

Mini Enviroscope Watershed Lesson

Objective: Create a model of a watershed. Observe how water flow is determined based on land shape, placement of greenery, and human impact.

Materials: Mini Enviroscope with tray, blue washable marker (rain water), cocoa (farms and soil), green drink mix (parks, lawns, and farms), red drink mix (parks, lawns, and farm), vegetable oil or soy sauce (roadways and parking lots), green felt, colored pencils or markers, towel for drying, and a spray bottle with water (Teacher)

Part I

1. Place the mini enviroscope in its tray and notice its geography. There are streams, a lake, ridges (high points) and valleys (low points). Imagine that this model is a real piece of land. Notice the different areas, the parking lot, roadways, and farmland.
2. Take your blue washable marker and draw on the ridgelines.
3. You are going to “rain” on your lands. Answer the following questions to make your hypothesis BEFORE conducting the experiment.



- a. What do you think will happen to the blue marks that you placed on the ridge lines when it “rains”?
- b. Where will the rainwater (blue washable marker marks) travel?
4. Call the teacher over and he/she will create a “rainstorm” over your land. Observe what happens as your “rainfall” accumulates, observe the pathways where the excess “rainfall” travels.
5. Sketch a simple picture of your land using colored pencils or markers and describe what you saw happen below.

6. Answer the following questions to analyze your data.

- a. Explain how your hypothesis was OR was not correct – refer to your picture.

- b. How did the “rainfall” travel over your land?

- c. Where did the water collect? Explain why this happened.

- d. Find an area on your land where water collected. There is a lake. You get to name it.

My lake is named _____ Lake. Label this on your picture.

- e. Look for tributaries running into your lake. These are streams, name them _____ Stream and _____ Stream. Label them on your picture.

- f. Where do you think the land splits on your watershed map? (where land divides) Label on your map above.

- g. How many watersheds are on your map? ____ Why is there more than 1? _____

Part II:

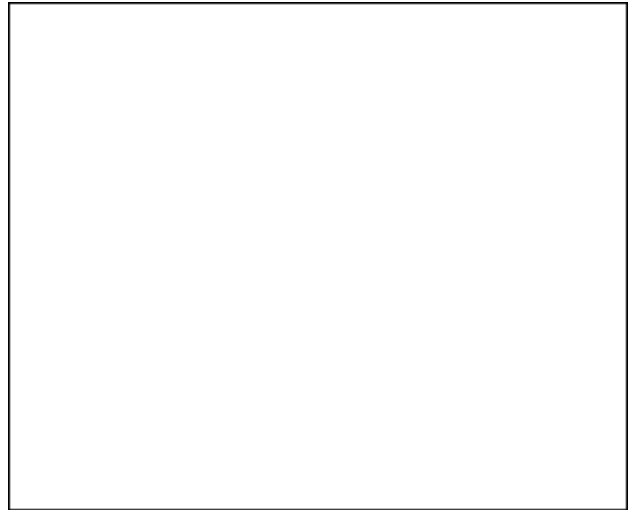
1. Dry your mini enviroscape. Think of ways that people use the land. Use the table below and add a small amount of the **items** to your land.

Items	Apply Item to Areas that Represent	How many areas like this are on the landscape?	What might be on this land that you would not want in the water?
Cocoa	Farms, soil, sand, places painted brown		
Red Drink Mix	Places painted to represent parks and lawns or farms		
Green Drink Mix	Places painted to represent parks and lawns or farms		
Soy Sauce or Cooking Oil	Places painted black to represent parking lots and roadways		

2. After sprinkling your **items**. Make a hypothesis about what you think will happen when you “rain” on your land this time: *If it rains on the map, then _____ will happen.*

3. Have the teacher create a “rainstorm” over your land. Observe what happens and how the water travels.

4. Sketch a picture of your land and describe what you saw happen below. Make sure to match the colors used in your sketch with the colors of the **items**.



5. Answer the following questions to help analyze your data.

a. What happened in your second experiment? _____

b. What do you think the colors actually represent in real life? HINT: What would be going into the waterways specifically?

Cocoa = _____

Red Drink Mix = _____

Green Drink Mix = _____

Soy Sauce or Cooking Oil = _____

c. Where did the colors end up? _____

d. What could be added to your map to “stop” this pollution from occurring? _____

Part III

1. Take a towel and dry the wet areas on your enviroscape. It does not need to be completely clean.

2. Place pieces of green felt on your enviroscape.

3. Make a hypothesis about what you think will happen when you “rain” on your land this time: *If it rains on the map with the green felt added, then* _____.

4. Add some more cocoa, green and red drink mix, and soy sauce or cooking oil to your land.

5. Have the teacher make it “rain” again. Observe what happens and how the water travels.

a. Explain how your hypothesis was supported or not supported.

b. What could the green felt represent?

c. Did the green felt help hold the **items** in place and prevent them from washing off with the rain?

6. Based on this activity and your observations, define the following 3 words associated with watersheds:

Word	Definition (in your words)	Is your definition correct? <small>(compare to online definitions)</small>
Watershed		
Tributary		
Divide		

Teacher Notes:

Depending on the class, you may choose to allow students to control their own squirt bottles of water.

This lesson can also be done using washable markers in place of the cocoa and drink mix, however it is not as vivid.