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[FY17 OYEI CSNM Fall in the Field Actuals \(for FY18 request\).xlsx](#)
[FY17 OYEI CSNM VC Actuals \(for FY18 request\).xlsx](#)

Elizabeth,

Attached is the final report for Fall in the Field CSNM. I have also attached the expenditures for FY17 so that you can see where the money was spent for Fall in the Field and for the CSNM visitor Center.

Please let me know if you need any further information.

Christina

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Fall in the Field 2016

FINAL REPORT



**Southern Oregon University
MS in Environmental Education**



Program created and delivered by: Katie Boehnlein, Shannon Browne, Emily Burke, Colleen Cavanaugh, Emily Collins, Andy Cullison, Caitlin Hosken, Katie Leuthauser, Colleen MacGilvray, Chris Sharpe, and Karelia Ver Eecke

Final Report

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EXECUTIVE SUMMARY

Fall in the Field is a standards-aligned, place-based environmental education program designed to get students across the Rogue Valley outside and excited by the wonders of the natural world.

For Fall in the Field 2016, Cohort 8 designed the theme *Uncover the Wild Within: Realizing our role in natural communities* to engage students in citizen science, service learning, and standards based lessons that focused on ecosystem interconnectedness and human impacts on Earth's systems. Through four programs at residential and non residential sites, Cohort 8 served nearly 1,200 students from eight school districts from grades first through twelfth.

In addition to reaching a wide audience, one of Cohort 8's major accomplishments was implementing Fall in the Field's first comprehensive program evaluation, covering both qualitative and quantitative methods of assessment. The information garnered from this ambitious endeavor will be invaluable in improving our program in future years.

Community partnerships are an essential component of Fall in the Field. Together with our partners, we worked to increase the environmental literacy of southwestern Oregon students. Cohort 8 worked with diverse organizations including nonprofits, federal agencies, school districts, and Southern Oregon University (SOU) to further our goal of facilitating a fun, relevant outdoor experience.



A student sketches cobra lilies.

These important community partnerships ensured that our program was successful in reaching a wide audience:

- Bureau of Land Management
- Southern Oregon University
- Ashland Food Co-op
- Rogue Valley Audubon Society
- Ashland Parks and Recreation
- Lomakatsi Restoration Project
- Grants Pass School District



A student from Ruch Community School reflects on her experience at Cascade-Siskiyou National Monument through art and words.

Fall in the Field 2016

Fall in the Field 2016 held **non-residential and residential environmental education programs at four sites:**

1. Deer Creek Center
2. Camp Latgawa
3. Cascade-Siskiyou National Monument
4. Ashland Pond



We served **1,191 students** from **45 classes** throughout the Rogue Valley. **24 of the 45 classes** came from **Title I schools**.

"I was just thinking that humans get everything from nature!"

-Eric, student

We served **184 adults** including teachers and chaperones and **20 high school leaders** through our programming.



Fall in the Field 2016's **total revenue was \$26,657.99**. The program **costs totaled \$23,860.08**.



We are grateful to have reached so many students through our diverse community connections. We are excited for future Fall in the Field programs!

WHO WE ARE

The Master of Science in Environmental Education program at Southern Oregon University is rooted in a strong foundation of natural science and education practices. The program is defined by its collaborative and student-driven capstone program.

Fall in the Field is this capstone, the result of a year of building an environmental education program from the ground up. Starting in October 2015, this year's cohort collaboratively designed their version of Fall in the Field. This process included, but was certainly not limited to, determining a theme, choosing an audience, budgeting the program, designing and developing standards based curriculum, recruiting teachers to the program, crafting and implementing assessment tools, evaluating and planning for emergencies, and delivering the program.

This year's Fall in the Field team consisted of 11 students from all over the country who were attracted to SOU because of a desire to connect people to nature (see Appendix A for brief instructor biographies). Though each member brought different skills and passions to the table, working together in this collaborative manner taught us a lot about one another. Most importantly, we learned how to successfully develop and implement an environmental education program.



"...they were knowledgeable, they were friendly, they had designed great lessons, and they were just overall very impressive."

-2016 Fall in the Field parent chaperone

WHAT WE DO

Fall in the Field is a standards-aligned, place-based, environmental education program that is designed to get students outdoors, exploring nature. We strive to make learning exciting and relevant.

To achieve our program goals we offered four distinct programming options this year: residential, one or two night experiences in Selma, Oregon, an Outdoor School experience at Camp Latgawa, full day field trips on the Cascade Siskiyou National Monument, and four days of full or half day habitat restoration and citizen science data collection at Ashland Pond.

Our theme was *Uncover the Wild Within: Realizing our role in natural communities*. With this theme, our hope was to encourage students to think about the fact that they are not separate from nature, but an important part of it, and that all things, including humans, are connected through nature.

Under this theme, we included four enduring understandings to guide instruction:

1. A community is made up of diverse organisms that depend on one another and their environment.
2. Humans are a part of nature and their choices affect the environment.
3. A love of nature can be part of your everyday life.
4. Questioning the natural world uncovers our place in it.

In addition to the focal standards listed below, our lessons incorporated standards from other areas of study (see Appendix B for a complete list of standards):

Common Core State Standards (CCSS):

SL4: Presenting Information and Findings
MP4: Model with Mathematics
MP5: Using Tools

Next Generation Science Standards (NGSS):

ESS3: Earth and Human Activity
LS2: Ecosystems and Interdependent Relationships

See Appendix C for a detailed summary of our lessons.



A student from Jewett Elementary School enjoys the view from Hobart Bluff while creating a personal postcard for the site.

PROGRAM OVERVIEW

Audience Summary

Over eight weeks of Fall in the Field, 1,191 students from eight school districts across the Rogue Valley were served through our programs. Additionally, 184 teachers and chaperones were served.

Over half of the students we served came from Title I schools. These schools are classified based on the ratio of students of the school population who come from low income families. As Title I schools, certain parameters must be met to ensure that all students are given the same opportunity to meet state academic standards.

See Table 1 below for additional information, including the numbers of students, adults, and classes served at each site. Please note that adults include classroom teachers and chaperones. See Table 2 for a breakdown of Title I schools served through our program. For a full analysis of grades, schools, and students served during this year's Fall in the Field program, please see Appendix D.

Table 1. Number of students, adults, and classes served across all four sites.

Site	Number of students served	Number of adults served	Number of classes served
Deer Creek Center	266	58	11
Cascade Siskiyou National Monument	625	102	26
Camp Latgawa	166	10	5
Ashland Pond	134	16	3
TOTAL	1191	184	45

Table 2. Number of classes, including those from schools with Title I status, across all four sites.

Site	Number of classes served	Number of classes from Title I schools served	Percentage of classes from Title I schools served
Deer Creek Center	11	5	45%
Cascade Siskiyou National Monument	26	19	73%
Camp Latgawa	5	0	0%
Ashland Pond	3	0	0%
TOTAL	45	24	53%

Residential Programs

Deer Creek Center

Deer Creek Center is located in the Illinois Valley in Selma, OR on 850 acres at the confluence of Deer and Fawn Creeks. The property is owned and operated by the Siskiyou Field Institute (SFI) and provides a setting for a rich residential learning experience. The unique and diverse habitats of the Klamath Siskiyou Mountains include: fire forests, consisting of Ponderosa pine and Douglas fir, serpentine soils with Jeffrey pine and Port Orford cedar, fens containing carnivorous cobra lilies, and riparian areas. Our programs occur here annually through a special agreement between SOU and SFI.

Audience served at **Deer Creek Center:**
266 students
58 adults

This year's Fall in the Field programming focused on exploring careers in the natural resource and environmental fields. Students became aquatic ecologists as they studied the health of the stream and riparian ecosystems surrounding Deer Creek. They explored the fen as geologists and botanists, studying the metamorphic serpentinite and carnivorous cobra lilies. They got a glimpse of what it would be like to be wildlife biologists by setting camera traps and track plate boxes to observe the creatures that roam Deer Creek Center at night. Students also used nature as inspiration for art as they became nature artists like Andy Goldsworthy. Finally, as forest ecologists, students learned about adaptations

that trees and other plants possess to live in a fire forest and how fire is a natural process.



Students from Ruch Community School were inspired by nature to create art pieces along Deer Creek.



Students from Talent Elementary School discover the mystery of the fen and its carnivorous cobra lilies.

Scientists from all over the world come to Deer Creek Center to study its unique ecology and biodiversity. By giving students the opportunity to embody a professional working in an environmental or natural resource field, we aimed to foster a deeper understanding and appreciation for the natural world surrounding the Klamath Siskiyou bioregion.

Food for Thought at Deer Creek

Food for Thought is an optional evening program in which students discover local foods while enjoying a meal made from scratch in the camp kitchen. This year, students took on the role of farmers preparing to grow a meal for their class. They learned about the benefits of eating locally produced food, including reducing fuel emissions and strengthening the local economy. Dinner followed the lesson a self serve burrito meal made with fresh ingredients from the following local growers and businesses:

- Lettuce, tomatoes, onions, peppers, and cilantro from **The Farm at SOU** (Ashland)
- Black beans from **Dunbar Farms** (Medford)
- Cheddar cheese from **Rogue Creamery** (Central Point)
- Salsa from **Salsa Hecho in Pacific Northwest** (Talent)
- Corn tortillas made at **El Gallo Mexican Supermarket** (Medford)

While the Food for Thought program usually requires a small per person fee to cover the cost of ingredients, this year we received a \$700 grant from the **Ashland Food Co-op Community Grant** to fully fund this program. As a result, every class was able to participate. Additionally, **Rogue Creamery** donated all 100 pounds of cheese we used in our program this year. Thanks to these amazing organizations, we were able to offer healthy, local, and delicious meals to all participants free of charge!



Students were excited to cook, consume, and enjoy a locally sourced, home-made meal.



Fall in the Field 2016

Camp Latgawa

This year, we partnered with South Grants Pass Middle School and Camp Latgawa to develop a 6th grade residential Outdoor School program. Camp Latgawa abuts Forest Service land high in the Cascades in a unique bioregion that blends organisms from both the Willamette Valley and High Cascade ecosystems. A stunning mineral spring flows nearby. The site itself features 12 cabins, a dining hall, and various other amenities.

We were successful in reaching such a large audience due to help from students from Grants Pass High School. These student leaders volunteered their time as mentors to 6th grade students through their duties as cabin leaders and assistant field instructors. High school leaders were essential to building community at Outdoor School, whether it be in cabins, during field studies, or in nightly campfires. This was the first year that Fall in the Field instructors were able to work with high school students in a co-teaching capacity. Together, instructors and high school student leaders taught 6th graders about mineral springs, fire adaptations, forest composition, macroinvertebrates, riparian areas, and nature inspired art.

Audience served at **Camp Latgawa:**

166 students

20 high school leaders

10 teachers



Left: Fall in the Field instructor, Caitlin, and a Grants Pass Middle School student investigate aquatic life; Above: Students enjoy exploring Camp Latgawa.

Non-Residential Programs

Cascade-Siskiyou National Monument

The Cascade Siskiyou National Monument encompasses over 66,000 acres of beautiful biologically diverse hills and mountains in southwestern Oregon. The Monument owes its biological diversity to the convergence of the Cascade and Siskiyou mountain ranges, which allow species from the Oregon Coast Range to mingle with those from the Great Basin and High Cascades. In partnership with the Bureau of Land Management, we delivered 26 days of programming on the trails of Greensprings Mountain and Hobart Bluff.

Audience served at
**Cascade-Siskiyou
National Monument:**

625 students

102 adults

Students from local Rogue Valley schools traveled a winding country road into the heart of the wilderness to learn about geology, food webs, insects, and watersheds. Standards aligned activities allowed students to explore their surroundings and ask questions about the unique plant and animal life around them. Students were also encouraged to reflect on their connection to public lands by creating a post card to be mailed home after the field trip. These postcards captured memorable experiences through words and art and included action statements on how students can care for natural areas.



"This is my favorite place to hike. I want to come back!"

Violet, student

"I just realized that the forest is a lot more interesting than you think it is."

Alder, 4th grade student



Fall in the Field 2016

Ashland Pond

Ashland Pond is nestled between I 5 and the quiet neighborhoods off Nevada Street. Just downstream of Ashland's Wastewater Treatment Plant, and just across from the Bear Creek Greenway, this little pocket of wild has created a wonderful opportunity for local citizens to get outside and learn about and improve their backyard wild place.

Originally excavated as a rock quarry for a local road project and later abandoned, Ashland Pond has sat vacant and overrun with Himalayan blackberry for much of its history. Starting in the early 2000s, local residents of Ashland began uncovering the secrets of this urban gem. With its riparian habitat, year round pond habitat, and dense vegetation, Ashland Pond is an important wildlife haven. Since 2008, habitat restoration partnerships with Helman Elementary School, Lomakatsi Restoration Project, Ashland Parks and Recreation, and Southern Oregon University's Master of Science in Environmental Education Graduate Program have greatly improved habitat values for humans and wildlife.

In 2015, the Ashland Pond program focused on service learning through blackberry cane removal. This year, our service learning focused on blackberry root removal and proactive mulching. Additionally, two indicative citizen science data sets were established: photo points to monitor vegetation composition over time and water quality collection to monitor the health of the pond and creeks' water. The program at Ashland Pond allowed students to collect scientific data and have a direct impact on habitat quality. Students also realized natural areas can be found in their backyard.

Audience served at
Ashland Pond:

134 students

16 adults



"Thank you very much for the opportunities you provided for our students to be Citizen Scientists. Our Team appreciates your hard work on making this a successful educational experience for us all."
-Becky Plankenhorn, 7th grade teacher



PROGRAM EVALUATION

Assessments were developed for our Cascade-Siskiyou National Monument and Deer Creek Center programs. Assessment questions were aligned to lesson content and designed to measure objective and subjective criteria.

Our program was assessed using informal and formal methods of formative assessment. Informal formative assessment was utilized throughout lessons during programs at Cascade Siskiyou National Monument and Deer Creek Center through the use of field journals, post cards, and recall of pertinent information. Formal formative evaluation occurred through the use of assessments distributed to students before and after their participation at both sites. (See Appendix E for formal formative evaluation documents.)

Objective questions were rated with a point value system of zero to three points. Subjective questions were rated as either "Y" (Yes), "N" (No), or "A" (Abstain) and measured students' environmental values and behaviors with "Y" (Yes) indicating an environmentally minded response. Pre and post assessments were distributed by instructors following a specific assessment protocol (see Appendix F).

The goal of the evaluation was to determine if students improved their content knowledge and environmentally minded values and behaviors because of participation in our program. Percentages indicating specific changes in pre and post assessment responses for one and three point objective questions, as well as subjective questions, were determined for each site (see Tables 1, 2, 3, 4, 5, and 6, Appendix G).

Assessment is a vital part of any informal educational program. These data are noteworthy and indicate that students did improve in areas of content knowledge. Furthermore, these data indicate that students surveyed already had environmentally minded values and behaviors. Future programs can utilize our data to design programs that better meet the needs of the students served.



Field journals served as a place for students to reflect on their experience outdoors. Additionally, they were used as a tool of informal assessment.

Fall in the Field 2016

Although we saw improvement in content knowledge and environmentally-minded values and behaviors, the majority of students, or over 50% of students, sampled did not improve their scores on either objective or subjective tests. Results showed most students held environmentally-minded values and behaviors prior to participation in our program.

Table 1. Percentage of students that improved their score on one point objective questions at both program sites. The table below reflects the percentage of all students that improved their scores from zero points to one point.

Cascade-Siskiyou National Monument			Deer Creek Center		
Lesson Topic	Survey size (n)	Improvement (%)	Lesson Topic	Survey size (n)	Improvement (%)
Food Webs	181	16.02	Macroinvertebrates	42	59.52
Geology	123	13.82	Cobra Lilies	42	40.48
Insects	37	29.73	Farmers	42	11.90
Watersheds	167	17.37	Riparian Zones	42	26.19

Table 2. Percentage of students that improved their score on three point objective questions at both program sites. The table below reflects the percentage of all students that improved their scores from either zero points to one point, zero points to two points, zero points to three points, one point to two points, one point to three points, or two points to three points.

Cascade-Siskiyou National Monument			Deer Creek Center		
Lesson Topic	Survey size (n)	Improvement (%)	Lesson Topic	Survey size (n)	Improvement (%)
Food Webs	181	47.50	Forest Habitat	42	33.33
Geology	123	33.33	Water Quality	42	16.66
Insects	66	41.55	Animal Tracks	42	21.42
Watersheds	167	43.12			

Table 3. Percentage of students who changed their response from either "N" (No) or "A" (Abstain) to "Y" (Yes) on subjective questions at both program sites. An answer of "Y" (Yes) indicates an environmentally minded response. The table below reflects the percentage of all students that changed their responses from either "N" (No) to "Y" (Yes) or "A" (Abstain) to "Y" (Yes).

Cascade-Siskiyou National Monument			Deer Creek Center		
Question number and classification	Survey size (n)	Change (%)	Question number and classification	Survey size (n)	Change (%)
1 - Values	268	18.66	1 - Values	42	23.81
2 - Values	268	7.09	2 - Values	42	11.90
3 - Behavior	268	14.93	3 - Values	42	11.90
4 - Values	268	14.55	4 - Values	42	42.85
5 - Values	268	13.48	5 - Values	42	21.43
6 - Values	268	11.94	6 - Values	42	19.05
7 - Behavior	268	19.03			

Though the majority of students sampled did not improve their scores for objective criteria, our data indicate that many students already had environmentally-minded values and behaviors prior to participation in our program (see Table 4). Future programming should strive to meet the needs of our participants while focusing on retention of content knowledge and further developing environmental consciousness.

Table 4. Percentage of students whose responses on pre and post assessments remained “Y” (Yes) on subjective questions at both program sites. An answer of “Y” (Yes) indicates an environmentally minded response. The table below reflects the percentage of all students that had a response of “Y” (Yes) on their pre and post assessments.

Cascade-Siskiyou National Monument			Deer Creek Center		
Question number and classification	Survey size (n)	Yes (%)	Question number and classification	Survey size (n)	Yes (%)
1 - Values	268	62.31	1 - Values	42	30.95
2 - Values	268	84.70	2 - Values	42	45.24
3 - Behavior	268	46.27	3 - Values	42	57.14
4 - Values	268	67.54	4 - Values	42	28.57
5 - Values	268	63.81	5 - Values	42	50.00
6 - Values	268	75.37	6 - Values	42	64.29
7 - Behavior	268	48.51			



Students from South Medford High School’s AP Biology class explored insect diversity on the Greensprings Mountain Loop Trail.

FINANCIAL SUMMARY

A summary of costs and revenues of Fall in the Field 2016

Several sources of income provided the necessary monetary support for this year’s Fall in the Field program. The program received funding from the Bureau of Land Management (\$20,000), the Ashland Food Co op (\$700), program fees (\$5,540), and university funding from the previous fiscal year (\$417.99). The total revenue for this year’s program was \$26,657.99.

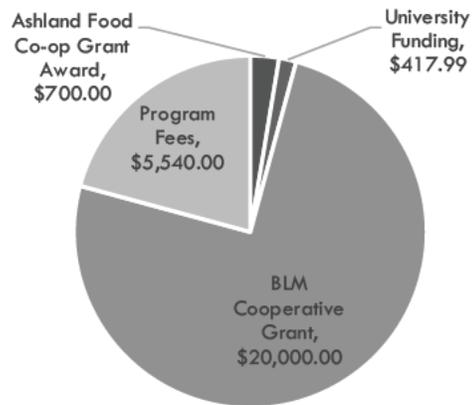


Figure 1. Total revenue for Fall in the Field 2016.

The main source of funding for the 2016 Fall in the Field Program was a \$100,000 grant award from a five year **Cooperative Agreement with the Bureau of Land Management** (BLM). The award will provide funding for the program over the next few years as the program continues to provide environmental education programs at the Cascade Siskiyou National Monument. This grant has previously been awarded to the Master of Science in Environmental Education program and was renewed this year.

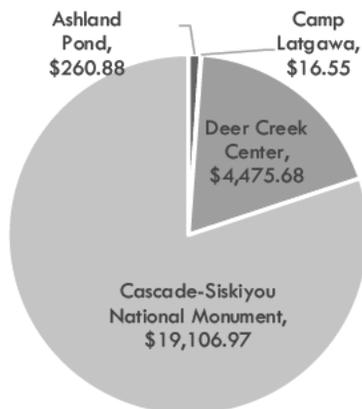


Figure 2. Total costs for Fall in the Field 2016.

Purchases on the grant for this year’s Fall in the Field program were limited to \$20,000 with a 17.5% interest rate on all purchases. Spending on the grant was restricted to programming at the Cascade Siskiyou National Monument. Approximately \$19,106.97 was spent on the grant (see Figure 1, Appendix H). Approximately \$893.03 remains to be spent during Fall in the Field 2017.

Fall in the Field costs totaled \$23,860.08. Cascade Siskiyou National Monument programming accounted for 80% of those costs, which were covered by the BLM grant. Other programming costs were covered by program fees.

LOOKING FORWARD

Reflection

Fall in the Field's programming had specific goals that guided the development and implementation of the program. These goals were accomplished through lesson delivery and program evaluation. Results from our assessment tools indicated that the majority of students sampled neither improved their scores on objective questions nor indicated a newly developed environmentally minded value or behavior on subjective questions. However, these data do not indicate that we failed to meet our goals. We were successful in introducing students to diverse ecosystems throughout southern Oregon and strengthening student connections to the natural sciences. Future cohorts can use our program as a model to further develop Fall in the Field programming and program evaluation. Through the continued growth of this framework, the Fall in the Field program will continue to inspire students in the Rogue Valley to realize their role in local environments and the global community.

Collaboration

This was a season of renewing and forging relationships within the community. Our 5 year Cooperative Agreement with the Medford District Bureau of Land Management (BLM) was renewed. Without the generous contributions from the BLM, we would not be able to deliver a successful program at the Cascade Siskiyou National Monument. The Cooperative Agreement renewal will allow future cohorts to benefit from the BLM's generosity.

We continued to work closely with the Siskiyou Field Institute (SFI) to deliver our annual residential program. Our hope is that SOU and SFI will continue to work collaboratively as SFI grows its youth programming. New partnerships created opportunities for further program development at Deer Creek Center. The Food for Thought program received financial support through the Ashland Food Co-op's Community grant. This partnership ensured that we could offer a free meal to every overnight program participant at Deer Creek Center. Additionally, the Rogue Valley Audubon Society funded the purchase of rubber boots for creek exploration at Deer Creek Center. This purchase ensured that every student could explore aquatic worlds during their visit.

At Camp Latgawa we piloted a successful partnership with the Grants Pass School District to develop and deliver curriculum for South Grants Pass Middle School's Outdoor School. This experience also included working with high school student leaders from Grants Pass for the first time. We were especially excited at the opportunity this afforded future leaders in the field of environmental education. We hope to see this partnership continue in order to benefit Fall in the Field instructors, high school student leaders, and local middle school students.

Fall in the Field 2016

Further, our expanded partnerships with Ashland Parks and Recreation and Lomakatsi Restoration Project at our Ashland Pond program allowed us to further develop service learning and create citizen science projects. The data collected over the three day program will be used as a baseline for the City of Ashland to measure the change in water quality of Bear Creek, Ashland Creek, and Ashland Pond while tracking restoration progress. Future cohorts can continue to build these data sets.

Finally, we worked closely with Southern Oregon University's risk management, legal, and human resources departments to navigate new university policies. These concerted efforts to coordinate efficient communication between departments were key in order to ensure that the Fall in the Field program balanced the needs of both the university and the program's audience (schools, teachers, students, etc.). Continued communication will be necessary for future success.

Outdoor School for All

The passing of Measure 99 in Oregon's November 2016 state election ensures that environmental education programs will continue to grow across the state. The implications of this bill, especially for Fall in the Field, are unknown. However, this legislation is exciting for the field of environmental education as a whole, as it aims to standardize outdoor learning for all fifth and sixth graders across the state. Measure 99's mandates may present opportunities for Fall in the Field to expand its audiences, site partners, and program length, especially for Title I schools. This year, 53% of our classes came from Title I schools, but we would like to reach a greater number in the future. Future cohorts will be met with the challenge of expanding the program's reach, while maintaining long term professional relationships.

Environmental Education and the Community

Fall in the Field 2016 served a diverse audience, including students and teachers of the Rogue Valley and instructors from the Master of Science in Environmental Education program. The graduate program and its unique capstone experience provided a platform for a group of eleven individuals to learn the skills necessary to develop and implement environmental education programs. Our instructors were challenged and invited to utilize best practices and skills from multiple disciplines, including problem solving, technology, and hands on projects. The honing of these skills allowed our instructors to engage diverse audiences. Environmental education is an interdisciplinary approach to education that allows participants to reflect on how everyday actions impact the environment. Environmental education is relevant to the lives of all individuals, and students were able to understand how environmental education relates to their life, their neighborhood, and their global community.



A student from Ruch Community School enjoys exploring Deer Creek.

ACKNOWLEDGEMENTS

A big "Thank You" to our local sponsors and partners. Our program and the work we performed to serve the local community would not be possible without the support of these local businesses, organizations, and individuals.

Individuals

Dr. Stewart Janes, MS in Environmental Education Program Coordinator
 Linda Hilligoss, MA in Teaching Coordinator and Faculty
 Dr. Kristin Nagy Catz, Director of University Assessment
 Jim Hatton, Mathematics Instructor and Program Chair

Organizations

Camp Latgawa
 Friends of the Cascade Siskiyou National Monument
 Rogue Valley Audubon Society
 Dunbar Farms
 The August Institute



APPENDIX A

Brief instructor biographies

Instructor: Katie Boehnlein **Home State:** Oregon

Undergraduate institution and major: Seattle University; BA in Environmental Studies and English

Instructor: Shannon Browne **Home state:** Oregon

Undergraduate institution and major: Oregon State University; BS in Geography

Instructor: Emily Burke **Home state:** Michigan

Undergraduate institution and major: Duke University; BA in Evolutionary Anthropology with a concentration in Behavior, Ecology, and Cognition

Instructor: Colleen Cavanaugh **Home state:** Arizona

Undergraduate institution and major: University of Arizona; BS in Natural Resources with an emphasis in Wildlife Conservation and Management

Instructor: Emily Collins **Home state:** New York

Undergraduate institution and major: Boston University; BA in Biology with a specialization in Marine Science

Instructor: Andy Cullison **Home state:** Hawaii

Undergraduate institution and major: University of San Diego; BA in Business Administration and Music Composition

Instructor: Caitlin Hosken **Home state:** Maine

Undergraduate institution and major: University of Washington; BS in Environmental Science

Instructor: Katie Leuthauser **Home state:** New York

Undergraduate institution and major: SUNY College at Cortland; BS in Adolescence Education with a specialization in Earth Science

Instructor: Colleen MacGilvray **Home state:** North Carolina

Undergraduate institution and major: Wake Forest University; BS in Biology

Instructor: Chris Sharpe **Home state:** Maryland

Undergraduate institution and major: Frostburg State University; BS in History

Instructor: Karelia Ver Eecke **Home state:** Colorado

Undergraduate institution and major: Western State Colorado University; BA in Biology with an Environmental Biology and Ecology emphasis

APPENDIX B

List of standards used in Fall in the Field 2016 lessons

Common Core State Standards (CCSS):

CCSS.ELA-Literacy.CCRA.SL.1 Comprehension and collaboration

CCSS.ELA-Literacy.CCRA.SL.4 Presentation of knowledge and ideas

CCSS.Math.Practice.MP4 Model with mathematics

CCSS.Math.Practice.MP5 Use appropriate tools strategically

CCSS.Math.Content.MD.B Represent and interpret data

CCSS.Math.Content.6.RPA.3 Understand ratio concepts and use ratio reasoning to solve problems

Next Generation Science Standards (NGSS):

EES2 Earth's Systems

LS4 Biological Evolution

ESS3 Earth and Human Activity

LS2 Ecosystems: Interactions, Energy, and Dynamics

ETS1 Engineering Design

Standards by Design (Oregon Department of Education):

VA.1.CR1 Generate and conceptualize artistic ideas and work

APPENDIX C

Lesson Summaries

Ashland Pond

Introduction

Students were introduced to new tools and methods that they would use throughout the day to both restore Ashland Pond and document restoration efforts over time.

Blackberries Be Gone!

This activity introduced students to problems associated with invasive species, specifically in riparian habitats. Students were then lead in service learning via Himalayan blackberry removal.

A Pond's Portrait: Establishing photo points at Ashland Pond

This activity introduced students to the importance and power of citizen science as they established photo points for Ashland Parks and Recreation Department, which document the changes and habitat improvement resulting from service learning projects at Ashland Pond.

Citizen Science: Ashland Pond

Students came to understand the importance of water quality in both man made and natural aquatic environments. Students collected data for a Citizen Science program through Ashland Parks and Recreation and demonstrated skills appropriate for water quality analysis.

Conclusion

Students reflected on their experience having a positive interaction with the environment at Ashland Pond by making a pledge to continue to serve and protect Ashland Pond and the larger community. Students realized that they have ownership to wild areas within city limits and nature exploration can occur in their own backyards.

Camp Latgawa

Creek Health Exploration

This activity encouraged students to take on the role of water quality analysts to explore and use observed macroinvertebrates to determine the health of the South Fork Little Butte Creek at Camp Latgawa. Students were introduced to the diversity of macroinvertebrates and their importance as water quality indicators.

And They're Back!

This activity introduced students to the fact that fire is beneficial to the forest ecosystem around Camp Latgawa. Students learned that some plants have special adaptations for living with fire and that the symbiotic relationship between mycorrhizal fungi and plant roots helps a forest recover after a fire.

Found Art

In this exploratory, hands on lesson, students created time based art projects out of found objects in nature. They worked in teams to construct projects inspired by the artist Andy Goldsworthy.

Riparian Discovery

This activity showcased the importance of the riparian area. Students investigated the different features and functions of a riparian area. Students classified the different ground cover of the riparian area along two transects and discussed the impact that we have on this ecosystem.

Uncovering the Minerals Within (the Spring)

This activity allowed students to understand the movement of water through different sediment types and how mineral springs are formed. Students had the opportunity to test what minerals are present in a mineral spring and understand why mineral springs are important to the ecosystem.

Listen to the Silent Trees: Exploring a fire forest

This activity introduced students to the different trees in the forest around Camp Latgawa. Through exploration time, students examined the differences between coniferous and deciduous trees, the different parts of the tree, and different layers of the tree itself.

Creatures of the Night

This activity introduced students to techniques used by wildlife biologists to survey for elusive animal species through the use of camera traps and track plate boxes. These techniques are especially important to inform management decisions. Students were also introduced to mammal track identification.

Cascade-Siskiyou National Monument

Biodiversity of CSNM

This introductory activity introduced the students to the biodiversity of the Cascade Siskiyou National Monument. It also introduced the reason behind the biodiversity: the convergence of two mountain ranges in this one spot.

Wandering Water

This activity explored the local watersheds and linked the landscape view of CSNM to weather patterns and runoff. Watershed factors of Ashland and other communities were explored. Students used the environment around them to make higher level connections with water movement through the environment and how humans impact this natural cycle.

Fall in the Field 2016

Food Webs in a Snow Forest

Through a game in which students role played different trophic levels, students were introduced to the different types of organisms in an ecosystem and their different roles. Students also discovered the concept of inefficient energy transfer through the different trophic levels to explain why biomass decreases as trophic level increases.

The Rock Walk

Students were introduced to the three types of rocks and the geologic diversity of the Rogue Valley during an interactive “rock walk” at the Cascade Siskiyou National Monument. Students were able to make connections between geology and the living things that depend on geologic formations and processes.

Insect Investigation

Students participated in hands on exploration of insects using a variety of collecting tools and techniques to introduce them to insect diversity and their importance to humans.

A Postcard Home

This closing lesson allowed students to reflect on their time at CSNM at a sit spot and create a postcard that was sent home.

Deer Creek Center

Welcome to Deer Creek

This activity introduced students to Deer Creek Center and the variety of habitats that can be found there. They also met a number of different scientists that might conduct research there as part of the overall career theme of the 2016 Fall in the Field Program.

The Case of the Missing Insects

In this activity, students explored the unique ecosystem of the fen at Deer Creek Center. They recorded observations and posed questions about these observations before dissecting a Cobra Lily/Darlingtonia, a carnivorous plant endemic to this area.

MACROS!

Students participated in hands on exploration of macroinvertebrates using a variety of collection tools and techniques. They were introduced to the diversity of macroinvertebrates and their importance as water quality indicators.

Watershed Watch Dogs

This activity encouraged students to take on the role of water quality analysts to explore the local watersheds and use scientific equipment to determine the health of water in a creek at DCC. Students learned about proper safety measures and used chemical tests to analyze the water in Deer Creek and determine if it is healthy enough to sustain life. They then used this newfound information and role as an aquatic ecologist/ water quality analyst to make comparisons about their local watershed.

Riparian Discovery

This activity showcased the importance of the riparian area. The students investigated the different features and functions of a riparian area. Students classified the different ground cover of the riparian area along two transects and discussed the impact that we have on this ecosystem.

Creatures of the Night: Uncover the wildlife out there!

Students were introduced to techniques used by wildlife biologists to survey for elusive animal species through the use of camera traps and track plate boxes. These techniques are especially important to inform management decisions. Students were also introduced to mammal track identification.

Food for Thought

This activity introduced students to the basic principles of agriculture, as well as the benefits of eating local food. It was made real world by the fact that they actually ate the meal that they “planned.”

Distribute the Fungi!

The purpose of this activity was to model mycophagy and understand the role small mammals play in mycorrhizal colonization of fire forest tree species.

Fend off the Fire

The purpose of the activity was to draw the student’s attention to the fact that fire is natural and beneficial to the forest ecosystem around Deer Creek Center. Students saw how some plants have special adaptations for living in fire dependent ecosystems.

Forest Fire Recovery

This activity encouraged students to take on the role of forest managers to analyze the aftermath of a fire that burned in this area approximately a decade ago. Students worked together and independently to study the aftermath of the Biscuit Fire and determine how fast plant life is returning to the site. Through their experiments, students saw that fire, while immediately devastating, is not necessarily a bad thing for our forests here in the Pacific Northwest.

StreamWebs: Citizen Science

Students contributed to research on watersheds through participation in OSU Extension Service’s StreamWebs Citizen Science program. Students monitored several aspects of Fawn Creek, such as macroinvertebrates, water quality, and streamflow. They collected data on each topic and submitted their findings to scientists. Students connected the practical applications of each lesson at Deer Creek Center as they supported scientific research. Students were encouraged to apply STEM (Science, Technology, Engineering, and Mathematics) as citizens monitoring their local environments.

Hike through History

This activity got students moving through the environment and understanding how humans have historically used resources and how we do now.

Fall in the Field 2016

Found Art

In this exploratory, hands on lesson, students created time based art projects out of found objects in nature. They worked in teams to construct projects inspired by the artist Andy Goldsworthy.

Bat Speak: Using technology to hear bat echolocation

This activity introduced students to the use of an AnaBat in allowing humans to hear amplified bat echolocation patterns. Through the use of technology, students better understood how bats use echolocation to zero in on their prey as well as navigate in the night sky. Finally, students developed a greater understanding (and hopefully appreciation) for these elusive mammals, including the important services they provide.

Wrapping it Up

This activity recapped what students learned throughout their time at Fall in the Field in a fluid and dynamic way.

APPENDIX D

Audience Summary

Table 1. Additional details for schools served during Fall in the Field programming at Camp Latgawa.

School	District	Title I Status	Grade	Number of Students	Number of Adults
South Grants Pass Middle School	Grants Pass		6	83	4
South Grants Pass Middle School	Grants Pass		6	83	4

Table 2. Additional details for schools served during Fall in the Field programming at Deer Creek Center.

School	District	Title I Status	Grade	Number of Students	Number of Adults
Kids Unlimited	Medford	Title I	4	25	5
New Hope Christian School	Private		7, 8	31	7
Talent Outdoor Discovery Program	Phoenix Talent		3 5	27	8
Talent Elementary	Phoenix Talent	Title I	5	19	6
Talent Elementary School	Phoenix Talent	Title I	4	24	5
Rogue River Junior High School	Rogue River		8	20	3
Rogue River Junior High School	Rogue River		8	25	2
Fruitdale Elementary	Three Rivers	Title I	5	25	7
Fruitdale Elementary	Three Rivers	Title I	5	26	8
Ruch Community School	Medford		7, 8	21	3
Ruch Community School	Medford		7 8	23	4

Fall in the Field 2016

Table 3. Additional details for schools served during Fall in the Field programming at Ashland Pond.

School	District	Title I Status	Grade	Number of Students	Number of Adults
Hedrick Middle School	Medford		7	44	6
Hedrick Middle School	Medford		7	44	5
Hedrick Middle School	Medford		7	46	5

Table 4. Additional details for schools served during Fall in the Field programming at the Cascade Siskiyou National Monument.

School	District	Title I Status	Grade	Number of Students	Number of Adults
Ashland Middle School	Ashland		6	32	4
Ashland Middle School	Ashland		6	22	5
Helmann Elementary	Ashland	Title I	4	25	6
Walker Elementary	Ashland	Title I	4	27	8
South Medford High School	Medford		11, 12	9	1
Butte Falls Charter School	Butte Falls	Title I	9, 10, 11	16	1
Jewett Elementary	Central Point	Title I	5	29	3
Dome School	Private		1 6	24	4
Talent Elementary	Phoenix Talent	Title I	2	44	4
Jewett Elementary	Central Point	Title I	4, 5	27	3
Walker	Ashland	Title I	5	24	2
Walker Elementary	Ashland	Title I	4	23	4
Southern Oregon Homeschool			1 6	8	4
Helman Elementary	Ashland	Title I	4	24	4
Helman Elementary	Ashland	Title I	2	23	5
Helman Elementary	Ashland	Title I	4	24	4
John Muir Magnet School	Ashland	Title I	4	22	2
Talent Elementary	Phoenix Talent	Title I	4	25	5
Williams Elementary	Three Rivers	Title I	4,5	19	6
Ruch Elementary	Medford		7,8	26	4
Talent Outdoor Discovery	Talent		3 5	26	1
Jewett Elementary	Central Point	Title I	5	27	4
Central Medford High	Medford	Title I	11, 12	14	2
Rogue River Elementary	Rogue River	Title I	4	25	7
John Muir Magnet School	Ashland	Title I	4, 5	20	3
Talent Elementary	Phoenix Talent	Title I	2, 3	40	6

APPENDIX E

Formal formative evaluation documents

Non-residential program at Cascade-Siskiyou National Monument (second-grade appropriate language)

Name

Date

Fall in the Field 2016

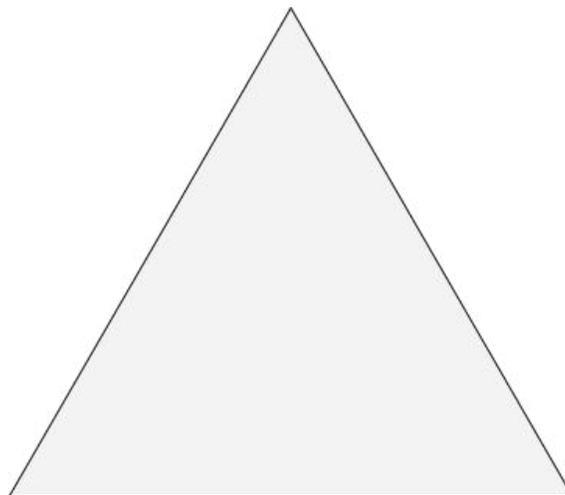
Uncover the Wild Within at Cascade Siskiyou National Monument

Objective Questions

Please answer the questions below as best as you can. Don't worry, though! You will not be graded.

Watersheds

1. What happens when it rains and pollutants (dog poop, fertilizers etc.) are near a river? (1 pt.)
2. How do you think water flows from the top of a mountain? Pretend that the triangle below is a mountain. Draw the pieces of a watershed starting with a raindrop. (3 pts.)

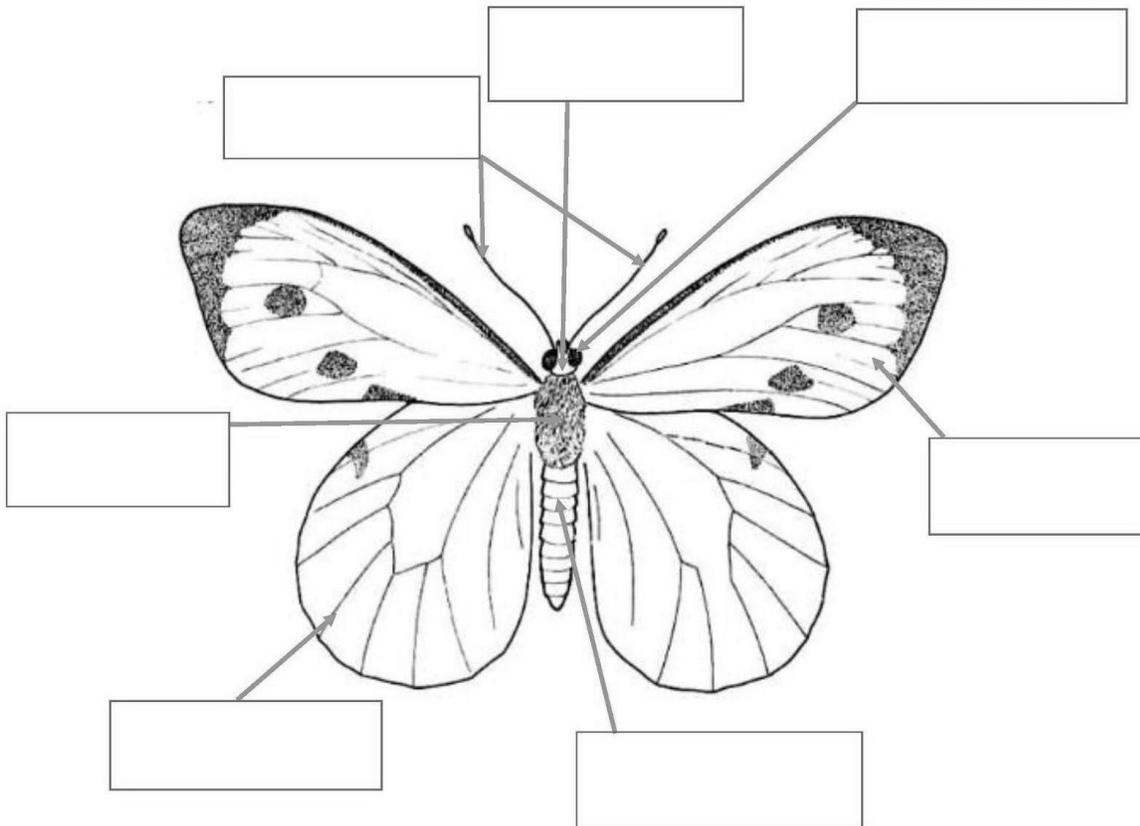


Fall in the Field 2016

Insects

1. What are the names of an insect's body parts? Use the vocabulary list below to label the drawing of the insect below. (3 pts.)

- Head
- Thorax
- Abdomen
- Antennae
- Compound eye
- Fore wing
- Hind wing



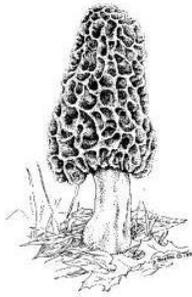
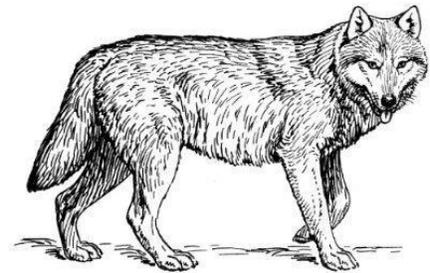
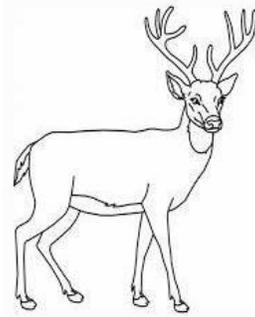
For question 2, circle T for True and F for False.

2. **T or F** Insects make up more than half of the Animal Kingdom. (1 pt.)

Food Webs

1. When you eat a cheese sandwich you use energy from the cheese to help you grow. The cheese came from a cow that ate grass to get energy to make the cheese. The grass the cow ate got its energy from the sun. The grass also used energy from mushrooms on the ground. You are connected to the sun through a piece of cheese through a food web!

Use this example to help you draw arrows between the plant, animals, and fungus below to show how energy is transferred in a food web. Remember that the direction of the arrow shows which organism is giving its energy away. (3 pts.)



2. What is one way that animals, plants, and humans are connected? (1 pt.)

Fall in the Field 2016

Geology

Use this matching example to help you on number 1.

Match the season on the left with the weather type on the right. Use lines to connect the season with weather type.

Fall	Cold with snow and ice
Winter	Often hot. A good time to go to the lake.
Spring	The leaves turn pretty colors now. It's getting cooler.
Summer	It's warming up, the birds are singing and flowers are blooming.

1. There are three different types of rock: sedimentary, metamorphic, and igneous. How are different types of rocks made? Using the example above, use lines to match the rock type below with how it is made. (3 pts.)

Sedimentary	These rocks may come from a volcano.
Metamorphic	These rocks are formed from many layers of sand, like a layered cake.
Igneous	These rocks are made when it gets really hot deep in the earth.

For question 2, circle T for True and F for False.

2. **T** or **F** There are many different types of rocks. (1 pt.)

Subjective Questions

Circle either Yes or No after reading each question. There is no right or wrong answer to these questions. You can even explain your answer. Answer how you feel!

1. Do you feel connected to public lands, free areas in nature for everyone, like the Cascade Siskiyou National Monument? Circle yes or no.

Yes or No

Please explain your answer.

2. Is it important to learn about the land we share with plants and animals? Circle yes or no.

Yes or No

Please explain your answer

3. Do you and your family explore public lands, free areas in nature for everyone, like the Cascade Siskiyou National Monument? Circle yes or no.

Yes or No

Please explain your answer.

4. Do you think you can learn about the world by asking questions and discovering the world? Circle yes or no.

Yes or No

Please explain your answer.

5. Do you think that your everyday actions can hurt or help the earth? Circle yes or no.

Yes or No

Please explain your answer.

6. Do you think that all parts of nature need each other to be healthy? Circle yes or no.

Yes or No

Please explain your answer.

7. Do you have a special place in nature? Circle yes or no.

Yes or No

Please explain your answer.

Fall in the Field 2016

Non-residential program at Cascade-Siskiyou National Monument

Name

Date

Fall in the Field 2016

Uncover the Wild Within at Cascade Siskiyou National Monument

Objective Questions

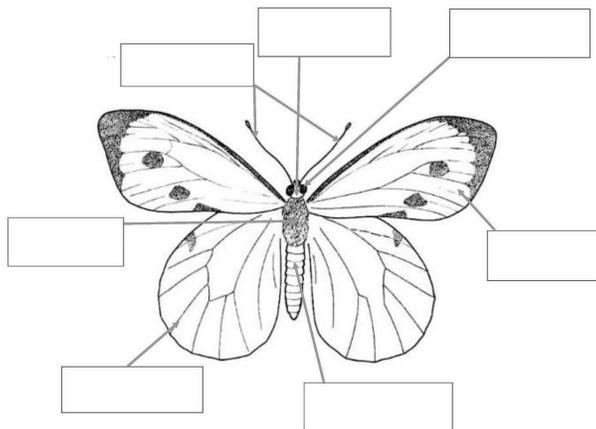
Please answer the questions below as best as you can. Don't worry, though! You will not be graded.

Watersheds

1. What happens when it rains and pollutants (dog poop, fertilizers etc.) are near a river? (1 pt.)
2. What does a watershed look like? Use the space below to draw a watershed. Use arrows to indicate the direction water will flow. (3 pts.)

Insects

1. What body parts make up an insect? Use the vocabulary list below to correctly label the drawing of the insect below. (3 pts.)
 - Head
 - Thorax
 - Abdomen
 - Antennae
 - Compound eye
 - Fore wing
 - Hind wing

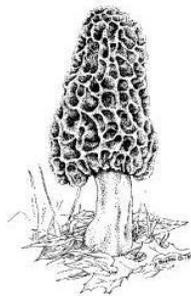
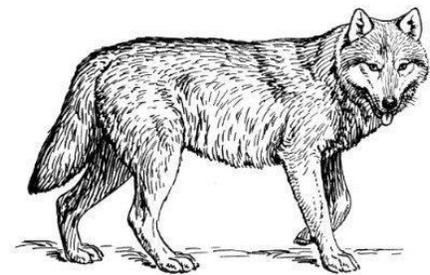
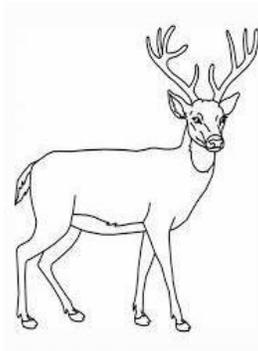


Circle T for True or F for False for number 2.

2. **T** or **F** Insects make up more than 50% of the animal kingdom. (1 pt.)

Food Webs

1. How does energy move between plants and animals in a food web? Draw arrows between the plant, animals, and fungus to show how energy is transferred in a food web. Remember that the direction of the arrow shows which organism is giving its energy away. (3 pts.)



2. What is one way that animals, plants, and humans are connected? (1 pt.)

Fall in the Field 2016

'Geology

Use this matching example to help you on number 1.

Match the season on the left with weather type on the right. Use lines to connect the season with weather type.

Fall	Cold with snow and ice
Winter	Often hot. A good time to go to the lake.
Spring	The leaves turn pretty colors now. It's getting cooler.
Summer	It's warming up, the birds are singing and flowers are blooming.

1. How are different types of rocks formed? Using the example above, match the rock type below with how it is formed. Use lines to connect rock type with how it is formed. (3 pts.)

Sedimentary	These rocks are formed from magma or lava.
Metamorphic	These rocks are formed layer upon layer, upon layer, over many years.
Igneous	These rocks are formed from extreme forces of heat or pressure.

Circle T for True or F for False for number 2.

2. **T** or **F** There is a diversity of rocks found in the Rogue Valley. (1 pt.)

Subjective Questions

Circle either Yes or No after reading each question. There is no right or wrong answer to these questions. You can even explain your answer. Answer how you feel!

1. Do you feel connected to your public lands? Circle your answer.

Yes or No

Please explain your answer.

2. Is it important to learn about the land we share with plants and animals? Circle your answer.

Yes or No

Please explain your answer.

3. Do you and your family explore public lands, like the Cascade Siskiyou National Monument?
Circle your answer.

Yes or No

Please explain your answer.

4. Do you think asking questions and discovering the world around you through science helps you understand the world? Circle your answer.

Yes or No

Please explain your answer.

5. Do you think that your everyday actions impact the environment? Circle your answer.

Yes or No

Please explain your answer.

6. Do you think that all parts of the environment depend on one another to make a healthy environment? Circle your answer.

Yes or No

Please explain your answer.

7. Do you have a special place in nature that you like to visit? Circle your answer.

Yes or No

Please explain your answer.

Fall in the Field 2016

One-night residential program at Deer Creek Center

Name

Date

Fall in the Field 2016

Uncover the Wild Within at Deer Creek Center

Objective Questions

Please answer the questions below to the best of your abilities. Don't worry, though! You will not be graded.

1. What is one **macroinvertebrate** that may be affected by dissolved oxygen, pH, or temperature? (1 pt.)
2. What are 3 ways that **forest habitat** can be influenced by wildlife, humans, or other natural processes? (3 pts.)

For questions 4-7, circle T for True or F for False.

3. **T or F Cobra lilies** must consume insects because the **serpentine soil** in which they grow is low in nutrients. (1 pt.)
4. **T or F** Farmers have to think about different resources when growing food, like water and space. (1 pt.)
5. **T or F** Many plants make up a riparian habitat. (1 pt.)

Use this matching example to help you on numbers 6 and 7.

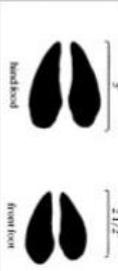
Match the season on the left with weather type on the right. Use lines to connect the season with weather type.

Fall	—————	Cold with snow and ice
Winter	—————	Often hot. A good time to go to the lake.
Spring	—————	The leaves turn pretty colors now. It's getting cooler.
Summer	—————	It's warming up, the birds are singing and flowers are blooming.

6. What is some important information to learn about a stream or river? Match the items in the left hand column with items in the right hand column. Use lines to connect the items. (3 pts.)

Dissolved Oxygen	How cold or warm the water is
pH	The water's ability to support living organisms
Temperature	Acidity

7. What do different animal's tracks look like? Can you match the animal on the left to its tracks on the right? Use lines to connect the tracks to the right species. (3 pts.)

Douglas Squirrel	
Pacific Black-tailed Deer	
Raccoon	

Subjective Questions

Circle either Yes or No after reading each question. There is no right or wrong answer to these questions. Answer how you feel!

1. Do you have a special place in nature that you like to visit? Circle your answer.

Yes or No

Please explain your answer.

Fall in the Field 2016

2. Do you want to grow up and have a job that deals with the environment in some way? Circle your answer.

Yes or No

Please explain your answer.

3. Do you think asking questions and discovering the world around you through science helps you understand the world? Circle your answer.

Yes or No

Please explain your answer.

4. Do you think that your everyday actions impact the environment? Circle your answer.

Yes or No

Please explain your answer.

5. Do you think that all parts of the environment depend on one another to make a healthy environment? Circle your answer.

Yes or No

Please explain your answer.

6. Is it important to learn about the land we share with plants and animals? Circle your answer.

Yes or No

Please explain your answer.

Two-night residential program at Deer Creek Center

Name**Date**

Fall in the Field 2016

Uncover the Wild Within at Deer Creek Center**Objective Questions**

Please answer the questions below to the best of your abilities. Don't worry, though! You will not be graded.

1. What is one **macroinvertebrate** that may be affected by one or more of the factors listed above? (1 pt.)
2. What are 3 ways that **forest habitat** can be influenced by wildlife, humans, or other natural processes? (3 pts.)
3. What are 2 ways you can help scientists collect data about the environment? (2 pts.)

For questions 4-8, circle T for True or F for False.

4. **T or F** **Cobra lilies** must consume insects because the **serpentine soil** in which they grow is low in nutrients. (1 pt.)
5. **T or F** Farmers have to think about different resources when growing food, like water and space. (1 pt.)
6. **T or F** Many plant types make up a riparian habitat. (1 pt.)
7. **T or F** Humans can use plants in many different ways for things like food and medicine. (1 pt.)
8. **T or F** Nature can serve as a source of inspiration for artists. (1 pt.)

Fall in the Field 2016

Use this matching example to help you on numbers 9 and 10.

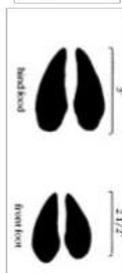
Match the season on the left with weather type on the right. Use lines to connect the season with weather type.

Fall	Cold with snow and ice
Winter	Often hot. A good time to go to the lake.
Spring	The leaves turn pretty colors now. It's getting cooler.
Summer	It's warming up, the birds are singing and flowers are blooming.

9. What is some important information to learn about a stream or river? Using the example above, match the items in the left hand column with items in the right hand column. Use lines to connect the items. (3 pts.)

Dissolved Oxygen	How cold or warm the water is
pH	The water's ability to support living organisms
Temperature	Acidity

10. What do different animal's tracks look like? Using the example above, can you match the animal on the left to its tracks on the right? Use lines to connect the tracks to the species. (3 pts.)

Douglas Squirrel	
Pacific Black-tailed Deer	
Raccoon	

Subjective Questions

Circle either Yes or No after reading each question. There is no right or wrong answer to these questions. Answer how you feel!

1. Do you feel that you can identify with a special place in nature? Circle your answer.

Yes or No

Please explain your answer.

2. Do you want to grow up and have a job that deals with the environment in some way? Circle your answer.

Yes or No

Please explain your answer.

3. Do you think that you can help scientists collect data and learn more about the environment? Circle your answer.

Yes or No

Please explain your answer.

4. Do you think asking questions and discovering the world around you through science helps you understand the world? Circle your answer.

Yes or No

Please explain your answer.

5. Do you think that your everyday actions impact the environment? Circle your answer.

Yes or No

Please explain your answer.

Fall in the Field 2016

6. Do you think that all parts of the environment depend on one another to make a healthy environment? Circle your answer.

Yes or No

Please explain your answer.

7. Is it important to learn about the land we share with plants and animals? Circle your answer.

Yes or No

Please explain your answer.

APPENDIX F

Assessment Protocol

Objective questions tested student participants on their content knowledge before and after their participation in the program. Students participating in programs at the Cascade Siskiyou National Monument were taught a maximum of two lessons from a total of four lessons with topics related to food webs, geology, insects, and watersheds during their participation in the program at the Cascade Siskiyou National Monument. Students were asked a total of four questions. Students participating in either one night or two night residential programs at the Deer Creek Center were asked seven or ten questions, respectively, aligned to each program's lesson content.

Subjective questions were used to determine if either environmentally minded values or behaviors changed because of participation in our programs. If students participated in a program at the Cascade Siskiyou National Monument, they were asked to respond to seven subjective questions predominantly focused on appreciation and use of public lands and the natural environment. If students participated in a program at the Deer Creek Center, they were asked to respond to six or seven subjective questions depending on the duration of their program.

The majority of pre and post assessments were distributed to students the Monday of the same week they participated in a program and the Monday of the week after the class participated in a program, respectively. Assessments scheduled at different times were also included in the data analysis. Pre and post assessments were distributed by Fall in the Field instructors. Students had 20 minutes to complete the assessment. Instructors did not read questions aloud to the class, although students could ask individual questions to the teacher. If instructors did not follow the appropriate protocols, those assessments were not included in the data analysis to limit the amount of biases in the report.

Pre and post assessments were graded using a rubric designed by the assessment committee. Objective questions were each worth either one point or three points depending on the question and the amount of content knowledge asked. Subjective questions were not weighed by a point system. Responses were recorded as either "Y" (Yes), "N" (No), or "A" (Abstain). Objective and subjective responses were recorded in an excel matrix to track each possible combination of paired answers from pre and post assessments. The pre and post assessment responses for objective and subjective questions determined the percent change in student responses between pre and post evaluations. Data were collected and displayed this way because of evaluation biases. The main biases were the number of instructors distributing assessments, the number of days between the distribution of pre and post assessments, exposure to content prior to participation in the program, and environmentally minded values and behavior developed prior to participation in the program.

APPENDIX G

Complete data analysis of assessment results

Table 1. Percentages displaying the change in student learning in one point objective questions between pre and post assessments at the Cascade Siskiyou National Monument.

Lesson Topic	Survey size (n)	Percentage (%)			
		0 → 0	0 → 1	1 → 0	1 → 1
Food Webs	181	49.72	16.02	9.94	24.31
Geology	123	7.32	13.82	10.57	68.29
Insects	37	18.92	29.73	8.11	43.24
Watersheds	167	32.34	17.37	4.79	45.51

Table 2. Percentages displaying the change in student learning in three point objective questions between pre and post assessments at the Cascade Siskiyou National Monument.

Lesson Topic	Survey size (n)	Percentage (%)															
		0 → 0	0 → 1	0 → 2	0 → 3	1 → 0	1 → 1	1 → 2	1 → 3	2 → 0	2 → 1	2 → 2	2 → 3	3 → 0	3 → 1	3 → 2	3 → 3
Food Webs	181	11.05	2.76	6.63	12.15	2.76	4.42	5.52	9.94	1.10	1.66	3.87	10.50	4.97	0.55	2.21	19.89
Geology	123	7.32	11.38	0.81	8.94	1.63	13.82	0.00	12.20	0.00	0.81	0.00	0.00	5.69	12.20	0.00	25.20
Insects	65	0.00	0.00	1.54	1.54	0.00	0.00	3.08	1.54	0.00	1.54	15.38	33.85	0.00	0.00	6.15	35.38
Watersheds	167	25.75	8.98	11.38	12.57	1.20	2.99	2.40	1.80	1.20	2.40	7.78	5.99	0.00	1.20	3.59	10.78

Table 3. Percentages displaying the change in student answers to subjective questions relevant to either a student's values or behaviors between pre and post assessments at the Cascade Siskiyou National Monument. An answer of "Y" (Yes) indicates an environmentally minded response. The survey size was 268 for each question.

Question	Classification	Percentage (%)								
		Y → Y	Y → N	Y → A	N → Y	N → N	N → A	A → Y	A → N	A → A
1	Values	62.31	3.36	2.24	8.21	6.34	1.12	10.45	2.24	3.73
2	Values	84.70	0.37	4.10	0.75	0.75	0.00	6.34	0.37	2.61
3	Behavior	46.27	4.48	4.85	6.72	18.66	3.73	8.21	3.00	4.10
4	Values	67.54	3.73	6.72	3.73	1.49	1.49	10.82	1.12	3.36
5	Values	63.81	5.22	3.36	5.97	4.10	1.87	7.46	1.49	6.72
6	Values	75.37	3.36	4.85	3.73	0.75	0.37	8.21	0.37	2.99
7	Behavior	48.51	8.58	4.85	7.09	6.34	1.87	11.94	3.36	7.46

Table 4. Percentages displaying the change in student learning in one point objective questions between pre and post assessments at Deer Creek Center. The survey size was 42 for each question.

Lesson Topic	Percentage (%)			
	0 → 0	0 → 1	1 → 0	1 → 1
Macroinvertebrates	38.10	59.52	0.00	2.38
Cobra Lilies	4.76	40.48	4.76	50
Farmers	9.52	11.90	4.76	73.81
Riparian Zones	28.57	26.19	16.67	28.57

Table 5. Percentages displaying the change in student learning in three point objective questions between pre and post assessments at Deer Creek Center. The survey size was 42 for each question.

Lesson Topic	Percentage (%)															
	0 → 0	0 → 1	0 → 2	0 → 3	1 → 0	1 → 1	1 → 2	1 → 3	2 → 0	2 → 1	2 → 2	2 → 3	3 → 0	3 → 1	3 → 2	3 → 3
Forest Habitat	59.52	19.05	4.76	2.38	0.00	0.00	4.76	2.38	0.00	0.00	2.38	0.00	0.00	0.00	0.00	4.76
Water Quality	7.14	4.76	0.00	0.00	2.38	21.43	0.00	11.90	0.00	0.00	0.00	0.00	0.00	19.05	2.38	30.95
Animal Tracks	7.14	0.00	2.38	2.38	4.76	4.76	7.14	2.38	0.00	0.00	4.76	7.14	4.76	4.76	0.00	47.62

Table 6. Percentages displaying the change in student answers to subjective questions relevant to a student's values between pre and post assessments at Deer Creek Center. An answer of "Y" (Yes) indicates an environmentally minded response. The survey size was 42 for each question.

Question	Classification	Percentage (%)									
		Y → Y	Y → N	Y → A	N → Y	N → N	N → A	A → Y	A → N	A → A	
1	Values	30.95	7.14	9.52	21.43	9.52	9.52	2.38	2.38	7.14	
2	Values	45.24	11.90	4.76	9.52	19.05	0.00	2.38	0.00	7.14	
3	Values	57.14	11.90	4.76	7.14	4.76	0.00	4.76	0.00	9.52	
4	Values	28.57	4.76	2.38	33.33	4.76	4.76	9.52	0.00	11.90	
5	Values	50.00	7.14	7.14	4.76	2.38	0.00	16.67	0.00	11.90	
6	Values	64.29	2.38	0.00	2.38	2.38	0.00	16.67	0.00	11.90	

APPENDIX H

Complete Financial Summary

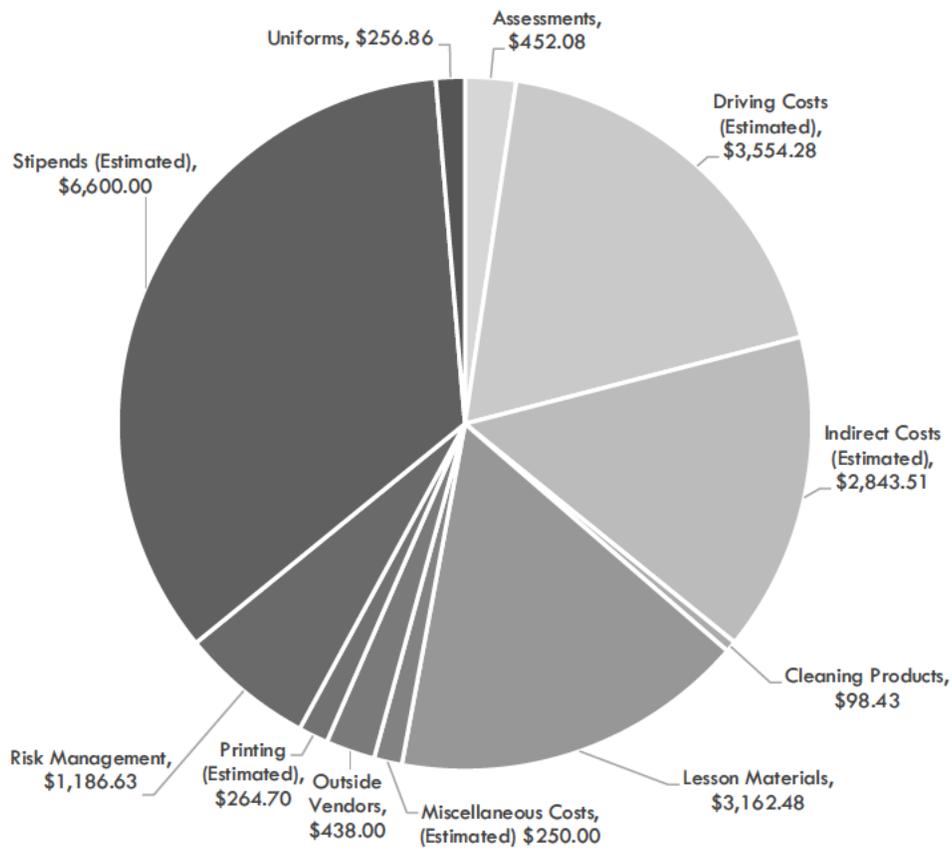


Figure 1. Estimated costs from Fall in the Field 2016 on five-year Cooperative Agreement with Bureau of Land Management.

For additional information, and to stay up to date on current events and future Fall in the Field programs, please visit:

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FY17 CSNM Interpretation Program Actuals - Requested \$6500/Rec'd \$1500 initially		
Description	Amount	Comments
Interpretation Program Supplies and Equipment	\$ 2,842.00	Start up supplies for first ever interpretive program at CSNM to create visual aids on walks, talks and evening programs
CSNM Information Station Rent	\$ 1,500.00	Payable to Greensprings Inn; Diarmuid McGuire
Volunteer program supplies	\$ 466.00	Uniform items, backpacks
Teacher On Public Lands program	\$ 678.00	Reimbursement for supplies/materials
Artist In Residence program	\$ 554.00	Reimbursement for supplies/materials
Junior Explorer program	\$ 460.00	Supplies to create Jr Explorer activities
TOTAL	\$ 6,500.00	

FY17 CSNM "Fall In The Field" Actuals - Requested \$20,000/Rec'd \$20,000		
Description	Amount	Comments
Office and Administrative Supplies	\$ 1,300.00	
Laboratory and Instructional Supplies	\$ 1,300.00	
Duplicating and Copying	\$ 4,000.00	
Program Advertisement/Public Relations	\$ 800.00	
Supplies and Services, Misc.	\$ 2,000.00	
Transportation Costs	\$4,000	
Graduate Student stipends	\$6,600.00	16 students = \$413/student
TOTAL	\$ 20,000.00	