



Lesson 3:

Share The Knowledge!

Presentation Suggestions:

- Posters
- Handouts
- Overheads
- PowerPoint Presentations
- Skits
- Games

In addition to these ideas for visuals, have each group make a quiz about their topic and give it to the class.

Teaching Each Other New Concepts:

In this lesson, let your students teach each other about recycling. Divide your class into groups and assign each group one of the following topics. Each group will then research their topic and make a presentation to the class. Encourage your students to be creative with their presentation. The 'Presentation Suggestions' show some things your students might want to include in their presentations.

Topics:

Recycling

- Why is recycling important?
- What materials can be recycled?
- How does Tennessee's recycling efforts compare to other states?
- How is waste handled in your city or town?

Plastics

- Discuss PET.
- What is the manufacturing process for PET plastic?
- What is the recycling process for PET plastic?
- What are some ways that recycled plastic is used?

Paper

- What is the history of making paper?
- How is paper made? Do an in-class demonstration.
- How is paper recycled?
- What are some products that contain recycled paper?

Aluminum

- How is aluminum manufactured?
- How is aluminum recycled?
- What is aluminum used for?
- When was aluminum discovered?





Did You Know...

Lesson 3:

Recycling one ton of paper saves:

- 17 trees
- 7,000 gallons of water
- 380 gallons of oil
- 4,000 kilowatt hours of electricity
- 3 cubic yards of landfill space
- Taxpayer dollars used for disposal costs



How paper is made from recycled paper:

1. Waste paper is collected, sorted, baled and transported to a paper recycling plant. You can help by sorting paper and keeping it dry and out of the sun (water and sunlight make it harder to remove ink).
2. At the paper factory, used paper is mixed with water in a huge blender called a “hydropulper,” which mixes the paper with water, pulling inks away from the paper fibers and separating the fibers themselves. De-inking chemicals are sometimes also added.
3. The pulp mixture passes through several different sized screens, which separate the paper fibers from paper clips, staples and other contaminants.
4. In most cases, the clean pulp is then mixed with some new wood pulp to make the recycled paper stronger. Recycled paper fibers get shorter the more often they are recycled. Most fibers can be recycled.
5. The clean pulp is pressed into sheets, dried, finished and placed onto rolls.





How to Make Recycled Paper

Lesson 3:

1. Gather up several sheets of old newspaper and tear it into little pieces.
2. Place the pieces of paper in a blender.
3. Add hot water and let the mixture sit for about 10 minutes.
4. Turn on the blender and blend the paper mixture up really well.
5. Take a coat hanger and bend it to form a somewhat round loop.
6. Cover the hanger loop with an old nylon stocking. This will be the 'screen'.
7. Place the 'screen' over the mixing bowl and pour the liquid mixture onto the screen. Let this sit for a while until all of the liquid has finished draining into the bowl.
8. Now place the 'screen' between two sheets of paper towels.
9. Take this paper towel sandwich and place it on the cutting board.
10. Iron out the paper towels.
11. Remove the paper towels and peel the paper off of the screen.





Dos



& Don'ts



Lesson 3:

By now we all know that recycling benefits everyone, but are there specific guidelines about what should or should not be recycled? What about the process of recycling?

Below are a few tips to keep in mind when recycling:

- Make sure things are clean. Rinse bottles and cans, and keeping boxes out of the weather makes them easier to process. It also keeps bugs away!
- Pay attention to what goes into your bin. A cereal box would be great, but a greasy pizza box might not be best.
- Make sure you take the caps off of plastic jugs and bottles. This makes them easier to process.
- Instead of throwing out your yard waste, create a mulch pile to save room in the landfill.
- Things you probably won't want to recycle: styrofoam, light bulbs, food-soiled paper, wax paper, and ceramics.
- Things you probably can recycle: tin and aluminum cans, newspapers, magazines, plastic bottles, glass bottles and jars, cereal boxes, and other clean and dry cardboard boxes.



EASTMAN
GOOD SPORTS ALWAYS RECYCLE.



Science Projects

Lesson 3:

Materials:

- two-liter plastic bottle
- vegetable oil
- food coloring
- water



Make Your Own Lava Lamp

1. Pour vegetable oil into the bottle until it is 1/3 full.
2. Add 3-4 drops of food coloring.
3. Carefully fill the bottle the rest of the way with water and tighten the cap.
4. Allow enough time for the water and oil to separate.
5. Slowly rock the bottle back and forth and observe the wave action.
6. Slowly tip the bottle until it is upside down and observe the same lava lamp effect.

Boats Afloat:

1. Construct a boat out of 1 square foot sheet of aluminum foil.
2. Estimate how many pennies your boat will be able to hold.
3. Float your boat and place as many pennies as you can in the boat before it sinks.
4. Was your estimate right?



Materials:

- aluminum foil
- pennies
- water





Maintain a Wasteless School Year!

Take a look around your school and your classroom: you'll discover all kinds of things that can be reused, and a variety of ways to be part of the solution.

Lesson 3:

- Cover your textbooks with cut-up grocery or shopping bags. This helps reduce waste and keeps your books in good condition. Make it an art project by coloring and decorating them.
- Use and maintain durable products. Sturdy backpacks and other products can be used for years. Three-ring binders can be reused and filled with recycled paper.
- Don't forget to look for the recycle symbol!
- If you bring your lunch to school, pack it in a reusable container instead of a paper bag.
- Donate books you don't read anymore to the local library, or see if a younger sibling wants to read them.
- Keep your school clean: pick up trash around the playground and anywhere else you see it.
- Save fuel by riding the bus or carpooling.
- Use both sides of the paper instead of another sheet. Save old papers for scrap paper or doodles.

Start a Recycling Program in your classroom:

1. Have each student bring a recyclable material to class: paper, plastic, aluminum, etc.
2. Create artistic containers that you can design as a class to store all the recycling. You can make a box out of recyclable materials and decorate it with old can labels.
3. Continue recycling throughout the entire school year to teach students just how much paper from the classroom, leftover wrappings from lunch, and other materials in school can be recycled.





Lunch Dilemma

Do you know just how much trash your lunch generates?



Lesson 3:

Materials:

LUNCH A

Lunch box containing a thermos of drink, a piece of fruit, such as an apple, pear or plum, a sandwich container, chips and/or carrots and celery sticks in a reusable plastic container, napkin.

LUNCH B

Paper bag containing juice carton, sandwich wrapped in plastic wrap, bag of chips, Twinkie or fruit pie, banana, carrots or celery sticks wrapped in plastic wrap, and a pudding cup, napkin and spoon.

Procedure:

1. Examine the contents of each lunch. Discuss and estimate the amount of trash that will be generated by each lunch.
2. Record your estimates in grams on a student worksheet.
3. Enjoy your food.
4. Weigh the non-recyclable/reusable waste from each lunch.
5. Record your results.

Additional Questions:

1. Which lunch produced less trash?
2. Why did one lunch produce more trash than the other?
3. How might you alter your lunch so that it produces less trash?





Community Involvement

Lesson 3:

Now that you have learned about recycling in the classroom, it's time to take it to the next level: the community.

Recycling Drives

One way to incorporate the community is to have a recycling drive. The drive could include a competition between each grade level or between schools to see which group can bring in the most recyclable materials. Your drive could collect one type of recyclable product (such as phone books) or it could include them all! Within each school district, elementary, middle and high schools could each collect a different material.



The drive can be promoted with recycling signs designed by the children and displayed around the community. The school or class that recycles the most should receive recognition in the community.

Clothing Drives

Another way to involve the community is to reuse clothing. Plan a community yard sale or consignment sale. Schools can even host themed clothing drives, such as used Halloween costumes for elementary schools or used prom dresses for high schools. If school uniforms haven't changed, hand-me-down programs are both environmentally beneficial and financially beneficial for schools and families.

Even gently-used school supplies can be reused, such as backpacks, lunchboxes, notebooks and even calculators. If it can be reused, it should be!

Think of things that everyone needs and reuse them if you can!





Earth Day Activities

Lesson 3:

To celebrate Earth Day at your school, you could have a photography, art, poster, or essay contest for students. All the entries can be displayed in the school library for Earth Day.

Your school could also host an educational Earth Day fair. This event could include games, educational booths, and can even incorporate a recycling drive. The fair could include just one school, all area schools, or the entire community. You can even register your event at <http://www.earthday.org/>.

Other Earth Day events could include planting a tree or visiting your school's garden. You could even organize a clean-up on the school grounds with each grade level assigned to a different area.

Remember, no matter how you choose to celebrate Earth Day, it's the little things we do individually that make a big difference.

Don't forget to find out about other Earth Day activities in your community! If there are none, consider starting them yourself. You can find an organizers guide at <http://www.earthday.org/>.

