SWIFTlet

Soil and Water Information for Teachers: lessons on environmental themes

CORRELATIONS TO OHIO SCIENCE STANDARDS

Franklin Soil and Water Conservation District's SWIFTlets have been created to enhance at-home learning and exploration. These instructional guides include topical background information, related children's books, straightforward learning activities and related online resources. Each SWIFTlet has a corresponding coloring page.

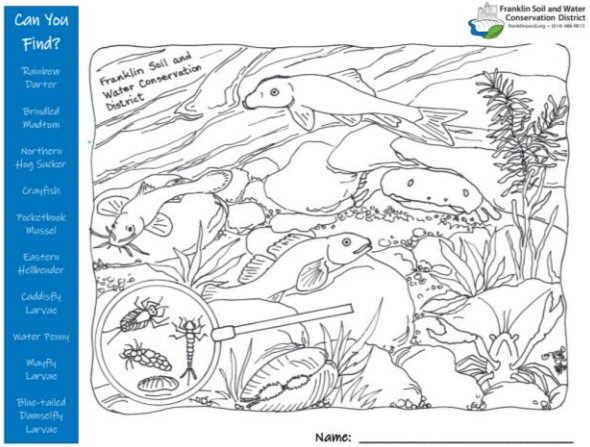
The SWIFTlets are aligned to Ohio's Learning Standards for Earth and Space Science and Life Science (please see correlations below).

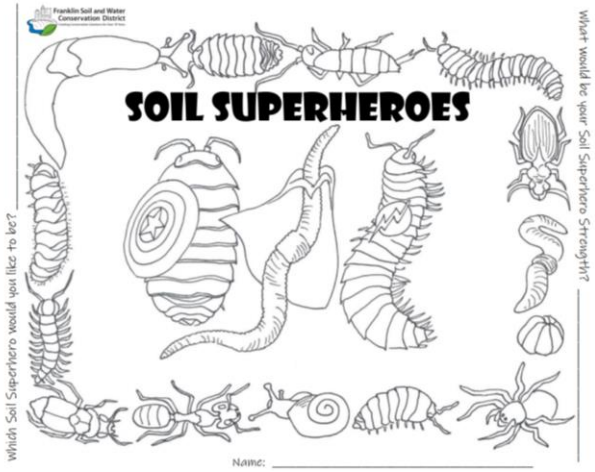
The SWIFTlets and coloring pages are available on our website

1: Water Quality	**2: Soil Superheroes**	**3: Surprising Seeds**	**4: Native Plants**
5: Celebrating the Earth	**6: Pollinator Power**	**7: Wonders of Water**	**8: Helping Hands for Endangered Friends**
9: Mighty Macros	**10: Splendid Soil**	**11: Scoop on Scat**	**12: Stream Stewardship**
13: Waste Not, Want Not	**14: Looking at Leaves**		

Franklin Soil and Water Conservation District offers virtual environmental education programs, aligned to state curriculum standards. We also have models and loan kits available. **Contact us** for more information.

Franklin Soil and Water Conservation District
Creating Conservation Solutions for Over 70 Years

SWIFTlet	GRADE LEVEL	STANDARD
[SWIFTLET 1: WATER QUALITY]  • Water as a habitat • Sources of water pollution • Impacts of water pollution on local species	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
		Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).
	1	**1.ESS.2** Water on Earth is present in many forms.
		1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	2	**2.LS.1** Living things cause changes on Earth.
	3	**3.ESS.3** Some of Earth's resources are limited.
	4	**4.ESS.1** Earth's surface has specific characteristics and landforms that can be identified.
		4.ESS.3 The surface of Earth changes due to erosion and deposition.
		4.LS.1 Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**B.DI.2** Ecosystems (Equilibrium)
		ENV.ES.1 Biosphere (Ecosystems equilibrium)
		ENV.ER.3 Water and Water pollution (Potable water and water quality, Point source and non-point source contamination)
		PG.ER.3 Water (Potable water and water quality)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 2: SOIL SUPERHEROES  • Soil as a habitat • Organisms that live underground • Roles of soil organisms in their habitat	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
		Life Science Identify physical characteristics and simple behaviors of living things.
		Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).
		Life Science Demonstrate knowledge of body parts and bodily processes in humans and other animals.
		Life Science Recognize similarities and differences between people and other living things.
	K	**K.LS.1** Living things have specific characteristics and traits.
		K.LS.2 Living things have physical traits and behaviors, which influence their survival.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	2	**2.LS.1** Living things cause changes on Earth.
	3	**3.LS.3** Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.
	5	**5.LS.1** Organisms perform a variety of roles in an ecosystem.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**ENV.ES.1** Biosphere (Biodiversity, Ecosystem equilibrium)

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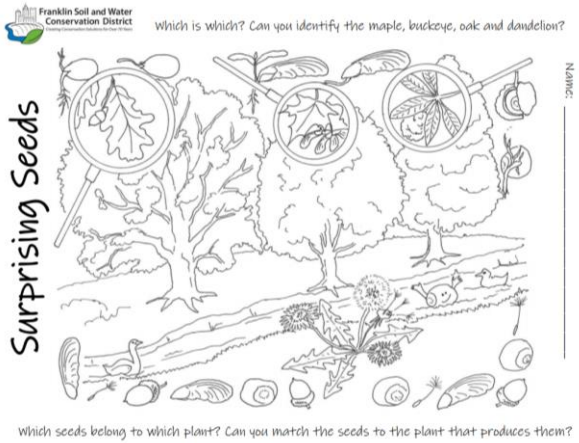
[SWIFTLET 3: SURPRISING SEEDS]  • Role of seeds • Explanation of plant parts • Importance of healthy soil to healthy plants	PRE-K	**Life Science**: Demonstrate an understanding that living things change over time (e.g., life cycle).
	K	**K.LS.1** Living things have specific characteristics and traits.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	3	**3.LS.3** Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.

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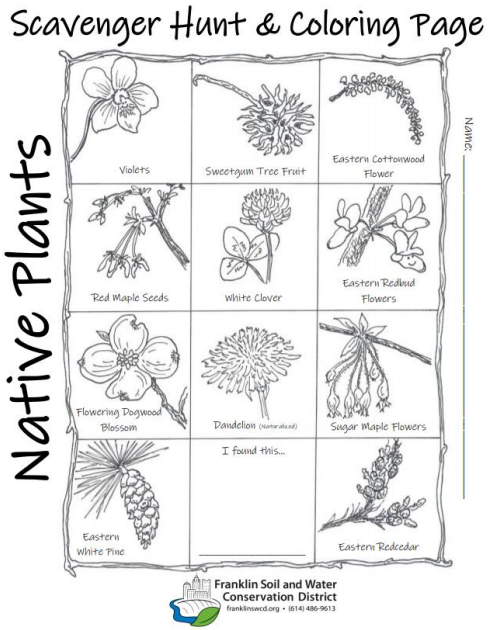
[SWIFTLET 4: NATIVE PLANTS]  • Importance of plants • Plant habitats • Native vs non-native plants	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
		Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).
	K	**K.LS.1** Living things have specific characteristics and traits.
		K.LS.2 Living things have physical traits and behaviors, which influence their survival.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	2	**2.LS.1** Living things cause changes on Earth.
	3	**3.LS.2** Individuals of the same kind of organism differ in their inherited traits. These differences give some individuals an advantage in surviving and/or reproducing.
	4	**4.LS.1** Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	5	**5.LS.1** Organisms perform a variety of roles in an ecosystem.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**B.DI.1** Biodiversity (Species diversity)
		ENV.ES.1 Biosphere (Biodiversity and Ecosystems)

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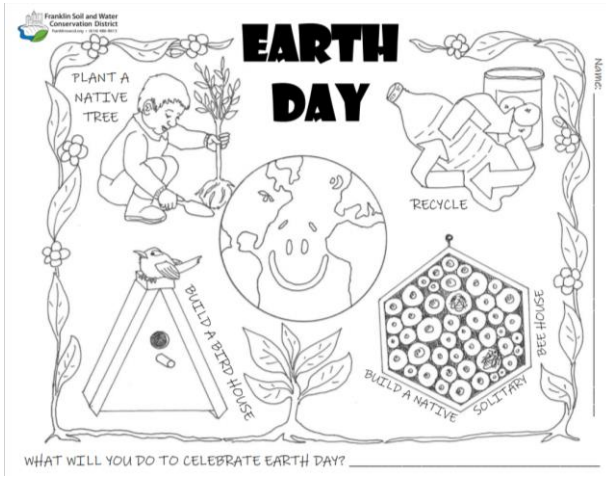
SWIFTLET 5: CELEBRATING THE EARTH  • Needs of living things • Human impact on the environment • Reference to *The Lorax*	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
		Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).
	K	**K.LS.2** Living things have physical traits and behaviors, which influence their survival.
	1	**1.LS.2** Living things survive only in environments that meet their needs.
	2	**2.LS.1** Living things cause changes on Earth.
	3	**3.ESS.3** Some of Earth's resources are limited.
	4	**4.LS.1** Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**B.DI.3** Loss of Diversity (Anthropocene effects)
		ENV.ES.1 Biosphere (Ecosystems: equilibrium, species interactions, stability)

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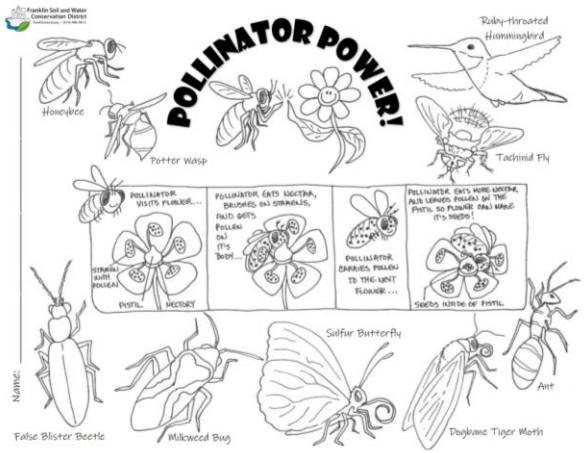
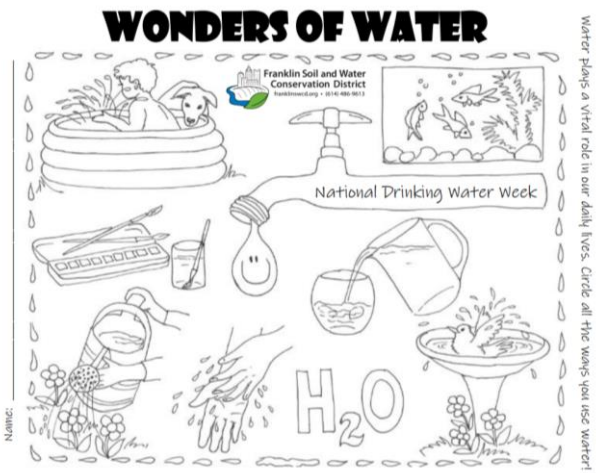
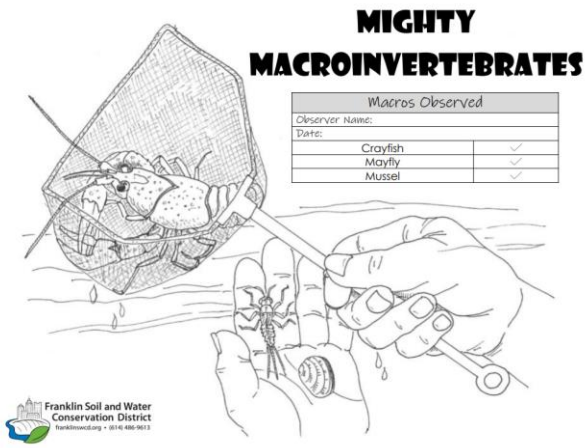
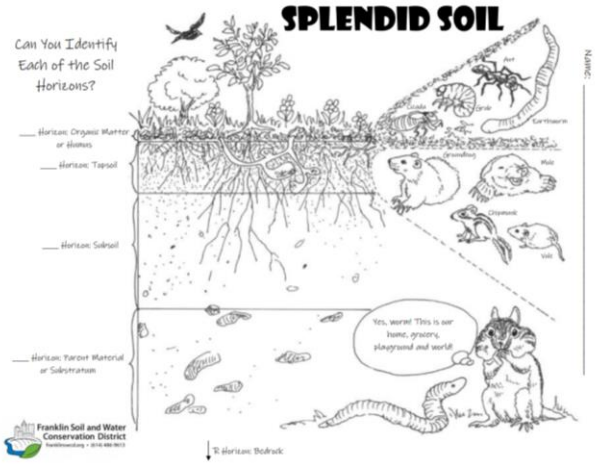
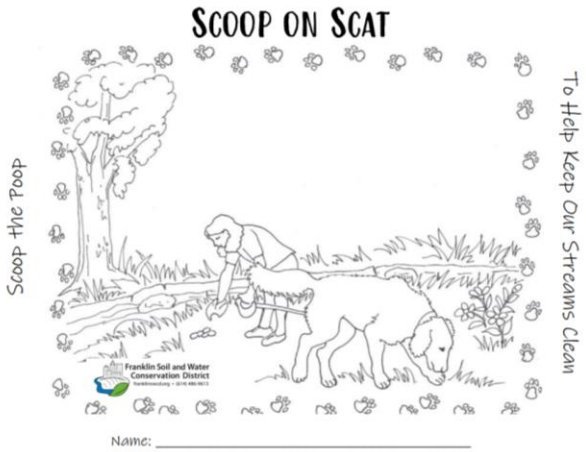
[SWIFTLET 6: POLLINATOR POWER]  • Introduction to pollinators • Interaction between plants and animals • Importance of pollinators	PRE-K	**Life Science** Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).
	K	**K.LS.2** Living things have physical traits and behaviors, which influence their survival.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	3	**3.LS.3** Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.
	5	**5.LS.1** Organisms perform a variety of roles in an ecosystem.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**ENV.ES.1** Biosphere (Ecosystems: equilibrium, species interactions, stability)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 7: WONDERS OF WATER  • Properties of water • Importance of water • Sources of water and water pollution	1	**1.ESS.2** Water on Earth is present in many forms.
	3	**3.ESS.3** Some of Earth's resources are limited.
	7	**7.ESS.1** The hydrologic cycle illustrates the changing states of water as it moves through the lithosphere, biosphere, hydrosphere and atmosphere.
	HIGH SCHOOL	**ENV.ER.3** Water and water pollution (Potable water and water quality)
		ENV.GP.2 Potable water quality use and availability
		PG.ER.3 Water (Potable water and water quality)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 8: HELPING HANDS FOR ENDANGERED FRIENDS • Needs of living things • Introduction to endangered species • Causes for species to become endangered	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
		Life Science Identify physical characteristics and simple behaviors of living things.
		Life Science Identify and explore the relationship between living things and their environments.
	K	**K.LS.2** Living things have physical traits and behaviors, which influence their survival.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	2	**2.LS.1** Living things cause changes on earth.
		2.LS.2 All organisms alive today result from their ancestors, some of which may be extinct. Not all kinds of organisms that lived in the past are represented by living organisms today.
	4	**4.LS.1** Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**B.DI.3** Loss of Diversity (Anthropocene effects, extinction)
		ENV.ES.1 Biospheres (Ecosystems: equilibrium, species interactions, stability)
		ENV.ER.5 Wildlife and wilderness (Wildlife and wilderness management, Endangered species)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 9: MIGHTY MACROS  • Investigation of stream organisms • Roles of organisms • Introduction to invasive species	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
		Life Science Identify physical characteristics and simple behaviors of living things.
		Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).
		Life Science Demonstrate knowledge of body parts and bodily processes in humans and other animals.
	K	**K.LS.1** Living things have specific characteristics and traits.
		K.LS.2 Living things have physical traits and behaviors, which influence their survival.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	2	**2.LS.1** Living things cause changes on Earth.
	3	**3.LS.3** Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.
	4	**4.LS.1** Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	5	**5.LS.2** All of the processes that take place within organisms require energy.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**B.DI.1** Biodiversity
		B.DI.2 Ecosystems
		B.DI.3 Loss of diversity (Invasive Species)
		ENV.ES.1 Biosphere (Biodiversity and Ecosystems)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 10: SPLENDID SOIL  • Properties of soil • Importance of soil • Causes of erosion	PRE-K	**Earth and Space Science** Recognize familiar elements of the natural environment and understand that these may change over time (e.g., soil).
	3	**3.ESS.1** Earth's nonliving resources have specific properties.
	6	**6.ESS.4** Soil is unconsolidated material that contains nutrient matter and weathered rock.
	HIGH SCHOOL	**ENV.ER.4** Soil and land (Land use and land management)
		PG.ER.4 Soil and sediment

SWIFTlet	GRADE LEVEL	STANDARD
[SWIFTLET 11: SCOOP ON SCAT]  • Living things cause changes to the earth • Different needs of different organisms • Impacts of animal waste on the environment	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
		Life Science Demonstrate knowledge of body parts and bodily processes in humans and other animals.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
		1.LS.2 Living things survive only in environments that meet their needs.
	2	**2.LS.1** Living things cause changes on Earth.
	4	**4.LS.1** Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	5	**5.LS.1** Organisms perform a variety of roles in an ecosystem.
	HIGH SCHOOL	**ENV.ER.3** Water and water pollution (Point source and non-point source contamination)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 12: STREAM STEWARDSHIP • Streams as a habitat • Sources of water pollution • Effects of erosion and ways to prevent it	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
	2	**2.LS.1** Living things cause changes on Earth.
	4	**4.ESS.3** The surface of Earth changes due to erosion and deposition.
		4.LS.1 Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**ENV.ER.3** Water and water pollution (Point source and non-point source contamination)
		ENV.ER.4 Soil and land (Mass movement and erosion, Sediment contamination)
		PG.ER.3 Water (Potable water and water quality)
		PG.ER.4 Soil and Sediment (Mass wasting and erosion, sediment contamination)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 13: WASTE NOT, WANT NOT • Human impact on the environment • Ideas for conserving resources • Tips to properly dispose of household waste	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
	2	**2.LS.1** Living things cause changes on Earth.
	3	**3.ESS.3** Some of Earth's resources are limited.
	4	**4.LS.1** Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
	HIGH SCHOOL	**ENV.ER.4** Soil and land (Solid and hazardous waste)
		ENV.GP.9 Waste management (solid and hazardous)

SWIFTlet	GRADE LEVEL	STANDARD
SWIFTLET 14: LOOKING AT LEAVES • Why leaves change color in the fall • Function of leaves • Importance of keeping fallen leaves off the streets and out of storm drains	PRE-K	**Earth and Space Science** Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.
	K	**K.LS.1** Living things have specific characteristics and traits.
	1	**1.LS.1** Living things have basic needs, which are met by obtaining materials from the physical environment.
	3	**3.LS.3** Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.
	5	**5.LS.1** Organisms perform a variety of roles in an ecosystem.
	7	**7.LS.2** In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.
	HIGH SCHOOL	**ENV.ER.3** Water and Water pollution (Point source and non-point source contamination)