



Floods

3–5

Flood Safety

LESSON PLAN 4

Flood Risks

Children and their families are safer when they understand the risk of flooding in their community and the precautions needed to stay safe.

Key Terms and Concepts

berm	flood risk	floodways
drainage systems	flood walls	levee
elevation	floodplain	mitigation

Purpose

To develop an understanding among students and their families of the flood risk in their area and how to be prepared for floods and flash floods

Objectives

The students will—

- Create a continuum from “very high” to “very low” to illustrate their opinions on the flood risk across their community.
- Use government Web sites to determine and compare actual flood risk and whether or not there are government insurance plans in place.
- Work with their families to use government Web sites to determine the level of flood risk for their homes. (Home Connection)
- Build a stream table replica of those portions of their community that are at greatest risk.
- Determine and implement on the stream table possible ways to mitigate flood risk in the community.
- Write questions for and conduct a roundtable discussion with community leaders to determine community action for flood prevention and preparedness.
- Write newspaper opinion columns either supporting current flood plans or calling for greater community action. (Linking Across the Curriculum)
- Research flood history in the community to create and use flood statistics in addressing community flood plans. (Linking Across the Curriculum)

Activities

“Mapping the Risk”

“Take Action”



Visit the American Red Cross Web site
at www.redcross.org/disaster/masters



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Materials

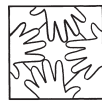
- Map of your area showing physical features and elevations

OR

- Topographic map of your area
- Internet access



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"Mapping the Risk"

SET UP 10 minutes CONDUCT 45–60 minutes

Social Studies: Community; Science: Earth Science

1. Have individual students rank their neighborhood with a number from 5 to 1, with the number 5 denoting a very high flood risk, and the number 1 a very low flood risk.
2. Place the numbers 5 to 1 in a continuum on the chalkboard, and ask the students to share their rankings and the reasoning behind them.
 - On average, do the students consider the area at high or low risk?
 - On what do they base their rankings—historical floods, the number of waterways in the area, damming practices in the area, the amount of rainfall or the incidence of tropical storms?
3. Using the map, students will pinpoint areas in the community that are at the greatest risk of floods based on elevation, proximity to waterways, dams, or shorelines.



Wrap-Up

Use "Map Your Flood Risk" from the National Flood Insurance Program at <http://www.floodsmart.gov/floodsmart/pages/riskassessment/findpropertyform.jsp> to discover how the government rates the risk of flood for your community. Put in addresses from across the community—the school, a bank, a shopping mall or a public park.



Have students compare their own rankings with those of the government program. Were their reasons valid? Why or why not? Are the areas within the community that they pinpointed as at the greatest risk actually at risk? Why or why not?

TEACHING NOTE If your community has not been mapped and rated by the national program, check with local community planners to find out about flood risk.



Home Connection

Have the students work with their families to use "Map Your Flood Risk" from the National Flood Insurance Program at <http://www.floodsmart.gov/floodsmart/pages/riskassessment/findpropertyform.jsp> to find out how the government rates their home for flood risk. Is there national insurance available? Why or why not?



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LESSON PLAN 4 Flood Risks

Materials

- Stream table (See Lesson Plan 2)
- Map of your area showing physical features and elevations

OR

- Topographic map of your area



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"Take Action"

SET UP 25 minutes **CONDUCT** two 30-minute classes

Social Studies: Community; Science: Earth Science

1. Once students have established where the community is at greatest risk, it is important to consider what can be done to prevent or lessen the dangers of a flood. Have students use or re-create the stream tables from Lesson Plan 2 and the local maps to create a stream table replica of an area of the community that is prone to flooding. The students will use different types of soil, miniature buildings and vegetation to depict the area.
2. To illustrate the risk of floods and flash floods, they will add water to the simulated landscape. In what ways might they have stopped or changed the flow of water to lessen the damage?
3.  Ask the students to consider ways to mitigate some of the problems, including physical measures, and discuss each of the following concepts: berm, levee, flood wall, floodways, drainage systems, elevating, relocating or eliminating building in floodplain areas.
4. As a class, implement some of the suggested changes on the stream table and demonstrate whether the changes made the flooding less damaging to the area. Why or why not?



Wrap-Up

Contact your local chapter of the American Red Cross, your local emergency management office or your planning and zoning department to invite a representative to your class to talk about flood risk in the area and the actions the community can take to prevent or prepare for floods.



Assign the students to prepare a demonstration of some of their suggested strategies, along with their reasoning for the need for mitigation based on the risk of flood within the community.

Have the class write questions about flood risk, mitigation and community preparedness for a roundtable discussion led by community representatives. What's being done now about areas threatened by flash floods? In areas threatened by river floods? Has the community built wisely?



Linking Across the Curriculum

Language Arts: Writing; Social Studies: Community

If your area is at high risk for floods, have the students write an opinion column for the local or school newspaper that either supports current plans or calls for greater community action.



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Mathematics: Statistics

If your community has a history of floods, have the students research to find—

- How often floods occur.
- The time of year floods occur.

For each instance of flooding, find—

- The height of floodwater (in feet).
- The distance the water has overflowed its banks.
- The speed of flow of floodwater.
- The time elapsed from flood WATCH to flood WARNING.
- The damage in dollars.
- The numbers of injuries or deaths.
- Any additional problems, such as public utility outages, sewage problems or debris flows.

Have the students use these numbers to create statistics to support the opinions they stated in the editorials they wrote above.



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