

# IDENTIFYING AND LOCATING LAKES AND RIVERS

(MODIFIED FOR ADEED)

## INSTRUCTIONS



### Science Concept:

Water flows downhill.

### Objectives:

The student will:

- identify that water flows downhill;
- predict water will flow to the lowest drainage point; and
- draw, label, and describe in writing where water flows.

### GLEs Addressed:

#### Science

- [3] SD2.1 The student demonstrates an understanding of the forces that shape Earth by identifying and comparing a variety of Earth's land features (i.e., rivers, deltas, lakes, glaciers, mountains, valleys, and islands).
- [3] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.

#### Writing

- [1] W1.2.2 The student writes for a variety of purposes and audiences by writing a variety of responses to text (e.g. response logs, journals).

### Vocabulary:

*runoff* - that part of precipitation, snow or ice melt, or irrigation water that flows across the land to streams or other waterbodies

*ocean* - a very large expanse of sea, in particular each of the main areas into which the sea is divided geographically

*flow* - (of a liquid, gas, or electricity) to move steadily and continuously in a current or stream

*waterfall* - a cascade of water falling from a height, formed when a river or stream flows over a precipice or steep incline

*stream* - a small, narrow river

*river* - a large natural stream of water flowing in a channel to the sea

*mountain* - a large natural elevation of Earth's surface rising abruptly from the surrounding level

### Materials:

Per small group of students:

- Cups (8-12 ounces)
- Flat pan
- Modeling clay
- Water
- Small boats, toy people, toy houses, styrofoam®, small trees
- Rags or paper towels for cleaning spills
- Shulevitz, U. (1969). *Rain rain rivers*. New York: Farrar, Staus, and Giroux.
- Aardema, V. (1981). *Bringing the rain to Kapiti Plain*. (B. Vidal, illus.). New York, NY: Dial Press.

**Activity Procedure:**

Please refer to the assessment task and scoring rubric located at the end of these instructions. Discuss the assessment descriptors with the class before teaching this lesson.

**Gear Up****Process Skills: questioning and observing**

1. Read the book *Rain Rain Rivers* by Uri Shulevitz to the class. Discuss rain and where rain goes.
  - a. Ask students what the girl wants to do once it stops raining. Ask student what they like to do when it stops raining.
  - b. Ask students why we need rain and who needs rain to live. (people, animals, plants)
  - c. Ask students what happens to plants when they need rain and what happens to plants after it has rained.

**Explore****Process Skills: inferring and developing models**

2. Tell students they will be making a model of a river and will observe how water flows.
3. Distribute modeling clay and a pan to each small group of students and ask students to use the clay to shape a mountain, river, and lake. If materials are available, students may add details such as trees, boats, and people. Ask students to predict where water in the river will end up in the model.
4. Instruct students to pour water on top of the model using cupfuls of water and discuss runoff and its effects on the model. Students may also place a raft (Styrofoam®) into the water to observe the direction that it flows. Ask students to title their models. Display models.
5. Discuss what a drainage point is.

**Generalize****Process Skills: observing, communicating, predicting, and describing**

6. Ask students the following questions and discuss as a class.
  - a. Which direction does water flow? (downhill)
  - b. Where does water eventually end up? (ocean, sea) Why?
  - c. Where would you find lakes and rivers? (in a valley)
  - d. What would happen if you poured more water on your mountain? (runoff, trees and houses would move, flooding)
  - e. What did you notice about the sides of the river and lake when you poured the water? (The sides became wet and dissolved.)
  - f. What do you think would happen to the sides of the lake and river if you continued to pour water? (More of the sides would fall apart or go away.)
  - g. What would stop the water from flowing downhill?

**Apply****Process Skills: communicating, developing models, and describing**

7. Ask students to draw a picture of what a river would look like if it contained too much water.

**Extension Ideas:**

1. Instead of using clay, invite students to use other various sedimentary materials such as pea gravel, sand, or topsoil to make a mountain. Once the mountain is completed, ask students to observe the runoff. Students should observe that water flows downhill where it is not blocked (areas of least resistance).
2. Take students on a field trip to investigate local sources of water runoff and/or areas affected by flood damage.
3. Read *Bringing the Rain to Kapiti Plain* to the class and discuss.



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# RUBRIC

## Assessment Task

Ask students to pretend they are on a river rafting trip and will describe the experience to friends and family. They must draw a picture with labels (e.g. mountain, stream, river, lake, ocean, sea, valley) and describe the direction that the water flows during the trip. The description may include that the water will eventually flow to the sea/ocean and how water can be blocked. The picture may be colored. There must be a prediction of where the raft and water will be at the end of the trip (the lowest drainage point).

## Rubric

Objective	GLE	Below Proficient	Proficient	Above Proficient
The student identifies that water flows downhill.	[3] SD2.1	The student does not identify that water flows downhill.	The student identifies that water flows downhill.	The student identifies that water flows downhill and eventually to the sea/ocean.
The student makes an accurate prediction	[3] SA1.1	The student does not predict water will flow to the lowest drainage point.	The student predicts water will flow to the lowest drainage point.	The student predicts water will flow to the lowest drainage point and explains how it can be blocked.
The student draws, labels, and describes water flow.	[1] W1.2.2	The student does not draw or incorrectly labels the process of water flowing downhill.	The student draws, correctly labels, and provides a written description of where water flows.	The student draws, correctly labels, colors, and provides a written description of where water flows.