

## Habitat Connections NGSS Correlations 3-5

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Field Trip Activity	Disciplinary Core Ideas	Crosscutting Concepts	Science and Engineering Practices	MNP Objectives
				(Students will:)
<p><b>Trip of a Drip:</b> Students will make predictions about what will happen to rain that falls in the watershed, and what kind of things will be picked up as it makes it's way downhill. They will then see their predictions modelled on the watershed model, and see how wetlands act like a sponge that helps to keep water downstream clean. They will also brainstorm ideas for actions that they can take to help keep our shared watershed free of pollution. On their wetland hike, students will follow the path that a drop of water would take from the parking lot through the wetlands.</p>	<p>ESS2.C: Nearly all of Earth's available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)</p>	<p>Structure and Function: Different materials have different substructures, which can sometimes be observed. Substructures have shapes and parts that serve functions</p>	<p>Asking Questions and Defining Problems: Ask questions about what would happen if a variable is changed. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.</p>	<p>Understand the components of a watershed, how water moves through a watershed, and how water carries pollution and other materials along it's path and deposits them downstream.</p>
	<p>ESS3.A: Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not. (4-ESS3-1)</p>	<p>Systems and System Models: A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. A system can be described in terms of its components and their interactions.</p>	<p>Constructing Explanations and Designing Solutions: Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem. Identify the evidence that supports particular points in an explanation.</p>	<p>Understand the role of wetland plants and soil in absorbing and neutralizing pollution, resulting in cleaner water downstream.</p>
	<p>ESS3.C - Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)</p>	<p>Patterns: Patterns can be used as evidence to support an explanation.</p>	<p>Analyzing and Interpreting Data: Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.</p>	<p>Understand how their own homes, schools, and communities fit into their local watersheds, as well as the larger shared watershed of Puget Sound. Understand what they can do to help mitigate pollution in their watersheds, and feel empowered to do so.</p>
	<p>LS4:C: For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)</p>	<p>Cause and Effect: Cause and effect relationships are routinely identified, tested, and used to explain change. Events that occur together with regularity might or might not be a cause and effect relationship.</p>	<p>Developing and Using Models: Identify the limitations of models.</p>	
	<p>LS4.D: Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)</p>	<p>Scale, Proportion, and Quantity: Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.</p>		

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	ESS2.E: Living things affect the physical characteristics of their regions. (4-ESS2-1)	Stability and Change: Change is measured in terms of differences over time and may occur at different rates. Some systems appear stable, but over long periods of time will eventually change.		
<b>Native Plants and Soils:</b> Students will explore what plants need to survive and the importance of healthy soil in creating healthy plant communities. By taking soil cores at two comparative locations and making observations about the qualities of the soil, they will understand that soil is a crucial component of a habitat, and that "healthy" soil looks different in different habitats. Students will observe mushroom mycelium, and play an interactive game which shows how wetland soil and plants help to mitigate pollution.	LS1.A: Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)	Structure and Function: Different materials have different substructures, which can sometimes be observed. Substructures have shapes and parts that serve functions	Constructing Explanations and Designing Solutions: Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem. Identify the evidence that supports particular points in an explanation.	Understand that healthy soil is essential in order for plants to be healthy.
	LS1.B: Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)	Systems and System Models: A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. A system can be described in terms of its components and their interactions.	Analyzing and Interpreting Data: Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.	Understand that native plants provide a number of ecosystem services, including helping to stabilize slopes, prevent erosion, mitigating pollution, and providing habitat.

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	<p>LS2.A: The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</p>	<p>Patterns: Patterns can be used as evidence to support an explanation.</p>	<p>Asking Questions and Defining Problems: Ask questions about what would happen if a variable is changed. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.</p>	<p>Understand that soil looks different and provides different habitat and ecosystem functions in different areas.</p>
	<p>LS4.C For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)</p>			<p>Understand the function and importance of mycelium, and being able to identify it in the soil.</p>
	<p>LS4.C: Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)</p>			
	<p>ESS2.A: Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2-1)</p>			
<p><b>Water Wonders Pond Dip:</b> Students will explore the aquatic invertebrates that are found in the ponds at Magnuson Park. They will attempt to identify their discoveries through careful observation, and make connections about life cycles and food webs within the ponds. (?)</p>	<p>LS1.A: Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)</p>	<p>Structure and Function: Different materials have different substructures, which can sometimes be observed. Substructures have shapes and parts that serve functions</p>	<p>Constructing Explanations and Designing Solutions: Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard). Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem. Identify the evidence that supports particular points in an explanation.</p>	<p>Be able to identify macroinvertebrates in the pond water through careful observation of traits and use of scientific identification guides.</p>

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	<p>LS1.D: Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2)</p>	<p>Patterns: Patterns can be used as evidence to support an explanation.</p>	<p>Asking Questions and Defining Problems: Ask questions about what would happen if a variable is changed. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.</p>	<p>Understand that the presence or absence of certain species can be an indicator of the health of the greater ecosystem.</p>
	<p>LS2.A: The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</p>	<p>Scale, Proportion, and Quantity: Natural objects and/or observable phenomena exist from the very small to the immensely large or from very short to very long time periods.</p>		
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<p><b>Overarching Message:</b></p>	<p>ESS3.C - Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)</p>			<p>Develop the art of watching and listening, and recognize the rewards that result.</p>
				<p>Have their curiosity about soil, plants, pond organisms, and wildlife encouraged. Develop empathy and respect for these organisms. Appreciate and value the larger processes and ecosystem services that are at work in a wetland.</p>
				<p>Be empowered to instigate and carry out stewardship activities in their own community that will benefit water quality and habitat in our shared watershed.</p>
				<p>Understand that humans can make choices about the use of their environment that can mitigate previous damage, provide for increased habitat, and restore systems to a state of greater ecological health.</p>