

Professional Learning Opportunities

Core Courses	Avg. Length	Course Components	Audience	Resources Topic Dependent (TD) Grade Dependent (GD)
FieldSTEM Institute 12 STEM Clock Hours	12 hours	<ul style="list-style-type: none"> Integrating ELA, NGSS and Field Investigations: The FieldSTEM Model Components of a Performance Task NGSS Overview Field Investigations and/or Project Based Learning Outdoor Learning Experiences Creating/revising a science unit to include ELA performance Task and outdoor study 	K-5 Educators	<ul style="list-style-type: none"> Designing High Impact Field Experiences (TD) Field Investigations Project Based Learning (TD) Performance Tasks Collection
FieldSTEM Institute - Secondary Focus 12 STEM Clock Hours	12 hours	<ul style="list-style-type: none"> Integrating ELA, NGSS and Field Investigations: The FieldSTEM Model Components of a Performance Task NGSS Overview Field Investigations and/or Project Based Learning Outdoor Learning Experiences Creating/revising a science unit to include ELA performance Task and outdoor study 	6-12 Science Teachers	<ul style="list-style-type: none"> Designing High Impact Field Experiences (TD) Field Investigations Project Based Learning (TD) Performance Tasks Collection
FieldSTEM - Focus on Field Investigations & NGSS 6 STEM Clock Hours	6 hours	<ul style="list-style-type: none"> Types of field investigation questions Carrying out a comparative investigation Constructing arguments/explanations from data collected using Claim, Evidence, Reasoning The NGSS 3-dimension instruction and 5-E learning cycle Planning time for resource exploration and designing a field investigation relevant to participant's own curriculum 	3 -12 Educators	<ul style="list-style-type: none"> Field Investigations Project Learning Tree Pre-K-8 Environmental Education Activity Guide Project WILD K-12 Curriculum & Activity Guide

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Teaching Science Content with ELA Performance Tasks 6 Clock Hours	6 hours	<ul style="list-style-type: none"> • ELA research skills • Components of a performance task • Experiencing a performance task • Example tasks for review • Creating your own performance task 	K-12 Educators	<ul style="list-style-type: none"> • Performance Tasks Collection • Tool Kit for Designing a Performance Task
NGSS: Engineering Design and the Outdoors 6 STEM Clock Hours	6 hours	<ul style="list-style-type: none"> • Authentic engineering challenges • Using video case studies and children’s literature to understand the 3-part engineering design process 	K-12 Educators	<ul style="list-style-type: none"> • Project-Based Learning Model
Outdoor Classrooms using Project Learning Tree and Project WILD 6 STEM Clock Hours	6 hours	<ul style="list-style-type: none"> • Introduction to Project Learning Tree /Project WILD lessons • 3-dimensional instruction including cross cutting concepts, science and engineering practices, and disciplinary core ideas • Integration of lessons into field investigations and field experiences 	K-12 Educators	<ul style="list-style-type: none"> • Project Learning Tree Pre-K-8 Environmental Education Activity Guide • Project WILD K-12 Curriculum & Activity Guide
Designing High Impact Field Experiences 6 Clock Hours	3-6 hours	<ul style="list-style-type: none"> • What makes a high impact experience? • Planning steps • Integration with science kits • Interaction with community partners • Evaluating the experience 	K-12 Educators	<ul style="list-style-type: none"> • Designing High Impact Field Experiences

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Elective Courses	Avg. Length	Course Components	Audience	Resources Topic Dependent (TD) Grade Dependent (GD)
FieldSTEM - Next Generation Science Standards – an Overview 6 STEM Clock Hours	3-6 hours	<ul style="list-style-type: none"> Background on NGSS layout-reading the standards 3-dimensional instruction Participation in 3-dimensional Instruction using an investigation as an example Constructing Arguments/Explanations rubrics and practice Placemat of looking at current instruction 	K-12 Formal and Informal Educators	<ul style="list-style-type: none"> NGSS Background NGSS 3-dimensional Instruction Field Investigation with protocols Examples and rubric for Claim, Evidence, Reasoning Placemat
Drain Rangers! Investigating Polluted Stormwater Runoff in Elementary Grades 6 STEM Clock Hours	3-6 hours	<ul style="list-style-type: none"> ELA Performance Task: Stormwater Pollution Lessons on watersheds Engineering Design: Solving the Problem of Stormwater Runoff Designing solutions to stormwater runoff on the school campus Testing and refining solutions 	3-6 th Grade Educators	<ul style="list-style-type: none"> Drain Rangers! Investigating Polluted Stormwater Runoff in Elementary Grades Curriculum
Engineering Solutions: Investigating Polluted Stormwater Runoff in Secondary Grades 6 STEM Clock Hours	3-6 hours	<ul style="list-style-type: none"> ELA Performance Task: Stormwater Engineers Lessons on watersheds Engineering Design: Solving the Problem of Stormwater Runoff Best management practices Designing solutions to stormwater runoff Testing and refining solutions 	6-12 th Grade Educators	<ul style="list-style-type: none"> Engineering Solutions: Investigating Polluted Stormwater Runoff in Secondary Grades Curriculum
FieldSTEM: Focus on Water 6 Clock Hours	6 hours	<ul style="list-style-type: none"> ELA Performance Tasks – Water related Watershed lessons Field Investigations focus on water 	4-12 th Grade Educators	<ul style="list-style-type: none"> Performance tasks collection Field Investigations Project Aquatic WILD (TD) Project WET (TD)

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FieldSTEM: Focus on Forests 6 Clock Hours	6 hours	<ul style="list-style-type: none"> • ELA performance task on Forest Benefits or Carbon and Trees • Tree Biology • Tree/leaf as a system • Tree identification and habitat needs • Tree Benefits Lesson • Field Investigation on Tree Abundance, Trees as Habitats, and/or Carbon in Trees 	4-12 th Grade Educators Lessons vary according to grade level	<ul style="list-style-type: none"> • Performance task collection • Field Investigations • Project Learning Tree Pre-K-8 Environmental Education Activity Guide (GD) • Journals for Field Investigations • Focus on Forests (GD)
FieldSTEM: Healthy Forests, Healthy Waters 6 Clock Hours	6 hours	<ul style="list-style-type: none"> • Watershed Lesson on vegetated land surfaces • Identifying issues in local urban forests • Urban forest benefits • Tree ID lesson • Invasive plant ID lesson • Planning and carrying out urban forest health evaluation • Evaluating urban forest health and benefits 	6-12 th Grade Educators	<ul style="list-style-type: none"> • Healthy Forests, Healthy Waters Curriculum • Project Learning Tree Pre-K-8 Environmental Education Activity Guide (GD) • Focus on Forests (GD)
FieldSTEM: Schoolyard Habitats <ul style="list-style-type: none"> • Wildlife Habitat • Native Plant Gardens • Rain Gardens 3-6 Clock Hours	3-6 hours	<ul style="list-style-type: none"> • Use engineering design to improve school campus • Schoolyard survey to identify problem on school campus that could be improved • Research area of interest • Explore solutions and evaluate • Plan a solution • Explore local resources to support project. 	3-6 th Grade Educators	<ul style="list-style-type: none"> • Performance Task Project Learning Tree Pre-K-8 Environmental Education Activity Guide • Relevant topic related resources

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Elective Courses	Avg. Length	Course Topics	Audience	Resources
FieldSTEM: Fostering Outdoor Observation Skills 3-6 Clock Hours	3-6 hours	<ul style="list-style-type: none"> Science notebooks (journals) Observation skills Examination of plant and animal characteristics Estimation skills Mapping skills 	K-8 th Grade Educators	<ul style="list-style-type: none"> Fostering Outdoor Observation Skills
FieldSTEM: Landscape Investigations 3-6 Clock Hours	3-6 hours	<ul style="list-style-type: none"> Geographic inquiry Building spatial skills Spatial inquiry Connective inquiry 	6-12 th Grade Educators	<ul style="list-style-type: none"> Landscape Investigations Guidelines

Presentations	Avg. Length	Course Topics	Audience	Resources
FieldSTEM: Field Investigation & NGSS	2 hours	<ul style="list-style-type: none"> Introduction to field investigations including types of questions Comparative temperature investigation Constructing arguments/explanations from data using Claim, Evidence, Reasoning 	3-12 Educators	Field Investigations
FieldSTEM: Teaching Science Content with ELA Performance Tasks	2 hours	<ul style="list-style-type: none"> ELA research skills Design of a performance task Examples tasks for review 	K-12 Educators	<ul style="list-style-type: none"> Performance Tasks Collection

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FieldSTEM: Next Generation Science Standards – An Overview	2 hours	<ul style="list-style-type: none"> 3-Dimensional Instruction: Science and Engineering Practices, Cross Cutting Concepts, and Disciplinary Core Ideas 	K-12 Educators	http://www.nextgenscience.org/get-to-know
Drain Rangers! Curricula Overview	1-2 hours	<ul style="list-style-type: none"> Engineering design to explore the quality and quantity of stormwater runoff Introduction to ELA performance tasks on stormwater pollution and stormwater engineers 	3-12 th Grade Educators	http://www.pugetsoundstartshere.org/drain-rangers
Project Learning Tree and NGSS	1-2 hours	<ul style="list-style-type: none"> 3-Dimensional instruction – Science and Engineering Practices, Cross Cutting Concepts, and Disciplinary Core Ideas – using PLT lessons 	K-12 Educators	http://www.nextgenscience.org/get-to-know PLT lessons

Consultation – Customization Opportunities

Curriculum writing/adaptation

Curriculum standards alignment, scope and sequence

Developing field experiences including pre-post lessons; assessments

Inventory of community FieldSTEM relevant nonprofit, Federal/State agencies and business partners, environmental, natural resource and agriculture issues of importance and career opportunities

Identifying school campus field investigation opportunities

Identifying opportunities to apply and extend science kit content and materials to outdoor learning

Professional Learning needs assessment

Embedding career-connected learning into science instruction

Funding plans for implementing FieldSTEM

Development of a district plan to implement the FieldSTEM Plus Model