

# Welcome!

## Contents

- 1 Story
- 5 EXPERIMENT #1:  
FOSSIL DIG
- 8 Level Up - Fast Moving  
Water & Erosion
- 11 EXPERIMENT #2  
EROSION LAB
- 17 Level Up as a  
Chief Engineer
- 23 Level Up  
Treasure Map
- 28 EXPERIMENT #3:  
3D RELIEF MAP
- 37 Engineering Challenge:  
Solve an Erosion Problem

## Glossary

**Ancient:** Very old, a time long ago.

**Erosion:** A process in nature when soil and rock are removed from one area of the Earth and moved somewhere else by wind, water and ice.

**Engineers:** People that design and build products, machines or structures.

**Glacier:** A large body of ice that moves slowly.

**Paleontologist:** A scientist that studies organisms that lived a long time ago and searches for fossils of those organisms.

**Parody:** When someone imitates an original piece of literature, art or music but changes it to make it funny.

# THE ADVENTURES OF Spriggy & Twiggy

Spriggy and Twiggy are Sprowteez. They live with their Sprowtee friends on Sprowt Island. They are clever, funny and kind little scientists and always very curious...

Spriggy and Twiggy are excited to go on a big adventure to the Grand Canyon! Crabby, their cranky friend, is not so excited to be going. They fly from Sprowt Island to Arizona, USA.

I've always dreamed of going to the Grand Canyon.

Me too. I can't wait to hike and explore!

Airplanes are boring. Canyons are ugly and exploring makes me want to nap!

It's HUGE! I can't wait to go explore!

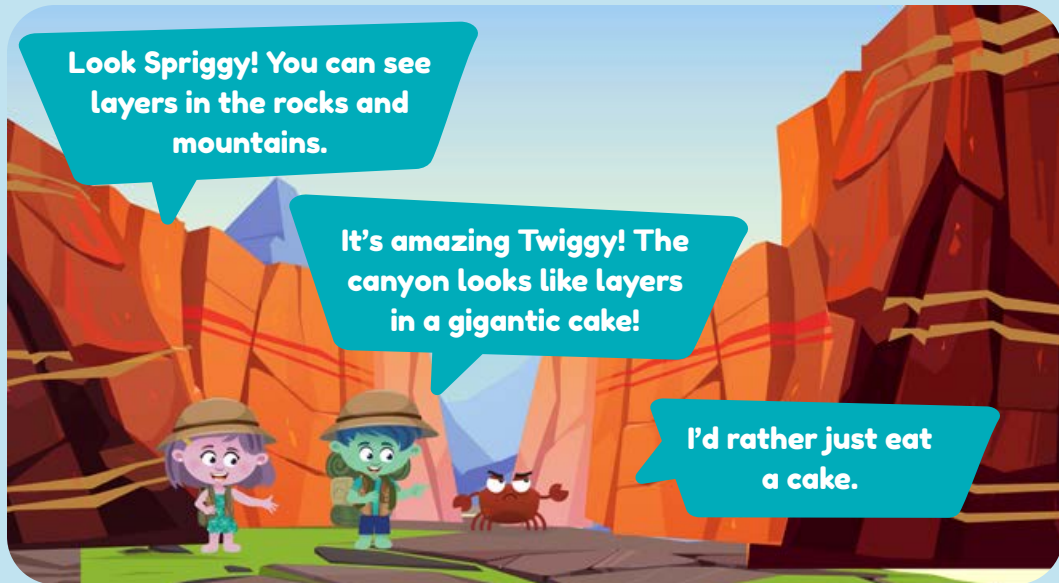
Wow! It's so beautiful!

I'm tired just looking at it.



iSprowt.com  
Copyright © 2022  
All rights reserved.  
Lexile: 800

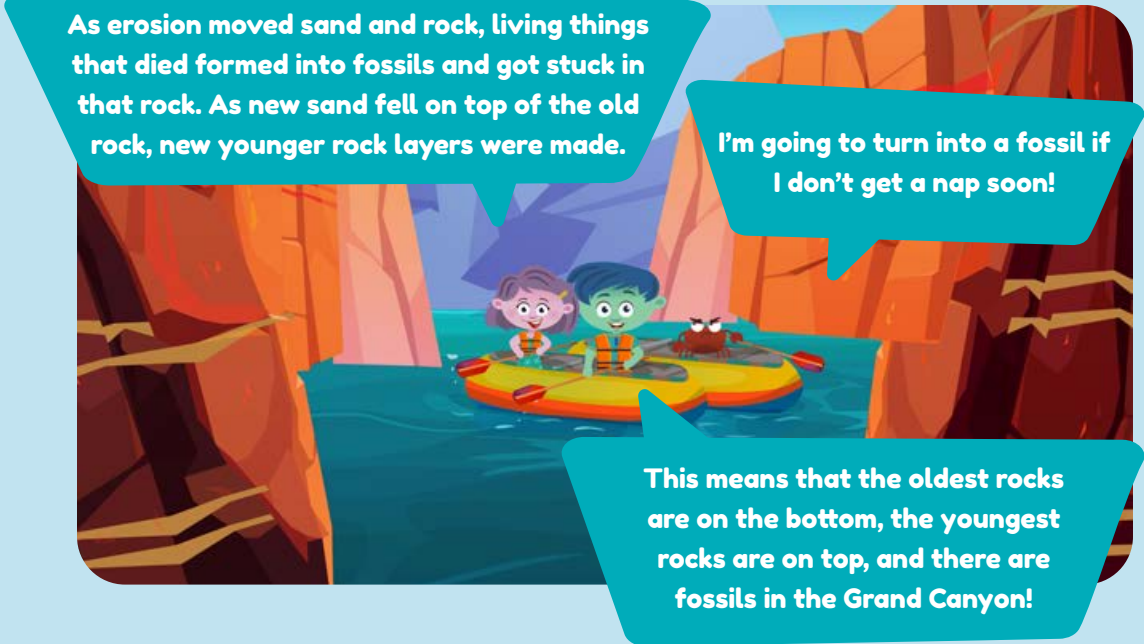




Look Spriggy! You can see layers in the rocks and mountains.

It's amazing Twiggy! The canyon looks like layers in a gigantic cake!

I'd rather just eat a cake.



As erosion moved sand and rock, living things that died formed into fossils and got stuck in that rock. As new sand fell on top of the old rock, new younger rock layers were made.

I'm going to turn into a fossil if I don't get a nap soon!

This means that the oldest rocks are on the bottom, the youngest rocks are on top, and there are fossils in the Grand Canyon!

Oh Crabby – stop being so crabby! The water racing down the mountains turned into the mighty Colorado River. Over time, the river cut through the rock like a knife cuts through a cake.

When water cuts through rock, it's called erosion. So erosion must have created the Grand Canyon. But how did it start?

A crab is definitely not supposed to ride a donkey!



I wonder what we might find if we start digging.

Twiggy look at this amazing block of earth! I wonder what's inside!

# FOSSIL DIG!

Imagine that Spriggy and Twiggy just handed you this piece of rock from their discovery in the Grand Canyon.

Use the tools in your kit to be a **Paleontologist**. A Paleontologist is a scientist that studies organisms that lived a long time ago and searches for fossils of those organisms. Let's dig!

It's not just any piece of rock. I bet something is buried deep inside.

We need special tools to dig it out carefully. Come on, let's go get some!



Ya-hoo!

Spriggy and Twiggy want to be a Paleontologist with you!



GET READY



## WHAT YOU NEED:

⦿ Fossil dig kit: earth block, digging tool, and brush

⦿ Clear container

**Important:** Keep all of your left over earth block pieces. You need them for the Erosion Lab experiment.

⦿ This can get a bit messy.



TIME: 10 - 40 MINUTES (CAN BE DONE AT DIFFERENT TIMES)

## LET'S DO IT!

1. Place your earth block inside your container.
2. Use the digging tool to gently scrape away the earth block.
3. Continue digging very carefully – fossils are fragile!
4. Dig away all of the earth before removing your treasure.
5. Keep digging until you find 2 fossils.
6. Use the brush to clean your treasures. Wash it with water.

**Important:** Do NOT throw away your earth block fragments. Leave them in the container for your Erosion Lab experiment.





## WHAT DID YOU DISCOVER?

1. I discovered a \_\_\_\_\_!
2. Does the fossil you found surprise you? Why or why not?
3. What type of organism do you think this fossil came from?
4. Look at the structure of the fossil. What do you think the function of that structure is?
5. Twiggy asks you, "I read that paleontologists found fossils that used to live in the ocean in the Grand Canyon. How do you think marine fossils could be found there?"



### ▶ FOSSIL ROCK, TIME TO ROCK OUT!

<http://tiny.cc/iSprowt-FossilRock>

Length: 3:15



## "WHERE'S THE SOIL GOING?" ASKS TWIGGY

### SOIL ON THE MOVE

What do you think is stronger, rocks or water? If you said water, you were right! Yep - water is even stronger than rocks!

**Water, ice, and wind** wear away and transport rocks, mountains, and even beach coastlines to other places. This is called 'erosion.' The process of erosion can happen very fast (like a flood) or take thousands of years (like a canyon). There are **4 natural elements** that cause erosion. Can you predict what they are?

W \_ \_ \_ \_ R

W \_ \_ \_ D

I \_ \_ \_

G R A \_ \_ \_ \_ Y

TIP: One of these words is always bringing things down.



### PREDICT IT!

#### Water Erosion

Describe how the Colorado River caused the formation of the Grand Canyon through erosion.

