STORM DRAINS & POLLUTION

Audience | **Grade 2-3**

Read-Alouds
The Mess That We Made
All the Way to the Ocean

Lesson Overview

In this interactive lesson, students will head outside to investigate storm drains in their community. Through direct observation and guided discussion, they will explore how storm drains connect to larger water systems and how pollution—especially plastic nurdles—can travel through these networks into rivers, bays, and oceans. Students will then brainstorm creative ideas and solutions to reduce pollution and protect waterways.

Student Outcomes

- By the end of this lesson, students will be able to:
- Explain how storm drains connect to water systems and can carry debris such as nurdles.
- Identify storm drains around their school and community.
- Describe the environmental challenges caused by pollution entering storm drains.
- Propose creative solutions to reduce pollution and nurdle spills.
- Share their ideas through discussion, diagrams, or posters.

Materials

- All the Way to the Ocean (book or video)
- Vial of nurdles (from teacher kit)
- Pencils and student journals (if available)

Teacher Preparation

- Walk the school grounds ahead of time to identify storm drain locations for your investigation.
- Select safe walking routes for students.

Additional Resources

- NOAA Ocean Service: Nurdle Patrol
- I Joined Nurdle Patrol
- Mission Aransas Nurdle Patrol Student Project
- 4Ocean

✨ Adapted from The Storm Drain Connection developed by The Center for Marine Conservation and the California Coastal Commission in the Save Our Seas curriculum guide.

NURDLE PATROL.org

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Teacher Background

Nurdles:

- Tiny plastic pellets, the raw material for plastic products.
- They often spill during production and transport, becoming a major source of ocean pollution.
- Resources: [Nurdle Patrol Website], [The Great Nurdle Hunt], Nurdle Fact Sheet.

Storm Drains:

- Combined Sewer Systems (older cities): Sewage and stormwater share the same pipes. Heavy rains can overwhelm the system, causing untreated sewage and runoff to flow into local waterways.
- Separate Sewer Systems (newer cities):
  - Sanitary Sewers carry household wastewater to treatment plants where solids and liquids are separated.
  - Storm Drains carry rainwater from streets directly to rivers, lakes, or oceans. These are not filtered—so any litter, oil, or debris on the street also ends up in waterways.
- Storm drains are designed for water, not waste—yet when people use them as trash bins, they become direct sources of pollution.

Lesson Procedures

- Introduction (Literacy Connection): Read or watch All the Way to the Ocean.
- Engage: Show students a vial of nurdles. Pass it around and ask: What do you think these tiny pellets could become? Share the short video Hurdles with Nurdles (0:28–1:00) to introduce the concept.
- Field Investigation: Take students outside to locate storm drains around the school. Have them record observations in journals. Encourage them to notice:
- Where the drains are located
- Whether trash or debris is nearby
- What might happen to this trash when it rains
- Guided Discussion Outdoors: Ask:
- Where do you think this trash will go?
- What happens during heavy rain?
- What would happen if a truck full of nurdles spilled on the street?
- Return to Classroom: Have students share what they observed and brainstorm problems nurdle spills could cause.

Discussion & Reflection

- What problems arise when nurdles or other trash enter storm drains?
- What solutions could help prevent this?
- How can people in the community take action?

Community Connection

Discuss examples of how communities can improve their environment, such as storm drain art projects or cleanup campaigns.

STORM DRAINS & POLLUTION
STUDENT WORKSHEET

Name: _____ Date:_____

Getting Started

We learned that storm drains are openings in the street that carry rainwater into rivers, bays, or oceans. But they don't just carry water—sometimes they carry trash and plastic nurdles too!

Before we go outside, think about this question:

👉 What might happen if a truck carrying nurdles spilled them on the road?

My idea: _____

Field Investigation

As we go outside, look carefully for storm drains around our school.

How many storm drains did you find? Number: _____

Did you see any trash near or inside the storm drains?

□ Yes

□ No

If yes, what did you see? _____

Thinking Questions

Answer these with your group or on your own.

1. What happens to trash when it rains?
2. Where do you think the trash in storm drains goes?
3. What problems might happen if nurdles spilled into a storm drain?

Be a Problem Solver!

Now it's your turn to come up with solutions.

💡 What's one idea you have to stop trash and nurdles from going into storm drains?

Reflection

Circle one: Today I learned that storm drains are...

□ Only for rainwater

□ Connected to rivers, bays, and oceans

□ A place people sometimes put trash

□ All of the above ✅

One thing I can do to help my community: