

# How Watersheds Work

**Grades:** K - 2

**Time Allotments:**

Teacher preparation: 5 minutes  
Lesson/activity: 30 minutes  
Closure/assessment: 30 minutes

**Content Objectives: After performing this activity, students will be able to:**

- 1) Describe what a watershed is;
- 2) Identify factors that effect the flow of water within a watershed; and
- 3) Explain how water can flow from inland waterways to the ocean.

**Process Objectives: Students will:**

- 1) Perform movements in an applied setting in response to direction;
- 2) Participate in group discussion;
- 3) Respond to questions from teacher; and
- 4) Draw (and possibly label) a diagram of a watershed.

**Curricular Areas and Corresponding Core Curriculum Content Standards:**

Social Studies: 6.6 (G2) A1 & B1  
Science: 5.8 (G2) B1  
Language Arts Literacy: 3.4 (GK) A1 (G1) A1, B2 & 4 (G2) A3  
3.3 (GK) A1 (G1) A3 & B1 (G2) A2 & C1  
3.2 (G1) A1 & D2 (G2) D2  
Comprehensive Health  
And Physical Education: 2.5 (G2) A1 & 8, D2

**Vocabulary:**

Groundwater  
Runoff  
Watershed

**Materials Needed:**

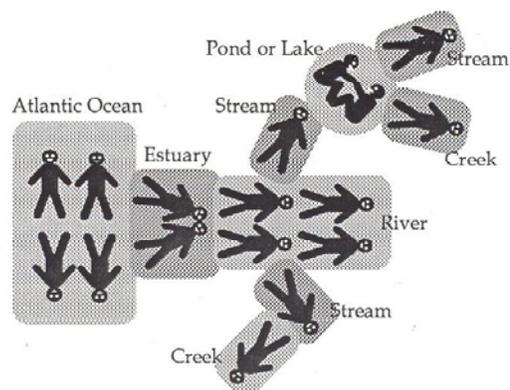
- Four blankets or sheets or one large plastic tarp
- Chalkboard and chalk or one large piece of mural paper and markers
- One spray bottle filled with water (optional)
- Blank sheets of paper - one sheet per student
- Pencils or crayons - one utensil per student
- Road maps of New Jersey - One copy for class or one for each group of students (optional)

### Anticipatory Set:

- Ask the class who has visited the Atlantic Ocean. Of these, ask them to describe their recollections of the shore, beach and ocean.
- Ask "Where does ocean water come from - how does it get there?" Some correct answers might be from rain or snow, or from rivers and bays.
- Explain to them that when it rains or snows anywhere in New Jersey the water travels in various paths and can eventually drain into the Atlantic Ocean. The purpose of this activity is to have them learn more about where and how water travels.

### Guided and Independent Practice:

- Establish a large cleared area in the classroom. Spread out ground coverings (blankets, sheets or tarp) to create a large square on the floor.
- Explain to students that they will examine how water moves after a storm by having them physically act it out. Many of them will be assigned specific roles to play (the diagram below should help when arranging the students).
- Ask one or two students to draw on the board the arrangement that will be made with students on the floor. Assign roles quickly and have students lay quietly on the floor after they have been assigned a role.
- Choose four volunteers to lie face up next to each other on the floor. This group represents the Atlantic Ocean. These four can practice gently "rolling in" and "rolling out" in unison to simulate incoming and outgoing waves or the tide.
- Choose six students to attach themselves to the ocean by forming an estuary or bay, as well as a river. The two students acting as the estuary/bay should lay farther apart than the four students acting as the river, with a V-shaped space between their feet.
- Attach two more students to both sides of the river, representing streams on either side that would empty into it. Have one student lay down, attached, to one of the streams – this person is a creek.
- Ask two students to curl up and represent a lake that is attached to the other stream. Finally, attach two students to the lake to represent a creek and stream. Have the group lay on the floor in their assigned roles until the students have completed the drawing on the board.
- Explain that water in the creek flows into the stream, which flows into the lake or river, which flows into the estuary and bay and eventually empties into the ocean. Assign each role a "sound" (gurgling, whooshing or babbling) or physical action (wave motion with arms, tapping floor with heels) and as the movement of water progresses from creek to ocean each student will begin a noise or motion. As an option, begin the movement of water with an indoor "storm" and spray the students with a mist of water. Go through the procession of water movement a couple times, make sure the drawing has been completed, and have the class take their seats.



**Closure:**

- Referring to the drawing, point to examples and ask “What makes water flow from one place to another?” Answers could include hills and valleys, gravity, one waterway emptying into another, manmade features, such as pipes or ditches, etc.
- Ask “Why would water stay in a lake?” Discussions about a lake can be compared to a bowl or depression that holds water within its hard rock surfaces or shoreline until it overflows, such as over a dam, to form a stream.
- Ask about surfaces that water lands on when it rains - which are hard (rock and pavement) and which does water pass through (grass, soil, gravel, water)? Discuss what “groundwater” and “runoff” are.
- Explain that a “watershed” is “the area in which water moves or drains and it includes the water bodies as well as the surrounding land.” Hence, the entire drawing on the board depicts a watershed. Erase the drawing on the board.
- Give students a crayon or pencil and blank piece of paper and ask them to draw a watershed on the paper and label (optional) the components.

**Assessment:**

- Individual drawings of a watershed;
- Participation in large group and small group activities; and
- Responses to questions from the teacher.

**Extensions:**

- Show the class a road map of New Jersey. Point out the Atlantic Ocean, the Delaware River, the town the school is located in, and any noteworthy bodies of water near the school. Ask students to volunteer to come up and point out other lakes, rivers and streams on the map.
- Take the class outdoors onto school property for two walks – the first walk during a dry spell and the second soon after a rainstorm. During the first walk ask them to identify where they think water would collect in puddles or pools, where it might run in streams, where it would run off of hard surfaces and where it would pass through other surfaces. Record predictions of what might occur during and following a good rain. Take the second trip soon after the storm and compare their predictions with actual observations.

**Source:**

- *Beneath the Shell...A Teacher's Guide to Nonpoint Source Pollution and Its Potential Impact on New Jersey Shellfish*. New Jersey Department of Environmental Protection. First Printing 1991; Revised 1993; Reprinted annually from 1997 – 2002 and 2004; adapted from “Watersheds and Drainage Basins”(pgs. 20 - 21).