

WATERDROPS

Nature

Teacher's Guide

Welcome to the nature issue of WaterDrops! As part of the Splash! Water Resources Education program, the Southwest Florida Water Management District (SWFWMD) offers this water resources newsletter for elementary students. The newsletter is correlated to grades 3–5 of the Next Generation Sunshine State Standards and the Common Core State Standards and provides an interesting way for students to increase their awareness and respect for water resources and our environment. To better prepare your students for testing, we have included WaterDrops Challenge, which contains items similar to those that may appear on the Florida Comprehensive Assessment Test (FCAT).

This issue focuses on a visit to a nature center. The SWFWMD is charged with preserving and protecting west-central Florida's water resources and the natural systems that sustain them. Nature centers and parks play a valuable role in educating children and their families about the importance of protecting natural areas. Trips to nature centers also allow children to see firsthand the close relationship of water resources with plants, animals and insects.

Many other free materials are available from the SWFWMD and can be ordered online at WaterMatters.org/publications/. We also offer water resources workshops for teachers. Please contact us if you have any questions or suggestions about our water resources education programs.

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Page 1

Hello Readers!

Exploring nature can provide students with valuable learning experiences. Ask students to describe any experiences they have had at a nature park or nature center. Emphasize to your students that water plays an important role in sustaining all aspects of our natural environment.

Page 1

Water Drips & Drops

It's fun to learn interesting facts about water. Trees are an important part of the hydrologic cycle, commonly called the water cycle. Transpiration is a process in which vapor is created when plants and trees give off moisture. Other parts of the hydrologic cycle include solar energy, evaporation, condensation, precipitation and percolation. If you need additional information, please contact the SWFWMD.

Pages 2 & 3

Feature Story

Before reading the story, ask students if they have ever visited a nature center. Allow time for students to share their personal experiences. Then read the story together. Ask students to predict what it may be like to visit a nature center they have never been to before. Ask them to tell about various living and nonliving things they would expect to see there. Discuss the similarities of visiting a nature center and taking a journey. Then ask students to complete the writing activity.

Page 4

Take It Home

Discuss the important role water plays in keeping living things alive and healthy. Ask students what it means to be a nature observer. Provide examples such as watching a turtle cross a path, noticing the types of plants in different areas, seeing tracks made by an animal, etc. Using the chart, explain the different categories of living things and how they depend on water to stay alive and remain healthy. Explain the different sections of the chart and ask students to take it home and complete it. Have students compare their observations with other classmates. For an additional activity, combine all observations on a large poster and display in the classroom.

Page 4

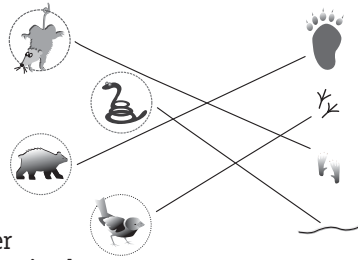
Ask Water Cycle Wanda

Select two students to play the roles of Darrell and Water Cycle Wanda. Ask the students to read their parts. Have students name places where they may find additional information about trees and the process of transpiration. Their answers may include the Internet, radio, TV, library, media center, etc. Try the experiment with your class and discuss the results.

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Before reading the background information about tracking animals, ask students if they have ever identified animal tracks outdoors. Let them share their personal experiences. Read the background information together and ask students to match each animal with its footprint. Help students to explain how they matched the animals with their tracks. Ask students why rainfall could affect animal markings.



WATERDROPS Extended Activities

(See page 3 of this Teacher's Guide)

Number 1: Nature Celebration Month

You may want to select the same month for the entire class to celebrate.

Number 2: My Day as a Mosquito!

Discuss possible adventures a mosquito might have in the course of a day.

Number 3: What Am I?

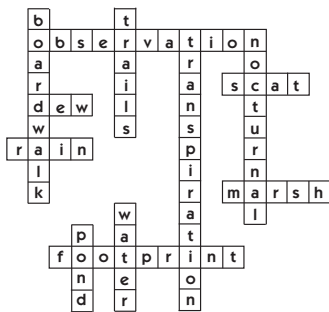
Emphasize the importance of details when students are developing their clues.

Number 4: My Mini Field Guide

Make copies of student pages and place them in a large classroom field guide.

Before reading the article, ask students what it means to be a welcome visitor. Discuss the differences between being a welcome visitor and one who still needs to learn the right way to behave. Then read the article together and ask students to complete the sentences at the bottom of the page.

Fill-in-the-Blank Answer Key: pick (remove), gentle (quiet) trails



Surf the websites listed for interesting information about the environment. As an extended activity, ask students to prepare research questions and search for answers online.

Environmental Protection Agency
epa.gov/students

National Wildlife Federation
nwf.org/kidzone

National Geographic
nationalgeographic.com/kids

Discuss several reasons why nature parks are important to us. Then ask students to complete the activity. This closing activity can be submitted by an individual student or as a classroom set.

WATERDROPS Challenge

(See page 7 of this Teacher's Guide)

Items included in the Challenge are similar to those presented on the Florida Comprehensive Assessment Test (FCAT). Make copies of the Challenge and distribute them to students. Emphasize that taking the Challenge will provide good practice for preparing for the FCAT. Students should be allowed to use the *WaterDrops* issue, if necessary.

Answers to multiple-choice items: 1-d, 2-b, 3-b, 4-a

Answers to extended-response items:

Question 1. Responses will vary. Students should be able to demonstrate a basic understanding of how to be a welcome visitor at a nature park.

Score 2 points if . . . The response indicates the student has a basic understanding of how to be a welcome visitor at a nature park. The student has provided a response that is accurate and complete.

Score 1 point if . . . The response indicates the student has a partial understanding of how to be a welcome visitor at a nature park. The student has provided a response that includes information that is essentially correct, but the information is too general or too simplistic.

Score 0 points if . . . The response is inaccurate, confused and/or irrelevant.

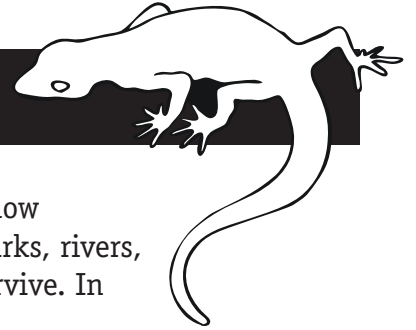
Question 2. Responses will vary. Students should be able to demonstrate a basic understanding of transpiration.

Score 2 points if . . . The response indicates the student has a basic understanding of transpiration. The student has provided a response that is accurate and complete.

Score 1 point if . . . The response indicates the student has a partial understanding of transpiration. The student has provided a response that includes information that is essentially correct, but the information is too general or too simplistic.

Score 0 points if . . . The response is inaccurate, confused and/or irrelevant.

Nature Celebration Month



We often take the natural beauty of our environment for granted. Think about how wonderful it is to be surrounded by so many natural features, such as wildlife parks, rivers, lakes and ponds. All living things in these natural places depend on water to survive. In this activity, you will show the important link between water and living things.

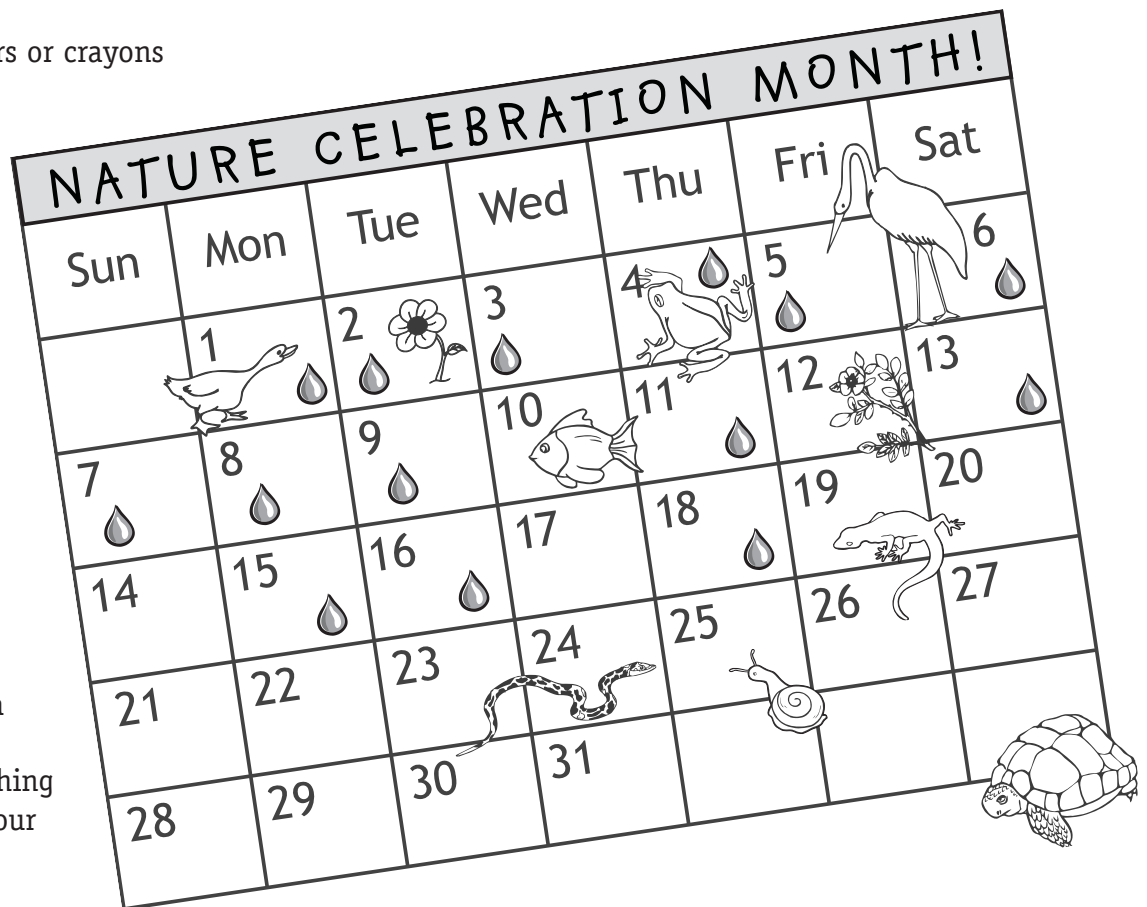
Celebrate nature by creating a special calendar. It's easy and fun to do!

Materials:

- monthly calendar
- colored pens, markers or crayons
- paper
- ruler

Directions:

1. Use a calendar and select one month. This will be your celebration month.
2. On a sheet of paper make your own calendar for that particular month and label it "Nature Celebration Month!"
3. On each day, draw a small picture of a raindrop and something that could live in your special ecosystem.
4. By the end of the month, you should have quite a collection of pictures of living things and water droplets.



Think About It

Describe how the health and well-being of your environment might change over time.

WATERDROPS Extended Activity Number 3

What Am I?

It's important to use your senses when you take a nature hike. What you see, hear, smell and feel can help you discover what things are living in an area. Try to imagine how you would describe a living thing so other people could guess what it is. You may be surprised at some of their guesses!

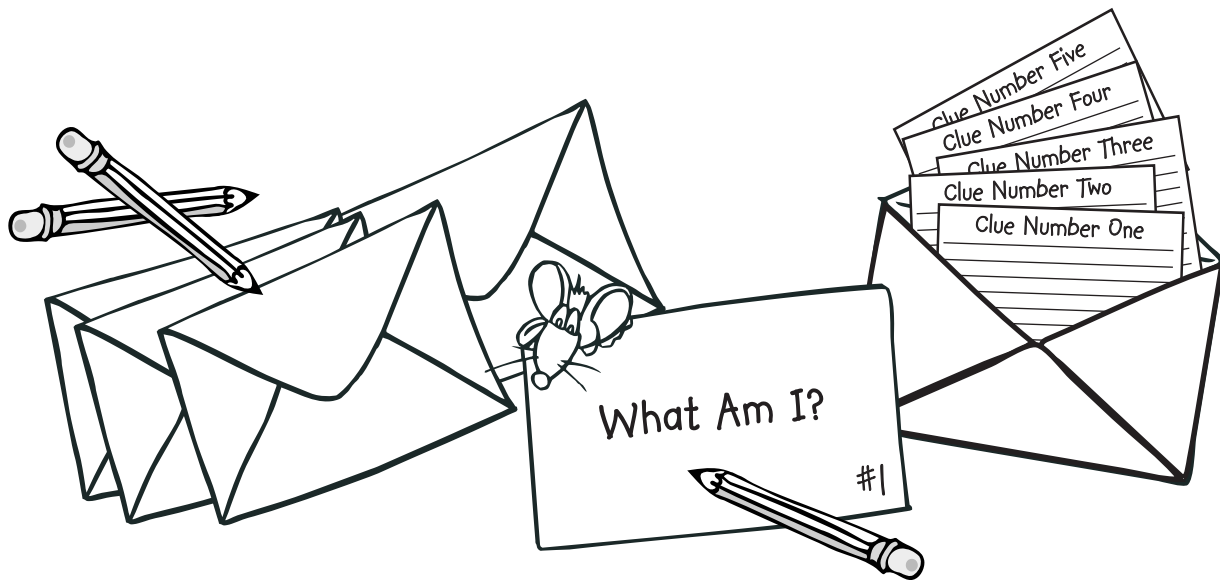
For this activity you will create a set of envelopes that contain clues about something found in nature.

Materials:

- several envelopes
- 3" x 5" index cards
- pen or pencil

Directions:

1. Think about some living thing that you would find in a natural setting.
2. Develop five clues about that thing. Write each clue on a separate card.
3. Place the clues inside one of the envelopes.
4. Label the outside of the envelope "What Am I?" and write a number on it.
5. Repeat steps 1-4 as many times as you like.
6. Develop an answer key card that has the correct names of the living things described in your envelopes.
7. Have a friend use the clues in the envelope to guess the name of the living thing.



Extra Challenge

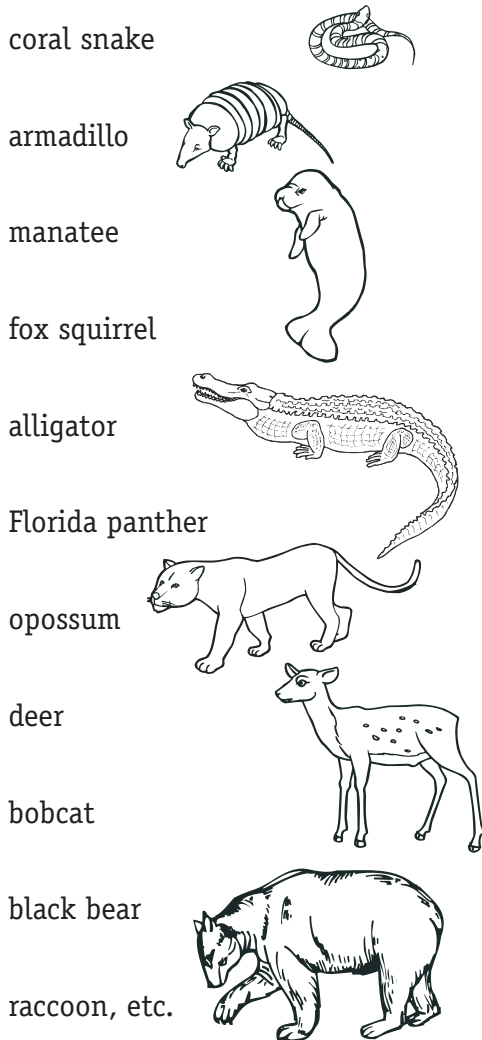
Create an activity center in your classroom by collecting all your classmates' envelopes and placing them in a big box. Decorate the "nature" box and place the answer keys in a separate envelope.

WATERDROPS Extended Activity Number 4

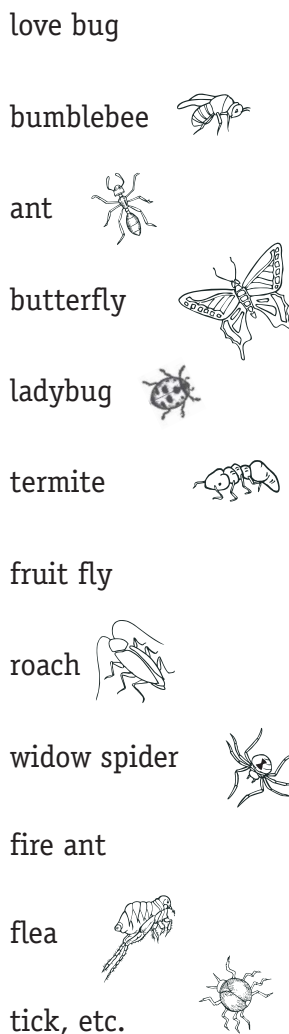
My Mini Field Guide

Our nature parks are filled with a variety of wildlife for us to enjoy. In this activity you will create your own mini field guide of creatures living in natural areas. Gather information about your favorite creatures from other field guides, books, magazines and Internet sites. Include some of the animals, birds and bugs listed below. Use one sheet of paper for each creature. Then place your pages in your mini field guide. Share your field guide with others to help them learn about Florida's interesting creatures!

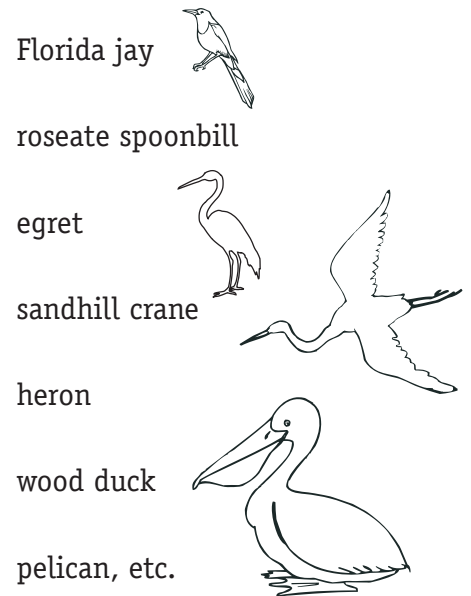
Animals of Florida



Bugs of Florida

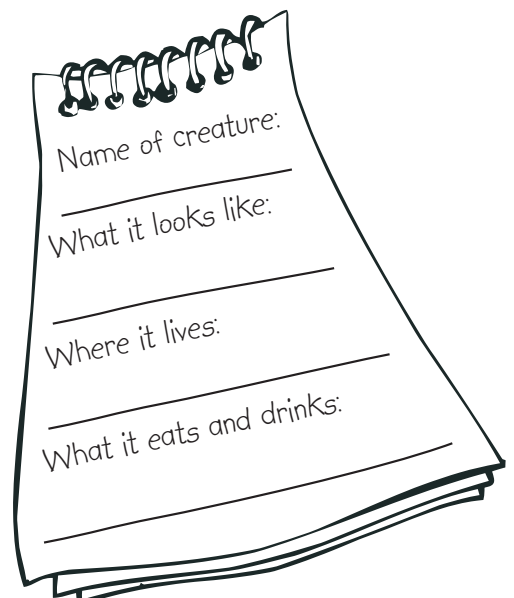


Birds of Florida



Extra Challenge

Include a picture or photo of each creature in your guide.



Name of creature: _____

What it looks like: _____

Where it lives: _____

What it eats and drinks: _____

WATERDROPS Challenge

Directions:

Let's see how much you have learned about becoming a nature observer. Do your best and meet the challenge!

Choose the best answer.

1. Which of the following could you observe on a nature walk?
 - a. native plants**
 - b. mammals, birds and reptiles**
 - c. trees**
 - d. all of the above**

2. Many creatures found in nature are nocturnal. What does this mean?
 - a. The creatures live near the water.**
 - b. The creatures are active at night.**
 - c. The creatures live in trees.**
 - d. The creatures live under the ground.**

3. The leaves of plants and trees give off water, which goes into the air. What is this process called?
 - a. weeping**
 - b. transpiration**
 - c. percolation**
 - d. precipitation**

4. Which of the following clues do animal trackers use to identify the animals living in a natural park?
 - a. footprint patterns, scat and other markings**
 - b. the hours that the park is open to the public**
 - c. the list of park rules**
 - d. the number of visitors and picnic areas**

WATERDROPS Challenge

1

READ
THINK
EXPLAIN

Describe at least three ways you can be a welcome visitor to a nature center. Support your answer with details and information you learned from *WaterDrops*.

2

READ
THINK
EXPLAIN

You have learned how trees and plants need water to survive. They also give off water in a process called *transpiration*. How would you explain transpiration to a friend?

The Southwest Florida Water Management District (District) does not discriminate on the basis of disability. This nondiscrimination policy involves every aspect of the District's functions, including access to and participation in the District's programs, services and activities. Anyone requiring reasonable accommodation, or would like information as to the existence and location of accessible services, activities, and facilities, as provided for in the Americans with Disabilities Act, should contact Donna Kaspari, Sr. Performance Management Professional, at 2379 Broad St., Brooksville, FL 34604-6899; telephone (352) 796-7211 or 1-800-423-1476 (FL only), ext. 4706; or email ADACoordinator@WaterMatters.org. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1-800-955-8771 (TDD) or 1-800-955-8770 (Voice). If requested, appropriate auxiliary aids and services will be provided at any public meeting, forum, or event of the District. In the event of a complaint, please follow the grievance procedure located at WaterMatters.org/ADA.

Activities in *Waterdrops Nature Issue* address the following Common Core State Standards and Next Generation Sunshine State Standards for grades 3–5:

Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects

College and Career Readiness Anchor Standards

Writing: Research to Build and Present Knowledge

W.CCR.7: Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

Writing: Range of Writing

W.CCR.10: Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

Speaking and Listening: Comprehension and Collaboration

SL.CCR.1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.

SL.CCR.3: Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

Next Generation Sunshine State Standards for Science

SC.3.L.15.1: Classify animals into major groups (mammals, birds, reptiles, amphibians, fish, arthropods, vertebrates and invertebrates, those having live births and those which lay eggs) according to their physical characteristics and behaviors.

SC.3.L.17.1: Describe how animals and plants respond to changing seasons.

SC.3.L.17.2: Recognize that plants use energy from the sun, air, and water to make their own food.

SC.3.N.1.1: Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

SC.4.L.16.1: Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.

SC.4.L.16.2: Explain that although characteristics of plants and animals are inherited, some characteristics can be affected by the environment.

SC.4.L.16.3: Recognize that animal behaviors may be shaped by heredity and learning.

SC.4.L.16.4: Compare and contrast the major stages in the life cycles of Florida plants and animals, such as those that undergo incomplete and complete metamorphosis, and flowering and nonflowering seed-bearing plants.

SC.4.L.17.1: Compare the seasonal changes in Florida plants and animals to those in other regions of the country.

SC.4.L.17.2: Explain that animals, including humans, cannot make their own food and that when animals eat plants or other animals, the energy stored in the food source is passed to them.

SC.4.L.17.3: Trace the flow of energy from the Sun as it is transferred along the food chain through the producers to the consumers.

- SC.4.L.17.4: Recognize ways plants and animals, including humans, can impact the environment.
- SC.4.N.1.1: Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.
- SC.5.L.17.1: Compare and contrast adaptations displayed by animals and plants that enable them to survive in different environments such as life cycles variations, animal behaviors and physical characteristics.
- SC.5.N.1.1: Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.