



Watershed Lesson Plan

Grade Level: K-3

Student Learning Objective(s): Students will be able to identify their neighborhood is connected to the ocean through the watershed and storm drains. Students are able to infer that trash and pollution can make their way to the ocean and hurt the animals that live in the kelp forest.

Supplies/Resources Needed:

- Watershed table: example of a [model](#), also available to [rent from the San Diego Natural History Museum](#) . (Note: the creation of a watershed table as a class can be a pre-requisite lesson, see Appendix for examples)
 - Shakers with coffee grinds (1/table)
 - Shakers with pepper flakes (1/table)
 - Red food coloring (diluted dropper / table)
 - Tiny pieces of plants (small amount / table)
- Spray bottles filled with water (1/table)

Next Generation Science Standards

- Performance Expectations
 - K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.
 - K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
 - 2-ESS2-2. Develop a model to represent the shapes and kinds of land and bodies of water in an area.
 - 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

Common Core Standards Addressed:

- CCSS.ELA-Literacy.SL.K.3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- CCSS.ELA-Literacy.SK.K.4. . Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.
- CCSS.ELA-Literacy.SL.1.1. Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

- CCSS.ELA-Literacy.SL.2.6. Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.
- CCSS.ELA-Literacy.SL.3.4. Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

Lesson:

- Introduce the concept of a watershed. Be sure to cover:
 - Watershed = An area of land that channels rainfall to streams and rivers, and eventually to the ocean.
 - (Show What is a Watershed Video: <https://www.youtube.com/watch?app=desktop&v=QOrVotzBNto&feature=youtu.be>)
 - **(ONLY PLAY VIDEO TO 53 SECONDS.)**
 - Everyone lives in a watershed.
 - We live within the Pueblo San Diego Watershed.
 - Show <https://www.sdcoastkeeper.org/watersheds> website. Scroll down to the map and type in current location or school
 - The Pueblo San Diego watershed starts up in the mountains near Mt. Laguna and travels downhill through parts of San Diego all the way to the San Diego Bay which connects with the Pacific Ocean.
 - When it rains in City Heights all the water that lands on the streets runs into storm drains which empty out in the ocean, therefore everyone that lives in City Heights has a direct connection to the ocean.
 - (Show Storm Drain slide on PowerPoint.)
 - Ask students if anyone has ever seen a storm drain.
 - Water from the city streets that goes into storm drains often carries additional things with it that might not be so good for the environment.
 - (Show Trash Around Storm Drain slide on PowerPoint.)
- Watershed table.
 - (Invite students to stand around the watershed table.)
 - Explain that this is a replica of a watershed – a “replica” is like a smaller model of something
 - (Ask students what they observe.)
 - (Demonstrate how a watershed works.)
 - (Make it rain towards the top of the watershed.)
 - (Ask students to observe what happens to the rain.)
 - Main idea: Water eventually ends up in the ocean – this is natural and healthy.

Potential Questions:

- What happens to the rain? Where does it go?
- What happens to the rain that falls on the city streets?
- What happens to the rain that falls on the mountains?
- What happens to the rain that falls in the canyons?

- o Explain to students that sometimes more than water gets carried to the ocean when it rains.
- o (Have students help add things to the watershed.)
 - Pepper flakes – trash
 - Do you ever see trash around your neighborhood?
 - Red food coloring – oil and gas from cars
 - Do you ever see rainbows on the ground? That is from oil and gas that leaks from our cars.
 - Coffee grinds – dog poop
 - Do you ever see dog poop that doesn't get picked up?
 - Tiny pieces of plants – plastic water bottles/plastic garbage bags/plastic trash
 - Do you ever see plastic water bottles that people haven't thrown away?
- o (Rain in the watershed.)
 - Have a student help you make it rain in the watershed.
 - (Ask students to observe what happens when it rains.)
 - Main idea: All the bad things (trash, oil, gas, dog poop, plastic, etc.) also get carried to the ocean with the rain and that is not healthy for the kelp forest or the animals that live there.

Potential Questions:

- What happens when it rains?
- What do you notice about the ocean this time?
- Do you think the plants and animals that live in the ocean like kelp and sea lions, etc. like to have all those things in the ocean too?
- How do you think trash, plastic, oil and gas, etc. can do to the plants and animals in the ocean?
- Where does all the unhealthy stuff come from?
- What can we do to protect our watersheds and oceans?

Appendix:

- **Optional Build a Watershed Lesson (adapted from pbskids)**
 - o Show your child various materials (1 large plastic tray or shallow tub, 4 tall cups [~16oz], 1 large sheet of clear or light-colored plastic – tarp, shower curtain, cut-open garbage bag) and ask, “How might we use these materials to build a model landscape with hills, valleys, rivers, and lakes?” Brainstorm for a few minutes, then build your model: 1 Stack the containers on a large tray into a pile that’s 1 to 2 feet high. 2 Make an irregular mound with peaks, ridges, and valleys by draping a tarp or large plastic sheet over the containers. 3 Talk with your child about the model. Look for hills, mountains, and valleys, and predict what might happen if you spray water on the tops of the hills and mountains
- **Extension Lessons**
 - o [How to build your watershed on a paper towel?](#)
 - o [PBS Kids Plum Landing games, videos and more](#)