The Wetlands

A Primary Integrated Study of Wetlands and Environmental Issues

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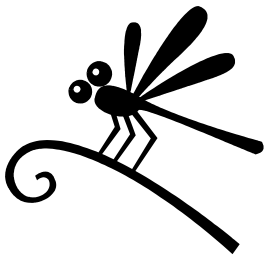

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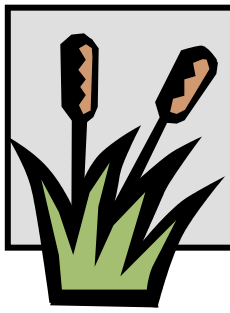
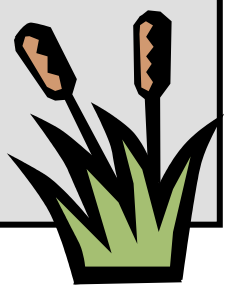


The Wetlands
Unit Rationale



Primary students are concrete thinkers who construct knowledge by expanding upon their own experiences. Children have a natural curiosity about the world around them. By exploring this world, particularly the wetlands, they make connections between what they already know and believe and what they are observing and learning. In this integrated social studies and science unit, children will have the opportunity to experience real-life environmental issues that will allow for subsequent application of learned knowledge to hypothetical situations.

The content of this integrated unit is based upon the child's world. Using our local wetlands as a motivational vehicle for learning, this unit encourages exploration, observation, experimentation, and social responsibility. When students are given opportunities to conduct experiments, gather data, and make conclusions, they are developing skills that support inquiry about the natural world, scientific processes, principles, and technology. In this unit, students are given many opportunities to use inquiry as they encounter and address environmental issues.

The study of wetlands addresses many concepts needed to understand the relationship between living and nonliving ecosystem components that create a healthy environment. Through the study of habitats, students come to understand the importance of wetlands and the role they play in our world. Through role play, students react to a pollution scenario in the wetlands. This scenario requires them to problem solve as they develop an action plan to address the situation. It is our hope and intention that through these experiences, students will come to the realization that it is the responsibility of all citizens to respect and care for our environment.

As the authors created this unit, they were careful to include a variety of meaningful lessons and activities that addressed many of the standards required by the state. The main areas of emphasis according to the state standards are:

- Approaches to Learning
- Personal-Social
- Science
- Social Studies

Specific science and social studies standards as they relate to lesson content are listed on each *Chapter Title* page. Due to the fact that **Approaches to Learning and Personal-Social** standards were incorporated in each chapter, they are listed below and not on each Chapter Title Page.

Approaches to Learning

AL1(1-7): Demonstrate Initiative and Curiosity
AL2(1-6): Demonstrate Engagement and Persistence
AL3(1-8): Demonstrate Reasoning and Problem Solving
AL4(1-7): Demonstrate Flexibility, Risk-Taking And Responsibility –1st
AL4(1-4): Demonstrate Flexibility, Risk-Taking And Responsibility –2nd
AL5(1-2): Demonstrate Imagination, Creativity and Invention

Personal-Social

PS1(A-F): Develop Self-Concept
PS2(A-I): Develop Self-Regulation
PS3(A-L): Develop Social Interactions
PS4(A-E): Develop Care and Self-Reliance

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Unit Sequence & Materials Chart

Chapter 1	Week	Lesson	Materials	Additional Information
	Last Week of Prior Unit	*Save the Wetlands!* posters appear in School building and/or Town frieze/model/map	Wetland posters (LEAD)	Sample Parent Letters in Appendix
	Week 1	**Lesson 1: Initiate Launch** *Preassessment* Students are asked to draw what they think a wetland looks like and what lives there.	Team WET Notebook – Page 1/1	Team WET Notebook (1^{st} grade pg # / 2^{nd} grade pg #)
		Lesson 2: Introduce the Wetland *Podcast and Discussion* Students listen to a podcast. They are then asked to revisit their initial wetland preassessment and draw a wetland based on newly acquired knowledge.	Wetland Podcast (LEAD) Team WET Notebook – Page 1/3-4	To access LEAD Staff Resources Elem_Cur_Docs 1/2 Science Wetlands
		Lesson 3: Creating the Preliminary Model *Begin Classroom Frieze/Model* As a class, brainstorm and list what students *think* is found in a wetland. Create sketch of water and landforms. Groups make living and nonliving things found in wetland and add to frieze/model.	Materials depend on how frieze will be constructed.	
		Lesson 4: Chapter Conclusion *Optional Reflection* Students are asked to justify their contribution to the class frieze/model.	Team WET Notebook – Page 2/5	

Chapter 2	Week	Lesson	Materials	Additional Information
	Week 2	**Lesson 5: Introduce the Problem** *Establish a Purpose* Teacher may choose from a play, letters or a read aloud to initiate a wetland pollution problem. Students will establish a purpose to want to learn about wetland characteristics.	Materials depend on chosen problem. (LEAD) • *Near One Cattail* by Anthony Fredericks • Happy Valley Town Council letter • Webfoot Duck letter • Wetland Play and/or Rap (Video of Play as puppet show found in LEAD.)	To access LEAD Staff Resources Elem_Cur_Docs 1/2 Science Wetlands
		Lesson 6: Becoming Wetland Scientists Students will assume the role of a wetland scientist. Students will draw what they think a Wetland Scientist would use and wear.	Team WET Notebook – Page 3/6	
		Lesson 7: Creating Team WET Visors *Optional Activity* Create visors for students to wear and to accumulate badges of acquired knowledge.	Visor Pattern Team WET Badges (LEAD)	To access LEAD Staff Resources Elem_Cur_Docs 1/2 Science Wetlands

Chapter 3

Week	Lesson	Materials	Additional Information
Week 3	**Lesson 8: Living vs. Nonliving** Students practice observation skills as a Wetland Scientist by taking a school yard walk and creating a list of things they observe. Students eventually sort list into living/nonliving categories.	**DVD**: *Living and Nonliving Things*, 100% Educational Videos, 12 min. Team WET Notebook – Pages 4-5/7-8	
	Lesson 9: Basic Needs Students begin to develop an understanding of what living things need to survive: *food, air, water* and *shelter*. These are basic needs.	Team WET Notebook – Pages 6-7/9-10 LIVING/NONLIVING Badge BASIC NEEDS Badge	Badges are optional.
Week 4	**Lesson 10: Aquarium Ecosystem** Students build an aquarium ecosystem. Students learn about the interdependence of guppies, snails, elodea and duckweed.	*Per Aquarium:* 1 2-liter soda bottle 4 guppies 4 snails 2-3 sprigs elodea 2-3 pinches duckweed magnifying lenses 1 cup aquarium gravel 1½ liters water* Team WET Notebook – Pages 8-11/11-14 AQUARIUM ECOSYSTEM Badge	*Water should be set out at least 48 hours prior to using so chlorine has a chance to dissipate. 

Chapter 3

Week	Lesson	Materials	Additional Information
Week 5	**Lesson 11: What is a Habitat?** Students interact with a website focusing on habitats. A read aloud may also be used to deliver lesson content.	Team WET Notebook – Page 12/15-16 www.on.ec.gc.ca/greatlakeskids/habitatfinal.html HABITATS Badge	Teacher may choose to schedule computer lab time, or use a classroom projector.
	Lesson 12: What is a Wetland Ecosystem? Read book *Wetlands Soggy Habitat* As students listen to this story, they learn how a wetland is different from other habitats.	*Wetlands Soggy Habitat by Laura Purdie Salas* Team WET Notebook – Page 13/17 Pictures of wetlands Art materials to revise frieze	Pictures of wetlands can be obtained from unit resources or magazines.
	Lesson 13: Wetland Food Chains/Energy Pyramid The students analyze food chains in a wetland through a variety of experiences.	*Wetland Food Chains A Bobbie Kalman Book* Team WET Notebook -Page 14/18 Reader's Theater: *"We Need Each Other in the Wetlands"* (LEAD) – copy as needed Notecards – 1 per student WETLAND PLANTS Badge WETLAND ANIMALS Badge	Label notecards with names of wetland plants, herbivores and carnivores. See specific directions in lesson preparation.

Chapter 3

Week	Lesson	Materials	Additional Information
Week 6	**Lessons 14: Why are Wetlands Important?** Teacher uses Enviroscape to demonstrate importance of wetlands. Demonstrations include: • how wetlands absorb more water (rain runoff) than developed land • how wetlands absorb water to help limit flooding	Enviroscape Wetlands Landscape Enviroscape User's Guide Enviroscape Pieces Chart Paper/Markers Team WET Notebook -Page 15/19 ENVIROSCAPE Badge	See Demonstration Video on lesson preparation and procedure in LEAD.
	Lesson 15: Where Does the Rain Go? Students identify different bodies of water and learn how water travels from rainfall to the ocean.	*Follow the Water From Brook to Ocean by Arthur Dorros* *Millbrook Water Flow Maps 1&2 ~ found in Appendix* Team WET Notebook – Page 16/20	
Week 7	**Lesson 16: Millbrook Marsh Field Trip** Students visit Millbrook Marsh and are then given opportunities to participate in related follow-up activities.	Millbrook Marsh Field Guides – 1 per student pair (housed in schools) Team WET Notebook – Pages 17-18/21-22 Digital Cameras (optional)	Due to scheduling constraints, the Millbrook Marsh field trip may or may not be able to be scheduled at this time.

Chapter 4	Week	Lesson	Materials	Additional Information
	Week 8	**Lesson 17: Revisiting the Problem** Students revisit problem established in Chapter 2, Lesson 5. The Enviroscape is used to demonstrate how a wetland filters pollution.	• Enviroscape Wetlands landscape • Enviroscape User's Guide • Base for the Enviroscape (desk) • KLEW chart • Enviroscape Pieces	See Demonstration Video on lesson preparation and procedure in LEAD.
		Lesson 18: Oil Spills Students will listen to a read aloud and discuss how oil spills impact the environment. Students will then brainstorm a list of materials they think could be used to effectively clean up an oil spill. Students will experiment with materials to try to remove oil from a jar of water.	• *A True Book – Water Pollution* by Rhonda Lucas Donald • *Oil Spill!* by Melvin Berger • Glass jar with screw on lid (one for whole class, or one per small group) • Water • Cooking oil • Pie tins • feather • Collection of materials for removing the oil (styrofoam, dish detergent, pipette, spoon, napkin, sponge, dirt, etc.)	**DVD**: *Bill Nye – Wetlands*, Disney, 26 min. NOTE: This DVD may be shown at the conclusion of Lesson 18, or anytime prior to Lesson 19. 

Chapter 4	Week	Lesson	Materials	Additional Information
	Weeks 9 & 10	**Lesson 19: Response to the Problem** Read aloud book to introduce social action piece. Students choose a method that demonstrates what they learned about the importance of wetlands, and how they think the chosen problem can be solved.	*Carl the Complainer* by Michele Knudsen Materials will vary based on how children respond to the problem	
		Lesson 20: Wetland Similes Students create wetland similes to summarize their understanding of wetlands.		

Weekly Materials

***Note: All Team WET Notebook blacklines can be accessed on LEAD: Staff Resources: ELEM_Cur_Docs: 1/2: Science: Wetlands. There is a first grade version and a second grade version of the Team WET Notebook. Be sure to obtain the correct version from your grade level folder.**
We suggest copying blacklines to your desktop and personalizing before using. Be sure to number pages for easy reference before printing.

Week	Team WET Notebook	Other Materials
1	**Page = 1st grade/2nd grade** Page 1/1-4 – Preassessment Page 2/5 – The Wetland Frieze	Save the Wetland Posters - several to place around the school (LEAD) Wetland Podcast (LEAD) Art Materials – to create frieze
2	Page 3/6 – Team WET Member	Near One Cattail by Anthony Fredericks Happy Valley Town Council letter Webfoot Duck letter Wetland Play and/or Rap Visor Patter (optional) Team WET Badges (optional)
3	Page 4/7 – School Yard Walk Page 5/8 – Living & Nonliving Things Page 6/9 – Is it Alive? Page 7/10 – Basic Needs	DVD: *Living and Nonliving Things*, 100% Educational Videos, 12 minutes Living/Nonliving Badge (optional) Basic Needs Badge (optional)
4	Pages 8-11/11-14 – Aquarium Ecosystem Recording Sheets	Aquarium Ecosystem Badge (optional) per aquarium: 1 2-liter soda bottle (clear) 4 guppies 4 snails 2-3 sprigs elodea 2-3 pinches duckweed magnifying lenses (1-2/group) 1 cup aquarium gravel 1 ½ liters water (allow to set out at least 48 hours in advance)

Week	Team WET Notebook	Other Materials
5	Page 12/15-16 – Habitats Page 13/17 – Wetland Word Search Page 14/18 – Wetland Energy Pyramid	Habitats Badge (optional) Wetlands Soggy Habitat by Laura Purdie Salas www.on.ec.gc.ca/greatlakeskids/habitatfinal.html Wetland Pictures - from unit resources or magazines Art Materials – to revise frieze Wetland Food Chains a Bobbie Kalman Book Reader's Theater – *"We Need Each Other in the Wetlands"* Notecards – 1/student Wetland Plants & Animals Badges (option.)
6	Page 15/19 – Why are Wetlands Important? Page 16/20 – Follow the Water	Enviroscape Wetlands Landscape Enviroscape User's Guide Enviroscape Pieces Chart Paper & Markers Enviroscape Badge (optional) *Follow the Water From Brook to Ocean by Arthur Dorros* *Millbrook Water Flow Maps 1&2 ~ Appendix*
7	Pages 17-18/21-22 – Millbrook Marsh Observations	Millbrook Marsh Field Guides - 1/student pair (housed in schools) Digital Camera (optional)
8	None	Enviroscape Wetlands Landscape Enviroscape User's Guide Enviroscape Pieces KLEW Chart A True Book Water Pollution by Rhonda Lucas Donald Oil Spill! by Melvin Berger Glass Jar with screw on lid – 1/whole class or 1/small group Water Cooking Oil Pie Tins Feather Collection of Materials for oil removal (Styrofoam, dish detergent, pipette, spoon, napkin, sponge, dirt, etc.) DVD: *Bill Nye Wetlands*, Disney, 26 minutes
9 & 10	None	Carl the Complainer by Michele Knudsen Materials – vary depending on how students respond to problem

Read Aloud Annotated Bibliography

Near One Cattail by Anthony Fredericks

The rich text and beautiful illustrations in this book bring to life the amazing creatures that can be found in wetlands. It does a great job showing the interconnectedness of all wetland creatures.

Wetlands Soggy Habitat by Laura Purdie Salas

This beautifully illustrated nonfiction book discusses how plants and animals have adapted to survive in a wetland's soggy soil. It emphasizes the important role that wetlands play in cleaning our water and preventing flooding.

Wetland Food Chains A Bobbie Kalman Book

This book explains the relationship of plants and animals in a wetland habitat. It helps the students understand the role of herbivores, carnivores, and omnivores in the wetland food chain.

Follow the Water From Brook to Ocean by Arthur Dorros

This nonfiction book contains many colorful illustrations and explains how water flows from brooks, to streams, to rivers, over waterfalls, through canyons and dams, to eventually reach the ocean.

A True Book – Water Pollution by Rhonda Lucas Donald

This book is a great resource book because of its nonfiction format and actual photographs. It emphasizes that water is a precious resource that we need to protect and conserve.

Oil Spill! by Melvin Berger

This book explains why oil spills occur and how they are cleaned up. It suggests strategies for preventing them in the future.

Carl the Complainer by Michelle Knudsen

This book introduces students to the idea that they can play a meaningful role in the world around them. This book makes a connection that students can use when designing their response to the problem of pollution in the unit.

Writers' Note: For a complete listing of instructional books, read alouds, and additional resources, refer to the SCASD Book Pool Inventory found on Filemaker Pro. This list contains newly purchased books for The Wetlands unit along with books that are relevant to wetlands, and were previously housed in primary units that are no longer being taught.

Additional Read Alouds

The read alouds in this section are not referenced in any particular lesson but can be used throughout the unit. There are recommendations as to where the read alouds may be most effective.

These books can be used anytime during the unit.

Song of the Water Boatman by Joyce Sidman
A book of poetry about ponds and wetlands.

Toad By the Road by Joanne Ryder
A book of poems about the life cycle of a toad.

These books can be read anytime after Week 2, Chapter 2, Lesson 7.

A Frog Thing by Eric Drachman
Fred, the frog, wants to fly but he is told he can only do frog things. Fred realizes his dream after he rescues a baby bird that falls into the pond.

Eliza and the Dragonfly by Susie Caldwell Rinehart
When a dragonfly lands on her toothbrush, Eliza goes to a nearby pond with her bug-loving Aunt Doris. There in the pond she sees an "awful green creature" – a dragonfly nymph- the size of a paperclip. This begins Eliza's quest to learn more about the dragonfly. Includes information about the lifecycle of dragonflies and a resource section.

Box Turtle at Silver Pond Lake by Susan Korman
A day in the life of a female eastern box turtle includes searching for food, withstanding threats, and laying her eggs.

Bullfrog at Magnolia Circle by Deborah Dennard
One spring evening, when Bullfrog is a year old and has reached maturity, he searches for a spot of his own. This book offers just a momentary glimpse into a frog's life, and would make a great starting point for a study of frogs.

Additional Read Alouds, continued

Canada Goose at Cattail Lane by Janet Halfmann

In early spring, a Canada Goose patiently sits on a clutch of eggs. Weeks later, five fluffy goslings finally hatch. Canada Goose and her mate have a lot to teach their young. Includes a glossary highlighting key plant and animal terms.

Mallard Duck at Meadow View Pond by Wendy Pfeffer

Follow the first season of a newly hatched mallard and his family. From his first swim on the second day of his life and his first meals, to his early encounters with other wildlife, to the maturing brood testing their wings. The text captures the habitat and clearly explains the development of the ducklings.

Raccoon at Clear Creek Road by Carolyn Otto

Raccoon ventures to a creek to find dinner, but the swollen springtime waters sweep her to the opposite bank, far from her babies. Now Raccoon must find her way back to protect her kits. Includes a glossary of key plant and animal terms.

These books can be read anytime after Week 5, Chapter 3, Lesson 12.

A Wetland Habitat by Bobbie Kalman

Wetlands are found all over North America. They are a vibrant habitat for thousands of plants and animal species. Stunning, colorful photographs and clear, concise language help teach children about a wetland habitat.

Wetland Plants by Terri Sievert

This book is designed to help readers access information about plant life in the wetlands. Topics offered in this book include a description of wetlands and a brief survey of plants in freshwater and saltwater marshes. The author stresses the dangers to the ecology of the wetlands caused by building, draining, and deepening sports.

What Are Wetlands? by Bobbie Kalman

This book investigates different types of wetland habitats, the many plants and animals that make their home in wetlands, dangers to wetlands and threats to their wildlife, and the function of wetlands in relation to other ecosystems.

Unit Related Writing Instruction

This unit lends itself to all modes of writing instruction; poetry, narrative, persuasive, fiction and informational/nonfiction. Please see the following SCASD Teacher Resources and their respective books/chapters for teacher guidance in developing the mode of writing you choose for instruction.

Poetry

- Units of Study for Primary Writing by Lucy Calkins, Book #7 *Poetry: Powerful Thoughts in Tiny Packages*

Narrative

- Units of Study for Primary Writing by Lucy Calkins, Book #2 *Small Moments: Personal Narrative Writing*
- First Grade Writers by Stephanie Parsons, Chapter 4 *Personal Narrative*

Persuasive

- Second Grade Writers by Stephanie Parsons, Chapter 2 *Writing for Change*

Fiction

- Units of Study for Primary Writing by Lucy Calkins, Book #5 *Authors as Mentors*
- First Grade Writers by Stephanie Parsons, Chapter 5 *Fiction*

Informational/Nonfiction

Please use the following SCASD teacher resources when focusing on informational/nonfiction writing. This will ensure that this mode of writing instruction will be developmentally appropriate and is a match for the PA State Standards.

- Units of Study for Primary Writing by Lucy Calkins, Book #5 *Authors as Mentors*
- Units of Study for Primary Writing by Lucy Calkins, Book #6 *Nonfiction Writing: Procedures and Reports*
- First Grade Writers by Stephanie Parsons, Chapter 3 *Nonfiction Questions and Answer Books*
- Second Grade Writers by Stephanie Parsons, Chapter 5 *Writing About Research*