

# Living in Our Watershed

**Key Topics:** Watershed, runoff, development, infiltration, permeability, water cycle

**Grade Levels:** K, 2, 4-8

**Inside and Outside**

## Lesson Overview:

Through storytelling and acting and a 3D model, students will review the water cycle, learn the term 'watershed,' make observations about how water and pollution runs off/infiltrates landscapes and affects habitats and explore relationships that contribute to health or harm in our watershed.

## Suggested Time Allowance: 1 hour

Part 1 - Storytelling: 15 minutes

Part 2 - Acting: 20 minutes

Part 3 - Discussion & Modeling: 30 minutes

## Learning Objectives:

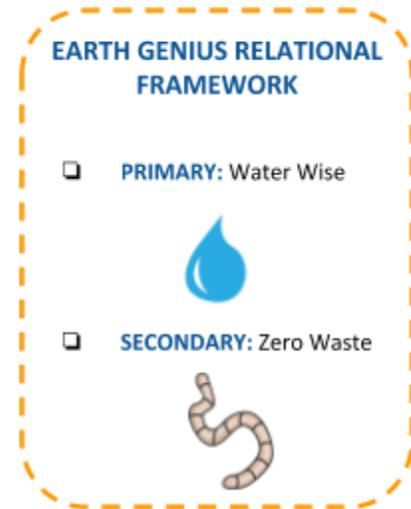
- K:
  - K-ESS3-3 How can we prevent water pollution?
- 2:
  - 2-ESS2-2 Make a model of a watershed.
- 4:
  - 4-ESS2-1 How does the water cycle affect a landscape?
- 5:
  - 5-ESS3-1 How can we prevent water pollution?
- MS:
  - MS-ESS2-4 Make a model of the water cycle on an area of land.

## Essential Question(s) that Connect CCCs and SEPs:

- How does pollution change at different scales? (Example: thinking about your campus is one scale then you could expand and think about your city and then your state and then how you are closer to affecting Japan where you live than New York) ([Scale](#); [Asking Questions & Defining Problems](#))
- What do I already know about the systems? How do they interact? How do I communicate what I know about this system? ([Systems](#); [Obtaining, Evaluating, and Communicating Information](#))
- What can we do to the model to test if this is the cause of the effect? ([Cause & Effect](#); [Planning and Carrying out Investigations](#))
- What is the evidence for the stability or change we see in our watershed? ([Stability & Change](#); [Engage in Argument from Evidence](#))

## Materials:

- [This slideshow](#)



- Projector
- Watershed Model (can be rented from the Upper Salinas Resource Conservation District OR Central Coast Salmon Enhancement) called [The EnviroScape](#)
- 2 Spray Bottles
- Paper towels or rags
- Chocolate Sprinkles
- Soap and/or food dye
- Index cards (for cue cards when acting)
- Story write up for your sensory guided one AND the play
  - Use inspiration from MERITO guide Who Polluted Our Creek? PDF [1](#) & [2](#) for the play/watershed model
- Copy paper, markers (for pollution) and colored pencils (for rivers, lakes, valleys, ridges) for crumple a watershed
- Costumes (for characters in the watershed story)
  - Fox/Badger/ Bear
  - Steelhead Trout/ Salmon
  - Construction Worker
  - Mayor
  - Teacher
  - Farmer
  - Wine Maker
  - Water

### **EG Team Support Needed:**

- None

### **Prep:**

This activity is meant to be done all outdoors! The model used called The EnviroScape is bulky and you will need to find a space where you can set up on a table and have students gather around, however. If done indoors, anticipate how you will clean it up. Also, for the watershed models they will crumple and make, anticipate wet desks if they are indoors and be ready for cleanup.

- Understand which watershed is which in our local area and preview the watershed that the school sits in
  - The SLO Watershed Project webpage has a breakdown of all the watersheds and subwatersheds in SLO County: See [website](#) and [map](#) here.
- Reserve EnviroScape (not required to do lesson if it is unavailable, but very useful and engaging)
- Understand where you will do the activities that involve water and have a cleanup plan!

### **Activity Procedure:**

#### **Engage:**

*How do creeks and rivers become polluted?*

*Who thinks that you are standing in a watershed right now? Is it a certain place?*

#### **Explore:**

“Today we are going to step back in time and I am going to tell you a story. You are going to become a part of the story. You may get wet, you may hear noise, and you may even imagine and take yourself to

the places that I dream up. Are you ready? Clothes your eyes. Relax your jaw, your head, your shoulders, get comfortable in how you are seated.”

Action:

1. Fan students with a fan/magazine/convenient tool that will resemble a gust of wind
2. Spray water in the air and have them start making sounds of thunder and rain pouring
3. Have them cough after you do by announcing that the land has dried up and rain has not come in very many moons, some trickles, but not enough to store any in the ground for next year’s use
4. Get a bushy fur animal as a prop and tickle their elbows/arms as the animal scurries and runs for shelter
5. Have a fragrant scent from a flower or essential oil and tell a story of a farmer from a lemon grove or rose farm who is worried about sales of produce or excitement about the crops he is producing

**Explain:**

Remind students that they are to keep their eyes shut but start coming back from the land of imagination. Now, they will only open their eyes once they are ready to start scanning, looking, not talking, and noticing different pieces of the watershed. Yes! Everything is a part of a watershed. There are many different watersheds in the world and it all depends on where the raindrop lands and if it flows to the same bay and ocean or not. If they share the same outlet, then they are a part of the same watershed. If they do not, then they are different watersheds. There are underground channels that water flows in too. Water can move up and down and side to side.



*Comprehension  
Check*

Do we all know what a watershed is? A watershed is an area of land that drains surface and groundwater into a common body of water like a stream, creek, reservoir, or bay. You can think of a watershed as all the land that “sheds” water onto the lower area of land. A watershed connects all the plants, animals, and people that live in it, as well as the non-living components like rocks.

Action:

I am going to ask you all to participate in a play today. We are going to act out different roles and use the watershed model to help guide us with our story together. Who wants to play a role in the next story? Choose characters and hand them cue cards. Ask them to read or recite their role in their head or speak softly to themselves while they wait. Ask someone else to help by the watershed model. Have the rest of the group facing the characters and the watershed model that will all be in the presentation. The story can be as long or as short as you wish. Make certain you include the pollutants on the watershed model after reviewing each character's part in the play.

**Elaborate:**

Start with a class discussion: What kinds of systems did you notice in the story? **How did those systems interact to cause pollution? What evidence was there to tell?** Think about the characters in the story. Think-pair-share time.

Action:

“Crumple a watershed” is an activity to make their own models of a watershed:

One sheet of 8 1/2 x 11-inch paper for each person

A selection of water soluble markers (at least 3 different colors)

Spray bottles filled with water

Activity Directions

1. Make the watershed out of paper. Take the 8 1/2 x 11 inch piece of paper and crumple it into a tight ball. Then gently open up the paper, being careful to not flatten it out completely. The highest points on the paper now represent mountaintops and the low places represent valleys.
2. Color mountain ridges. Choose one color marker and draw lines to connect the highest points on the map. These are the mountain ridgelines.
3. Color water. Choose a second color and mark the low places where different bodies of water might be found: creeks, rivers, lakes, the Bay etc.
4. Color human activity. With a third color, mark four or five places to represent places of human activity: housing, factories, shopping centers, schools, etc.
5. Predict the flow of water. Predict the path water might take in the watershed if it rained on the watershed.
6. Observe the flow of water. Using spray bottles, lightly spray the paper watersheds and observe where the water flows. Compare to predictions.



### Comprehension Check

7. Discuss.

- What observations can be made about how water travels in the watershed?
- Where did you place the human activity on your map? Why?
- What path did the water follow?
- Were your initial predictions correct?
- What types of materials might the water pick up as it moves through the watershed? (hint: pollution)

8. Clean-up. After discussion, let the paper watersheds dry out. You could save them for class displays; teacher and you can decide who/for what you would want to keep them.

### **Evaluation:**

Write on your graphic organizer:

*I think the reason pollution happens is because \_\_\_\_\_.*

*What do you call water that moves off a landscape? \_\_\_\_\_.*

*Is pollution always easy to identify? \_\_\_\_\_. What systems are interacting with each other that cause pollution? \_\_\_\_\_ interacts with \_\_\_\_\_ to cause \_\_\_\_\_ as pollution. (Examples of systems include new housing development project, beach shore, creeks, house/driveway, farm, etc)*

### **Extension Activities:**

- [What is a Watershed? Intro Video](#)
- Write a story from first person perspective that is a journal entry about how you are interacting with the watershed. Talk about how you feel, what you think, and your ideas on how you will influence the watershed. (ex. Beaver, football stadium owner, etc)

**Tips and Caveats:**

Water, water everywhere with this one! Also, dyes and markers and such can get messy real quick. Make sure you have a plan to avoid getting stains on carpets and appropriate cleaning space.

**Cited Curriculum:**

- [EnviroScape User Guide for Watershed Model](#)
- Project WET's Seeing Watersheds Curriculum & Activity Guides
- Project WET's River Talk Curriculum & Activity Guides
- [Watershed in Your Hand by The Watershed Project](#)