

RESIDENTIAL FLOODING

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Grade Level: 6-8

Time: Two 50-minute class periods

Themes:

The Physical and Human Characteristics of Places

Standards:

1. The physical and human characteristics of places
2. How human actions modify the physical environment

Purpose:

Due to the relatively flat topography of Florida, residential flooding can be a major problem for poorly planned neighborhoods. This lesson will require the student to examine why residential areas flood and it will require them to solve the problem of residential flooding.

Materials:

- cookie sheet
- clay soil
- spray bottle containing water
- paper
- pen

Objectives:

- Students will become aware of how humans can adversely affect the environment.
- Students will learn factors that must be considered before humans make changes or modification to a landscape.

Procedures:

Class Period One

1. Ask the class the following questions concerning flooding problems:
 - Have you witnessed a residential area that had standing water in peoples' yards or on the street?
 - What are some of the reasons that this type of flooding might occur?
 - Why does the flooding disappear after several days without rain?
 - What does water do when it is on a sloped surface?
2. Demonstrate a scale model of a residential area with improper drainage. Use a cookie sheet with small holes punched in the bottom as a scale model of the land upon which the residential area and the undeveloped adjoining area are situated.
3. Pack clay soil on the cookie sheet to represent the topography of this area, with the residential area being lower than the adjoining area.
4. Spray water in a fine mist from the spray bottle to represent rainfall. Spray the water while rotating the cookie sheet until the soil is saturated and puddles (flooding) begin to occur. Tell the students that the area that puddles is the area where the housing is located.
5. Assign the students to groups of four. Have them pick one child to be the recorder, another to be the presenter, while all four will work as the problem solvers.
6. Following the demonstration ask them to raise their hands if they can answer the following questions concerning the flooding problem.
 - Do you think the clay soil in the Florida area does or does not contribute to area flooding? Please explain.
 - Do you think the relative flatness of Florida does or does not contribute to area flooding?
 - Do all areas of the United States have problems with this type of area flooding or is this something particular only to areas similar to Florida?
 - Name as many factors as you can that contribute to area flooding in your area.
7. Have the students working in their assigned groups offer solutions to the following problems:
 - Problem #1: The housing area is in the planning stage. The county engineers are aware that there will be a drainage problem in this area. Suggest as many solutions as you can to solve the drainage problem before construction.
 - Problem #2: The housing area was built without the county engineers being aware there would be a flooding problem. The flooding exists.

What can you do now to provide the drainage necessary to solve the flooding problem?

Class Period Two

1. Have the student “presenter” from each group read the solutions they have arrived at for problems #1 and #2. Each presenter will have five minutes.
2. After completing all presentations have the class vote on which solution they believe is the most sensible.

Evaluation:

Grade the students on how well they worked together in their group. Did each student contribute to the solution of the problems? Was the solution well presented?