



3rd Grade: The Amazing Watershed

Suggested Time of Year

This lesson can be used at any time of the year.

Basic Concept

Students learn the purpose of a storm drain and what happens in urban settings if substances such as car wash detergent, litter, paint, or oil wash into the street and down the storm drains, ultimately flowing into the San Francisco Bay. The lesson stresses community responsibility by individuals to prevent pollution.

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Lesson Plan

Organizational Considerations

Classroom Time: 40 minutes

- 15 minutes, set-up and instruction (reading *All the Way to the Ocean* and card activity)
- 20 minutes, activity (drawing activity)
- 5 minutes, closing and assessment

✓ *See the Preparation Checklist (at the end of the Lesson Plan) at least a week in advance.*

Pre-class Set-up

Contact the DSRSD Public Information Office (925-875-2282) to borrow items for this lesson.

Classroom organization

The introduction and instruction is done whole class.

Required student skills

Students must be able to understand what is written on a white board, do a simple drawing, and follow verbal instructions.

Major Objectives

Learning Statement

The students will be introduced to the District and the services we provide to the community. They will learn how to identify a storm drain and understand its purpose. They will learn what a watershed is and how pollution affects the watershed.

Behavioral Statement

To measure the success of this lesson, the students will produce a drawing divided down the middle. On one side will be a picture (or brief description) of how an activity pollutes a watershed (example: oil poured into a storm drain flows to the bay); and the other side will be an alternative method of doing the same activity without polluting (example: taking oil to a hazardous waste disposal center).

Child Development Statement

Students in third grade typically have reached the concrete operations stage of Piaget's continuum (7-11 years); therefore they use logical operations. Their thinking is tied to real events and objects, not abstract. This lesson discusses our own watershed and the San Francisco Bay. The children can relate to it, thus increasing their interest and understanding.

Vocabulary

Storm drain: a drain that is located on a street for the purpose of capturing runoff water from the watershed.

Watershed: the land area from which surface runoff drains into a stream channel, lake, reservoir, or other body of water; also called a drainage basin.

Delivery of Instruction

1. Preparation

Bring the book and laminated cards up to the white board. Make sure about 10 magnets are available to display the cards on the white board.

2. Set (Intro or Warm-up)

Show the cover of *All The Way to the Ocean* and ask students what they think this book is about. Take a couple of guesses and then read the book to the whole class. If necessary, have the students get closer so they can all see the book clearly.

3. Teacher-directed instruction

After reading the book draw two columns on the whiteboard. On one side write, “Drains to Treatment Plant” and on the other side write, “Drains to San Francisco Bay.”

Drains to Treatment Plant	Drains to San Francisco Bay
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Hold up each laminated picture. (The DSRSD set is marked with a green dot with order numbers. The last one is the storm drain and is marked “last one.”) Allow students to tell you where that activity drains, then post the card with a magnet on the board. For example, the shower drains to the treatment plant because it goes down the drain under the house and then to the treatment plant. **Show the storm drain picture last.** Because this is the one item that goes directly to the San Francisco Bay, it drives home the point of how **storm drain water flows directly to the bay and ocean without treatment.**

4. Modeling/Guided Practice

Now that the students understand the significance of storm drains, hold up the remaining laminated pictures one by one and discuss alternatives to polluting practices. This will suggest pictures students can include in their own posters.

- Carwash and Soapy Car/Bucket (two pictures)
 - Bring to a carwash where recycled water is used.
 - Use biodegradable soap.
 - Wash car on the lawn where the water will be naturally filtered by the soil.
- Dog (two pictures)
 - Animal waste should be picked up, otherwise it will end up in the bay.
- Paint Can
 - Never pour paint into the storm drain.
 - Bring to proper disposal sites.

- Bug Spray/Pesticides
 - None should get to the storm drain.
 - None should go in the house drain, because they can affect our waste treatment plant microorganisms.
 - Bring oil to a disposal center.
- Oil
 - Do not pour oil down the storm drain because it will go right to the San Francisco Bay and then to the ocean.
- Car with oil leak
 - Do not let cars leak oil onto the driveway. When it rains, the oil washes right into the storm drain, which then goes into the bay and then into the ocean.
- Picture of trash
 - When it rains, trash gets washed into the storm drain.
 - Pick up trash when you see it.
 - Always put trash in a trash can, never on the ground.

5. Check for Understanding

Through the above activity and feedback, you can determine if the students are ready to work on their own.

6. Practice

Explain to the students that they will be making a poster to bring home so they can talk to their families about how to prevent pollution from entering the storm drains. Hand out the 11x 17” paper. Point out how the laminated cards contain ideas to get them started on their posters. They also can come up with their own ideas.

Demonstrate how to fold the paper in half “hamburger style.” Explain very clearly what goes on the poster.

“On one side, draw a picture of how an activity pollutes a watershed. For example, oil poured into a storm drain flows to the bay. On the other side, draw one or more alternative ways of doing the same activity without polluting. For example, draw someone taking oil to a hazardous waste disposal center, or having the oil changed at a business that properly disposes of oil.”

Have a student or aide pass out the paper and take questions on the poster activity.

7. Assessment and Closure

Ask questions to assess students understanding that “pollution” from our daily activities can end up in the bay. You may want to summarize at the end of the session by having students suggest how they can prevent pollution at their school (pick up trash); or by asking students what they will say when they show their posters to their families.

PREPARATION CHECKLIST

Important Note
Contact the DSRSD Public Information Office (925-875-2282) to borrow items for this lesson.

Pre-class Preparation

- Become familiar with the book, *All the Way to the Ocean*.
- Find and laminate the following pictures (or borrow them from DSRSD):
 - Drinking fountain
 - Shower
 - Bathtub
 - Toilet
 - Sink with running faucet
 - Storm drain
 - Commercial carwash and soapy car/bucket (two pictures)
 - Dog and hydrant, person walking or cleaning up after their pet (two pictures)
 - Paint can
 - Bug spray, pesticides
 - Container of motor oil
 - Car with oil leak or oily driveway
 - Trash in street or gutter
- Put laminated pictures in correct order, according to script.
- Obtain 11" x 17" paper, one piece per student.