



Field Trip Ideas:



There's no better way to learn than by first-hand experience. Take your students on a field trip to learn about recycling in their community.

Lesson 5:

Visit a recycling facility.

Learn first hand how waste is handled in your school's community. Take an afternoon trip to a recycling center or landfill in your area. If a field trip is not possible, ask a representative from the center to visit your school.

Visit www.cleanup.org to find out what facilities are in your area.

Spend a day outdoors.

Take an afternoon and clean up your community. Take your class to a nearby park, river, lake or mountain range and have the children help beautify their community. When you return discuss what you saw and what you can do help prevent nature from being polluted.

Visit a local manufacturing company.

To understand more about recycling it is important to learn how the products are manufactured. Take your class to a local bottling company or any other company that produces a recyclable material so children can have an appreciation for how everyday goods are produced.

Talk to the experts.

Find a local environmental or recycling expert to talk to your students. He can provide first-hand knowledge, statistics and information to your students about recycling and the environment.





Lesson 5:

How does a recycling facility work?

1. Construction debris is brought on site. Cardboard, wood, metal and concrete are separated. All hazardous and illegal materials are removed at this point to be disposed of in their proper facility.



2. Metal and cardboard are sent to recycling facilities. Wood is ground to produce mulch. Concrete remains on our site for crushing. With the rising costs of stone, recycling concrete is quickly becoming the product of choice.

3. Residual debris is screened allowing for the recovery of dirt, rock, sand and gypsum. This product is available in filling applications as opposed to costly topsoil.

4. Finally, the greatly reduced residual material is sent to the local landfill.

How is plastic recycled?

1. Plastic bottles for recycling are collected from bottle banks or from curbside recycling boxes.

2. The bottles are taken away by a truck to be sorted and then squashed into big blocks.

3. The blocks are then taken to a factory, where they are cut up into small flakes – like little, colorful corn flakes.

4. The flakes are washed and dried, then taken away to be melted and made into new plastic objects.





Enrichment Activity

Recycling Rules

Lesson 5:

Don't have time to visit a recycling center? Complete this activity to better understand how a recycling facility works.

Have the bag of "garbage" ready, and ask your students to write down what materials they think could be sorted at a MRF by conveyor belts, wind, with water (float or sink), and with magnets. Then have them perform or watch the following simulations and record their findings.

Trial 1: Conveyor Belt

Empty the materials from the bag in a pile onto the large box lid. Gently shake the lid to demonstrate how MRFs use conveyor belts to move and separate the materials.

Trial 2: Blower

For this trial, all participants should wear safety goggles. Turn on the fan, and drop each object in front of it. What happens to each object? Record the results. Discuss how MRFs use blowers to sort paper and plastic.

Trial 3: Flotation

Fill the dishpan with water and choose a few objects to drop into the water, one at a time. Record whether or not the item floats or sinks. Relate this to how MRFs may use flotation or sorting.

Have the students compare their results with the predictions they made, and discuss the advantages and disadvantages of each procedure.

You Will Need

- Large bag of clean "garbage" (i.e. many types and sizes of paper, assorted plastic containers, aluminum cans, aerosol and other steel cans)
- Paper clips
- Bits of wire
- Large magnet
- Large shallow dish pan
- Water
- Large box lid
- Stop watch or clock
- Fan

Trial 4: Magnetic Removal

Test each material for magnetic properties and relate this to how MRFs use magnets to sort materials. You may want to heap the materials into one pile and attempt to pull out the magnetic material using only one magnet.





Make a Recycling Center at School

You're a recycling pro by now! So get everyone together, and start a recycling program at your school! Here are some tips for creating your own recycling program.

Lesson 5:

- Decide what can be recycled in your school district (paper, plastic, printer cartridges, batteries, etc.). Then, make sure to sort objects according to the rules.
- Determine how you will sort your recyclables. For instance, will each grade level have a recycling area? Will you have small stations in each classroom? Consider having a contest between grades or classes to challenge each other to recycle.
- Form a recycling club to be responsible for the program. This club should include faculty, students and parents who will brainstorm ideas, set up recycling stations, determine who will get recyclables taken to the local facility, etc.
- Be creative: Use different colors and shapes for all different recyclables. Have your students create maps with all recycling stations marked on them. These can be placed throughout the school so everyone knows where to throw their trash. Make sure to use recycled paper!
- Have your students create brochures or fliers about recycling to share with parents and the community to encourage recycling and showcase your school's program.
- Watch the details: Make sure you know how many classroom, lounge and cafeteria recycling containers will be needed--you don't want to have an overflow of recyclables!
- Brag on your program! Enter the Good Sports Always Recycle challenge to have your recycling program recognized.
- Continue the education. Your recycling program should have an educational component to ensure students understand the importance of recycling. You might want to start an environmental club so more people can get involved.





Create Your Own Landfill

Lesson 5:

A landfill is an area used to store trash. A hole is dug out, lined with protective coverings, filled with trash, and then covered by soil. When the landfill is full, a final covering of clay and soil is placed over the trash. To remove methane gas (a by-product of decomposition) pipes are placed into each level of trash.



MATERIALS:

- plastic cups
- clay
- trash
- metric rulers
- plastic trashbags
- soil
- straws

PROCEDURE:

Line a plastic cup with approximately 2 mm of clay. Be sure to leave a 5 cm x 5cm window covered by clay.

Cut a piece of the trash bag to fit over the clay (leave the window uncovered).

Place about 4 cm of trash in the cup.

Insert a straw, straight up and down, inside the trash layer.

Cover the layer of trash with 1 cm of soil and compact.

Make a second layer of trash repeating steps 4, 5, and 6.

Cover the upper layer of soil with 2 mm of clay.

Cover the clay with 2 mm of soil.





Interview Your Community



Lesson 5:

Have you ever wondered what other people in your community do to recycle? Well, why not find out in a survey around your neighborhood and school.

Here are some questions you may want to ask:

1. How you do contribute to recycling and protecting our environment?
2. Does everyone in your household participate in recycling?
3. Is there a recycling program in your community?
4. If you do not recycle, why?
5. Do you leave your light on when you are not in the room?
6. How are the products you buy at the grocery store packaged?
7. Do you ride your car to your neighbors house or do you walk?

Once students have asked 5-10 people in the community about 10-20 questions, have the class share what they found and write a short term paper (2-3 pages) about their findings and their personal thoughts of what they heard. See if they can come up with solutions to encourage people to recycle and spread the word.





Earth-Friendly Living

Lesson 5:

Have students come up with ways to make their community more recycle-friendly. They can create an advertisement for their idea. Their ads can either be a videotaped commercial, a series of print ads, a billboard or slogans.

Here are some facts that you may want to include in your design:

- 1 recycled glass bottle would save enough energy to power a computer for 25 minutes.
- Up to 60% of the rubbish that ends up in the dustbin could be recycled.
- Up to 80% of a vehicle can be recycled.
- 9 out of 10 people would recycle more if it were made easier.
- It takes 24 trees to make 1 ton of newspaper.
- If every American household recycled just one out of every ten HDPE bottles they used, we'd keep 200 million pounds of the plastic out of landfills every year.





Suggested Reading



- **Garbage Land: On The Secret Trail of Trash**
By Elizabeth Royte
- **Gone Tomorrow: The Hidden Life of Garbage**
By Heather Rogers
- **Handbook of Waste Management**
By Frank Kreith and George Tchobanoglous
- **It's Easy Being Green**
By Crissy Trask
- **McGraw- Hill Recycling Handbook**
By Herbert F. Lund
- **Paper or Plastic: Searching for Solutions to an Overpackaged World**
By Daniel Imhoff and Roberto Carra
- **Plastics, Recycle, Reduce, Reuse, Rethink**
By Kate Walker
- **Recycled Paper: The Essential Guide**
By Claudia Thompson
- **Reducing and Recycling Waste (Improving Our Environment)**
By Carol Inskipp
- **Save Our Planet 750 Everyday Ways You Can Help Clean Up the Earth**
By Diane Maceachern

