

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).

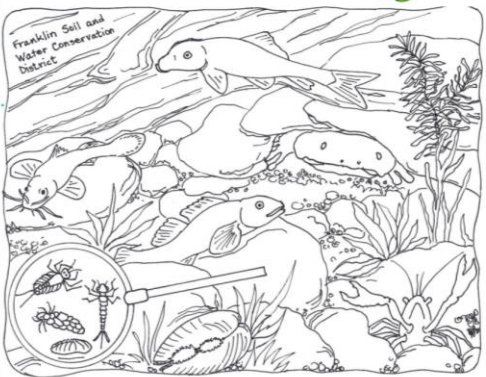
The SWIFTlets and coloring pages are available on our [website](#)

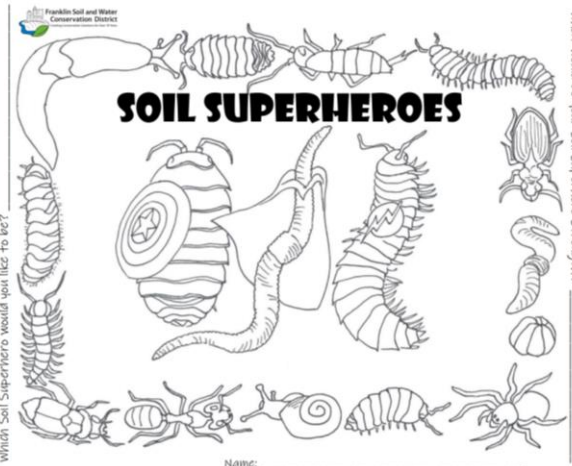
<u>1: Water Quality</u>	<u>2: Soil Superheroes</u>	<u>3: Surprising Seeds</u>	<u>4: Native Plants</u>
<u>5: Celebrating the Earth</u>	<u>6: Pollinator Power</u>	<u>7: Wonders of Water</u>	<u>8: Helping Hands for Endangered Friends</u>
<u>9: Mighty Macros</u>	<u>10: Splendid Soil</u>	<u>11: Scoop on Scat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

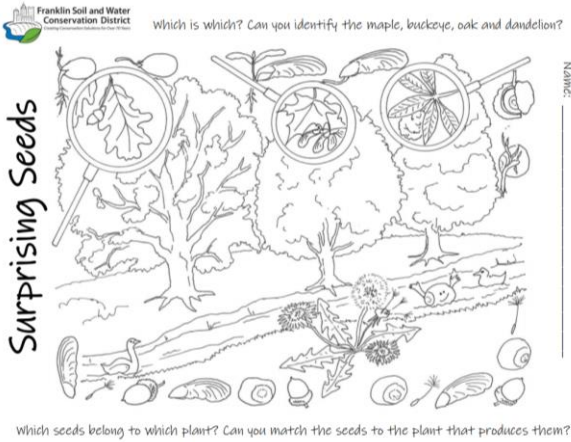
Franklin Soil and Water Conservation District offers virtual environmental education programs, aligned to state curriculum standards. We also have models and loan kits available. **Contact us** for more information.

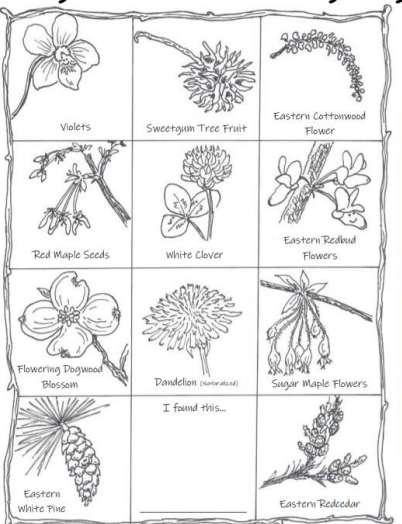


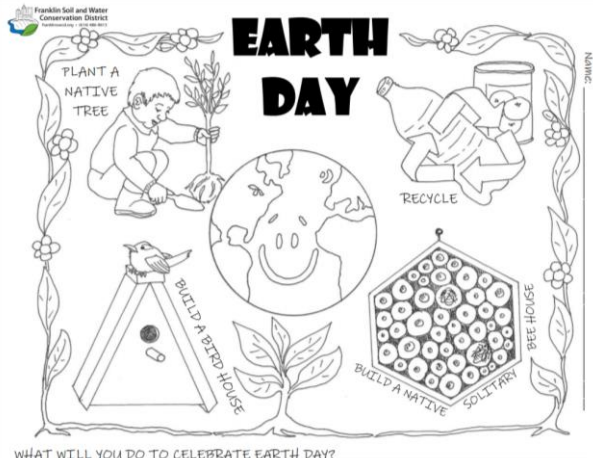
**Franklin Soil and Water
Conservation District**
Creating Conservation Solutions for Over 70 Years

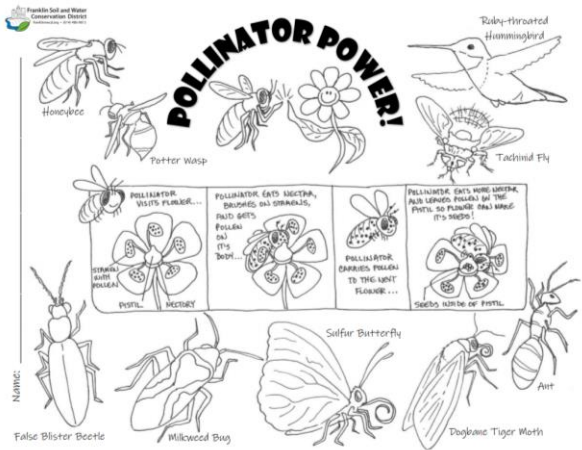
SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 1:</u> <u>WATER QUALITY</u></p>  <p>NAME: _____</p> <ul style="list-style-type: none"> • Water as a habitat • Sources of water pollution • Impacts of water pollution on local species 	<p style="text-align: center;">PRE-K</p>	<p>Earth and Space Science Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.</p>
		<p>Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).</p>
	<p style="text-align: center;">1</p>	<p>1.ESS.2 Water on Earth is present in many forms.</p>
	<p style="text-align: center;">1</p>	<p>1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.</p>
	<p style="text-align: center;">1</p>	<p>1.LS.2 Living things survive only in environments that meet their needs.</p>
	<p style="text-align: center;">2</p>	<p>2.LS.1 Living things cause changes on Earth.</p>
	<p style="text-align: center;">3</p>	<p>3.ESS.3 Some of Earth's resources are limited.</p>
	<p style="text-align: center;">4</p>	<p>4.ESS.1 Earth's surface has specific characteristics and landforms that can be identified.</p>
	<p style="text-align: center;">4</p>	<p>4.ESS.3 The surface of Earth changes due to erosion and deposition.</p>
	<p style="text-align: center;">4</p>	<p>4.LS.1 Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.</p>
<p style="text-align: center;">7</p>	<p>7.LS.2 In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.</p>	
<p style="text-align: center;">HIGH SCHOOL</p>	<p>B.DI.2 Ecosystems (Equilibrium)</p>	
	<p>ENV.ES.1 Biosphere (Ecosystems equilibrium)</p>	
	<p>ENV.ER.3 Water and Water pollution (Potable water and water quality, Point source and non-point source contamination)</p>	
	<p>PG.ER.3 Water (Potable water and water quality)</p>	

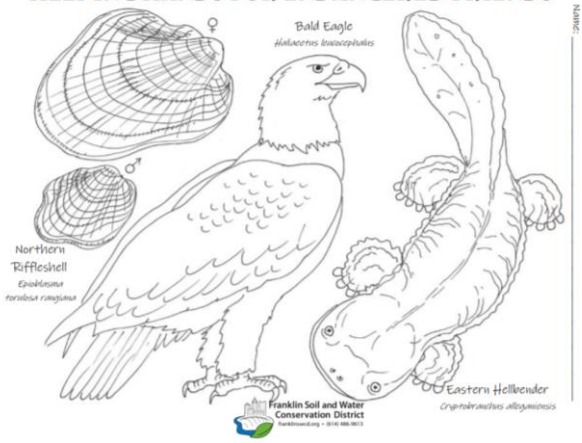
SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 2:</u> <u>SOIL SUPERHEROES</u></p>  <ul style="list-style-type: none"> • Soil as a habitat • Organisms that live underground • Roles of soil organisms in their habitat 	PRE-K	<p>Earth and Space Science Develop understanding of the relationship between humans and nature; recognizing the difference between helpful and harmful actions toward the natural environment.</p>
		<p>Life Science Identify physical characteristics and simple behaviors of living things.</p>
		<p>Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).</p>
		<p>Life Science Demonstrate knowledge of body parts and bodily processes in humans and other animals.</p>
		<p>Life Science Recognize similarities and differences between people and other living things.</p>
	K	<p>K.LS.1 Living things have specific characteristics and traits.</p>
		<p>K.LS.2 Living things have physical traits and behaviors, which influence their survival.</p>
	1	<p>1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.</p>
		<p>1.LS.2 Living things survive only in environments that meet their needs.</p>
	2	<p>2.LS.1 Living things cause changes on Earth.</p>
3	<p>3.LS.3 Plants and animals have life cycles that are part of their adaptations for survival in their natural environments.</p>	
5	<p>5.LS.1 Organisms perform a variety of roles in an ecosystem.</p>	
7	<p>7.LS.2 In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.</p>	
HIGH SCHOOL	<p>ENV.ES.1 Biosphere (Biodiversity, Ecosystem equilibrium)</p>	

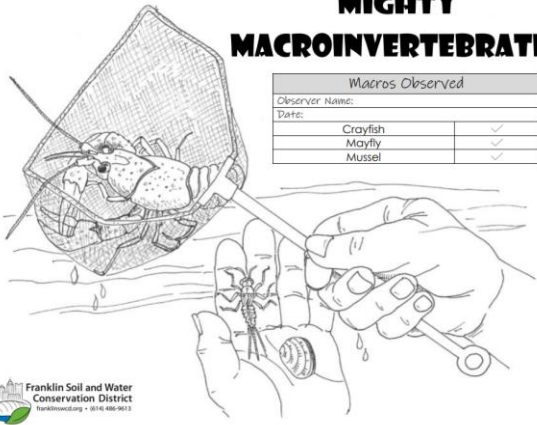
SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 3:</u> <u>SURPRISING SEEDS</u></p>  <p>Franklin Soil and Water Conservation District</p> <p>Which is which? Can you identify the maple, buckeye, oak and dandelion?</p> <p>NAME: _____</p> <p>Surprising Seeds</p> <p>Which seeds belong to which plant? Can you match the seeds to the plant that produces them?</p> <ul style="list-style-type: none"> • 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	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.	

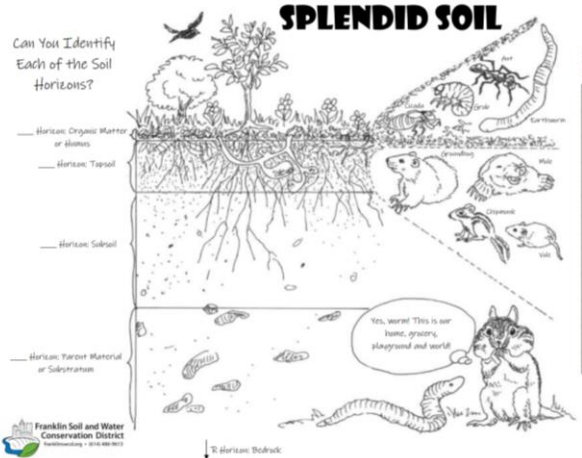
SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 4:</u> <u>NATIVE PLANTS</u></p> <p style="text-align: center;"><i>Scavenger Hunt & Coloring Page</i></p> <div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 10px;">Native Plants</div>  </div> <ul style="list-style-type: none"> • Importance of plants • Plant habitats • Native vs non-native plants 	PRE-K	<p>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.</p>
	K	<p>Life Science Identify and explore the relationship between living things and their environments (e.g., habitats, food, eating habits, etc.).</p>
		<p>K.IS.1 Living things have specific characteristics and traits.</p>
	1	<p>K.IS.2 Living things have physical traits and behaviors, which influence their survival.</p>
		<p>1.IS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.</p>
	2	<p>1.IS.2 Living things survive only in environments that meet their needs.</p>
		<p>2.IS.1 Living things cause changes on Earth.</p>
	3	<p>3.IS.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.</p>
	4	<p>4.IS.1 Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.</p>
	5	<p>5.IS.1 Organisms perform a variety of roles in an ecosystem.</p>
7	<p>7.IS.2 In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.</p>	
HIGH SCHOOL	<p>B.DI.1 Biodiversity (Species diversity)</p>	
	<p>ENV.ES.1 Biosphere (Biodiversity and Ecosystems)</p>	

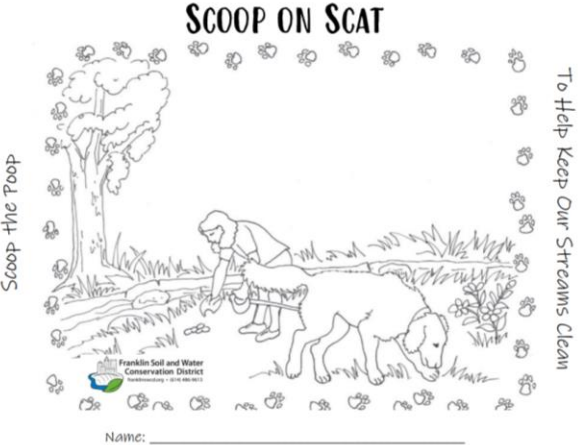
SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 5:</u> <u>CELEBRATING THE EARTH</u></p>  <ul style="list-style-type: none"> • Needs of living things • Human impact on the environment • Reference to <i>The Lorax</i> 	PRE-K	Earth and Space Science Develop understanding of the relationship 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)		


SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 6:</u> <u>POLLINATOR POWER</u></p>  <ul style="list-style-type: none"> ● 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	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
<p style="text-align: center;"><u>SWIFTLET 8:</u> <u>HELPING HANDS FOR</u> <u>ENDANGERED FRIENDS</u></p> <p>HELPING HANDS FOR ENDANGERED FRIENDS</p>  <p> <i>Bald Eagle</i> <i>Haliaeetus leucocephalus</i> <i>Northern Riffleshell</i> <i>Epiplatys noronhai raiouana</i> <i>Eastern Hellbender</i> <i>Cryptobranchus alleganiensis</i> </p> <p>Franklin Soil and Water Conservation District www.franklinsoilandwater.org</p> <ul style="list-style-type: none"> • Needs of living things • Introduction to endangered species • Causes for species to become endangered 	<p style="text-align: center;">PRE-K</p>	<p>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.</p>
		<p>Life Science Identify physical characteristics and simple behaviors of living things.</p>
		<p>Life Science Identify and explore the relationship between living things and their environments.</p>
	<p style="text-align: center;">K</p>	<p>K.LS.2 Living things have physical traits and behaviors, which influence their survival.</p>
	<p style="text-align: center;">1</p>	<p>1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.</p>
		<p>1.LS.2 Living things survive only in environments that meet their needs.</p>
	<p style="text-align: center;">2</p>	<p>2.LS.1 Living things cause changes on earth.</p>
		<p>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.</p>
	<p style="text-align: center;">4</p>	<p>4.LS.1 Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.</p>
	<p style="text-align: center;">7</p>	<p>7.LS.2 In any particular biome, the number, growth and survival of organisms and populations depend on biotic and abiotic factors.</p>
<p style="text-align: center;">HIGH SCHOOL</p>	<p>B.DI.3 Loss of Diversity (Anthropocene effects, extinction)</p>	
	<p>ENV.ES.1 Biospheres (Ecosystems: equilibrium, species interactions, stability)</p>	
	<p>ENV.ER.5 Wildlife and wilderness (Wildlife and wilderness management, Endangered species)</p>	


SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 9:</u> <u>MIGHTY MACROS</u></p> <p style="text-align: center;">MIGHTY MACROINVERTEBRATES</p>  <p>Franklin Soil and Water Conservation District www.franklinwater.org • 610-440-0022</p> <ul style="list-style-type: none"> • 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
<p style="text-align: center;"><u>SWIFTLET 10:</u> <u>SPLENDID SOIL</u></p>  <p>Can You Identify Each of the Soil Horizons?</p> <p>Horizon: Organic Matter or Humus Horizon: Topsoil Horizon: Subsoil Horizon: Parent Material or Substratum</p> <p>Franklin Soil and Water Conservation District Harrisburg • 717-638-9612</p> <p>Yes, we're! This is our home, gardens, playground and world!</p>	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)
	<ul style="list-style-type: none"> • Properties of soil • Importance of soil • Causes of erosion 	PG.ER.4 Soil and sediment

SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 11:</u> <u>SCOOP ON SCAT</u></p>  <p style="text-align: center;">Name: _____</p> <ul style="list-style-type: none"> • Living things cause changes to the earth • Different needs of different organisms • Impacts of animal waste on the environment 	PRE-K	<p>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.</p>
		<p>Life Science Demonstrate knowledge of body parts and bodily processes in humans and other animals.</p>
	1	<p>1.LS.1 Living things have basic needs, which are met by obtaining materials from the physical environment.</p>
		<p>1.LS.2 Living things survive only in environments that meet their needs.</p>
	2	<p>2.LS.1 Living things cause changes on Earth.</p>
	4	<p>4.LS.1 Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.</p>
5	<p>5.LS.1 Organisms perform a variety of roles in an ecosystem.</p>	
HIGH SCHOOL	<p>ENV.ER.3 Water and water pollution (Point source and non-point source contamination)</p>	

SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 12:</u> <u>STREAM STEWARDSHIP</u></p>  <p style="text-align: center;">STREAM STEWARDSHIP</p> <p style="font-size: small;">Franklin Soil and Water Conservation District Franklin, MA • 514-888-3633</p> <p style="text-align: center;">Which side of the stream demonstrates good stream stewardship?</p> <ul style="list-style-type: none"> • 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	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
<p data-bbox="180 164 655 256"><u>SWIFTLET 13:</u> <u>WASTE NOT, WANT NOT</u></p>  <ul data-bbox="159 821 667 1081" style="list-style-type: none"> • Human impact on the environment • Ideas for conserving resources • Tips to properly dispose of household waste 	PRE-K	<p data-bbox="1045 167 1892 302">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.</p>
	2	<p data-bbox="1045 370 1661 402">2.LS.1 Living things cause changes on Earth.</p>
	3	<p data-bbox="1045 526 1675 558">3.ESS.3 Some of Earth's resources are limited.</p>
	4	<p data-bbox="1045 662 1902 727">4.LS.1 Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.</p>
	HIGH SCHOOL	<p data-bbox="1045 834 1766 867">ENV.ER.4 Soil and land (Solid and hazardous waste)</p>
	<p data-bbox="1045 992 1793 1024">ENV.GP.9 Waste management (solid and hazardous)</p>	

SWIFTlet	GRADE LEVEL	STANDARD
<p style="text-align: center;"><u>SWIFTLET 14:</u> <u>LOOKING AT LEAVES</u></p> <p style="text-align: center;">Looking at Leaves</p>  <ul style="list-style-type: none"> • 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)