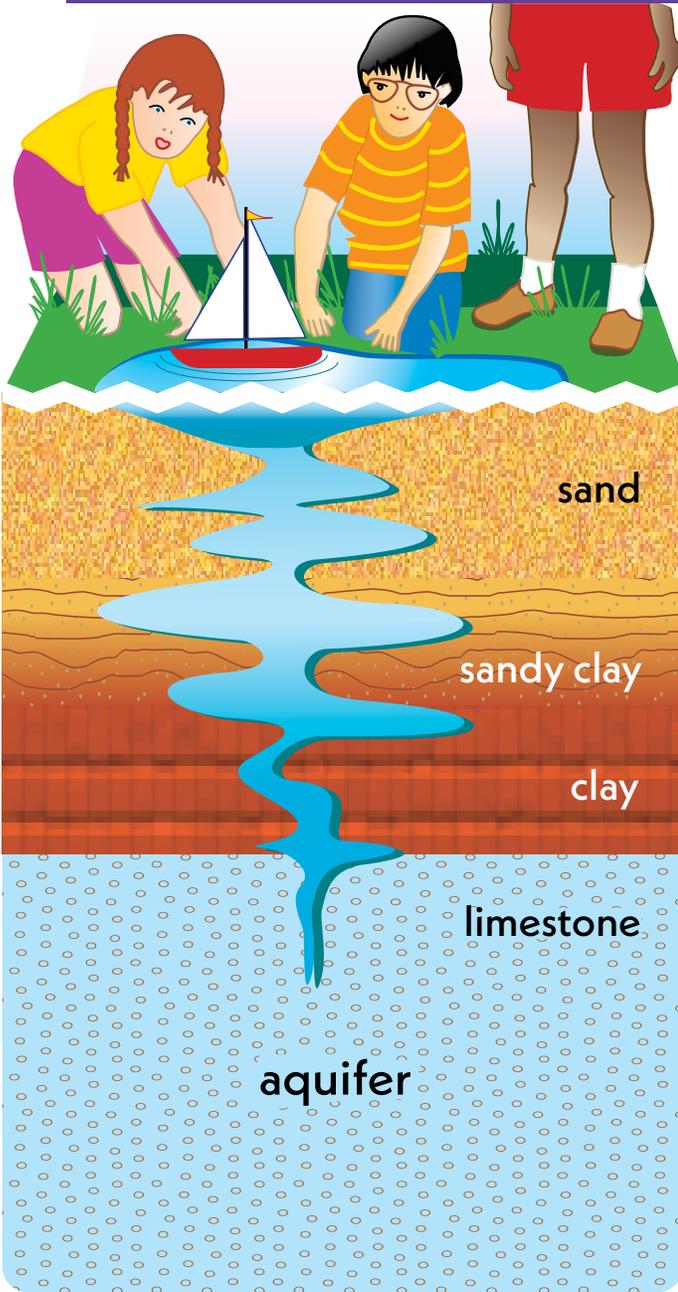


WATERDROPS

Groundwater

Southwest Florida Water Management District Water Resources Newsletter for Grades 3-5

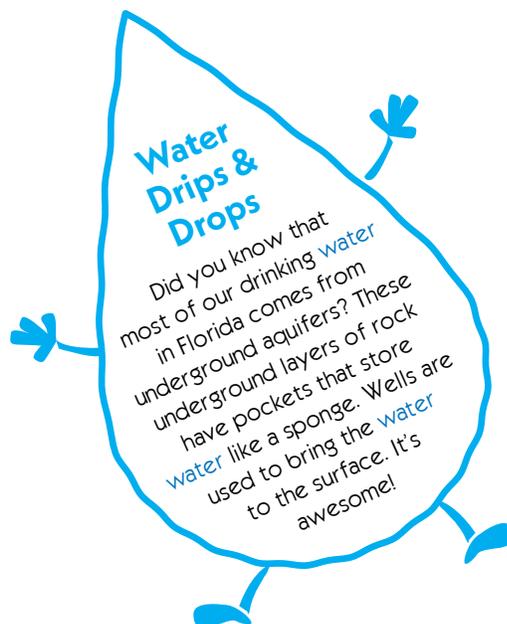


Hello Readers!

This issue of *WaterDrops* is on the subject of *groundwater*. Whether you know it or not, you are probably standing on top of *groundwater* right now! *Groundwater* lies almost everywhere beneath the earth's surface. *Groundwater* is very important to us. To help you learn more about *groundwater*, we have included a feature story, articles, activities and games. When you finish this issue, we hope that you will teach others about *groundwater* and why we need to protect it.

In other issues of *WaterDrops*, you'll learn more about how important *water* is to us.

Happy Splashing!



Southwest Florida
Water Management District

WATERMATTERS.ORG · 1-800-423-1476

This document complies with WCAG 2.2 AA standards

Water
Drips & Drops

Feature
Story

Take It Home

Water Cycle
Wanda

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Feature Story

AN ADVENTURE IN THE AQUIFER

Cindy leaned on her bed pillow as she read about divers swimming through caves in an aquifer. At school, Cindy's class was learning about aquifers. She was planning to write about the Floridan aquifer system.

Here are a few facts that she learned about the Floridan aquifer system:

- It stretches 100,000 square miles beneath Florida and parts of Alabama, Georgia and South Carolina.
- It is made up mostly of limestone, which acts as a sponge to hold **water**.
- The holes in the rock allow **water** to flow freely through it.
- Rocks that dissolve from acidic **water** can cause caves and sinkholes.

"It's time to turn off your light and go to sleep," called Cindy's mother from another room.

"May I please have a few more minutes, Mom?" asked Cindy. She finished reading about how divers put on their fins, masks and oxygen tanks that helped them breathe under **water** and jumped into the springs connected to the aquifer. Wow, thought Cindy. I sure would like to swim through the pockets of limestone that hold our **groundwater**. It would be really cool.

Cindy closed the book and turned off her light. Within a few minutes, she was fast asleep and began to dream...

Cindy dreamed that she was an **underwater** photographer. She was assigned to take pictures of other divers in the Floridan aquifer system. To prepare for her assignment, she had to learn a lot because swimming in **underwater** caves can sometimes be dangerous.

Cindy felt very lucky to have the assignment because Florida is one of the few places in the world where divers can go exploring in an aquifer system. As she jumped into the spring, she could feel the force of fresh **water** on her mask. Cindy swam deeper and deeper. She noticed how the limestone rock of the aquifer really did look like a sponge. This is amazing, she thought to



herself. She began taking pictures of the rocks and fish that surrounded her. She could feel the movement of fresh **water** flowing freely through the holes of the limestone. She clicked her camera several times as schools of big and small fish swam through the different pockets in the **underwater** cave system. Just as she entered another part of the aquifer, she heard her mother's voice and a knock on her bedroom door.

"It's time to wake up, Cindy," said Mother. "You don't want to be late for school."

Cindy rolled over and slowly opened her eyes. Wow, that was quite a dream, she thought to herself. Cindy decided that she would write about her dream as part of her school project. Maybe when I grow up I will have a job that is as cool as the one I dreamed about, she thought, as she got ready for school.

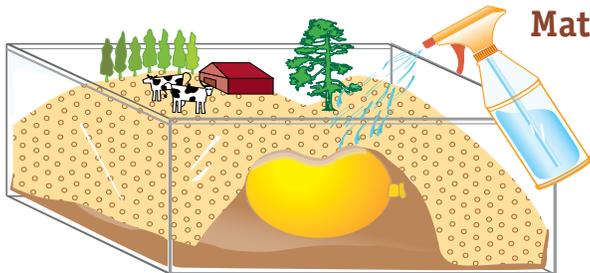


Pretend that you have the opportunity to dive into an aquifer. Write about your experience. Be sure to include a few of the facts about the Floridan aquifer system in your story.

Take It Home

Make Your Own Sinkhole — a sinkhole is a collapsed underground space caused when bedrock erodes and dissolves from acidic **water**.

Here is an easy experiment you can do at home.

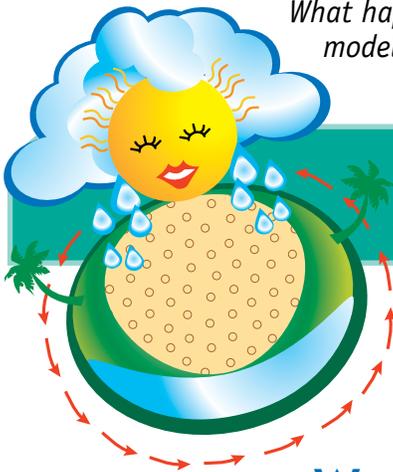


- Materials**
- shoebox or other container
 - small balloon
 - sand or dirt
 - spray bottle of **water**
 - straight pin
 - models that represent homes, trees, farm animals, etc.

Directions

1. Fill the bottom of the container with a few inches of dirt or sand.
2. Blow up the balloon and lay it on the surface.
3. Completely cover the balloon with damp dirt or sand.
4. Place model pieces on surface.
5. Dampen the surface by spraying **water** on it.
6. Pop the balloon and observe the results. (If the model doesn't collapse, continue spraying **water** on the surface.)

You have caused a sinkhole to develop! Take notes on what you observed in this experiment. What happened to the surface after you popped the balloon? What happened to the model pieces? Share your findings with your class.



Ask Water Cycle Wanda

Wally asks: My friend says the reason we have lots of sinkholes and springs is because we live in a karst area. What does *karst* mean?

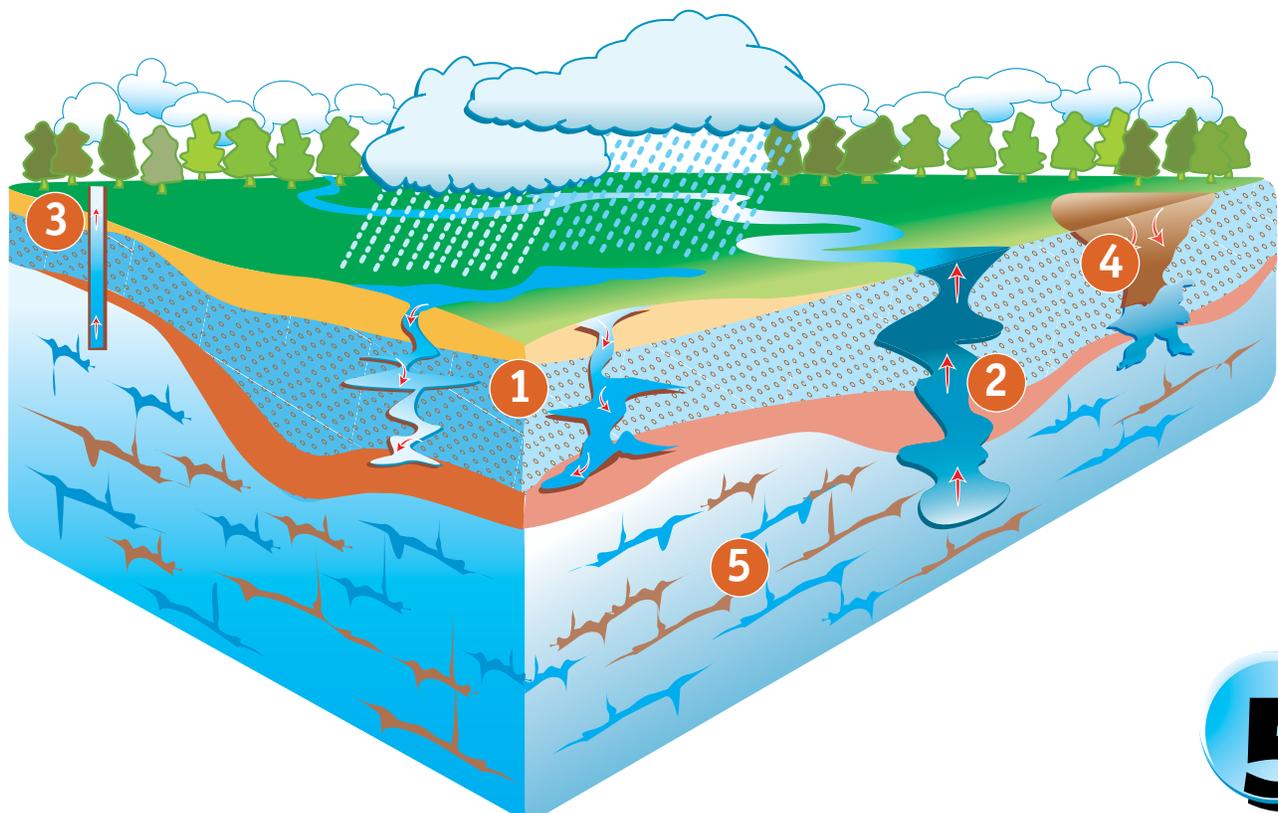
Water Cycle Wanda: Your friend is right. A karst landform comes about when parts of the underlying bedrock dissolve because of acidic **water** passing through it. The bedrock is made up of mostly limestone. Much of Florida has a karst landform. This is why we also have many springs and sinkholes. A spring is where ground**water** flows out of a natural opening in the earth's surface. A sinkhole is a collapsed underground space caused when bedrock erodes and dissolves from acidic **water**. Try the experiment on this page to learn more about sinkholes.

Water in Our World

WATER ACTION UNDER THE GROUND

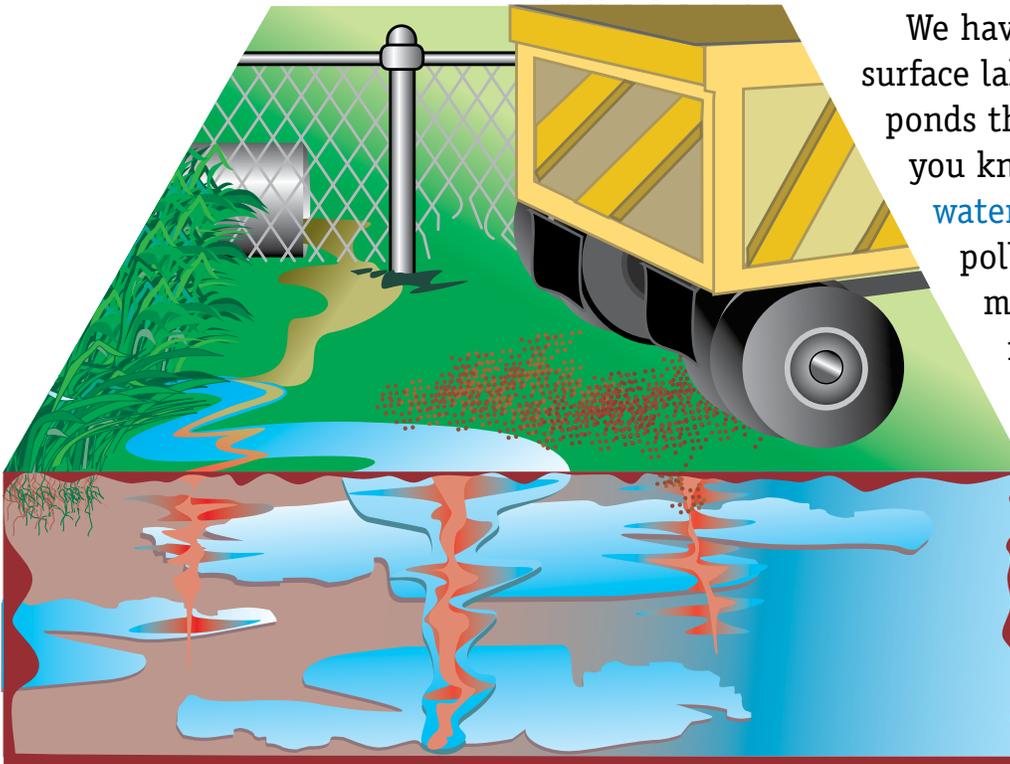
Did you know that there is a lot of **water** action taking place under the earth's surface? **Water** is constantly moving through different underground areas. Study the picture below that shows what happens to **water** under the ground. Then draw a line from the vocabulary words to the correct numbers in the picture below.

- 1 percolation** movement of the **water** through the ground
- 2 spring** area where groundwater flows out of a natural opening in the earth's surface
- 3 well** a hole drilled into the aquifer so that groundwater can be brought to the surface
- 4 sinkhole** a collapsed underground space caused when bedrock erodes and dissolves from acidic **water**
- 5 aquifer** underground layer of spongelike rock that holds **water**



Water in Our World

KEEPING OUR UNDERGROUND WATER HEALTHY



We have all probably seen surface lakes, rivers, streams and ponds that are polluted. But did you know that underground **water** areas can also become polluted? There are many different kinds of materials that can cause our **groundwater** to become unhealthy. Materials such as pesticides and fertilizers, septic tank seepage and **stormwater** runoff can pollute **groundwater**.

Think about your neighborhood. List several suggestions that people can follow to help avoid polluting our **groundwater**.

Fill in the blank

Complete each sentence by writing the correct word.

Materials that cause our **water** to become _____ are called pollutants.

There are many things that _____ can do to avoid being **groundwater** polluters.



Pesticides, fertilizers and _____ runoff are examples of materials that can pollute our **groundwater**.

WORD SEARCH

Can you find these words?

Word Bank

clean

karst

percolation

pollution

resource



Word Bank

sinkhole

spring

underground

water

well

WATER WORDS

Unscramble the following groups of letters to form **water** words. Then use these words to tell a **water** story.

stark _____

qufaier _____

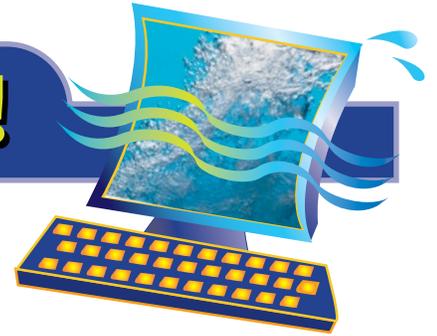
kinsloeh _____

stomenile _____

gonesp _____

pisnrgrs _____

What's Wet on the Web!



Are you ready to learn more about groundwater? Surf GroundWater.org/Kids. Explore different ways to protect groundwater at home and in your community, or have some fun using the Games and Puzzles link.

FIND THE HIDDEN WATER MESSAGE

1 = A	14 = N
2 = B	15 = O
3 = C	16 = P
4 = D	17 = Q
5 = E	18 = R
6 = F	19 = S
7 = G	20 = T
8 = H	21 = U
9 = I	22 = V
10 = J	23 = W
11 = K	24 = X
12 = L	25 = Y
13 = M	26 = Z

20 8 5 6 12 15 18 9 4 1 14 1 17 21 9 6 5 18
19 25 19 20 5 13 3 15 14 20 1 9 14 19 15 21 18
16 18 5 3 9 15 21 19 4 18 9 14 11 9 14 7
23 1 20 5 18



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 who 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 the Human Resources Office Chief, at 2379 Broad St., Brooksville, FL 34604-6899; telephone (352) 796-7211 or 1-800-423-1476 (FL only); 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.

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