

# WATERDROPS

Weather Issue

A Southwest Florida Water Management District Water Resources Newsletter

Water  
Drips & Drops

Feature  
Story

Take It  
Home

Water Cycle  
Wanda

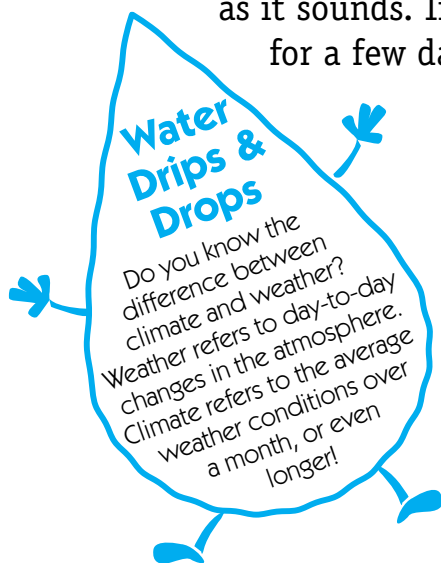
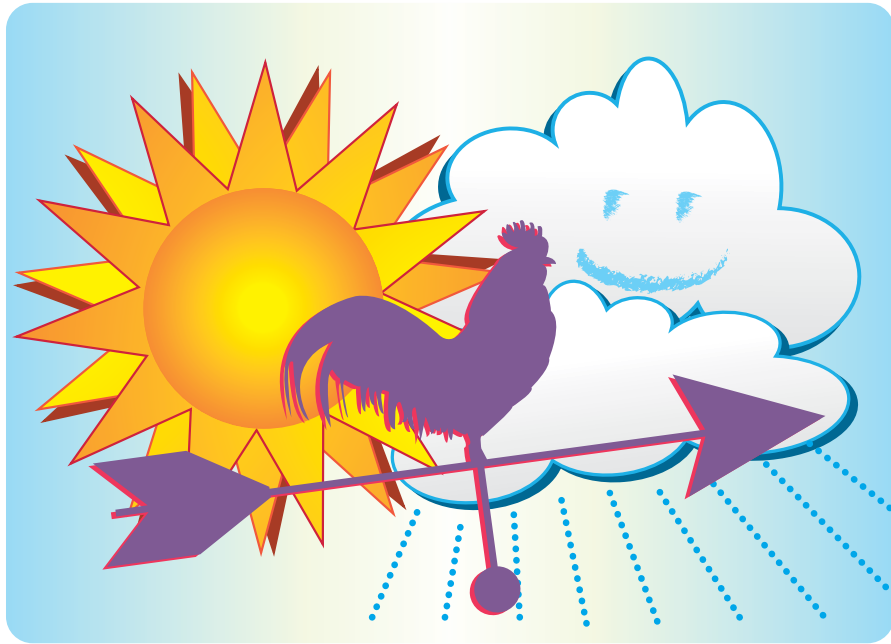
Water in Our  
World

Games &  
Puzzles

What's Wet  
on the Web!

Hello Readers!

Usually, when we get up in the morning, we want to know what the weather will be like so we can plan our day. Fortunately, news about weather surrounds us. This makes it easy for us to follow the latest weather forecasts on TV, in newspapers, on the radio and even on the Internet. The experts who measure, study and predict the weather are called *meteorologists*. Predicting the weather isn't as easy as it sounds. In fact, the experts say that to make a weather forecast for a few days, computers need to process more than one trillion calculations (1,000,000,000,000). Wow!



Did you know that weather plays an important role in the hydrologic cycle, or **water cycle**? Weather conditions such as rain, clouds and fog are part of the hydrologic cycle. To help you learn more about weather, we have included a feature story, articles, activities and games. Don't forget to send in the activity on the back page for a free **Water Cycle** wristband.

**Happy Splashing!**

Southwest Florida  
Water Management District



**WaterDrops** is published by the Southwest Florida Water Management District as a part of the Splash! program.

## KITE FLYING ON A CLOUDY DAY

"Let's get ready to fly our kites," said Derrick as he got up from the beach blanket. "Follow me and we can fly them along the shore," he said as he took off in the direction of the foamy ocean waves.

Suddenly, Derrick's younger brother looked up. "Hey, wait for me, Derrick!" yelled Lawrence as he untangled the end of his kite while running to catch up to Derrick.

Near the shore, they released the kites. After a few tries, both kites were flying high up into the breezy air. Their brightly colored kites glistened as they bobbed up and down in the sky filled with clouds.

"Derrick, look at all the different shapes and sizes of the clouds. You studied clouds at school," said Lawrence. "What do you know about them?"

"I know there are basically three forms of clouds," said Derrick as he gave his kite more string. "The stratus clouds are the low, gray clouds that can bring rain. The cumulus clouds are puffy and often heaped on top of one another. The cirrus clouds are feathery like those way up there," said Derrick as he pointed to a few cirrus clouds.

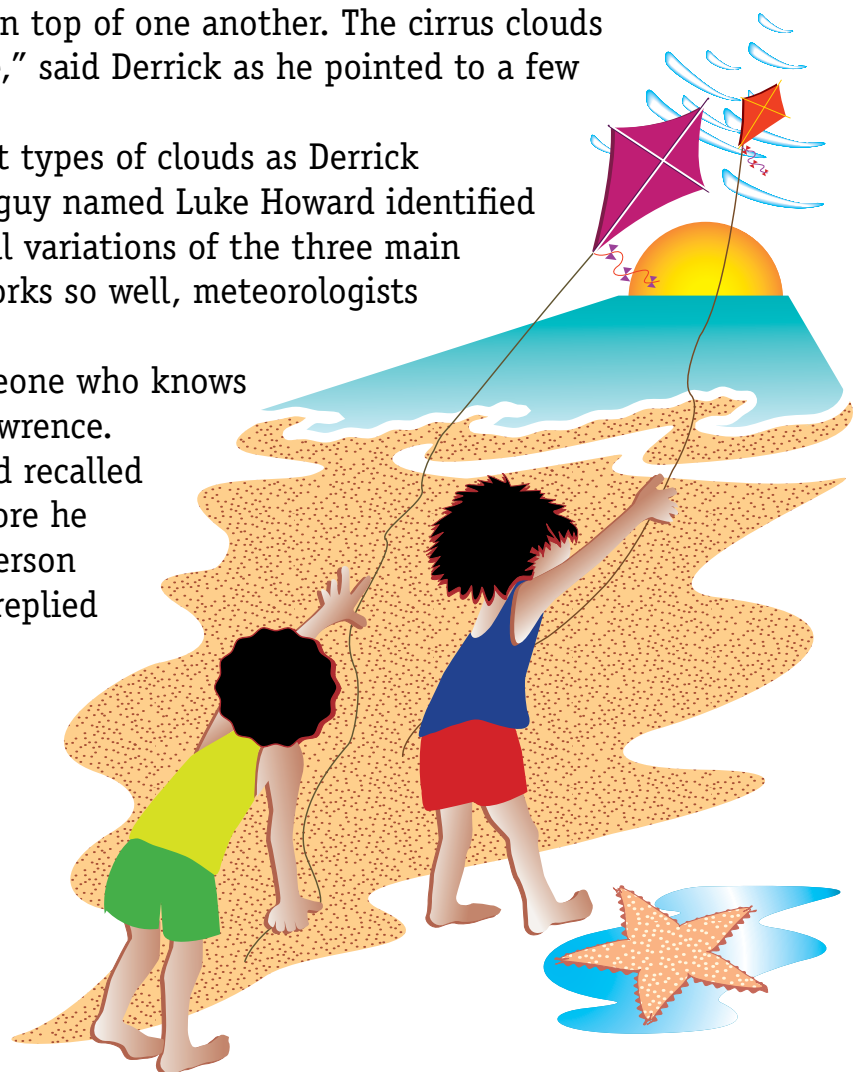
Lawrence studied the different types of clouds as Derrick continued, "Way back in 1803, this guy named Luke Howard identified 10 categories of clouds, which are all variations of the three main kinds of clouds. Since the system works so well, meteorologists still use it today."

"What's a meteorologist? Someone who knows about meteors or comets?" asked Lawrence.

Derrick laughed to himself and recalled that he thought the same thing before he had learned about weather. "It's a person who studies and predicts weather," replied Derrick.

Lawrence thought about this information as they watched their kites get drawn up through the air by gusty winds. "Now that I know there are 10 different categories

of clouds, how does a cloud become a cloud in the first place?"



"Oh, that's easy to explain," said Derrick. "Clouds are part of the **water** cycle, or hydrologic cycle, that you learned about at the science museum. You remember, don't you? The sun is the energy source that makes it all happen. As the sun heats the earth's surface **waters**, the **water** evaporates up into the air. The sky remains clear as long as the air can hold the **water** vapor. But, if the **water** vapor cools, it turns into droplets that combine to form a cloud. A cloud is made of millions of droplets of **water**. Clouds may be close to the earth's surface or they may be miles above. In fact, fog is a special type of cloud near the ground. You already noticed that not all clouds look the same. Some are small and fluffy and others are big and towering. But, no matter what their shape or size, all clouds begin the same way in the **water** cycle."

"Wow! That's pretty cool," said Lawrence, as he tried to remember about his visit to the museum where he saw an exhibit about the hydrologic cycle. "Can meteorologists use the clouds to predict weather?" he asked.

"Definitely," replied Derrick. "Clouds give clues about the weather. The low-lying, dark nimbostratus clouds usually mean rain. Thunder, lightning and rain come from cumulonimbus storm clouds. Other clouds help predict other kinds of weather."

Just then Lawrence pointed at a nimbostratus cloud. "It looks like that big dark cloud is trying to tell us it is going to rain soon," said Lawrence. "Let's pack up our stuff and head for home before we get soaked!"

Derrick looked at Lawrence and smiled. "For a younger brother, you are a pretty fast learner. You may even be smart enough to become a meteorologist when you grow up." They scurried off just as rain began to fall.



**Cirrus**



**Cumulus**



**Stratus**



**Pretend that the string broke on one of the kites. Describe the kite's journey as it travels through several different kinds of clouds. Be sure to tell where the kite ends its journey. For extra fun, write your story on a cloud-shaped piece of paper.**

# Take It Home

## MAKE YOUR OWN RAIN GAUGE

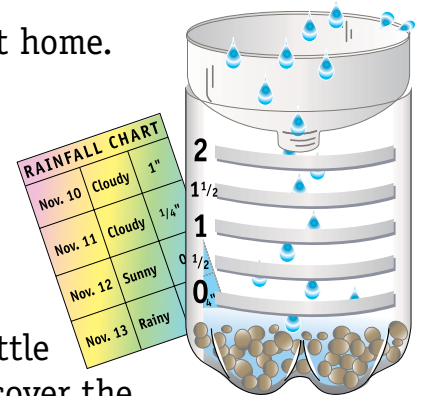
**It Can Be Fun!** Here is an easy experiment that you can do at home.

### Materials:

- plastic soda bottle
- permanent marker
- **water**
- scissors
- handful of stones or gravel
- ruler

### Directions:

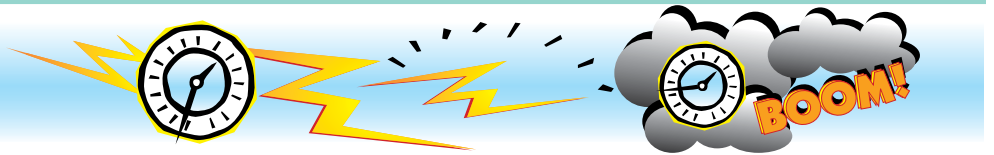
1. Ask an adult to cut off the top section of the bottle.
2. To keep the bottle from tipping over, fill the bottom of the bottle with a handful of small stones or gravel. Then pour **water** to cover the stones and draw a line across the bottle and label it "0" to mark the base level.
3. Beginning at the base level, draw a few long lines to represent 1-inch measurements. Then draw shorter lines in between to represent half-inch measurements.
4. Place your rain gauge in an open area outdoors.
5. Be sure to maintain **water** at baseline level to make up for evaporation.
6. Measure the collected rainfall and record your results on a chart. Include the date, weather conditions (sunny, cloudy, rainy) and the amount of rainfall, if there is any.
7. Be sure to empty the bottle, maintaining the baseline level, each time you measure and record any collected rainfall.



*How did your rainfall record compare to the records of other classmates?  
Who received the most rain? Who received the least?*



## Ask Water Cycle Wanda



**Ashley asks:** Someone told me that lightning and thunder can be used to tell how far away a storm is taking place. Is this true?

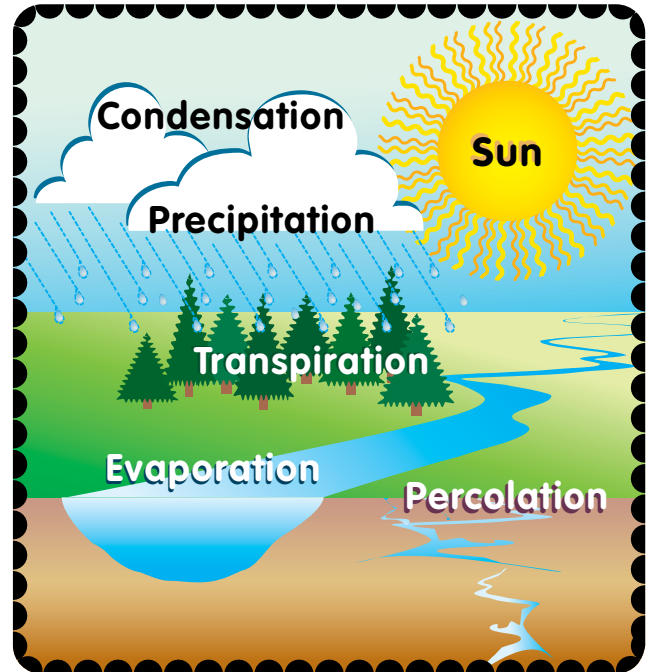
**Water Cycle Wanda:** It's true. If you measure the length of time between a flash of lightning and a clap of thunder, you can get an estimate of the distance from where you are standing to the storm's location. The number of miles to the storm is about 1 mile for every 5 seconds between the flash and the boom. So, if you counted 20 seconds between the flash of lightning and rumble of thunder, the storm would be approximately 4 miles away.

# Water in Our World

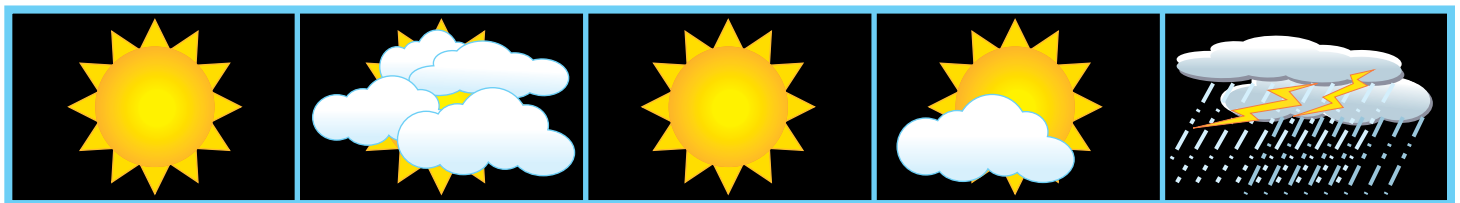
## BE A WEATHER WATCHER

### The Hydrologic Cycle

|                      |                                                                           |
|----------------------|---------------------------------------------------------------------------|
| <b>sun</b>           | source of energy                                                          |
| <b>evaporation</b>   | vapor created when sun heats surface <b>water</b>                         |
| <b>transpiration</b> | moisture given off from trees and plants                                  |
| <b>condensation</b>  | tiny <b>water</b> droplets formed when <b>water</b> vapor rises and cools |
| <b>precipitation</b> | moisture released from clouds in the form of rain, snow, etc.             |
| <b>percolation</b>   | movement of <b>water</b> through the ground                               |



You have already learned that weather plays an important role in the hydrologic cycle. Now it's your turn to become a weather watcher. Study the following five-day forecast and then quiz yourself.



| Wednesday    | Thursday     | Friday       | Saturday      | Sunday        |
|--------------|--------------|--------------|---------------|---------------|
| Mostly Sunny | Partly Sunny | Mostly Sunny | Partly Cloudy | Thunderstorms |
| High 70°     | High 72°     | High 75°     | High 70°      | High 72°      |
| Low 52°      | Low 53°      | Low 55°      | Low 50°       | Low 53°       |

### Weather Watcher Quiz

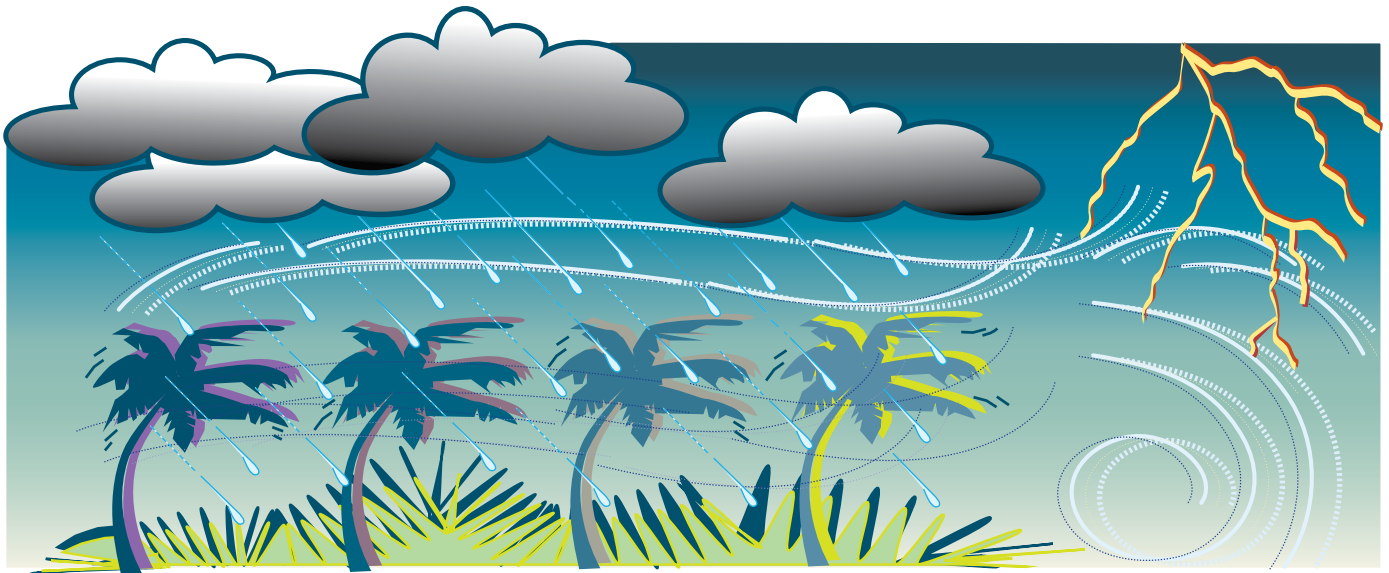
Circle **True** or **False**.

|             |              |                                                                  |
|-------------|--------------|------------------------------------------------------------------|
| <b>True</b> | <b>False</b> | Thunderstorms are predicted for Saturday.                        |
| <b>True</b> | <b>False</b> | Wednesday and Saturday are expecting the same high temperatures. |
| <b>True</b> | <b>False</b> | The lowest temperature is predicted for Saturday.                |

*For an extra challenge, create your own five-day forecast.*

## THE AREA'S MOST VIOLENT STORMS

People who live in Florida are familiar with tropical storms and the more violent storms, called hurricanes. Hurricanes usually form in warm seas near the equator and move in a northwesterly direction. During our hurricane season (June–November), a combination of warm and moist weather conditions can cause a small storm system to grow rapidly into a mature hurricane. Weather satellites show images of a hurricane as a spinning pinwheel shape, with bands of clouds rotating around a dark spot known as the eye of the hurricane. The hurricane winds and clouds form a huge spiral swirl that spins around this calm center. Meteorologists can predict when a hurricane is brewing. This gives people who may be affected by the storm plenty of time to prepare for an approaching hurricane. The National Weather Service has established guidelines for Floridians to follow in the event of an approaching hurricane. To learn more about hurricanes, visit [www.fema.gov/kids/hurr.htm](http://www.fema.gov/kids/hurr.htm)



### Fill-in-the-blank

Complete each sentence by writing the correct word.

The calm center area of a hurricane is called the \_\_\_\_\_.

Weather reports help people \_\_\_\_\_ for hurricanes.

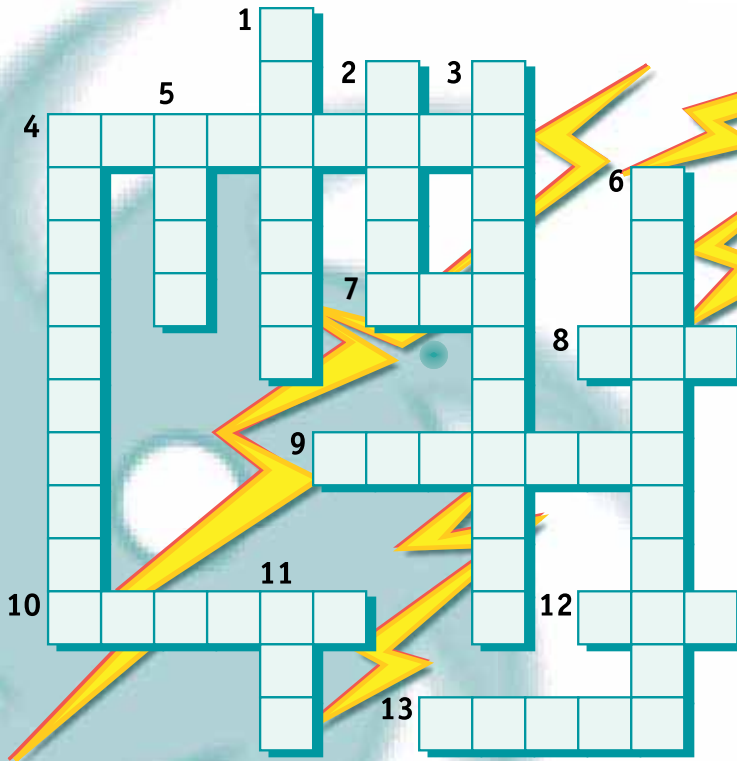
The National \_\_\_\_\_ Service has established rules for Floridians to prepare for hurricanes.

## WEATHER CROSSWORD PUZZLE

Use the clues and the word bank to complete the puzzle.

### Weather Word Bank

weather  
meteorology  
windy  
gauge  
dry  
clouds  
hurricane  
temperature  
wet  
fog  
climate  
rain  
eye  
hydrologic



### Across

4. One of the most violent kinds of storms is called a \_\_\_\_\_.
7. The calm area called an \_\_\_\_\_ is located in the center of a hurricane.
8. The opposite of dry is \_\_\_\_\_.
9. The \_\_\_\_\_ describes conditions in the atmosphere at a particular time and place.
10. The \_\_\_\_\_ contain millions of tiny **water** droplets.
12. A special type of cloud that forms near the ground is called \_\_\_\_\_.
13. On a \_\_\_\_\_ day, the air is moving around very quickly.

### Down

1. An area's average weather conditions over a month or even longer is called the \_\_\_\_\_.
2. A rain \_\_\_\_\_ is used to collect and measure rainfall.
3. A weather forecast usually includes a prediction of the high and low \_\_\_\_\_.
4. Another name for **water** cycle is the \_\_\_\_\_ cycle.
5. Precipitation in Florida is usually in the form of \_\_\_\_\_.
6. The subject of studying and predicting weather is called \_\_\_\_\_.
11. The opposite of wet is \_\_\_\_\_.

# What's Wet on the Web!

It's fun to be a weather watcher and learn more about our world. Try visiting a few of the following sites on the Internet. They are packed with all kinds of information and links about weather.

*National Weather Service*

[www.nws.noaa.gov/](http://www.nws.noaa.gov/)

*National Weather Service for Tampa Bay*

[www.srh.noaa.gov/tbw](http://www.srh.noaa.gov/tbw)

*Cable News Network's Weather Main Page*

[www.cnn.com/weather/](http://www.cnn.com/weather/)

*The Weather Channel*

[www.weather.com](http://www.weather.com)

*Weather site of USA Today*

[www.usatoday.com/weather/](http://www.usatoday.com/weather/)



## OUR WORLD OF WEATHER

Now that you have finished this issue of *WaterDrops*, we are anxious to hear from you! List four facts that you learned about weather.

1

\_\_\_\_\_

2

\_\_\_\_\_

3

\_\_\_\_\_

4

\_\_\_\_\_

**Mail your message to us and we will send you a *Water Cycle* wristband!**

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

County \_\_\_\_\_ School \_\_\_\_\_

Teacher \_\_\_\_\_ Grade \_\_\_\_\_

Send to: **WaterDrops — Weather  
Youth Education**

**Communications Department**

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**Southwest Florida**  
*Water Management District*



This information will be made available in accessible formats upon request.  
Please contact the Communications Department at (352) 796-7211 or  
1-800-423-1476 (FL only), ext. 4757; TDD only at 1-800-231-6103 (FL only).

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