

SINKING IN THE RAIN (OR DROUGHT) Grades 3-5

OBJECTIVES:

- To identify ways that sinkholes are formed.
- To describe the causes of sinkholes.
- To list the effects of sinkholes on the physical and human environment.

FCAT STRANDS ADDRESSED:

Reading Exam: Reference and Research
Comparisons and Cause/Effect

Writing Exam: Expository writing

Science Exam: Processes that shape the earth

MEETS THE FOLLOWING SUNSHINE STATE STANDARDS:

SOCIAL STUDIES

Strand A: *Time, Continuity, and Change [History]*

Standard 6: *The student understands the history of Florida and its people*

Benchmark SS.A.6.2.2 The student understands the influence of geography on the history of Florida.

SCIENCE

Strand D: *Processes that Shape the Earth*

Standard 1: *The student recognizes that processes in the lithograph, atmosphere, hydrosphere, and biosphere interact to shape the Earth*

Benchmark SC.D.1.2.4 The student knows that the surface of the earth is in a continuous state of change as waves, weather, and land constantly change and produce many new features.

Strand H: *The Nature of Science*

Standard 1: *The student uses scientific process and habits of mind to solve problems*

Benchmark SC.H.1.2.5 The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing.

LANGUAGE ARTS

Strand A: *Reading*

Standard 2: *The student constructs meaning from a wide range of texts*

Benchmark LA.A.2.2.7 The student recognizes the use of comparison and contrast in a text.

MATERIALS:

- Pictures and information on sinkholes
- Oblong balloons (one per group)
- Sand
- An empty plastic cup or mini-house or building (one per group)
- Straight pins (one per group)
- Shoe boxes (one per group)

PRE-VISIT ACTIVITIES:

1. Introduce the topic of sinkholes. Compare sinkholes to other natural disasters. Make a list of what students already know about the topic.
2. Research what it looks like underground in Florida. Use resources to research the causes and effects of sinkholes. Students record their findings and report to the class. The teacher writes students' responses where all can see and then the students summarize what has been learned.
3. Have the students take a piece of paper and fold it in half and draw what the underground looks like on one half of their paper. (Save papers for later)
4. Divide the class into small groups of two or three. The groups will then create a simulated sinkhole. Have each group cover the bottom of their box with two inches of sand.
5. Give each group a balloon and have one person blow it up and tie it.
6. Place the balloon in the center of the shoebox on top of the sand.
7. Fill the box with enough sand to cover the balloon and lightly pack it down. Place the cup or house/building on top of the sand, over the balloon.
8. Use a straight pin to pop the balloon. The results of this activity should be similar to what happens when a sinkhole is formed.

AT THE HISTORY CENTER:

1. Have students study the large model of a sinkhole, looking for the explanation of the cause of the sinkhole in relation to the classroom lesson.

POST-VISIT ACTIVITIES:

1. After returning from the History Center, discuss the scale representation of the Winter Park sinkhole and recall what the students learned about how it was formed.
2. Return the papers of the underground that the students completed earlier. Have them illustrate, on the other half of the page, what the ground would look like if a sinkhole formed.
3. As a culminating activity, make two lists. One of the positive consequences of a sinkhole, and one of the negative aspects.

ASSESSMENT:

1. Have the students turn over their illustrations of the underground and the sinkhole and write a paragraph about how and why a sinkhole is formed.
2. The students can also describe how their model and the representation of the sinkhole at the Center are alike and different from real sinkholes.

EXTENSIONS:

Writing Prompts can include...

I woke up this morning, looked out my window, and saw this huge hole...

When I was walking through the woods one day, I saw a large hole in the ground. I started to investigate and I found...

We just found out that our house is going to sink into a sinkhole. I was told I have a half hour to take out everything I want to keep...

RESOURCES

Internet:

Florida Water Quality Information System <http://waterquality.ifas.ufl.edu/>

Photo of 1981 Winter Park Sinkhole

http://landslides.usgs.gov/html_files/landslides/slides/slide10.htm

Florida Sinkhole Research Institute <http://www.cce.ucf.edu/RESEARCH/fsri/>

Photos of Florida Sinkholes http://www.technos-inc.com/central_florida_photos.htm

Florida Department of Environmental Protection

<http://www.dep.state.fl.us/geology/geologictopics/sinkhole.htm>

Articles or other media

Look up the following in Encarta® Encyclopedia:

- Sinkholes
- Limestone
- United States (Geography)

Documentary film

Water's Journey - The Hidden Rivers of Florida.