



IT'S RAINING, IT'S POURING, IT'S FLOODING IN MARICOPA COUNTY!

Lesson 4: Causes of Destruction



Outcome

Students will understand the causes of destruction from floodwater

Objective

- The student will be able to identify at least 3 ways in which flood water damages structures and how to mitigate such damage.

Essential Question

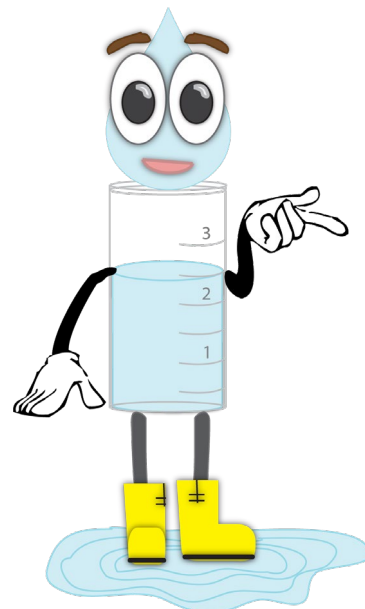
How does flood water cause destruction?

Length of Lesson

45-50 minutes

Key vocabulary

Hydrostatic Pressure	The pressure exerted by water, due to gravity. Depends on its depth
Hydrodynamics	The forces in or of moving water
Buoyancy	The tendency to float
Erosion	The gradual destruction of something from water, wind, or other natural agents





Teacher Prep

- Download It's Raining, Its Pouring, It's Flooding in Maricopa County! Power Point
- Copy reflection sheets for each group

Materials

- It's Raining, It's Pouring, It's Flooding in Maricopa County! Power Point
 - Chart Paper/Markers
 - Key Vocabulary
 - Videos

(<https://www.youtube.com/watch?v=2E4cBLOxGk> and <https://www.youtube.com/watch?v=mKqGofwvmjs>)

Activities

1. Review vocabulary terms using TPR
2. Model the online Interactive Flood Simulation at apps.fcd.maricopa.gov/ifs/ifs.html
3. Show Forces of Water videos
4. Show examples of erosion, buoyancy, and soaking
5. Watch flood destruction videos
6. Complete reflection sheet
7. Fill in KWL chart

Extension

Create an invention that would help prevent homes from being flooded during a storm. Describe what materials you would use, and why it will work. If time, create a model of your invention.



It's Raining, It's Pouring, It's Flooding in Maricopa County!

A sixth grade STEM Lesson



Objectives

- I will be able to identify at least 3 ways in which flood water damages structures, and how to lesson the damage.



Essential Question

- Why does floodwater cause destruction?



Agenda

- Vocabulary
- Watch videos
- Reflection and Extension
- KWL Chart



Key Vocabulary

- Hydrostatic Pressure – The pressure exerted by water, due to gravity. Depends on its depth.
- Hydrodynamics – The forces in or of moving water.
- Buoyancy – The tendency to float.
- Erosion – The gradual destruction of something from water, wind, or other natural agents.



Forces of water

- Hydrostatic Pressure – Why does water seep in through the walls?
 - <https://www.youtube.com/watch?v=JrUOLpBDzqM>
- Hydrodynamics - Why does the ball stay up?
 - <https://www.youtube.com/watch?v=mNHp8iyyIjo>
- Buoyancy – Why do some things float?
 - <https://www.youtube.com/watch?v=nMIXU97E-uQ>



Why does flood water cause damage?

- Hydrodynamic pressure causes erosion and can move structures
- Buoyancy can lift cars and structures
- Water can soak materials that are not designed to be wet.
 - Can cause things to dissolve
 - Can cause mold and mildew to grow
 - Causes staining and rust
 - Warps wood



Erosion

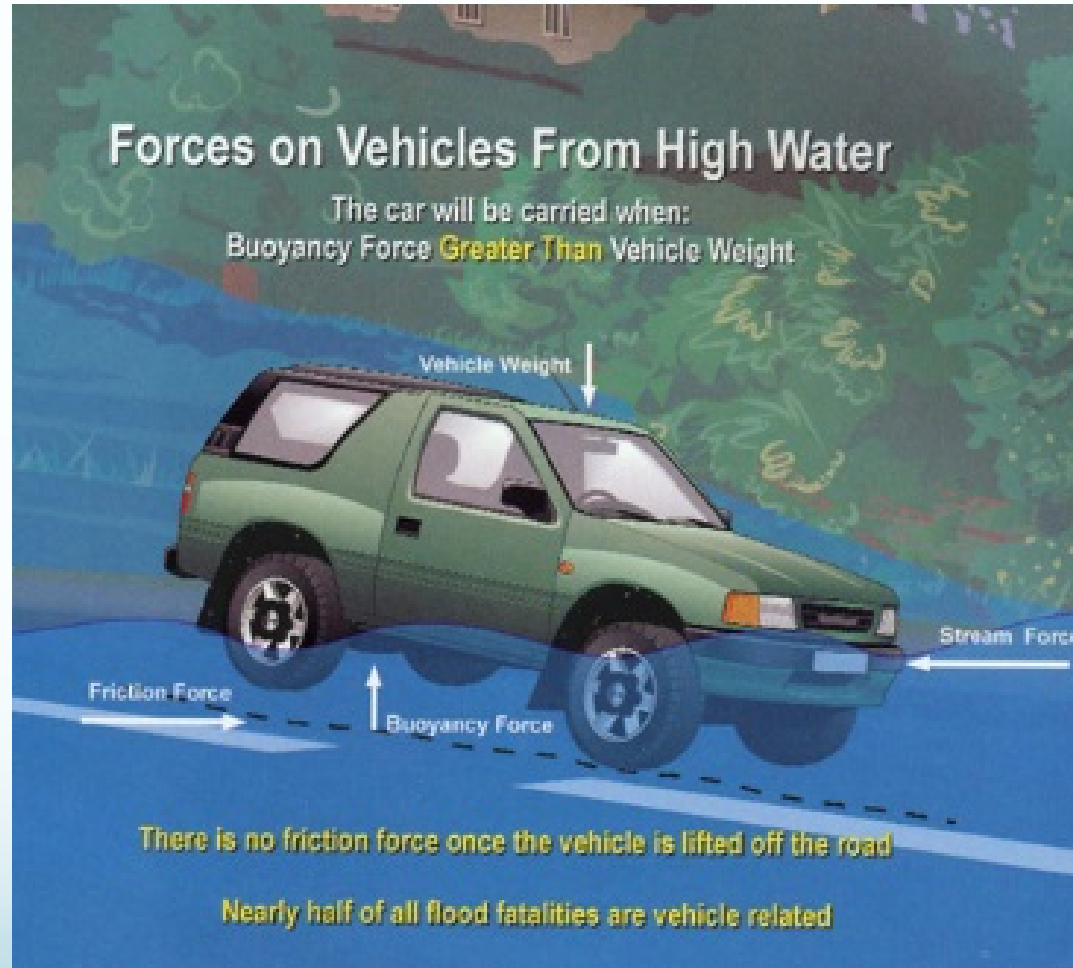
Erosion by Water

The River Colorado eroded rocks for years, forming the inarguably beautiful Grand Canyon.





Buoyancy





Soaking

Dissolve



WATER DAMAGE

Mold



Flood Destruction Videos

- Watch the two videos with your group.
- <https://www.youtube.com/watch?v=2E4xBL0xCgk>
- <https://www.youtube.com/watch?v=mKqGofwvmjs>
- Answer the questions on the reflection sheet.



KWL

- Look back at your KWL chart from the first lesson. Did you learn anything new that you can add to the “L” column?



It's Raining, It's Pouring, It's Flooding in Maricopa County!

Name: _____ Date: _____

KWL Chart		
K	W	L
What I Know	What I Want to Know	What I Learned



Your Emergency Plan

- Questions to think about as you create your plan:
 - Do you have any family members with medications or special needs? If so, what services will they need if there was an evacuation?
 - If you had 10 minutes to evacuate your home, what would you take with you?

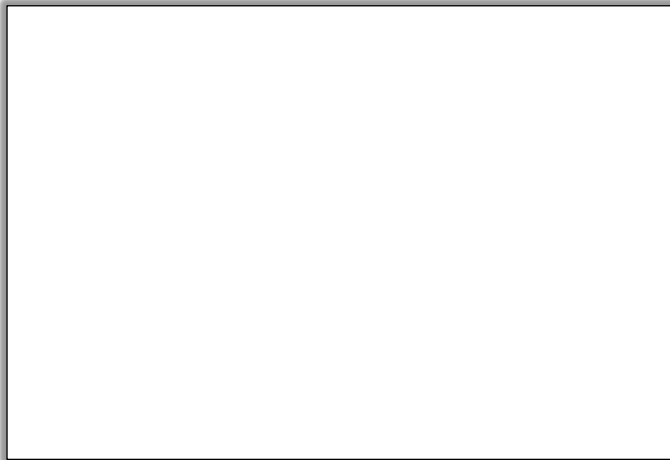


**The pressure exerted
by water, due to
gravity. Depends on its
depth.**

**The forces in or of
moving water**

The tendency to float

**The gradual
destruction of
something from water,
wind, or other natural
agents**



The tendency to float
- Buoyancy

**The forces in or of
moving water -**
Hydrodynamics

**The pressure exerted
by water, due to
gravity. Depends on its
depth. -**
Hydrostatic Pressure

**The gradual
destruction of
something from water,
wind, or other natural
agents -** Erosion



Lesson 4: Causes of Destruction Reflection

Name: _____ Date: _____

1. How does hydrostatic pressure cause damage to the walls of a house?

2. What type of damage could result from the house that has flooded? Is there anything more the owner could do to prevent his house from flooding again?

3. Why does buoyancy matter when it comes to flooding?

4. What are some choices that people make which increase the risk of flood damage and or injury?



Lesson 4: Causes of Destruction Reflection

5. Why should you never try to drive across a flooded road? What are the consequences?

6. What are some better choices we can make as individuals? As a society?
