

# DROPS OF KNOWLEDGE FOR RIVERS OF CHANGE



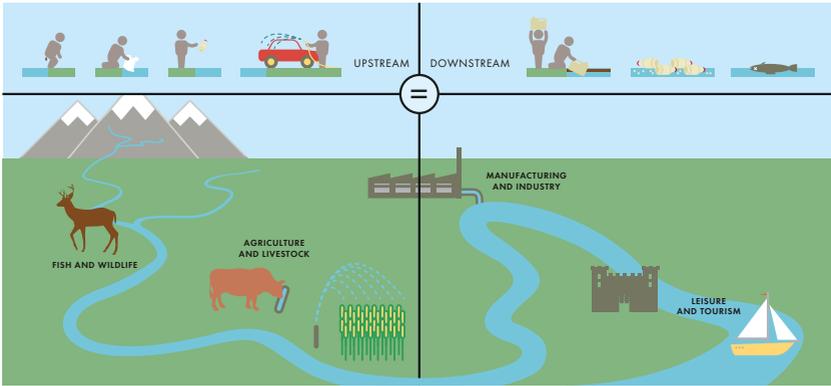
GLOBAL TEACHING  
AND LEARNING MATERIAL

A hands-on guide to teaching  
and learning about  
water, sanitation, hygiene,  
and the environment

SWAROVSKI  
WATERSCHOOL

**ACTIVITY 6.3: THE WATERSHED**

A watershed can be defined as “the area of land where all of the water that is under it or drains off of it goes into the same place. ... Watersheds come in all shapes and sizes. They cross county, state, and national boundaries.” The source of the water is always at a higher elevation, or “upstream,” and by the force of gravity and the force of the flowing water itself, the water travels “downstream” to a lower level. The destination of this water could be a river, a river system, a pond, a lake, or an ocean.



Source: <https://www.epa.gov/cleanwaterrule/why-clean-water-rules>

As the water runs from one place to another, it collects debris from the surface and absorbs chemicals or waste products that have been dumped into the watershed by humans, as well as minerals and other elements that occur naturally. In this activity, students will be “building” a river and tributaries made by people holding hands and illustrating how rain and dirty water travel from upstream to downstream in a watershed. This will help students feel and understand the connectedness between all the communities in a watershed.

To carry out this activity, you will need a larger group, with enough students to form three lines, and a space that is big enough to accommodate the formation. The materials to be passed along the lines can be adapted according to local availability and will represent living things such as fish and plants (beans), pollution (paper), and debris (flower petals). Recycled shopping bags or grocery bags can be used to hold the materials.

## ACTIVITY 6.3

**Time:** 50 minutes / **Thematic Areas:** Science, Social Studies / **Goal for**

**Learning:** Show how all communities in a watershed are interconnected through the water.



**Materials:** □ 1 paper bag filled with beans / □ 1 paper bag filled with small pieces of paper / □ 1 paper bag filled with flower petals / □ 1 large bucket / □ 3 sturdy chairs or footstools

### ACTIVITY STEPS:



- 1 The goal is to organize students into three lines: one that represents a major river or waterway, and two others that represent smaller streams or tributaries that flow into the larger waterway.
- 2 Ask three students to be the materials carriers, giving one of the bags to each of them. Explain that the beans are like natural materials that flow into and down the river, such as living things (fish and plants) and gravel, while the paper represents pollution, and the flower petals represent waste debris.
- 3 Form a group of students into one large line, at least two students wide. This line represents the river or waterway. The student at the beginning of the line will stand on a chair or footstool to represent the elevated water source in the mountains or hills.
- 4 Form the rest of the students into two smaller lines (one student wide) to represent tributaries, or streams feeding into the river. These two tributaries should connect to the river at different places on either side, and the student who is farthest away from the main river should stand on a chair or footstool to show that the water is flowing downward toward the main river.
- 5 Place the empty bucket at the feet of the last two students in the “main river” line. This represents the water basin (the water’s destination as it flows downstream).
- 6 Ask the students to imagine it is raining lightly. Tell the group that when there is a light rain, they should pass the beans, paper, and flower petals slowly

### ACTIVITY 6.3

down the stream. The students holding the bags will move around to the students at the beginning of the lines, where the student on the chair will grab a handful of material to be passed from student to student along the tributaries and the river, then dropped into the bucket at the end.

7 Next, ask the students to imagine that it is raining very hard and that the beans, paper, and flower petals are all moving at a very rapid pace.

8 In the end, demonstrate how the bucket, which represents the watershed basin, is full of beans, paper, and flower petals. It may even be overflowing because so much material entered the water rapidly during the “heavy rain” part of the exercise.

#### OBSERVATION AND DISCUSSION:

Discuss how what happened to the bucket might happen with the basin of a river. Ask students to think about the small streams or other waterways that flow through their communities and gather waste materials on a rainy day. Have they considered the connection between local waste materials and the way they end up in a river, lake, or ocean?

Inform students that water always moves downward due to the force of gravity. Gravity is an invisible force on Earth that holds everything and everybody to the planet. If you jump up, you must come down ... ask them to try it. To this day, scientists do not know why gravity works, just that it does exist and that it is constant across the globe.

ADDITIONAL  
RESOURCES:

Children’s Water Education Council, “Teacher’s Notes: Down the Hill – Your Watershed” and “The Rain Recipe.” Available at: [www.cwec.ca/Educ\\_Teachers](http://www.cwec.ca/Educ_Teachers)

National Geographic, “Mapping the World’s Watersheds,” [http://education.nationalgeographic.com/education/activity/mapping-watersheds/?ar\\_a=1](http://education.nationalgeographic.com/education/activity/mapping-watersheds/?ar_a=1)

Project Wet: Water Education for Teachers, [www.projectwet.org](http://www.projectwet.org)