

7. Depending on the project, you may wish to have students present the plan to administrators, community leaders, partners, or other parties that will be involved. If so, have students use presentation software to make a final version of the plan and help them practice and present to this group.

8. Help students think about how they might demonstrate the value of their project. Can they take photographs before and after? Can they measure something that might change? If so, encourage them to record information before the project begins.

9. Help students carry out the project as planned.

10. Provide adequate time throughout for students to reflect on their experiences through journals, blogs, and small group discussions. By considering what they have done and the progress they are making, they are more likely to increase their capacity and skills to learn from their experience.

11. Systems Reflection: Ask students to describe the system that their project affects. How does their project play a role in changing the relationships between variables or creating a new connection? Did they observe any unintended impacts that they did not anticipate? Could they see any ripple effects of additional impacts?

12. Systems Reflection: When systems thinkers are trying to effect change, they often use the concept of leverage points. These are points in the system that allow people to maximize the benefits of their actions due to the structure of the system. For example, the best first step to achieving big results may be a very small project. The confidence and excitement resulting from that success will set the stage for the next step and may be contagious around your school or even in other nearby schools. Where are the leverage points in your school?
It may be helpful to enlist the support of the student council, or other teachers of the same grade, to help the message spread more quickly.

> Providing adequate time for reflection allows students to evaluate their progress and assimilate what they have learned.

13. Decide with your students how they will share information about the project with the larger community and celebrate their success. For example, this can be done by presenting to other schools or community organizations, having a media day at the school, writing news releases, using social media, or creating a video. Implement these ideas to show-case project accomplishments and lessons learned. It may be hard to know when the project is over, so you may want to establish a milestone or indicator to allow students to experience a sense of accomplishment and closure. And that's when you can celebrate! An opportunity to reflect on the skills and perspectives they have gained can be a useful culmination of an action project. It also helps to have recognition from an administrator or the community to validate their efforts.

Modifications

Provide a set of possible action projects that meet the skills and abilities of your students.

Younger students may find it challenging to assess their abilities, compare competing plans, and select anything other than their first idea. You might limit their projects to the classroom or school site.

If you can take your students on a field trip to a public natural area, ask the manager if the class might assist in some activity. You might also ask the county forester or city arborist, for example, to suggest potential projects.

Enrichment

Have students write an environmental action project handbook for future students based on what they learned. What worked? What did not work? What did they wish they had known at the beginning? They can post their handbook on a website with photos of their activities. You can also share your reports, photos, or success stories on the module website—just use the "Contact Us" area and let us know that you have service-learning project information to share (https://sfcc.plt.org/contact/).

Additional Resources

Environmental Service Learning
Treepeople
www.treepeople.org/environmental- service-learning
This website provides information about seven key elements for quality service learning and provides project examples.

Give Forests a Hand, Leader and Youth Action Guides, Circular 1269 and 1270
Janice Easton, Martha Monroe, Alison Bowers, and Lizzie Peme; University of Florida; 2009
http://edis.ifas.ufl.edu/fr118 and http://edis.ifas.ufl.edu/fr117
This resource includes a youth action guide and a leader guide to help students identify potential projects, select an idea that matches their abilities, create a plan, conduct the project, and celebrate results. Reflection questions are built into the guide to encourage learning. Spanish versions are available.

GreenWorks!
Project Learning Tree
www.plt.org/greenworks
This webpage provides information on the PLT service-learning community action program, which provides grant opportunities annually.

National Service-Learning Clearinghouse
Corporation for National and Community Service
www.servicelearning.org
This comprehensive resource has answers to general questions about service learning and provides success stories. A subsection of this website focuses specifically on environmental issues.

Young Voices for the Planet, The Movies
Young Voices on Climate Change
www.youngvoicesonclimatechange.com/climate-change-videos.php
This series of short films presents replicable success stories of young people tackling climate change issues in their communities. Accompanying curriculum for each video is also available.

Planning Your Project (1 of 2)

NAME _____ DATE _____

To plan your action project, try to answer as many of the following questions as possible.

Background Information and Problem Identification

1.   What is the area or audience identified for the project?

2.   What is the need for this project? How do you know this is a problem?

3.   What existing data or information may be useful as you begin considering how to solve this problem?

Recommendations

4.   What are some potential actions that could address the problem?

5.   Which action(s) do you recommend? Why?

Planning Your Project (2 of 2)

Details of the Project

6.   Who will be involved in this project? Who will do the work?

7.   What community or school partners can help?

8.   How much will it cost? Where will the money come from?

9.   How does the project benefit the community or school?

Expected Results

10.   What results do you hope the project achieves?

11.   How will you know whether the project was successful?