



### GO WITH THE FLOW

#### Objectives:

- Students will locate major mountains and four large river systems of South America.
- Students will learn how topography affects water flow and understand the term watershed.

#### Recommended Grades: 4-8

#### Materials (all included in the trunk):

- 4 blue plastic chains
- Go with the Flow cards (20)
- 12 large green cones
- 4 small green cones
- 20 foam rubber arrows
- 8 small whisk brooms
- Blue bingo chips
- Dustpan (for sweeping up bingo chips when done)

#### Preparation: 10 minutes

- At each Base Camp (the colored circles in the corners of the map) place the following: one (1) blue plastic chains, five (5) foam rubber arrows, one (1) small green cone and three (3) large green cones, and the five (5) color-coordinated Go with the Flow cards.
- Read over the activity and preview the cards so you can help students locate the mountains and rivers if necessary.
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#### Rules:



Shoes are not allowed on the map. Please have students remove shoes before walking on the map.



No writing utensils on the map.

### PART 1: FINDING MOUNTAINS AND MAJOR RIVERS

Divide the class into four teams—red, yellow, green, and blue—and instruct them to line up along the gold border near their “Base Camp.”

Explain that each team will locate four mountains and one large river. Working in pairs and using a card, students are to take turns locating a mountain or river. They will need to check their card before setting out to see whether they will be placing a large cone, a small cone, or a blue chain on the map. Note: Some of the mountains are identified on the map and some are not, but all of the mountain cards contain directions as to where to place the cones.

Only one pair from each team will be on the map at a time. Teammates can help, but they must remain on the yellow braid near their Base Camp. Direct the students to hold on to their cards after they are done placing their cone or chain.

Note: The large cones will be placed in the Andes and represent mountains over 10,000 feet in elevation. The small cones will be placed in the Brazilian Highlands or the Guiana Highlands and represent mountains lower than 10,000 feet in elevation. When placing a chain, have students kink it so that it follows the river's twists and turns. The group with the Amazon River system might need help finding its origin, which is disputed among geographers. A commonly accepted origin is the Ucayali River in Peru.

## **PART 2: DEMONSTRATING THE TERRAIN**

After all the cones and chains have been placed, have each pair of students name the mountain or river on their card. As you discuss the various features, select a student to go to that place on the map. For mountains higher than 10,000 feet in elevation, the student will stand by the cone; for mountains lower than 10,000 feet in elevation, they will kneel next to the cone; and the student will sit or lie down next to a river chain.

Point out the following three areas: the Andes Mountains, the Guiana Highlands and the Brazilian Highlands.

## **PART 3: GOING WITH THE FLOW IN THE WATERSHED**

Ask students which way they think the water is flowing in the four major rivers and why. Explain that water always flows downhill. Rainfall and snowmelt seep into the ground and slowly move to a local creek or river, then on to a larger river and on to a bay, sea, or ocean. Point out that the four major rivers denoted by the chains are part of larger systems, with many other rivers and creeks connecting to them that do not appear on the map.

Once that is established, hand out the arrows to the students not currently on the map and ask them to place the arrows beside the rivers to indicate the direction of the water flow.

Send the students back to their Base Camps and introduce the term watershed.

A watershed is the area of land where all the water flows into a common area. The watershed acts like a funnel, collecting all the water within an area and channeling it into a waterway. Each watershed is separated from neighboring watersheds by a geographical barrier such as a ridge, hill, or mountain. These barriers are called the drainage divide. Watersheds are also sometimes called drainage basins or catchments.

To help students visualize a watershed, ask them to picture rain falling on the pointed roof of a house. The water has to flow down one side or the other. The same is true of rain or snow—water flows down from the mountains forming streams and rivers.

**Ask students:**

Where is the major drainage divide located? [The Andes]

Where do the major drainage basins empty? [The Atlantic Ocean and the Caribbean Sea]

Which ocean or sea is closest to the Andes? [The Pacific Ocean]

Because of the relief of the South American continent, rain that falls only 100 miles east of the Pacific Ocean may flow to the Atlantic, 2,500 miles away! The four major drainage systems—the Amazon, Orinoco, Paraná, and São Francisco—cover nearly three-fourths of the continent of South America.

## **OPTIONAL EXTENSION**

### **Demonstrating the Flow of Rainfall**

With all the cones, chains, and arrows still on the map, give students a limited amount of time to walk around on the map and make note of the major drainage systems, mountains, and highlands. When time is up, have each group retrieve the cones and chains that their team placed on the map and return them to Base Camp.

Now, hand out two whisk brooms to each group. Place blue bingo chips on the continent, explaining that they represent raindrops. Direct the students to use the whisk brooms to move the chips on the map as rainfall would move within the watersheds. Instruct them to keep sweeping until the chips (or rain) have made their way to an ocean or sea.

After all the chips have flowed to their respective places, discuss where the chips have ended up. The largest pile of chips will be at the mouth of the Amazon River, which carries a volume of water larger than any other river in the world. It actually contains one-fifth of the total flowing fresh water in the world!

