

Project S.U.S.T.A.I.N.

STUDENTS UNDERSTANDING SUSTAINABILITY THROUGH
TEACHING & AWARENESS TO INCREASE NATURAL RESOURCES

The Lands Council is pleased to offer a new and exciting opportunity through Project S.U.S.T.A.I.N., a community-based effort to enhance learning and environmentalism, while increasing a sense of sustainability in our students.

The Lands Council sees opportunity in our youth, and acknowledges the need for outside sources to enhance in-class curriculum. Our team is confident that Project S.U.S.T.A.I.N. is the answer.

By targeting a select group of Spokane organizations to help support this project, we hope to get our community's children outside, where they will participate in a set of hands-on activities prepared to directly enhance their in-class units.

By implementing an education program targeting our three principal programs—wildlife, water, and forests—and exploring the idea of sustainability, The Lands Council's goal is to empower students with an enhanced knowledge and awareness of local conservation issues and promote a heightened sense of environmental stewardship among youth in our community.

The Lands Council team envisions a future of more meaningful connections between students in our community and our natural environment.

Project S.U.S.T.A.I.N. is a new opportunity, and we invite you to join us today! Help ensure today's youth is provided with the necessary tools to succeed mentally, physically and environmentally!



PROJECT S.U.S.T.A.I.N. OBJECTIVES:

1. Educate students about beaver ecology and management and the role beaver play in riparian restoration.
2. Enhance students' stewardship of the Spokane River.
3. Build awareness of the importance and benefits of Ponderosa pine (*Pinus ponderosa*) and other local native tree and shrub species in Spokane Valley neighborhoods.
4. Restore Spokane County's urban forest through planting of Ponderosa pine and other local native species.
5. Get kids outside, learning, and connecting with nature!



PROGRAM BREAKDOWN

Project S.U.S.T.A.I.N. targets Spokane-area students, grades 4-12. Through this program, The Lands Council's programs staff commit to visiting classrooms for one-hour approximately 2 times per month (as arranged with teachers). Additionally, in-class visits will be supplemented with 4-5 field trips that will consist of hands-on learning activities through the duration of the school year.

The Lands Council acknowledges that scheduling and tailoring of the program are immediate concerns of schools faculty, and are committed to working to ensure that individual schools receive a program specifically designed to compliment the needs of the particular class.

In its entirety, Project S.U.S.T.A.I.N. would be carried out in four units, described below. These units will build on each other, tie together a number of important ecological concepts, and demonstrate the inter-connectedness of humans and the natural environment. TLC is also open to preparing additional material at the request of the faculty.

UNIT 1: WILDLIFE

Beaver (*Castor canadensis*) offer great potential in reversing ecological degradation and improving overall riparian function on a watershed scale. During the fall semester, students will study beaver ecology and management, and learn about the benefits of beaver restoration (e.g. increase in water storage and late-summer flows, reduction of non-point source pollution in the water column, creation of wetlands and fish and wildlife habitat, enhanced channel meander and floodplain connectivity, etc.). In addition to a classroom component consisting of presentations, discussions, videos, and demonstrations, students will visit a beaver dam and/or TLC beaver relocation site, and view a live beaver.



UNIT 2: WATER

In this unit, during the fall semester, students will study the Spokane River watershed and Spokane Valley-Rathdrum Prairie aquifer, which are vital to the well-being of over half a million people. Discussions will focus on the health risks of Spokane River toxics (PCBs, lead, arsenic, cadmium, zinc, PBDEs, dioxins, etc.), water quality improvement (focusing on dissolved oxygen and phosphorus), and healthy riparian structure and function. Students will have the opportunity to participate in the annual Spokane River Clean-up event, perform water quality testing, model groundwater, and analyze macro invertebrates.

UNIT 3: FORESTS

In February and early-March, students will study local forest ecology and management, and learn about important species native to the Inland Northwest, particularly Ponderosa pine. During the latter half of March, they will go door-to-door (and, if applicable, table at grocery stores, churches, and businesses) in their respective neighborhoods, distributing educational materials on the benefits of Ponderosa pine and other native trees and shrubs. Residents will then have the opportunity to order a free seedling: Ponderosa pine, mock orange (*Philadelphus lewisii*), or oceanspray (*Holodiscus discolor*). For each native tree seedling that a resident commits to plant, students will plant one Ponderosa pine seedling at a culmination tree planting event to be held in April. Students will take tree species orders in March and deliver all seedlings in April. Note that this project can ultimately be structured as a challenge between schools.



UNIT 4: SUSTAINABILITY

Students will end the school year by learning about sustainable living through community enhancement. Students will learn methods of restoration and will participate in a field-trip to practice on of the taught methods (i.e.: creek bed restoration, cleanup efforts, trail/path maintenance)

ENHANCING CURRICULUM:

Project SUSTAIN Focus	School curriculum to be enhanced:
<p>Unit 1: Wildlife with focus on The Beaver Solution</p> <p>Students will learn:</p> <ul style="list-style-type: none"> • About boundaries and the contents of an ecosystem • The natural flow within an ecosystem from plants to producers • Energy sources of a healthy ecosystem • The effect of changes with • Water availability • What happens when populations are removed from ecosystems • To investigate a local environmental issue, water storage, research causative factors and evaluate underlying science 	<p>To enhance Washington State requirements for EALR Life Science; Ecosystems units</p> <p>Students to:</p> <ul style="list-style-type: none"> • Understand how organisms in ecosystems interact, respond and adapt to their environment • Research energy flow/food chain • Define endangered, threatened and extinct statuses • Understand human dependence and impact on ecosystems • Demonstrate the importance of recycling, reducing and reusing • Distinguish between renewable/nonrenewable resources
<p>Unit 2: Water, with focus on a healthy water cycle</p> <p>Students will learn:</p> <ul style="list-style-type: none"> • To identify examples of local water cycles • To analyze water as a solvent and how water dissolves minerals and toxins • About the effect of minerals and toxins on our water and health • About underground water storage, movement and the effects it has on the surrounding environment • To take water samples and to analyze macro invertebrates and additional data 	<p>To enhance Washington State requirements for EALR Earth Science; Earth systems, structures & process units</p> <p>Students to:</p> <ul style="list-style-type: none"> • Identify water in its forms • Identify & Describe properties of water • Explain water as a source of energy • Explain how water moves through layers of underground rock & soil • Describe water formation • Investigate water cycle through local examples • Investigate water as a solvent
<p>Unit 3: Forests, with focus on native plants</p> <p>Students will learn:</p> <ul style="list-style-type: none"> • The physical or behavioral changes that enhance an organism's ability to survive • The physical traits of the Ponderosa Pine and other species native to the Inland Northwest • The importance of protecting the future of native species • Through participating in the "Ponderosa Pine Challenge" a door-to-door based effort to encourage our community to "adopt" a native tree. • The importance and procedures behind restoration. Students will participate in a hands-on tree planting effort. 	<p>To enhance Washington State requirements for EALR: Biological Evolution unit</p> <p>Students to:</p> <ul style="list-style-type: none"> • Understand how the theory of biological evolution accounts for species diversity, adaptation, natural selection, extinction, and change in species over time. • Understand the natural selection process; how particular species thrive in a certain environment • Understand population factors on living organisms
<p>Unit 4: Sustainability, with focus on service learning</p> <p>Students will learn:</p> <ul style="list-style-type: none"> • Additional methods of practicing sustainable living • Ways to enhance their community through service work • About the Urban Ecology work TLC is dedicated to. • Additional forms of restoration (i.e.: cleanup, creek bed restoration, trail/path maintenance) 	<p>ALL – TLC helps to encourage students to become upstanding, responsible community members, this unit will not only enhance the science program, but all programs by offering children and outlet for community service and learning through outdoor activities.</p>

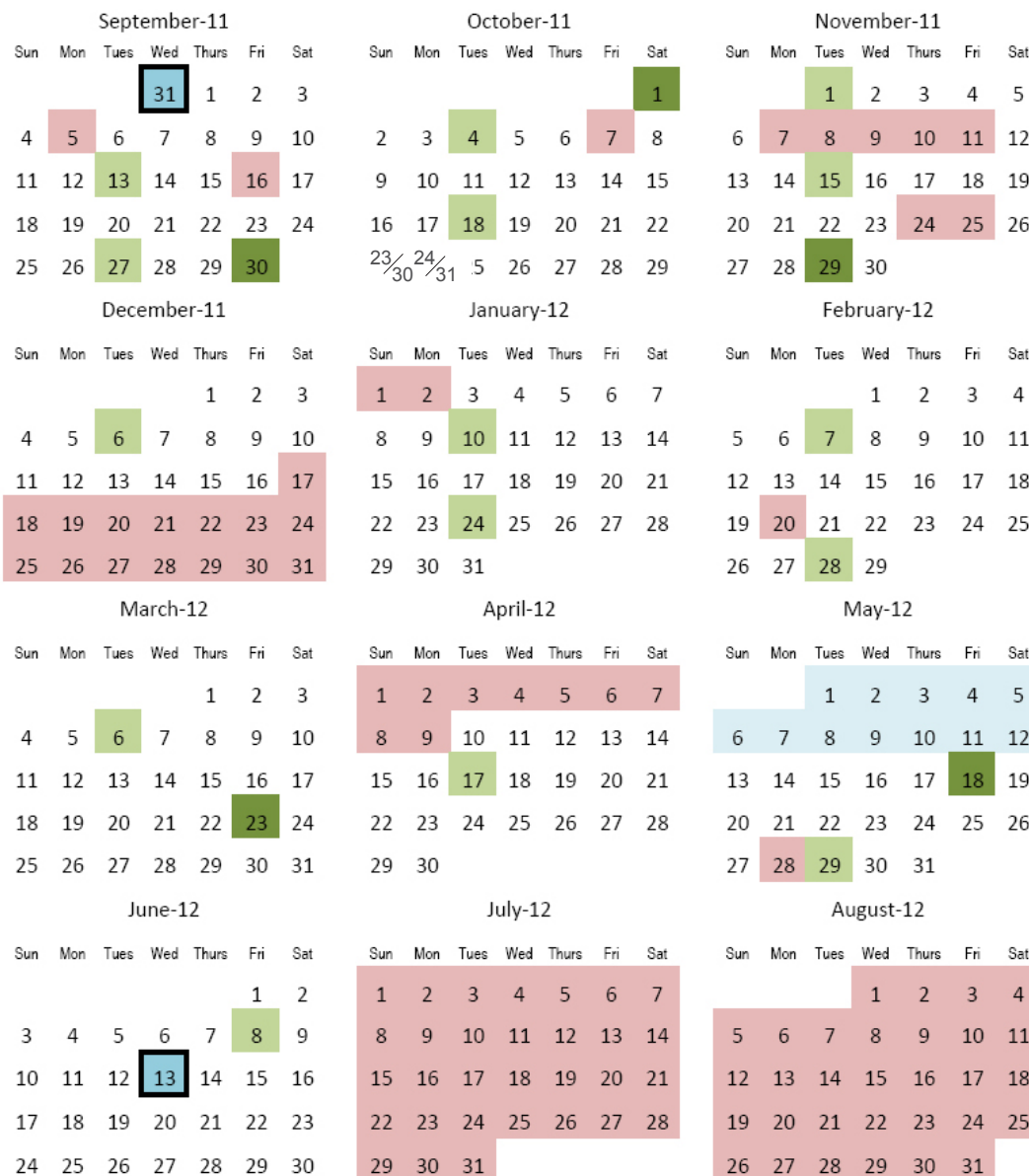
TLC DEDICATION

Project S.U.S.T.A.I.N. requires a high level of involvement, participation and support from The Lands Council. Our team is dedicated to providing this support, yet will supplement these efforts with sponsorships from local, current and new Business Partners also dedicated to the program. Funding from our supporting Business Partners will help to:

- Cover costs of materials necessary for lesson plans & field activities
- Cover cost of transportation for school classes/clubs to and from outside activities
- Enable TLC to recruit additional resources to enhance current plans and activities

Below is a calendar example of when TLC proposes class-visits. Combined in-class lectures and outside field trips offer a commitment of 20 visits per year.

*Individual calendars will be prepared for each school.



- First/Last days of 2011-2012 school year
- School vacation/Holidays/No Class
- State Testing (Estimated Dates)
- TLC In-Class Lesson
- TLC Field-trip Lesson

TLC'S ENVIRONMENTAL EDUCATION TEAM

Kat, The Lands Council's Director of Environmental Education is the voice and drive behind our Urban Ecology program, working to educate children every day. Kat is passionate about teaching & learning and values community service.

Amanda, the Director of the Beaver Solution loves spending time in the classroom teaching children the interworkings of a beaver dam. She's also been known to wear a homemade beaver tail!

Joe, a life-long outdoor enthusiast is the Senior Ecologist for the Beaver Solution. Joe enjoys teaching students the complexity of beaver dams and the surrounding ecosystems.

Mike Petersen, Executive Director of TLC spends countless hours in nature - and loves to show children the true beauty of our surrounding and how to protect it!

Steve, our Board President is a retired teacher/coach who recognizes children are our future! His enthusiasm to make a difference in their lives is only met by the student's own excitement!

Lorie Rambo, Board Member spends her days teaching A.P. Environmental Science at LC High School. TLC, and her students, adore her fun, unique approach to teaching science!

Kirsten Angell is truly dedicated to getting children outdoors, which is why we're proud to have her as a board member. She's also a great mom and seems to always know what to say to encourage students!