



It's Raining, It's Pouring, It's Flooding! In Maricopa County Lesson 3: Structures

Key Vocabulary

Floodplain—Low-lying ground by a rivers that is likely to flood

Floodway—The channel of a river and the parts of the floodplain by it

Basin—An artificial lake that is designed to hold storm water

Levee—An area of land built up to prevent a river from overflowing

Dam—A structure that is build to hold back water

Culvert—A tunnel carrying a stream or open drain under a road or railway

Channel—A depressed linear area where water flows (can be natural or man made)

Outcome

Students will understand the functions of dams, levees, and basins in Maricopa County.

Objectives

- I will be able to formulate questions about flooding from observations and prior knowledge.
- I will be able to create a floodplain and graph the rate of runoff.
- I will be able to construct a dam or levee to control the flow of water and prevent flooding.

Essential Question

What is the main function of dams in Maricopa County?

Length of Lesson

Two 45- minute periods



Materials

- It's Raining, It's Pouring, It's Flooding! In Maricopa County PowerPoint
- Aluminum trays
- Cotton balls
- Clay/sand
- Rocks
- Sticks
- Animals
- Houses

Dams are built for purposes such as generating hydroelectricity, creating recreational areas, minimizing flood risks, diverting water for irrigation, and providing water for towns and cities.

Before Teaching

Preview PowerPoint

Choose videos to show

Additional Resources

[Arizona Structures](#)

[Science Kids](#)

[Building a Dam](#)

[Making a Dam](#)

[Melbourne Basins](#)

[Dam Information](#)

Books:

Floods, Dams and Levees by Joanne Mattern

How do Dams Work? By Ryan Nagelhout

Activities

- ◆ Review vocabulary with students, using TPR
- ◆ Review the remainder of the Power Point
- ◆ Have students work in groups to create a floodway.
- ◆ Students pour water in the river and build a structure, dam, levee, etc., to help control the water and prevent flooding of buildings.
- ◆ Have students time how long it takes for the water to runoff. They can try a variety of structures and graph their results.

Extension

As an extension, have students plan a multi-use facility for the reservoir that was created by their dam. They can name their dam and area, create a sign, and design parks and recreational areas.

Differentiation

Show struggling students pictures of different structures to help them with their plans.



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Rain

- What does it mean when the meteorologist says we received 1 inch of rain?
 - It means that enough rain fell to cover the entire area 1 inch deep
- The intensity of the rain also indicates whether or not flooding occurs.



What causes Flooding?



<https://hbkportal.co.uk/geography/GCSEWaterOnTheLand4.html>



Carefree Huge
Rainstorm of 3
inches and Biggest
Wash Flows in
years!



Your Task

- Use the materials your teacher has provided to create a river (floodway)
- Pour the water in and see what happens
- Time how long it took the water to run off
 - Record your data



Be An Engineer

- Can you add something to help control the flooding?
 - Once you add your structure, time how long it takes the water to run off and record your results
- Try a variety of structures (dams, levees, culverts, etc.) and continue to record your results
- Graph your results



Low-lying ground by a river that is likely to flood.

The channel of a river and the parts of the floodplain by it.

An artificial lake that is designed to hold storm water.

An area of land built up to prevent a river from overflowing.

A structure that is built to hold back water.

3rd – 5th Grade
Lesson 3

A tunnel carrying a stream or open drain under a road or railroad.



An artificial lake that is designed to hold storm water.

- Basin

The channel of a river and the parts of the floodplain by it.

- Floodway

Low-lying ground by a river that is likely to flood.

- Floodplain

A structure that is built to hold back water.

- Dam

An area of land built up to prevent a river from overflowing.

- Levee

A tunnel carrying a stream or open drain under a road or railroad.

- Culvert



Lesson 3: Structures

Name: _____ Date: _____

How does Urbanization Affect Flooding?

Test

1. The pan will be used as your base.
2. You may cut off the end of your pan so that water can flow out. If you do this, use the tub to catch the water.
3. The modeling clay is your ground. Be sure to create a river.
4. Make a prediction of what will happen after urbanization.
5. Pour water at the top of your river and record your observation.
6. Create an urbanized landscape, add houses, roads, sidewalks, parking lots, etc.
7. Pour water at the top of your river and record observations.
8. Construct various ways to control the flow of water.

Hypothesis

(What do I think will happen?)

Observation

(What did I see? You can draw and describe.)

Trial Number	Amount of Time
1	
2	
3	
4	
5	

Conclusion

(Was my hypothesis correct? How do I know?)

