

Southern Oregon Regional Envirothon

**Student & Advisor Guide
2022**



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Introduction

The Southern Oregon Regional Envirothon Competition is closely modeled after the Oregon Envirothon Competition, a state-wide natural resources competition for high school students. Envirothon is a hands-on environmental problem-solving competition for high school students throughout the United States and Canada. Each year, teams from states and provinces across the US, Canada, and China compete to become champions worthy of competing at the NCF-Envirothon Competition held each year in various locations.

However, with only one consistent team competing from Jackson County in recent years, Jackson Soil & Water Conservation District, Crater Renaissance Academy, Logos Public Charter School, Southern Oregon Land Conservancy, and Grayback Forestry, the Bureau of Land Management, and Rogue River Watershed Council have worked to develop a locally-based competition to make it easier for teachers to coordinate schedules, build projects into their ongoing curriculum, and to reduce, if not eliminate, the cost of competing to local families (costs associated with traveling to Silverton, and trainings in other parts of the state). Additionally, we hope that by expanding our local competition to middle school students we will begin to build the local natural resources knowledge-base of our youth at an earlier age. This will benefit the community in a number of ways 1) Students will develop a greater appreciation for and understanding of Jackson County's (and Southern Oregon's) resources and their management 2) Students will leave high school with a stronger grasp of natural sciences than those who do not compete 3) With the support of participating teachers, regional teams may decide in the future, to compete at the State level with the potential of competing at the National Envirothon Competition.

Benefits to Competing Teachers

- ✓ *Technical support from local natural resources professionals*
- ✓ *Networking opportunities with other teachers and districts involved with regional competition*
- ✓ *Excellent opportunity to build on to or support already in-place NGSS, NAAEE, and Common Core curriculum in the classroom with hands-on, real world experiences*
- ✓ *Continued education to improve your confidence with natural resources curricula*

Benefits to Competing Students

- ✓ *Opportunity to connect with local natural resource professional*
- ✓ *College course preparation and career skills development*
- ✓ *Meet other, local students with similar interests*

- ✓ *Learn about local, current natural resources concerns*
- ✓ *Improve your critical thinking and problem-solving skills*
- ✓ *Improve your ability to work with a team*

Mission, Goals, & Objectives

Mission

The Southern Oregon Regional Envirothon (SORE) was developed to facilitate the development of knowledgeable, skilled, and dedicated young people throughout our region who are willing and prepared to work towards achieving, maintaining, and adapting a balance between the quality of human life and the quality of the natural environment.

SORE's mission is accomplished by developing in young people an understanding of the principles and practices of natural resources management and ecology through dealing with complex natural resource management decisions. We hope that students involved with this challenging exploration of our region's natural resources will work to adapt and expand their new-found knowledge and skills to their communities through effective communication, real-world skills application, and critical thinking with a collaborative approach. The following goals and objectives should be used as a guide to help develop effective curricula, educational resources, and testing scenarios.

Goals

1. To promote a desire to learn more about the natural environment in middle and high school students throughout Southern Oregon, while equipping students with the knowledge and skills needed to apply the basic principles and practices of natural resources management and ecology to complex environmental and social issues.
 - a. Students should be able to demonstrate a basic knowledge of concepts in natural resource management and ecology;

- specifically in the areas of soils/land use, aquatic ecology, forestry, wildlife, and current ongoing environmental issues.
- b. Students should be able to analyze soil, aquatic, forestry, wildlife, and current environmental issues with critical thinking and problem-solving skills.
 - c. Students should have a basic understanding of the best management practices of Southern Oregon's various natural resources, and be able to understand these practices to Southern Oregon's unique, ecologically distinguished landscape.
2. To promote stewardship of natural resources, while encouraging the development of critical thinking in cooperative, problem-solving and decision making settings to work towards a balance of quality of life and quality of the environment.
- a. Students should be able to identify environmental issues in a given situation and the various interests involved, including: ecological, social, and economic factors.
 - b. Students should be able to investigate and synthesize issues using primary and secondary sources. Additionally, students should be able to demonstrate the ability to:
 - i. listen with comprehension
 - ii. collect, organize, and analyze information
 - iii. frame appropriate questions to guide their investigation
 - iv. use a range of resources and technologies in addressing questions
 - v. critically examine information from a variety of sources
 - c. Students should be able to assess the nature of information and materials from a variety of different viewpoints and evaluate their implications.
 - d. Students should be able to identify alternative solutions for various issues and their associated value perspectives. Students should be able to evaluate alternative solutions with respect to their ecological and cultural implications. Additionally, the

alternative solutions generated should attempt to take into consideration the variety of interests involved, while maintaining a healthy environment.

- e. Students should be able to identify and evaluate their own position on environmental issues, their associated solutions, and inherent biases. These positions should be based on balanced information, critical analysis, and careful synthesis. Further, students should be challenged to and able to test their beliefs against new information, experiences, and beliefs.
 - f. Students should be able to evaluate the interaction of the proposed solution with other ecological and social factors and anticipated having to plan ahead when evaluating the long- and short-term implications of possible solutions to environmental problems.
3. To provide students with experiences in environmentally-oriented activities, enabling them to become environmentally- and socially-aware, action-oriented individuals.
- a. Students should have knowledge of a wide-range of action strategies involved in seeking solutions to environmental problems.
 - b. Students should be able to recognize the connections between environmental and social problems, and be able to propose potential solutions to the problem(s).
 - c. Students should have knowledge of the various agencies and organizations that are available as resources to confronting environmental problems.
 - d. Students should be able to evaluate the impact of their own actions affecting a particular environmental problem and devise alternative actions to work toward improving environmental conditions.

- e. Students should be able to work independently and collaboratively to develop proposed solutions to environmental problems.
4. To provide students with opportunities to connect with local natural resources professionals throughout Southern Oregon.
 - a. Students will have a basic understanding of the differences between state, federal, municipal, and non-profit agencies and organizations.
 - b. Students will understand the process of applying for positions with different agencies and organizations.
 - c. Students will develop an understanding of the role college and/or technical education and training plays in securing a job in natural resources management.

Objectives

Awareness: The Southern Oregon Regional Envirothon (SORE) will help local students cultivate an awareness of and sensitivity to the region's unique natural resources, while applying concepts learned to global concerns.

Knowledge: SORE will encourage the development of a basic understanding of the earth's ecological systems and human interdependence on the health of these systems.

Attitude: SORE will cultivate the development of attitudes and behaviors which embrace environmental sensitivity and instill motivation to encourage active engagement in natural resource management and conservation.

Application: SORE will facilitate students' skill development to identify, investigate, and contribute to the resolution of environmental issues and problems.

Structure of Contest

Proposed Schedule for Hybrid Event, March 28-April 8, 2022

Virtual Team Tests: Teams will choose when to complete the virtual tests via Google Slides. Upon registering, teams will choose which day they want to receive the tests, Thursday (3/31), Friday (4/1), Saturday (4/2), or Sunday (4/3). Tests will be due by 8pm on the day of your team's chosen date.

3/28/22 through 4/1/22 Virtual Event Welcome

Welcome/Logistics & Keynote Speaker - by zoom, time TBD

Pre-recorded video will be sent to teams for viewing prior to the in-person event on 4/4/22.

3/31/22-4/3/22 Virtual Tests

Teams will complete their teams tests on Google Slides

4/4/22 Wednesday: Test Day

First Session

8:00-9:00	Set-up, Team Arrival
9:00-9:20	Welcome/orientation/logistics - outside or in pig barn
9:25-9:45	Station 1
9:50-10:10	Station 2
10:15-10:35	Station 3
10:40-11:00	Station 4
11:05-11:25	Station 5
11:30-11:50	Station 6
11:50-12:15	Teams convene back at welcome area, closing remarks, pick-up sack lunches

12:30 All Teams Depart Land Lab

(potential to have in-person, on-site awards ceremony)

4/8/22 Friday: Virtual Day

Awards Ceremony - by zoom, time TBD

Viewing is optional but encouraged!

****All teams will be required to wear masks during the in-person testing event. A properly worn mask covers both the nose and mouth and fits the wearer's face relatively well. Any team or team members who refuse to wear a mask will be asked to discontinue their participation in the event.***

Study Concepts

Forest Ecology

Objectives:

Students will...

1. Be able to identify and explain the function of tree parts and tissues.
2. Be able to explain and compare the growth and life history of the common coniferous and deciduous trees found in Southern Oregon.
3. Be able to use a dichotomous key individually to identify common tree species of the region.
4. Be able to identify key ecological indicators of forest and tree health and their relationships.
5. Develop a working understanding of the role of fire in Southern Oregon's diverse forest types.
6. Develop an understanding of past, present, and future fire management practices in Southern Oregon.
7. Understand the role of private, federal, state, and non-profit agencies and organizations in managing fire in Southern Oregon.

Soils

Objectives:

Students will...

1. Develop a working understanding of the immense diversity of soil types found in Southern Oregon.
2. Understand the role of soil in the region's geography, ecology, and management.

3. Know the five soil forming factors, and understand how they influence soil properties.
4. Be able to identify and describe soil characteristics.
5. Work together to develop a comprehensive timeline of land-use practices throughout Southern Oregon.
6. Work together to develop a comprehensive timeline of past, present, and potential future changes of land-use practices as they relate to the region's geography.
7. Individually develop their own frame of reference for how best to understand the development and evolution of land-use practices in Southern Oregon
8. Understand the roles of permitting and regulatory agencies as they relate to land-use practices in the State of Oregon (DEQ, DSL, ODA etc.).

Aquatic Ecology

Objectives:

Students will...

1. Be able to identify the primary challenges aquatic organisms face in our region.
2. Understand the biological and chemical processes occurring in lotic systems and their limiting factors.
3. Be able to identify at least three each of the following groups found in and near our local aquatic ecosystems: birds, mammals, macroinvertebrates, and fish.
4. Be able to articulate the connection of inland tributaries and their larger river systems to the Pacific Ocean.

Wildlife Ecology

Objectives:

Students will...

1. be able to identify common wildlife (mammals & birds) of Southern Oregon using pelts, skulls, and other signs (tracks, scat, markings).
2. Understand the role of local and federal wildlife management agencies (ODFW & USFWS).
3. be able to explain the importance of a diverse community of wildlife species.
4. develop a working understanding of ecosystem dynamics as they relate to the presence and abundance of a diverse number of wildlife and wildlife species.

Current Issue: Waste to Resources

Objectives:

Students will...

1. develop an understanding of Oregon's waste management programs and goals,
2. understand the importance of a well-managed waste processing system,
3. understand the challenges facing Southern Oregon communities in waste management, and
4. understand the role and importance of informed consumers.

Key topics will include:

1. Understanding how landfills function and how hazardous waste is properly handled and disposed.
2. Understanding the importance of reusing, recycling and diverting products from becoming waste to conserve natural resources.
3. Understanding how much food is wasted relative to supply, and the importance of composting and how it supports soil health, water conservation efforts and waste diversion.
4. Understanding combustion with energy recovery (waste-to-energy) systems and facilities and the comparison of carbon sequestration methods as a potential energy source.
5. Understanding the different management and innovative treatments for human and animal waste and the potential environmental impacts if not effectively managed.
6. Understanding brownfields and the potential environmental impacts of degraded lands, and how the state and federal government can assist with removal of toxins and reuse of lands to benefit the community

Advisor Support

Rules & Regulations

1. Team members must be enrolled in grades 9-12 (home, private, or public school).
2. Each team must have a maximum of six members and a minimum of four. Team members must be from the same school.
3. Teams will be issued a number that must be used during the competition.
4. Switching team members will not be allowed after the registration of the team (barring extenuating circumstances).
5. Teachers, team advisors, or chaperones must accompany their teams to the competition but may not assist their teams in any way once the competition is underway. Team advisors must stay on site during the event.
6. The Southern Oregon Regional Envirothon (SORE) will consist of five competitive stations: soils/land use, aquatic ecology, forestry, wildlife, and the current issue. Judge's and scorer's decisions are final on all tests.
7. Scoring for SORE will be based on:
 - a. The combined score of each of the 5 testing subjects, worth 50 points each, for a total of 250 points. Awards will be given for overall combined high scores and subject high scores.
 - b. The top 3 teams for SORE will be determined using the combined scores from the five testing subjects.
9. The virtual portion of the competition will be completed via Google Slides. Only one test needs to be submitted per team. Please exercise best judgement and do your best to use only the resources provided in the links within the test.
9. For the in-person testing day, teams are not allowed to bring notes, field guides, or other resource materials to the testing stations. Any necessary

materials will be provided by SORE. **No backpacks or electronic devices of any kind are allowed at the testing stations. Masks must be worn for the entire time.**

10. Team members will work together to complete their field experiences and questions and submit one answer sheet before moving on to the next site. Fifteen minutes will be allowed at each station, with 5 minutes allowed for rotation.

11. The winning team will be the team with the highest cumulative score from the 5 test subjects. The tie breaker will be the higher scoring team in the current event topic.

12. **Registration must be received by March 1, 2022.** Advisors must submit Parental Consent/Medical/Media Release Form for each team member to SORE competition by the day of the event. [Register here.](#)

13. **No tobacco, alcohol, drugs, or intoxicants of any kind are allowed on site per Oregon law.**

14. For the in-person testing occurring at Crater Land Lab, face-coverings or masks must be worn by all in attendance. When not working on a collaborative piece of the test, physical-distancing must also be followed. Anyone not able, or unwilling, to wear a face-covering or mask will be asked to stay home.

14. Rules and regulations of SORE are subject to change. Any and all relevant changes will be explained to all teams and advisors.

Reference Guide

Support Contacts

Karelia Ver Eecke, Competition Coordinator

Email: karelia.rebecca@gmail.com

Phone #: 970-749-9543

Hannah Satein, Planning Committee Member

Email: hannah.satein@jswcd.org

Haven Combs, Planning Committee Member & Teacher

Email: haven.combs@district6.org

Anna Warntjes, Planning Committee Member & Teacher

Email: anna.warntjes@district6.org

Caroline Burdick, Planning Committee Member & Teacher

Email: caroline.burdick@district6.org

Christopher Van Ness, Planning Committee Member & Teacher

Email: cvanness@logoscharter.com

Phone #: 541-944-1981

Randy White, Planning Committee Member

Email: randy.white@jswcd.org

Phone #: 541-423-6176

Field Tools & Specimens Training Totes

*We have six training totes available for loan on a first-come, first-served basis for local teams. These totes are filled with field tools and testing kits, reference and field guides, and specimens to assist your team in preparing for the regional and/or state envirothon.**

Please contact Anna Warntjest at anna.warntjes@district6.org to borrow a training tote.

**Priority will be given to teams planning to participate in SORE*

Online Resources

Aquatic Ecology

Protecting streams

[Plants for Riparian Buffers](#)- a nice overview from NRCS of how riparian buffers are used and their importance

[Riparian Forest Buffers on Agricultural Lands in Western Oregon](#)- a PowerPoint overview of a restoration project to protect a stream in Oregon

Forest Ecology

Soils

History of Soil Management

[The NRCS youtube channel](#)- little videos on soil health and the NRCS

[80 Years Helping People Help the Land: A Brief History of NRCS](#)- a nice overview of why we manage soil the way we do in the U.S.

[Marion SWCD's History of SWCD's in Oregon](#)- insight into how national soil policy is put on the ground in Oregon

Soil Assessments

[NRCS Guidelines to Soil Quality Assessment](#)- a technical guide used by the Federal Agency to determine soil health and management.

[Understanding Soil Risks and Hazards](#)- an interesting NRCS guide to various soils and hazardous conditions associated with them including high rates of erosion and compaction.

Dealing with erosion and soil health

[Using Cover Crops in Oregon](#)- OSU Extension's guide to beneficial cover crops in Oregon

[Cover Crops for Soil and Water Quality](#)- a great research article that gives an example of how RUSLE2 is used

[Cover Crops for Organic Systems](#)- a technical implementation guide for cover crops in Oregon, complete with plant types and how to use them

[Cover Crops: Grow your own fertilizer activity](#)- The goal of this activity is to introduce the idea that nitrogen can be produced and conserved on a farm biologically through the use of cover crops.

Wildlife Ecology

<https://www.oregonconservationstrategy.org/>

Local Management Agencies

Oregon Department of Fish & Wildlife

Oregon Department of Forestry

Oregon Department of Environmental Quality

Current Issue: Waste to Resources

Oregon Envirothon: Current Issue

<https://www.oregonenvirothon.org/wp-content/uploads/2022/01/Envirothon-2022-Current-Issue.pdf>

<https://roguedisposal.com>

<https://www.recology.com/recology-ashland>

<https://www.sosanitation.com>

Team Registration

All teams must complete a Team Registration Form via [Google Forms](#) by March 1, 2022. Team advisers must complete the team registration and must include team member names, grades, t-shirt sizes, and any dietary restrictions/requirements. Please contact Karelia Ver Eecke at karelia.rebecca@gmail.com if you need assistance with registration.

Date of Event: Monday, April 4, 2022, 9am-12pm

Virtual Team Tests: *Teams will choose when to complete the virtual tests via Google Slides. Upon registering, teams will choose which day they want to receive the tests, Thursday (3/31), Friday (4/1), Saturday (4/2), or Sunday (4/3). Tests will be due by 8pm on the day of your team's chosen date.*

Additionally, each team member must complete a release of liability, medical release, and media release form, found on the next page. Team members will not be allowed to compete if a form has not been submitted to the Planning Committee by April 4, 2022 upon team's arrival.

Southern Oregon Regional Envirothon Parent/Guardian Release of Liability Form

School/Group: _____

Student Name: _____

Mailing Address: _____

Primary Parent/Guardian: _____ Primary Phone #: _____

Secondary Parent/Guardian: _____ Secondary Phone#: _____

Emergency Contact Name: _____ Contact Phone #: _____

MEDICAL INFORMATION

Allergies: (food, drugs, bees, etc.) _____

Special Medical Concerns or Conditions: (epilepsy, asthma, diabetes, etc.) _____

Current Medications: (dose & frequency) _____

Physician: _____ Phone #: _____

Address: _____

Medical Release: I understand that this Southern Oregon Regional Envirothon (SORE) event is an active, outdoor event that carries inherent risks. As a voluntary participant, by signing below I agree as follows:

- I am responsible for ensuring that I and my child/children comply with all rules and policies of SORE and with all appropriate instructions of event personnel.
- I assume all liability for any and all personal injury, illness or property damage that occurs to myself and my minor child/children as a result of participation in the event.
- I will hold harmless and indemnify SORE staff, volunteers, presenters, contractors, and landowners associated with this event from any and all claims, damages, losses and/or expenses arising out of my/our participation.
- I will assume all financial obligations incurred for medical expenses incurred by myself or my child/children as a result of or incident to participation in this event. In the event of emergency, injury, or illness of my child in my absence, I understand every reasonable effort will be made to contact me. If my consent cannot be obtained promptly, I give permission for the following on behalf of my child/children:

- Event staff may provide necessary emergency treatment until EMS personnel arrive and may coordinate further medical treatment as needed.
- Medical personnel may provide or coordinate medical treatment as needed, including but not limited to x-rays and routine tests; hospitalization; anesthesia; emergency surgery; and necessary related transportation; and obtaining or releasing any necessary records relating to such treatment.
- I hereby release SORE, its sponsors, affiliates, employees, agents, and representatives thereof, from liability in the event that my I or my child tests positive for any transmissible disease, including but not limited to COVID-19, as a result of participation in the event. I understand that masks are required to be properly worn for the entirety of the event. I understand that all reasonable effort will be made to reduce transmission and provide appropriate sanitation measures, but protection from transmissible diseases cannot be guaranteed. I further understand that event staff may prohibit or excuse me or my child/children from participation if any of us exhibit symptoms of, or tests positive for, any transmissible disease.

Parent/Guardian Signature: _____ **Date:** _____

Media Release: By signing below you consent to allow photos of your student taken during the event to be used in future SORE marketing (flyers, presentations, etc.) and shared with SORE event partners including the United States Forest Service, Bureau of Land Management, Rogue River Watershed Council, Jackson Soil & Water Conservation District, and participating schools/teams via social media, annual reports, and/or newsletters.

Parent/Guardian Signature: _____ **Date:** _____