



Science Your Way Texts



Emily Starr
President/CEO

Hi! I know the challenges of elementary education. Fueled by my teaching experience and a desire to help fellow educators, I left the classroom in 2005 and StarrMatica Publishing Group was born. 16 years later, I continue to be a leader in the field of innovative classroom resources. I have a passion for creating STEAM teaching resources to support the Next Generation Science Standards (NGSS) and to help teachers differentiate reading instruction.

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WHAT DO YOU NOTICE IS HAPPENING IN THIS PHOTOGRAPH?

STUNNING SINKHOLES

By Sarah Wassner Flynn

It was a typical November day in Taipei, a busy city in Taiwan. Then... *bam!* A blue construction truck driving down the street suddenly slipped into a hole in the road. In seconds, the truck began to sink deeper and deeper into the hole. The truck's driver barely managed to escape before the truck was nearly swallowed by the street.

Turns out, the truck had fallen into a **sinkhole**. A sinkhole is a hole in the ground caused by a collapse of the Earth's surface layer. In Taipei, the sinkhole had been caused by a leak in an underground pipe. The leak caused enough damage below ground that the layers below the street were no longer able to support the road. In a matter of seconds, a few cracks in the street turned into a hole big enough to swallow the small truck.

Underneath It All

Sinkholes occur all around the planet. These holes open up when water **erodes** the layer of rock beneath the surface level. Groundwater or pipe bursts or leaks, like in the case of Taipei, can cause the rock to **dissolve** over time. This is because the **acidity** in the water will eat away at what is meant to serve as a **foundation** for the street or for the ground. Without that rock to support the soil—or the street—the surface layer has nothing to hold it up and gravity takes over. The land collapses, leaving a hole that is visible on the surface.

Sinkholes slowly develop over a long period of time. The water gradually dissolves the underground rock until it reaches its breaking point. Then, the damage occurs quite quickly and usually without warning. This is why many people are caught off guard when a sinkhole opens up on their property or on a street.

Did You Know?



In 2011,
**a 40-foot
sinkhole was
found beneath
a woman's
bed in her
Guatemala
City home.**



Most sinkholes occur in areas where the landscape is made of limestone.

Man-made or Natural?

There are different types of sinkholes. Some are **man-made**, meaning they occur because of human action, like underground construction or a busted pipe. Sinkholes seen in city streets are often man-made. For example, a sinkhole in Guatemala City, Guatemala, that swallowed a three-story factory was caused by a combination of reasons, including leaky sewer pipes and a huge amount of rainfall due to a tropical storm.

Natural sinkholes occur all around the planet where the land is made of a soft underground rock layer, like limestone. Most of the state of Florida, for example, sits on limestone. There is even an area of the state called *Sinkhole Alley* that is especially at risk because it is built on the fragile rock. Other natural sinkholes occur in the land around the Dead Sea in the Middle East. It is made mostly of rock salt, which is easily dissolved by water.

Huge Holes

Just how sizable are sinkholes? Some are super deep--like one in Chongqing, China, which is as deep as a skyscraper is tall! Some sinkholes occur underwater. The Great Blue Hole in the Caribbean Sea off the coast of Belize is among the largest in the world. It's big enough to hold two jumbo jets!

But not all sinkholes are huge. Some are small, at just about three feet deep. Technically, any cavity in the ground caused by water erosion is considered a sinkhole.



The Great Blue Hole is one of the largest underwater sinkholes in the world.

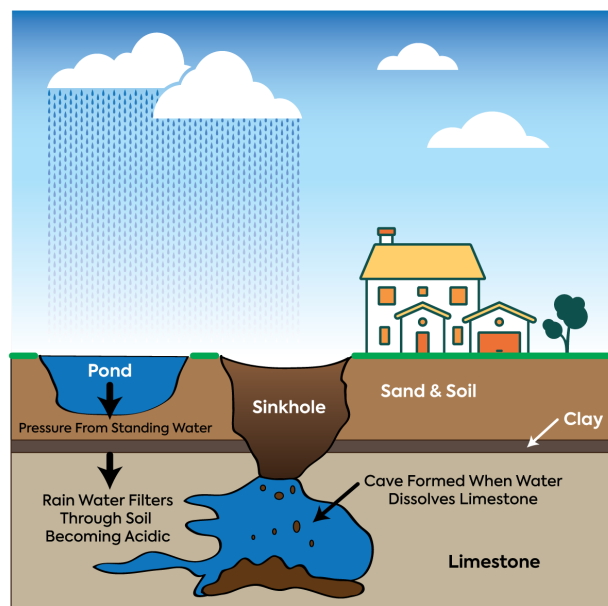
Stopping Sinkholes?

So, is there any way to stop a sinkhole? Sometimes. In nature, they will continue to occur because of the landscape. But when it comes to man-made issues, researchers are working on ways to identify locations where sinkholes may occur. They can do scans of underground areas and look for warning signs. Hopefully, that may prevent sinkholes from swallowing up cars on city streets in the future.



Sinkhole Alley, located in Florida, is at risk for sinkholes because it is built on fragile limestone.

How A Sinkhole Forms



This diagram gives a look into how sinkholes form and what is going on underground.



WHAT DO YOU NOTICE IS HAPPENING IN THIS PHOTOGRAPH?

STUNNING SINKHOLES

By Sarah Wassner Flynn

A blue truck is going down a city street. Then... *bam!* It falls into a hole. The truck's driver has just seconds to get out before the truck is almost swallowed by the street.

The truck fell into a **sinkhole**. A sinkhole is a pit in the ground. It happens when Earth's top layer falls apart. This can cause damage in the street. The layers below the street can no longer support the road. And in seconds, a few cracks in the street turn into a hole as big as a truck.

Underneath It All

Sinkholes open up when water breaks down a rock layer underground.

Groundwater or leaky pipes cause the rock to wear away. The top layer has nothing to hold it up. Then, gravity takes over. The land caves in.

Sinkholes form slowly. But the damage comes fast and usually without warning.



Most sinkholes occur in areas where the landscape is made of limestone.

Man-made or Natural?

Some sinkholes are **man-made**. They are caused by human action, like construction. Sinkholes in city streets are often man-made. Once, a sinkhole swallowed a factory! Leaky sewer pipes were the cause.

Natural sinkholes happen where the land is made of rock that is easily broken, like limestone. Most of Florida sits on limestone. There is even an area of the state called Sinkhole Alley! Land by The Dead Sea in the Middle East also has a lot of sinkholes. It is made mostly of rock salt. This is easily dissolved by water.

Did You Know?



In 2011,
**a 40-foot
sinkhole was
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City home.**

Huge Holes

Some sinkholes are very deep. One in China is as deep as a building is tall! Some sinkholes are underwater. The Great Blue Hole in the Caribbean Sea could hold two jumbo jets. Not all sinkholes are huge. Some are just three feet deep. Any hole in the ground caused by water erosion is a sinkhole. Size doesn't matter.



The Great Blue Hole is one of the largest underwater sinkholes in the world.

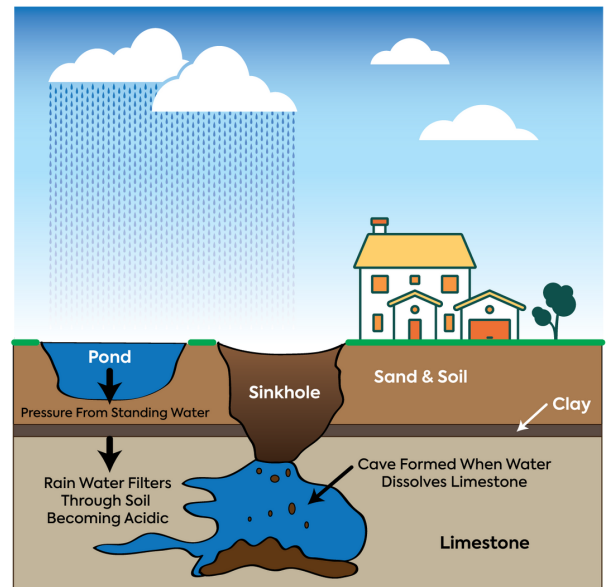
Stopping Sinkholes?

Can sinkholes be stopped? Sometimes. People can take scans of underground areas. This may show warning signs. Hopefully, that may stop sinkholes from swallowing cars in the future.



West Central Florida, an area known as Sinkhole Alley, is especially prone to sinkholes.

How A Sinkhole Forms



This diagram gives a look into how sinkholes form and what is going on underground.



Thank you!

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