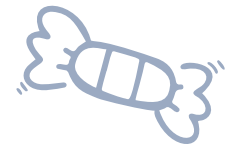
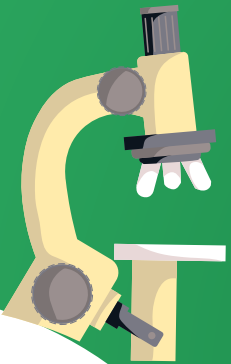
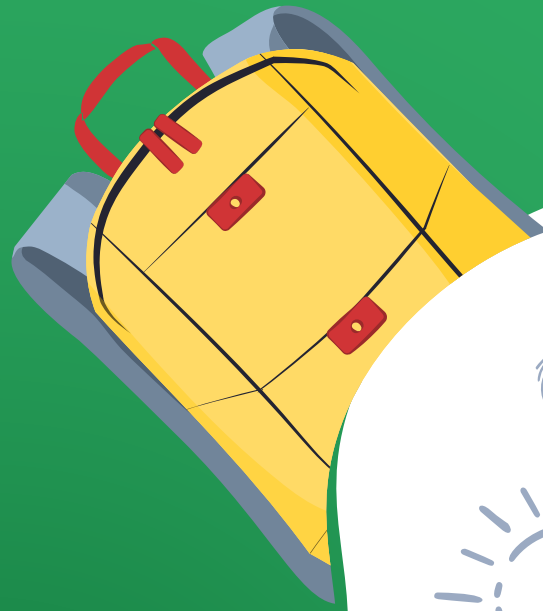


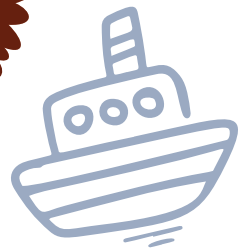
BN Explorer S T E M

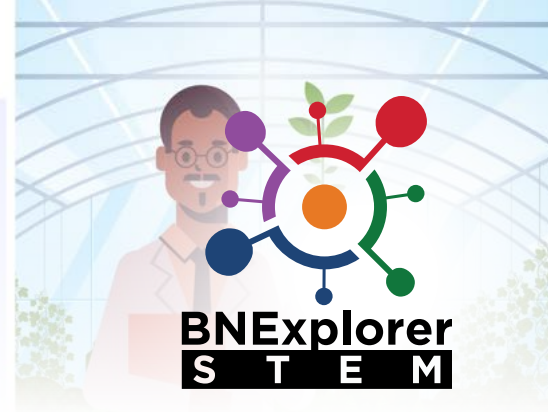


Mission Erosion



Grades 3-8





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S T E M

SPARK



First: What do you know about erosion?
Next, please watch this video over erosion.

This picture is an example of erosion. It can be found on the following website:

<https://www.youtube.com/watch?v=qNTOq1uEObc>

<https://www.wndu.com/content/news/Severe-beach-erosion-wiping-away-roads-beaches-in-Berrien-County-566952111.html>

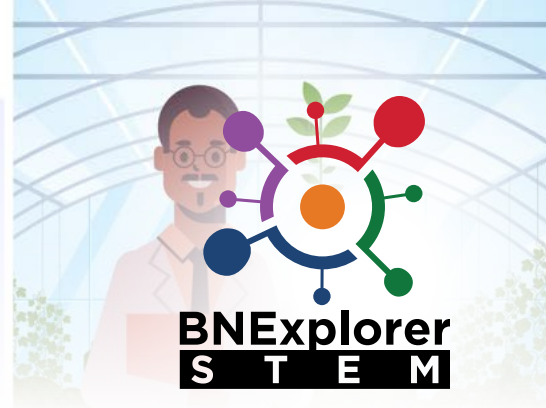
IMAGINE

Before doing the experiment below, discuss with family or friends about what you think will happen to the candy. This is called making a hypothesis or a guess about what will happen based upon what you already know. It is encouraged to sketch out the design of your experiment before actually doing it. While doing the experiment take notes about what is happening in both jars using the experiment notes pages at the end of this booklet.

My hypothesis is: _____

Because: _____





CHALLENGE

This website (<https://sugarspiceandglitter.com/easy-erosion-experiment/>) has an example of an experiment that can be used to determine if more erosion occurs with moving water or with still water. The purpose of this experiment is to decide whether more erosion occurs with moving water or still water.

Materials Needed:



- 2 jars/containers that can be sealed tightly and are clear
- 2 small bowls
- 2 M & M's
- 2 pieces of soft candy
- 2 pieces of hard candy
- 2 cups of cold water

(you may want to lay something out on a table that can be thrown away to make cleaning up easier)

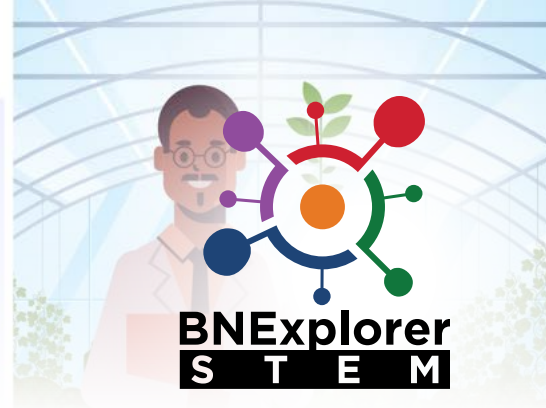
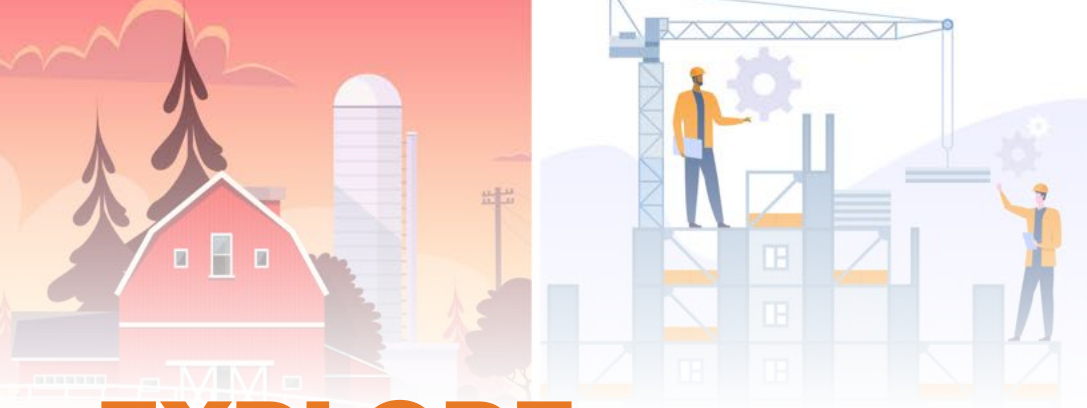
What to do:

In one jar you will pour the water in and add the three different kinds of candies, and then secure the lid tightly. In the second jar you will do the same thing, but the lid doesn't have to be as tight. Next, you will shake the first jar for 2-3 minutes. After shaking the jar, you will take out the candy in both jars and compare them to each other. Whichever jar the candy is more dissolved/disformed in the more erosion occurred.

After completing the experiment you can share your findings and creations on **#BNSTEMExplorer**.

CHALLENGE QUESTION

Does more erosion occur if the water is moving or if the water is still?



EXPLORE

There are at least two places in Bloomington/Normal where streambanks were made to help prevent erosion. The first one is in Fairview Park, and the second one is in Anderson Park. Grab a parent and go visit these streambanks that help prevent erosion!



CAREERS

An interview with Julie Weger - Storm Water Engineering Technician with the Town of Normal. Julie assesses all of the construction sites for runoff. She originally went to school to be a chemist, but decided she liked working outside so she changed to civil engineering. If you like numbers and working outside, this may be a career for you!



FUN FACT

“An estimated 106,800 tons of erosion occurs on an annual basis from the six major types of soil erosion within the Lake Bloomington watershed.”

This fact was found on the following website:
<http://www.fishhabitat.org/waters-to-watch/detail/lake-bloomington-illinois>

IDENTIFY

Erosion mainly affects farmers if they don't take the necessary steps to try and prevent it in their fields. If they don't prevent erosion it can ruin the crops or the land the crops are grown on. This would then affect how much profit they make because they won't have as many crops to sell.

Watch this video to learn more about how we can help conserve soil and minimize erosion. <https://youtu.be/5-6lwAk5T40>





EXTEND YOUR KNOWLEDGE

You may have noticed during your experiment that pieces of the candy were breaking off, but not completely dissolving. What happens to the left over soil and sediment when erosion occurs?

This process is called deposition. Here is another experiment that you can try to explore what happens to the soil and sediments during the process of erosion.

Check it out here: <https://youtu.be/-MFLgtti51l>



Materials needed:

- cookie sheet
- damp sand
- straw
- ice cubes
- watering can
- pitcher or cup of water

What to do.

1. Place your cookie sheet at an angle using something to prop up one side of the cookie sheet. You may want to place a towel at the opposite end for any runoff.
2. Place some of the damp sand on the half of the cookie sheet that is raised (the sand will represent the hills and other landforms).
3. Place a couple of ice cubes in the top corners of the sand.
4. Use your finger to carve out a curved river down the middle of the sand.
5. Pour enough of the water from the pitcher into the “river” so that water flows through the whole length of the river.

What do you notice happened to the sand?

6. Now grab your straw and blow through it on to the edge of the sand closest to the bottom.



How did the air from the straw that was acting as wind in real life affect the sand?

7. Using the watering can slowly pour water on the sand from the top of the pan.

What does the watering can, which is like rain, do to the sand?

8. Lastly take a look at your ice cubes.

What has happened to them during this experiment? Have they changed?

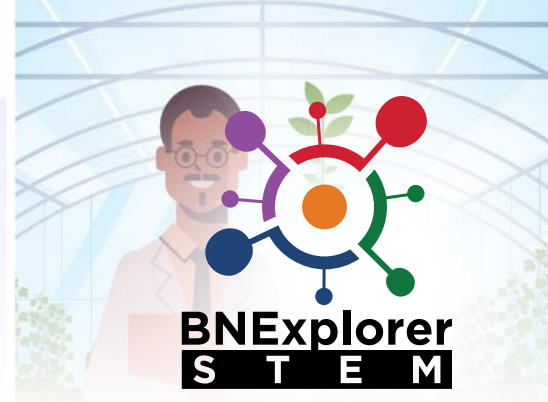
Over time the ice cubes that represent glaciers will slide down the pan and be deposited into a new spot.

It is through this process of erosion and deposition that landforms are formed such as mountains, rivers, canyons, and lakes (among others). Here in central Illinois you can find Moraine View State Park, which was formed from the deposition of glaciers moving through Illinois thousands of years ago.

Try checking out this local spot to see what other evidence you can find of erosion and deposition.

<https://www2.illinois.gov/dnr/Parks/Pages/MoraineView.aspx>

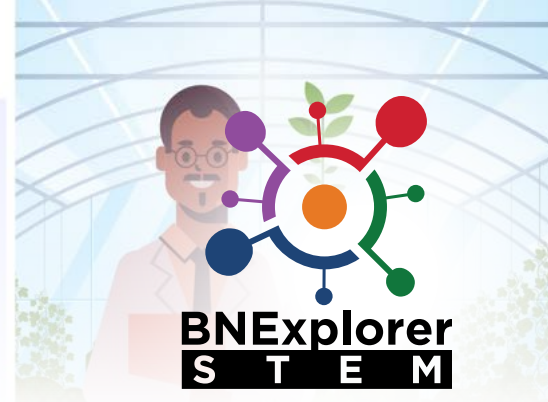




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EXPERIMENT NOTES





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EXPERIMENT NOTES

