

Statewide Framework Document for: 030104

Environmental Science

Standards may be added to this document prior to submission but may not be removed from the framework to meet state credit equivalency requirements. Performance assessments and leadership alignment may be developed at the local level. In order to earn state approval, performance assessments must be submitted within this framework. **This course is eligible for one credit of lab science.** The Washington State Science Standards performance expectations for high school blend core ideas (Disciplinary Core Ideas, or DCIs) with scientific and engineering practices (SEPs) and crosscutting concepts (CCCs) to support students in developing usable knowledge that can be applied across the science disciplines. These courses are to be taught in a [three-dimensional manner](#). The details about each performance expectation can be found at [Next Generation Science Standards](#).

School District Name	
Course Title: Environmental Science	Total Framework Hours: 180
CIP Code: 030104 <input checked="" type="checkbox"/> Exploratory <input type="checkbox"/> Preparatory	Date Last Modified: December 30, 2020
Career Cluster: Agriculture, Food and Natural Resources	Cluster Pathway: Environmental Service System
Course Summary: A course that focuses on the application of biological, chemical, and physical principles to the study of the physical environment and the solution of environmental problems, including subjects such as abating or controlling environmental pollution and degradation; the interaction between human society and the natural environment; alternative energy, and natural resources management. Includes instruction in biology, chemistry, physics, geosciences, climatology, statistics, and mathematical modeling. As with all agriculture courses, instruction and assessment in the Supervised Agriculture Experience (SAE) is a requirement. The Supervised Agriculture Experience includes placing a student in a position where he or she will learn the practices of entrepreneurship and the fundamentals of research and experimentation in the agricultural field. Participants in the SAE will conduct exploratory projects with the purpose of learning about and improving practices in their surroundings. SAE.01. This course will include instruction in and Student involvement in Supervised Agriculture Experience Projects (SAE).	
Eligible for Equivalent Credit in: Science	Total Number of Units: 5

Unit 1: Environmental Science – Bias and Data	Total Learning Hours for Unit: 35
<p>Unit Summary: This unit will focus on Environmental Science Issues, Bias, and Data Basics</p> <ol style="list-style-type: none"> 1.1 Solving environmental problems requires research, planning, and communication skills. 1.2 Issues, Problems, and facts have different characteristics. 1.3 Environmental issues include economic, political, and ethical viewpoints 1.4 Environmental problems occur locally, nationally, and globally 1.5 Personal and media bias can be identified and analyzed 1.6 Personal and media biases impact how humans perceive and respond to environmental issues 1.7 Effective communications and conflict resolution and foster a working relationship when differing viewpoints exist 1.8 Quantitative and qualitative measurements are used in research 1.9 Uncertainty in measurement results in certain and uncertain digits 1.10 Accurate and precise measurements are required to collect reliable data 1.11 Research calculations require the use of significant figures 1.12 The properties of a data set can be analyzed using mean, mode, median, and range. 	
<p>Performance Assessments: (Districts to complete for each unit) <i>Example assessments for this unit include:</i></p> <ul style="list-style-type: none"> • Identify and analyze personal and media bias. • Explain how effective communications and conflict resolution foster a working relationship when differing viewpoints exist. • Students define quantitative and qualitative measurements and how they are used in research. 	
<p>Leadership Alignment: (Districts to complete for each unit) <i>Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.</i> <i>Example:</i></p> <ul style="list-style-type: none"> • Students demonstrate the ability to access and evaluate information, use and manage information, and make judgements and decisions related to facts and perceptions of environmental issues. • Students work creatively with others, work effectively in diverse teams, and collaborate with others while researching, evaluating, and communicating personal bias related to environmental science issues. 	
<p>Industry Standards and/or Competencies: Agriculture, Food, and Natural Resources (AFNR) Standards - ESS.01.02. Properly utilize scientific instruments in environmental monitoring situations (e.g., laboratory equipment, environmental monitoring instruments, etc.). ESS.01. Use analytical procedures and instruments to manage environmental service systems. ESS.01.02.01.b. Demonstrate the proper use and maintenance of basic laboratory equipment. ESS.02. Evaluate the impact of public policies and regulations on environmental service system operations.</p>	

ESS.02.02. Compare and contrast the impact of current trends on regulation of environmental service systems (e.g., climate change, population growth, international trade, etc.).

ESS.02.03. Examine and summarize the impact of public perceptions and social movements on the regulation of environmental service systems.

ESS.02.03.02.a. Examine how social views and movements (e.g., zero-waste philosophy, carbon footprints, recycling, etc.) have affected the implementation and need for regulation of environmental service systems.

ESS.02.03.01.b. Analyze and summarize specific changes to perceptions and regulations of environmental service systems and their impact on reducing the ecological, economical and sociological impact.

Aligned Washington State Academic Standards

Science	<p>Washington Science Standards (Next Generation Science Standards):</p> <p>HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity</p> <p>HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</p> <p>HS-ESS3-6: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</p> <p>HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.</p> <p>HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering</p> <p>HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.</p>
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Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Engaging in Argument from Evidence Obtaining, Evaluating, and Communicating Information Analyzing and Interpreting Data Constructing Explanations and Designing Solutions	LS4.D Biodiversity and Humans ETS1.B Developing Possible Solutions	Cause and Effect

Unit 2: Biodiversity	Total Learning Hours for Unit: 40
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<p>Unit Summary:</p> <p>This unit will include instruction on investigating and exploring biodiversity.</p> <p>2.1 A variety of methods are used to measure biodiversity</p> <p>2.2 Biodiversity is affected by the addition or extinction of species</p> <p>2.3 Natural and anthropogenic events influence biodiversity</p> <p>2.4 Loss of biodiversity reduces the functionality of an ecosystem.</p>
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<p>2.5 Change in biodiversity in one ecosystem can impact the biodiversity in another ecosystem.</p> <p>2.6 Ecosystem management practices can maintain biodiversity and ecosystem function</p>	
<p>Performance Assessments: (Districts to complete for each unit)</p> <p><i>Example assessments for this unit include:</i></p> <ul style="list-style-type: none"> Identify methods to measure biodiversity. Explain how natural and anthropogenic events influence biodiversity. Students research and present how change in biodiversity in one ecosystem can impact the biodiversity in another ecosystem. 	
<p>Leadership Alignment: (Districts to complete for each unit)</p> <p><i>Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.</i></p> <p><i>Example:</i></p> <ul style="list-style-type: none"> The students reason effectively, use systems thinking, and work independently to analyze ecosystem management practices related to the function and interactions of ecosystems. 	
<p>Industry Standards and/or Competencies:</p> <p>Agriculture, Food, and Natural Resources (AFNR) Standards -</p> <p>ESS.03.05. Apply ecology principles to environmental service systems.</p> <p>ESS.03.05.01.a. Research the role that biodiversity plays in environmental service systems and how biodiversity can be measured.</p> <p>ESS.03.05.02.a. Examine and explain the role played by habitats on environmental service systems.</p> <p>ESS.03.05.03.a. Research and explain how carrying capacities relate to environmental service systems (e.g., waste processing, rate or production of pollution, disease, etc.).</p> <p>ESS.03.05.01.c. Evaluate the biodiversity of an area and predict the impact of changing the levels of biodiversity on environmental service systems.</p> <p>ESS.03.05.01.b. Calculate the amount of biodiversity in a given area using an appropriate method (e.g., quadrat assessment, transect measurements, etc.).</p> <p>SS.03.05.02.b. Assess the impact of the current rate of habitat loss on environmental service systems.</p> <p>ESS.03.05.03.b. Assess and describe the impact of a population exceeding its carrying capacity on environmental service systems.</p> <p>ESS.03.05.01.c. Evaluate the biodiversity of an area and predict the impact of changing the levels of biodiversity on environmental service systems.</p> <p>ESS.03.05.03.c. Devise a strategy for monitoring and supporting environmental service systems through management of a species carrying capacity.</p> <p>ESS.03.05.04.a. Examine and describe how ecological interactions can be used to assess environmental service systems (i.e., macroinvertebrates and/or amphibians as bioindicators).</p>	
<p>Aligned Washington State Academic Standards</p>	
<p>Science</p>	<p>Washington Science Standards (Next Generation Science Standards):</p> <p>HS-LS2-1: Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.</p> <p>HS-LS2-2: Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.</p> <p>HS-LS2-4: Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.</p>

	<p>HS-LS2-6: Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.</p> <p>HS-LS2-7: Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.</p> <p>HS-LS2-8: Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.</p> <p>HS-LS3-3: Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.</p> <p>HS-LS4-6: Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.</p> <p>HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity</p> <p>HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</p> <p>HS-ESS3-6: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</p> <p>HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.</p> <p>HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering</p> <p>HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.</p>	
Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Analyzing and Interpreting Data Constructing Explanations and Designing Solutions Engaging in Argument from Evidence Obtaining, Evaluating, and Communicating Information	LS4.D Biodiversity and Humans ETS1.B Developing Possible Solutions LS2.A Interdependent Relationships in Ecosystems LS2.C Ecosystem Dynamics, Functioning, and Resilience	Cause and Effect Patterns

Unit 3: Energy, Economics, and Society

Total Learning Hours for Unit: 50

Unit Summary:

This unit will include instruction on producing energy, agricultural resource issues, energy, economics, and society.

- 3.1 Resource depletion and technology drive the development of new energy sources.
- 3.2 Cost impacts energy resource development.
- 3.3 Pollutants are released during energy source development, production, and use
- 3.4 Energy sources are compared using full cost accounting.
- 3.5 Human population growth demands the increased production of food, fuel, and fiber
- 3.6 Innovative agricultural practices are needed to increase the production of food, fuel, and fiber.
- 3.7 Agricultural practices influence biodiversity.
- 3.8 Genetic modification can influence biodiversity
- 3.9 Government energy policies and subsidies impact energy cost and development
- 3.10 Culture and economic status affect energy choices

Performance Assessments: (Districts to complete for each unit)

Example assessments for this unit include:

- Compare and share full cost accounting for identified energy sources in a paper, brochure or presentation.
- Explain innovative agricultural practices that are needed to increase the production of food, fuel and fiber.
- Students research and define government energy policies and subsidies that impact energy costs.

Leadership Alignment: (Districts to complete for each unit)

Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.

Example:

- Students think creatively, implement innovations, and communicate clearly while researching agricultural practices influence on biodiversity, and form their own opinions related to current laws and regulations related to environmental science issues.

Industry Standards and/or Competencies:

Agriculture, Food, and Natural Resources (AFNR) Standards -

ESS.02. Evaluate the impact of public policies and regulations on environmental service system operations.

ESS.02.01. Interpret and evaluate the impact of laws, agencies, policies and practices affecting environmental service systems.

ESS.02.01.02.b. Analyze the specific purpose of government agencies associated with environmental service systems.

ESS.02.01.02.c. Evaluate the impact and effectiveness of government agencies (i.e., local, state, and federal) associated with environmental service systems (e.g., regulation of consumption, prevention of damage to natural resources systems, management of ecological interactions, etc.).

ESS.02.01.03.a. Research policies, practices and initiatives common in business and advocacy groups associated with environmental service systems (e.g., zero-waste, LEED-certified, locally-grown, etc.).

ESS.02.01.03.b. Assess the intent, feasibility and effectiveness of policies, practices and initiatives common in business and advocacy groups associated with environmental service systems.

ESS.02.01.03.c. Evaluate the impact of policies, practices and initiatives common in business and advocacy groups associated with environmental service systems on wildlife, people, the environment and the economy.

ESS.02.02.01.a. Research and categorize the purpose, implementation and impact of greenhouse gas emission policies (e.g., capand- trade, emission offsetting, zero-emissions, carbon-neutrality, carbon sequestration, etc.).

ESS.02.02.03.a. Examine and summarize the impact that population growth has on environmental service systems.

ESS.02.02.04.a. Research current policies related to fracking and shale oil gas.

ESS.02.02.04.b. Assess whether current policies related to fracking and shale oil gas sufficiently address the needs of environmental service systems.

ESS.02.02.02.c. Interpret and evaluate the impact of specific environmental service regulation policies (e.g., Clean Air Act, EISA, Clean Water Act, Superfund, etc.) on international trade.

ESS.03. Develop proposed solutions to environmental issues, problems and applications using scientific principles of meteorology, soil science, hydrology, microbiology, chemistry and ecology

Aligned Washington State Academic Standards

Science

Washington Science Standards (Next Generation Science Standards):

HS-PS3-1: Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.

HS-PS3-3: Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.*

HS-LS2-1: Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.

HS-LS2-2: Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.

HS-LS2-4: Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

HS-LS2-6: Evaluate the claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-LS2-7: Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.

HS-LS2-8: Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.

HS-LS3-3: Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.

HS-LS4-6: Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity

HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

HS-ESS3-6: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

	HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.	
Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept
Constructing Explanations and Designing Solutions	PS3.A: Definitions of Energy	Cause and Effect, Energy and Matter

Unit 4: Pollution	Total Learning Hours for Unit: 30
Unit Summary: This unit will include instruction in pollution in ecosystems, people's pollution, and pollution regulation. 4.1 There are many sources of pollution in ecosystems. 4.2 Pollutants interact in ecosystems in complex ways. 4.3 Biomagnification concentrates pollutants in food chains 4.4 New technologies have changed how humans impact the environment 4.5 Pollutants affect the health of living organisms in an ecosystem. 4.6 Human population growth affects environmental pollution. 4.7 Cultures around the world contribute to and are affected by pollution in different ways 4.8 Polluted resources cause social, economic, and scientific issues 4.9 Following or abiding by government policies or regulations can reduce pollution 4.10 Environmental regulations attempt to balance the needs of the environment, individuals, businesses, and society. 4.11 Personal choices and practices can reduce pollution	
Performance Assessments: (Districts to complete for each unit) <i>Example assessments for this unit include:</i> <ul style="list-style-type: none"> • Give examples of a physical, biological and/or chemical source of pollution in ecosystems. • Explain the role for green urban planning work to lower pollution. • Students describe how human population growth affects environmental pollution. 	
Leadership Alignment: (Districts to complete for each unit) <i>Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.</i> <i>Example:</i>	

- Students solve problems, interact effectively with others, and communicate clearly when researching pollutants and their causes as well as ways to reduce.

Industry Standards and/or Competencies:

Agriculture, Food, and Natural Resources (AFNR) Standards -

- ESS.02.03. Examine and summarize the impact of public perceptions and social movements on the regulation of environmental service systems.
- ESS.03.02. Apply soil science and hydrology principles to environmental service systems.
- ESS.03.02.04.a. Summarize environmental hazards associated with groundwater supplies.
- ESS.03.03. Apply chemistry principles to environmental service systems.
- ESS.03.03.04.a. Examine and summarize the relationship between water and soil chemistry and the formation of different kinds of wetlands (e.g., fens, peat bogs, potholes, etc.).
- ESS.03.04. Apply microbiology principles to environmental service systems.
- ESS.03.04.01.a. Describe the microbial biodiversity found in soil and summarize the contribution of microbial biodiversity to the physical and chemical characteristics of soil.
- ESS.03.05.01.a. Research the role that biodiversity plays in environmental service systems and how biodiversity can be measured.
- ESS.03.05.01.c. Evaluate the biodiversity of an area and predict the impact of changing the levels of biodiversity on environmental service systems.
- ESS.03.05.03.a. Research and explain how carrying capacities relate to environmental service systems (e.g., waste processing, rate or production of pollution, disease, etc.).
- ESS.03.05.04.c. Utilize evidence from bioindicator species to detect pollutants in a given area.
- ESS.04.01.03.a. Interpret the conditions necessary for waste to be labeled as hazardous.
- ESS.04.01.01.b. Assess how industrial and nonindustrial pollution has damaged the environment.
- ESS.04.01.02.b. Conduct tests to determine the presence and extent of pollution.
- ESS.04.01.03.b. Classify examples of pollution as hazardous or nonhazardous.
- ESS.04.01.01.c. Evaluate evidence for a given area for industrial and nonindustrial pollution.
- ESS.04.01.02.c. Create a plan for pollution remediation, management or prevention for a given area.
- ESS.04. Demonstrate the operation of environmental service systems (e.g., pollution control, water treatment, wastewater treatment, solid waste management and energy conservation).
- ESS.04.01. Use pollution control measures to maintain a safe facility and environment.
- ESS.04.01.01.a. Identify and distinguish types of pollution and distinguish between point source and nonpoint source pollution.
- ESS.04.01.02.a. Research ways in which pollution can be managed and prevented and propose solutions to meet the needs of local systems.
- ESS.04.02.01.a. Compare and contrast different types of solid waste and options for treating solid waste.

Aligned Washington State Academic Standards

Science	Washington Science Standards (Next Generation Science Standards): HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
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	<p>HS-ESS3-6: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</p> <p>HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.</p> <p>HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering</p> <p>HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.</p>	
Science and Engineering Practice	Disciplinary Core Idea	Crosscutting Concept

Unit 5: Environmental Research Project	Total Learning Hours for Unit: 25
<p>Unit Summary:</p> <p>5.1 Research is driven by questions and supported by literature reviews, experimentation, and communication of results.</p> <p>5.2 Background research is conducted to identify what is known about the research question.</p> <p>5.3 Environmental questions are studied using research, the scientific method, critical thinking, and problem solving techniques</p> <p>5.4 Results of research experiments include interpretation of data in the form of posters, papers, or oral presentations.</p>	
<p>Performance Assessments: (Districts to complete for each unit)</p> <p><i>Example assessments for this unit include:</i></p> <ul style="list-style-type: none"> Select and complete a Supervised Agricultural Experience Project in the area of Entrepreneurship, Placement, Research, Exploratory or Improvement. 	
<p>Leadership Alignment: (Districts to complete for each unit)</p> <p><i>Leadership alignment must include a unit specific project/activity that aligns with the 21st Century Leadership Skills.</i></p> <p><i>Example:</i></p> <ul style="list-style-type: none"> Students create media products, be self-directed learners, and produce results when researching and creating a presentation related to their Environmental Science Research Project. 	
<p>Agriculture, Food, and Natural Resources (AFNR) Standards -</p> <p>ESS.04.04.02.a. Research alternative energy sources and describe the motivations for seeking alternatives to conventional energy sources as they relate to environmental monitoring.</p> <p>ESS.04.04.04.a. Research the impact on environmental service systems that occur because of energy consumption.</p> <p>ESS.04.04.06.a. Research and describe the purpose and applications of life cycle assessments to environmental service systems.</p> <p>ESS.05.01.02.a. Research the methods in which GIS can be used in environmental service systems (e.g., tracing of point pollution, control of the spread of invasive species, etc.).</p>	

ESS.05.01.03.a. Research how advancements in technology (e.g., unmanned aerial vehicles and drones, genetic modification, fracking, alternative energy, etc.) have changed environmental service systems.

ESS.05.01.03.c. Evaluate trends in technology and develop predictions about how these advancements will change environmental service systems.

ESS.05.02. Perform assessments of environmental conditions using equipment, machinery and technology.

ESS.05.02.01.a. Research and summarize methods used to determine water quality (e.g., dissolved oxygen, chemical tests, macroinvertebrates, etc.) and determine if a source of water has been contaminated.

ESS.05.02.01.c. Evaluate a sample of water to determine its quality and if it has been contaminated.

ESS.05.02.02.a. Research and summarize methods and tools used to measure soil health and determine if an area of land has been contaminated (e.g., soil probes, core monolith, soil fertility tests, etc.).

ESS.05.02.02.c. Evaluate a sample of soil to determine its quality and if it has been contaminated.

ESS.05.02.03.a. Research and summarize methods and tools used to determine air quality and determine if pollution is present (e.g., CO2 probe, particulate matter sampler, etc.).

ESS.05.02.03.c. Perform an evaluation of air quality to determine and assess its impact of human and ecological populations.

ESS.05.02.04.a. Research and summarize methods used to determine ecological health and determine if an ecosystem is threatened (e.g., quadrat analysis, bioindicators, mark-recapture, etc.).

ESS.05.02.04.c. Evaluate a habitat to determine its ecological quality and if it is threatened.

Aligned Washington State Academic Standards		
Science	Washington Science Standards (Next Generation Science Standards): HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. HS-ESS3-6: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity HS-ETS1-1: Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants. HS-ETS1-2: Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering HS-ETS1-3 Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.	
	Science and Engineering Practice	Disciplinary Core Idea
		Crosscutting Concept