

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Reinstein Woods Environmental Education Center

93 Honorine Drive, Depew, NY 14043

P: (716) 683-5959 | F: (716) 686-0210 | ReinsteinWoods@dec.ny.gov

www.dec.ny.gov

Dear Educator:

Thank you for your interest in Reinstein Woods' environmental education programs. You have scheduled the program "Trash Talk" as an in-school program. In this packet, you will find an overview of the "Trash Talk" program and post-visit activities to supplement your program. Please try to go over the vocabulary list (found in the overview) with your students before the program.

We feel that our program will be of more value to students if related classroom activities are done after the lesson. The enclosed activities are designed to reinforce concepts learned during the program.

The New York State Department of Environmental Conservation is currently sponsoring educational workshops for teachers. These workshops include Project WILD—a program that emphasizes awareness, appreciation, and understanding of wildlife—and Project WET, an education program that teaches about water resources. We also offer Project Learning Tree trainings for educators in grades PreK-12. To learn how you can attend a workshop to obtain these materials for use in your classroom, please contact Reinstein Woods or visit <http://www.dec.ny.gov/education/1913.html>.

We hope that this information is helpful to you and your students, and feedback is encouraged. Please take some time to complete and return the program evaluation following the lesson. We look forward to seeing you soon!

Sincerely,

Reinstein Woods Environmental Education Center Staff

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TRASH TALK

Grades: K – 8

Length: 45 min.

Maximum Students: 25

Standards

State learning standards addressed through our program are listed below. Any standard marked by an asterisk is best met by completing the included post-lesson activities.

2017 P-12 Science Learning Standards

K-ESS3-3. Communicate solutions that will reduce the impact of humans on living organisms and non-living things in the local environment.

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

Science and Engineering Practices

- Asking Questions and Defining Problems*
- Planning and Carrying Out Investigations*
- Constructing Explanations and Designing Solutions*

Disciplinary Core Ideas

ESS3.A: Natural Resources

ESS3.C: Human Impacts on Earth Systems

ESTS1.B: Developing Possible Solutions

Cross Cutting Concepts:

- Cause and Effect
- Influence of Engineering, Technology, and Science on Society and the Natural World

ELA/Literacy*

- *CCSS ELA RI 3.7, 4.7, 5.7
- *CCSS ELA RI 3.1, 4.1, 5.1
- *CCSS ELA RI 3.4, 4.4, 5.4

Social Studies*

- 1.4b*, 1.6c, 2.4c, 2.5c, 3.3b, 3.8*, 8.8c

Excellence in Environmental Education: Guidelines for Learning (K-12)

Strand 2.4—Environment and Society

Strand 3.1—Skills for Analyzing and Investigating Environmental Issues

Objectives:

1. Students will understand that human activity affects the world around them; but we can make choices to reduce our impact. Students will understand how recycling, reducing consumption and choosing reusable options will reduce our impact.
2. Students will discover the roles of scientists, engineers, and other professionals that contribute to waste management.

Background:

Each person in the United States produces about 4.5 pounds of trash per day. In New York State alone, we send 29 billion pounds of garbage to landfills throughout New York and neighboring states every year.

The production of goods that make up our waste requires huge amounts of natural resources and energy. Through recycling, reducing consumption, and reusing items, we can dramatically reduce our impact on the world. For example, recycling steel saves 40% of water used to make steel from ores while reducing air pollution by 86% and water pollution by 76%. We send 96% of compostable food to landfills where it generates methane—a potent greenhouse gas—as it decomposes.

A variety of professionals—from engineers and scientists to community organizers and government representatives—are focused on solving the problems associated with waste management. Through our lesson and included resources, your students will discover opportunities to make a difference in their communities throughout their lives and careers.



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Vocabulary

Compiled by [NY Recycles](#)

Biodegradable (adjective) - material that is able to be broken down naturally by microorganisms into simple, stable compounds.

Buy Recycled (concept) - Purchasing products and packaging made from post-consumer materials.

Compost (noun) - Decayed organic materials which decompose into humus, the organic component of soil.

Contamination (noun) - process by which something is made impure.

Decompose (verb) - To break down, change form by the action of living things or microorganisms.

Environment (noun) - The natural world around us, including the air, water, land, animal, plants, etc.

Landfill (noun) - a secure site for the environmentally sound burial of solid waste.

Litter (noun, can also be a verb) - trash, wastepaper, or garbage lying scattered about. Litter is generated by many sources including:

- Improper garbage collection - blowing garbage and spillage during collection.
- Uncovered or inadequately covered trucks and other vehicles transporting materials.
- Illegal disposal of solid waste.
- pedestrians discarding trash
- Motorists discarding trash.

Microorganism (noun) - Organisms that are too small to be seen with the naked eye.

Natural Resources (noun) - naturally occurring items such as plants, animals, minerals, water, air, etc. which can be used to help make things for people.

Organic (adjective) - derived from living organisms, or having a carbon base.

Pollution (noun) - harmful substances deposited in the air, water or land which leads to impurity or unhealthfulness.

Post-Consumer (adjective) - describing materials that are collected for recycling after having been purchased by a consumer, that would have otherwise gone to a landfill or incinerator.

Pre-Consumer (adjective) - describing materials that are diverted from the wastestream that are generated during manufacturing.

Reduce (verb) - to prevent or not make waste.

Reuse (verb) - using something over and over again.

Recycle (verb) - to make new products from used materials.

Returnable Container (noun) - a beverage container able to be returned for a money deposit.

Waste (noun) - garbage or other material that is not used anymore.

Waste Stream (noun) - The entire process that solid waste goes through from generation to disposal or recycling.

Yard Waste (noun) - leaves, grass clippings and other organic materials that are collected from yards.

RECYCLING IN YOUR CURRICULUM

Grades: K-8
Length: Multiple weeks
Subjects: Science, ELA

NYS ELA Modules:

Reinstein Woods' presentation is a great introduction or supplement to these Common Core modules developed by NYS Education Department. Click to discover more:

Kindergarten ELA Domain 11: Taking Care of the Earth



The following materials are available for Domain 11: Taking Care of the Earth:

- Anthology
- Flip Book
- Image Cards
- Supplemental Guide

Grade 3 ELA Module 4, Unit 3, Lesson 3



Determining the Main Idea and Key Details: "Tackling the Trash"

NYC Recycling Curriculum:

NYC Department of Sanitation developed the K-12 School [RRResource Guide: RRR You Ready?](#) to help educators implement the three R's (Reduce, Reuse, Recycle) in NYC schools, but it is also applicable to classrooms throughout the state.

The *RRR Guide* includes:

- Lesson plans and activity sheets for grades K-12 that comply with Department of Education standards.
- Ideas for hands-on projects and long-term activities.
- Extensive background information, including glossary sheets.

The image shows the cover page of a curriculum document titled "Chapter 1 What Is Waste?". At the top right, there are two small boxes labeled "chapter 1" and "intro". The title "Chapter 1 What Is Waste?" is prominently displayed. Below the title, there is a "Chapter Focus" section with a small icon of a question mark. The main text discusses waste and introduces the concept of "What Is Waste?". There are two sub-sections: "What Is Waste?" and "What Makes Up Our Waste?". Each sub-section includes a brief explanation and a small illustration. At the bottom, there is a note about NYC's residential waste and a link to the "Resources" section on the NYC.gov website.

FEATURED RESOURCE:

OCRRA

ONONDAGA COUNTY RESOURCE RECOVERY AGENCY

Grades: 3-5

Length: Varies

Standards:

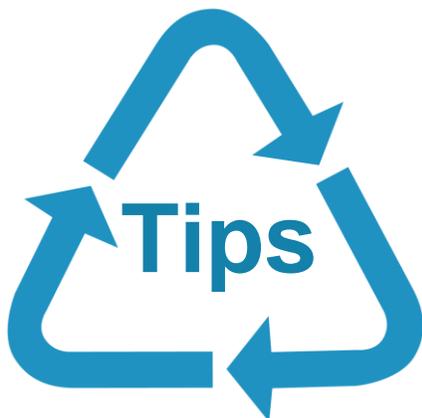
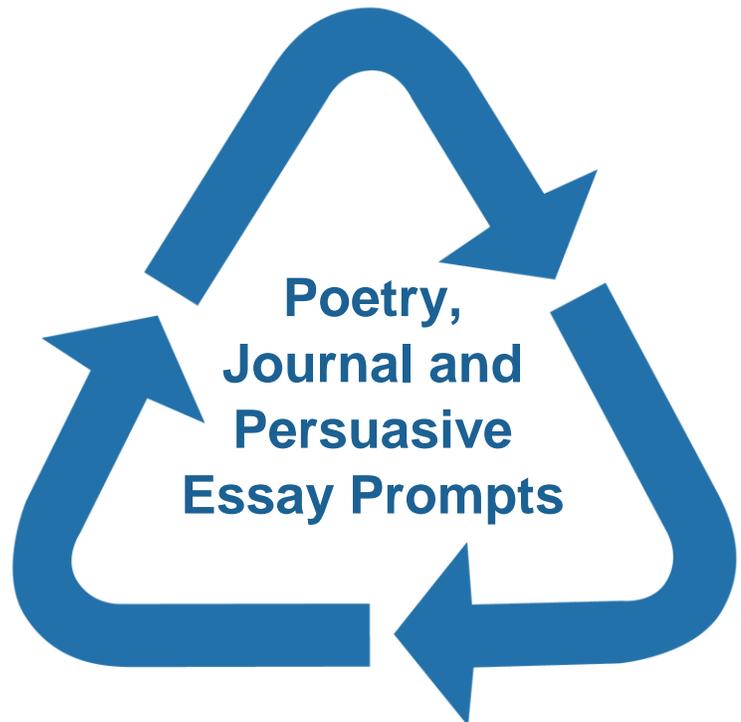
CCSS ELA RI 3.7, 4.7, 5.7

CCSS ELA RI 3.1, 4.1, 5.1

CCSS ELA RI 3.4, 4.4, 5.4

This resource features great supplementary activities aligned to Common Core Math and ELA standards. They are easy to follow and already prepared—perfect for a substitute teacher.

<http://ocrra.org/services/education-program/>



ENVIRONMENTAL JUSTICE

Grades: Pre-K -8th
Length: Varies
Subjects: SS, ELA, Science

Environmental Justice Atlas

Local Case Studies in Environmental Justice

- [Love Canal](#)
- [PCB contamination in St. Lawrence River](#)
- [Midland Avenue Regional Treatment Facility](#)
- [Hurricane Sandy Impacts](#)
- [Clustering of Waste Facilities in Chester, USA](#)

Map It!

Find out more about environmental justice in your area with the EPA's [Environmental Justice Screening and Mapping Tool](#).

Watch a short video on how to use the tool and interpret the results [here](#).

NYS Social Studies Standards: 1.4b, 1.6c, 2.4, 2.5c, 3.3b, 3.8, 8.8c

The EPA defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”

The following environmental justice lessons are a great extension of our Trash Talk program and connection to social studies curriculum. You can modify or extend these activities by studying local environmental justice cases. This also provides an opportunity for place-based learning.

[Introducing Kids to the Idea of Environmental Racism](#)

Grade: Pre-K – 5th

Time: 40-50 minutes throughout a day.

Overview: Students will explore the concept of environmental racism through their own experience of fairness. Students will learn about various environmental hazards and the fact that certain communities are affected more than others. Students will see that they can be empowered to change their communities by learning about young people who took a stand, and by creating materials addressing environmental concerns.

Lesson Location: <http://www.tolerance.org/lesson/introducing-kids-idea-environmental-racism>

[Introducing Students to Environmental Justice: A North Carolina Case Study](#)

Grade: 7th-8th

Time: 60-90 minutes

Overview: In this activity, students will be introduced to environmental justice by considering a North Carolina case study that involved a hazardous waste landfill and is often credited with launching the national environmental justice movement.

Lesson Location: https://www.niehs.nih.gov/health/assets/docs_f_o/lesson_nc_ej_508.pdf

WASTE WATCH

ADAPTED FROM "PROTECTING OUR PLANET"

BY AVA DEUTSCH AND SUSAN ZUCKERMAN

Grades: K – 8

Length: Multiple weeks

Subjects: Science, ELA

Materials

- Egg carton
- Soil
- 12 pieces of items to decompose:
 - Tissue
 - Newspaper
 - Vegetable/fruit
 - Pencil
 - Foil
 - Plastic wrap
 - Hard plastic
 - Cardboard
 - Notebook paper
 - Candy wrapper
 - Cloth
 - Eraser
- Spray bottle

Procedure:

1. Fill each compartment with soil.
2. Place items in separate compartments.
3. Cover with soil. Spray with water to simulate rain.
4. If possible, place carton outside. If not, water it often and place in a sunny window.
5. Check on the compartments each week to see what has happened to each item.

Student Observations:

- **Prediction**
Have students predict what items will decompose within two weeks and what items- if any- will not decompose at all.
- **Observations**
Have students create a diagram of the contents of their carton. Each week, students record their observations for each item in a table.
- **Research**
Have students research biodegradation rates of items and use this information to design an informational poster or article.

Extension:

Create a decomposition timeline. Have students match the following items with how long it takes to decompose in the environment.

Glass Bottle..... 1 million years
Monofilament Fishing Line... 600 years
Plastic Beverage Bottles..... 450 years
Disposable Diapers..... 450 years
Aluminum Can..... 80-200 years
Foamed Plastic Buoy..... 80 years
Foamed Plastic Cups..... 50 years
Rubber-Boot Sole..... 50-80 years
Tin Cans..... 50 years
Leather..... 50 years
Nylon Fabric..... 30-40 years
Plastic Film Container..... 20-30 years
Plastic Bag..... 10-20 years

Cigarette Butt..... 1-5 years
Wool Sock..... 1-5 years
Plywood..... 1-3 years
Waxed Milk Carton..... 3 months
Apple Core..... 2 months
Newspaper..... 6 weeks
Orange or Banana Peel..... 2-5 weeks
Paper Towel..... 2-4 weeks

Information Source: U.S. National Park Service; Mote Marine Lab, Sarasota, FL.

FORK IT OVER: MAKE BIODEGRADABLE PLASTIC

FROM: BIOENERGY EDUCATION INITIATIVE

Grades: 6-12

Length: 3 class periods

Subjects: STEM

Materials

- 2 feet aluminum foil
- Non-stick spray (Pam)
- Tap Water
- Bio-based substrates:
 - 9 g (2 tsp.) of corn starch
 - 12 g (3 tsp.) of unflavored gelatin
 - 3 g (1 tsp.) agar
- 1 tbsp. plasticizer (glycerin)
- Heat-resistant, disposable cups
- Plastic straws for mixing
- Medicine dropper for measuring plasticizer
- Teaspoon
- 1/4 cup measure

Lesson:

http://smile.oregonstate.edu/sites/smile.oregonstate.edu/files/plasticfork_interactive.pdf

Description:

In this lesson students learn how to create bioplastic (plastic derived from renewable sources). Using the engineering design process they will create, test, evaluate and improve a bioplastic utensil made from an animal, alga or plant source. The background material provides an opportunity to teach students about the difference between degradable, biodegradable and compostable plastic and their environmental impact.

INSTANT CHEESE BIOPLASTIC

FROM: NOVA

Grades: 3-8

Length: 2 class periods

Subjects: STEM

Materials

- Milk
- Vinegar
- Microwavable container
- Mug
- Paper Towels
- Spoon

Lesson:

https://d43fweuh3sg51.cloudfront.net/media/assets/wgbh/nvms/nvms_doc_cleanerdemo/nvms_doc_cleanerdemo.pdf

Description:

In this two-part demonstration, students will learn about bioplastic and see a simple bioplastic made by curdling milk with vinegar in a process similar to cheese making. Students will learn about bioplastic, a material made of plant or animal matter that is cleaner because it breaks down more easily in the environment than petroleum-based synthetic plastics.

ART

View and discuss artist Chris Jordan's [online galleries](#) devoted to making sense of consumerism.

ESL

[Reduce, Reuse, Recycle: An ESL Textbook/Workbook](#)

Activities in Spanish, Russian, Bosnian, Somali, Hmong and Vietnamese

ENGINEERING

Have students design a landfill liner using trash bags and tape.

[Lesson Resource](#)

WATCH

[What Really Happens to the Plastic You Throw Away](#)
A TED-Ed Lesson

"TED-Ed Original lessons feature the words and ideas of educators brought to life by professional animators."

[Loop Scoops](#)
PBS

"A collection of short, fun animated videos that help elementary students think more deeply and creatively about the stuff in their lives and the impact their choices have on the environment."

VISUALIZE

[Think Green:](#)
Waste Management's videos and graphics on landfills and recycling centers.

TOYS FROM TRASH: PLAY AND LEARN!

Find instructions from Arvind Gupta for turning our waste into toys that teach science and design to kids!

[Toys from Trash](#)

READING LIST

FROM NEW YORK RECYCLES

Pre-school - 2nd Grade

The Berenstain Bears Don't Pollute (Anymore),

1991, Stan and Jan Berenstain, Random House, New York.

When the Bear Country cubs learn about pollution, they set about teaching the grown-ups how to clean up their act.

Brother Eagle, Sister Sky: A Message from Chief Seattle,

1991, Susan Jeffers, Dial Books, New York.

An Abby Award-winning book that conveys the message of Chief Seattle that "this earth and every creature on it is sacred."

Dinosaurs to the Rescue! A Guide to Protecting Our Planet,

Laurie Krasny Brown and Marc Brown, Little, Brown and Co., Boston, MA

Following basic environmental precepts - reduce, reuse, recycle - this book is packed with good advice on how to use less of the earth's precious resources, how to find new uses for old household items, and how to help recycle things that used to just get throw away.

The Giving Tree,

1964, Shel Silverstein, Harper Collins, New York.

A young boy grows to manhood and old age experiencing the love and generosity of a tree that gives to him without thought of return.

The Great Kapok Tree: A Tale of the Amazon Rain Forest,

1990, Lynne Cherry, Harcourt Brace Jovanovich, New York.

Many different animals living in a great kapok tree in the Brazilian rain forest try to convince a man with an ax not to cut down their home.

The Great Trash Bash,

1991, Loreen Leedy, Holiday House, New York.

The animal residents of Beaston find ways to get rid of garbage and also change their habits so Beaston won't have a trash problem anymore.

Just a Dream,

1990, Chris Van Allsburg, Houghton Mifflin Company, Boston.

A child thinks that sorting trash is a waste of time until he has a dream about a future Earth devastated by pollution.

The Lorax,

1971, Dr. Seuss, Random House, New York.

Dr. Seuss tale shows how the greed of the "Once-ler" destroys the wilderness and drives the local creatures from their homes.

The Wartville Wizard,

1986, Don Madden, MacMillan Publishing, New York.

An old man fights a town of litterbugs by sending each piece of trash back to the one who dropped it.

Where Does the Garbage Go?,

1994, revised, Paul Showers, Harper Collins Publishers, New York.

Explains how people create too much waste and how waste is now recycled and landfilled.

2nd - 5th Grade

50 Simple Things Kids Can Do to Save the Earth,

1992, John Javna and the Earthworks Group, Andrews and McMeel, Kansas City.

Written for children, the book will provide facts and easy steps they can take to "save the earth."

Diary of a Worm,

2003, Doreen Cronin, HarperCollins Publishers, UK.

A young worm discovers, day by day, that there are some very good and some not so good things about being a worm in this great big world.

Earth Day,

1991, Linda Lowery, Carolrhoda Books, Inc., Minneapolis.

This book explains the history of Earth Day and gives young readers ideas for small tasks they can do to make every day Earth Day.

Garbage Delight,

1977, Dennis Lee, Houghton Mifflin Company, Boston.

Poems on different kinds of garbage from junk food to mud puddles and sewers. Filled with colorful drawings.

Going Green: A Kid's Handbook to Saving the Planet,

1990, John Elkington, et al., Puffin Books, New York.

A guide to saving the environment, including explanations of ecological issues and projects.

Good Planets Are Hard to Find,

1990, Roma Dehr and Ronald M. Bazar, Wisdom Way, Inc., Beverly Hills, Calif.

A resource book for students interested in protecting the environment.

Keepers of the Earth: Native American Stories and Environmental Activities for Children,

1989, Michael J. Caduto and Joseph Bruchac, Fulcrum, Golden, Colo.

A selection of traditional tales from various native Americans with instructions for related activities dealing with aspects of the environment.

Nature Recycles. How About You

Michelle Lord

By looking at the ways in which animals repurpose materials in their natural habitats, this book provides examples of recycling that will inspire youngsters to creatively reuse items in their own lives.

Recycle! A Handbook for Kids,

1992, Gail Gibbons, Little, Brown and Company, Boston.

This lively and informative handbook explains recycling focusing on five materials: paper, glass, aluminum cans, plastic and polystyrene. The book shows how recycled materials are turned into new and about how kids can make recycling a regular practice.

Trash!, 1988, Charlotte Wilcox, Carolrhoda Books, Inc., Minneapolis.

Examines various methods of garbage disposal, with an emphasis on sanitary landfills. Also covers such alternatives as mass burning and recycling.

Worms Eat My Garbage,

Mary Applehof, Flower Press, Kalamazoo, MI, www.wormdigest.com

Worm composting is described completely, from building a worm bin to end product (vermicompost) uses.

6th - 12th Grade

Carton, Cans and Orange Peels: Where Does Your Garbage Go?.

1991, Joanna Foster, Clarion Books, New York.

Outlines the composition of garbage and trash and discusses various methods of disposing of it with an emphasis on recycling.

Heroes of the Environment

2009, Harriet Rohmer

This book tells 12 true stories of contemporary conservationists who are working to fight pollution in cities, oceans, and wetlands, from Alaska to Mexico City.

Silent Spring,

2002 (Reprint), Rachel Carson, Mariner Books.

This is a book that made a truly significant impact on history, the environmental movement, and the role of government in protecting the environment.

The Throwaway Society,

1990, Sally Lee, Franklin Watts, New York.

Looks at the growing problem of what to do with garbage.

ADDITIONAL RESOURCES

Online Resources

Waste Reduction!

NYS Conservationist for Kids

http://www.dec.ny.gov/docs/administratio_n_pdf/0217c4kwastreduction.pdf

Recycling and Composting

NYS DEC

<http://www.dec.ny.gov/chemical/294.html>

LaRue ESL Environmental Education Exercises

<http://www.mcedservices.com/recyclex/recyclex.htm>

Song: 3 R's by Jack Johnson

https://www.youtube.com/watch?v=USo_vH1Jz7E

Together We Can Make a Difference

EPA Infographic

https://www.epa.gov/sites/production/files/2015-09/documents/advncng_smm_infogrphc.pdf

Map of active landfills in New York State

<http://www.dec.ny.gov/chemical/32501.html>

Map of active incinerators in New York State

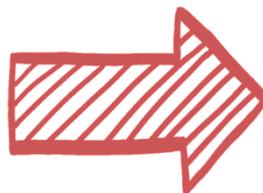
<http://www.dec.ny.gov/chemical/23683.html>

State Assistance Programs (Grants) for Waste Reduction, Recycling and Household Hazardous Waste Programs

<http://www.dec.ny.gov/chemical/4776.html>

RECYCLING IN YOUR CLASSROOM

Visit our Pinterest page for great ideas on making your classroom into a recycling marvel!



We've done the searching for you!

Find links to these resources and additional activities on our Trash Talk Pinterest Board.

Click the link below:

