

Human Impacts, Benefits & Solutions



Department of
Environmental
Conservation

Topics: Community, environmental resources, diversity, pollution

GRADE LEVEL: 3-5

Big Ideas:

- Individuals and communities are doing things to help protect the Earth's resources and environments.
- Not all communities are the same.
- Things that people do can affect the world around them.
- Humans use natural resources for everything they do.
- Pollution is made by humans.

Learning Objectives: *students will be able to...*

- See how pollution affects people.
- Communicate solutions that reduce their impact on the environment.
- Identify the differences between different types of pollution.
- Identify reusable materials.
- Develop an understanding of the importance of diversity in a community.

New Your State Science Learning Standards:

4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Key Understandings:

- Energy and fuels that humans use, are derived from natural sources.
- Some resources are renewable over time, and others are not, and their use affects the environment.
- People can make choices that reduce their impacts on the land, water, air, and other living things.

Essential Questions:

- What is a community?
- What is pollution?
- What are some choices that people can make to reduce their impacts on the environment?
- Why is diversity important in a community?
- What are some ways we are different and how can we celebrate these differences in our community?

Students will know...

- Key vocabulary terms.
- What makes up a community.
- Pollution comes in different forms and from many sources.
- How their actions can affect their surrounding environment.
- Some communities have to deal with pollution more than others.

Vocabulary:

- Community: a group of people who live in the same area (such as a city, town, or neighborhood).
- Diversity: the quality or state of having many different forms, types, and ideas.
- Environmental justice: is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income.

- Microplastic: small plastic pieces less than five millimeters long which can be harmful to our ocean and aquatic life.
 - Natural resource: materials or substances that exist in nature such as air, sunlight, water, soil, stone, plants, animals, and fossil fuels.
 - Pollution: harmful materials into the environment.
 - Rural: any population, housing, or territory not in an urban area.
 - Suburban: an outlying part of a city or town.
 - Urban: living, located, or taking place in a city.
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Learning Plan: We recommend doing these lessons in sequential order; however, they can be done as individual lessons. Lessons have multiple links (videos, songs, diagrams, activities) that can be used at the teacher's discretion depending on class time.

Pre-assess: What makes up a community? What are some ways we are different and how can we celebrate these differences in our community? How does pollution affect communities? Use K-W-L to assess students' prior knowledge, have students write or draw in response to the essential questions.

Progress Monitoring: Formative assessment and teacher feedback should be ongoing throughout the lessons. Teachers should develop assessments based on their individual class needs. Think-pair share, exit tickets, interactive discussions, questions and listening, informal observations, quizzes and student work samples can all be used.

Lesson 1: It's Okay to Feel Different- Students listen to a story, discuss the importance of diversity, create their own jigsaw puzzle/story, and investigate their communities.

- It's Okay to Feel Different [Student Activity](#)
 - What's good in my Hood [Student Workbook](#)
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Lesson 2: Pollution- Students listen to a story, learn how pollution gets into the environment, and build their own water filter to clean up the polluted water. Have students follow up with a walk around their schoolyard or community to identify pollution sources.

- Who Polluted the Hudson River [Student Activity](#)
 - Build Your Own Water Filter [Student Activity](#)
 - The Rain Drain: Stop Trash in its Tracks & What's the Point: Exploring Point Source and Non-point Source Pollution [Student Activities](#) (pg. 64-67)
 - When You Use Water, You Use Everything In It [Student STEM Activity](#)
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Lesson 3: What are Microplastics? - Students watch a video and survey their own plastic use.

- Video: [Microplastics and Marine Debris](#)
 - Microplastics Here and There [Presentation](#)
 - Microfiber [Student Activity](#) & [Datasheet](#) & [Microfiber Pollution Primer](#)
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- Plastic Rapid Survey [Student Activity](#)

Lesson 5: What is Environmental Justice? – Students watch a video, then use a map to locate environmental injustice and learn how air pollution can unfairly affect communities of color.

- Video: [Environmental Justice Explained](#)
- What is Environmental Justice [Student Activity](#)

Lesson 6: The Power of Our Voice- Students watch a video, then explore how to empower themselves to take a stand.

- Video: [Words Have Power](#)
- The Power of Our Voice [Student Activity](#) & [Student Worksheet](#)
- Video Song: [We Sing Out!](#)

Lesson 4: Human Impacts & Sustainability- Students explore sustainability opportunities, and how they can make changes in a system. Students follow up with a game and consider how their actions can change estuaries.

- Resource [Student Activity](#)
- Products Life Cycles [Student Activity](#)
- Estuary Explorers [Human Impacts Game](#)
- Extension: A “Model” Schoolyard [Student Activities](#) (pg. 84)

Teachers: Would you like to visit us at Norrie Point environmental education center, or have an educator visit your classroom in-person or virtually? Contact us to schedule a program: hrteach@dec.ny.gov

Resources:

Children’s books:

- [The Wump World](#) by Bill Peet
- [The Magic School Bus Gets Cleaned Up](#) by Scholastic
- [We are Water Protectors](#) by Carole Lindstrom
- [The Water Princess](#) by Susan Verde
- [One Plastic Bag](#) by Miranda Paul
- [The Lorax](#) by Dr. Seuss
- [What a Waste](#) by Jess French
- [Counting on Community](#) by Innosanto Nagara
- [Look Where We Live!](#) By Scot Ritchie
- [Quinito’s Neighborhood](#) by Ina Cumpiano
- [Maybe Something Beautiful](#) by Isabel Campoy
- [All Are Welcome](#) by Alexandra Penfold
- [One Earth](#) by Eileen Spinelli
- [10 Things I Can Do to Help My World](#) by Melanie Walsh

Websites:

- [Children’s Environmental Literacy Foundation](#)
- [Rozalia Project](#)
- [NOAA Marine Debris Program](#)
- [Learning for Justice](#)
- [Learning to Give](#)

- [NYCDEP Curriculum Guide](#)
- [NYSDEC](#)
- [Teach Hub](#)
- [Young Voices for the Planet](#)