Lunch Recycling at School
A lesson plan for Grades K-2

Introduction:
Please help our school implement the new recycling program by teaching this lesson before lunch on the first day of the new program. In this lesson you will make a poster to display in your classroom. You may want to follow up the classroom activity in the lunchroom before students eat lunch.

Teacher Background:
Recycling is important for the environment to preserve and protect our resources for ourselves and for future generations. Today we are proud to extend our recycling program to include organic waste.

"The decomposition of food and other waste under anaerobic (without oxygen) conditions in landfills produces methane, a greenhouse gas 21 times more potent than carbon dioxide." - The U.S. Environmental Protection Agency (EPA)*

The amount of methane produced from one ton of food scraps in a typical landfill is equivalent to driving 6,400 – 9,200 miles in a 25 miles/gallon car.**

Organic waste in landfills also produces leachate (ˈlē-.chayt): a liquid, which filters down through the layers of waste picking up soluble chemicals and metals on its way. It can be highly toxic and poses a serious environmental and health risk unless carefully confined and treated. ***

By diverting organic waste both at home and at school we can help reduce greenhouse gasses. To do this at school we need your help. By teaching and learning the correct procedure for this recycling system we can reach our goal

Objectives:
- Understand and explain why recycling is important
- Identify and sort the three types of waste (organic, recyclable and landfill)
- Learn about the changes in our school recycling program

Standards: Science, Social Studies
Skills: Analysis, classification, description, problem solving
Time: 45 minutes

Materials:
- Chart paper
- Tape
- 3-page Waste handout
- Three Bins handouts

Teacher Prep:
- Read the lesson plan.
- Attach a large piece of chart paper to the board.
- Cut out the waste bin pictures (handouts) and secure them at the bottom of the chart paper.
- Cut out label/picture cards

by keeping most of our school waste out of the landfill.

PROCEDURE
1. Read aloud or summarize the background information above so students understand why lunch recycling of organic waste is important.

Tell them that the activity you will do together in this lesson will help them be ready to recycle at lunch today.
2. Organics (green bin waste): Ask:
What is organic waste and in which bin do we put organic waste?
Organic waste is material which comes mainly from animal or plant sources.

Ask questions like “What is paper and cardboard made from?” (Trees - plant). “Where does bread come from? (Wheat – plant). We put organic waste in the green bin. The recycling company will use our green waste to make compost to give to farmers and gardeners so their plants are healthy.

See attached list of green waste.

3. Liquids (Red Bucket)
Explain that there will also be a red bucket for excess liquids. Ask: Can you give me some examples of liquids?

Explain that before cartons and bottles can be put in the bins they must be emptied into the red bucket.

4. Recyclables (blue bin waste): Ask: Why is it important to recycle?
Recycling is another easy way you can help slow climate change and global warming.
Recycling the materials that go into our blue bins uses a lot less energy than making them from brand new materials. It also helps our planet because we don’t need to cut down as many trees or make as much pollution.
Ask: What kinds of things do you know can be recycled and go into this blue bin?
Aluminum and steel cans, recyclable plastic and glass containers, paper, newspaper and cardboard can all go into our blue bins.

See attached list of blue waste.

5. Landfill (gray bin waste):
Tell the class: Any material that is not recyclable or organic eventually ends up in the landfill. These are things that we cannot recycle or make into compost from our organic waste.
Before you put something in the gray bin, you need to stop and make sure it isn’t recyclable or organic waste.
What kinds of things do you think we will have to put into the gray bins and send to the landfill at school?

See attached list of gray waste.

5. Make a class poster/Sorting & Classifying Activity
Direct class to the chart paper with the 3 paper bins taped on it up on the board. Pass out labels/picture cards to students. Choose one student at a time to come up to the poster and tell the class in which bin they would put that item.

Teachers should use the lists found at the end of this lesson to make sure students are accurately sorting the materials.

Each time the group agrees where the item should go, the teacher can help the student tape the picture on the correct bin. Continue activity until all labels/picture cards have been sorted and taped onto the poster.

6. Display class poster until students are proficient with the new recycling program. Remind students that they will need to sort all of their waste today at lunch but adult helpers will be there to answer their questions.

• Note: Keep or display the list of lunch items for future reference.

Sources
*http://www.epa.gov/epawaste/conserve/materials/organics/food/fd-basic.htm
***Stats from http://www.nrc-recycle.org/whyitsimportant.aspx
Lunch Waste Items (Sorted)

<table>
<thead>
<tr>
<th>GREEN BIN (Organic Waste)</th>
<th>BLUE BIN (Recyclable Waste)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Milk cartons</td>
<td>• Clean cardboard lunch trays</td>
</tr>
<tr>
<td>• Food Scraps (Examples)</td>
<td>• Cardboard lunch boxes (e.g. Lunchables, Lean Cuisine)</td>
</tr>
<tr>
<td>• apple core</td>
<td>• Plastic apple sauce container</td>
</tr>
<tr>
<td>• banana peel</td>
<td>• Plastic yogurt container</td>
</tr>
<tr>
<td>• half-eaten sandwich</td>
<td>• Aluminum foil</td>
</tr>
<tr>
<td>• half-eaten hot dog or pizza</td>
<td>• Juice boxes/Drink boxes</td>
</tr>
<tr>
<td>• carrot sticks</td>
<td>• Plastic water bottle</td>
</tr>
<tr>
<td>• orange slices</td>
<td>• Foil (tops from yogurt/apple sauce)</td>
</tr>
<tr>
<td>• carrot sticks</td>
<td>• Paper bags (clean)</td>
</tr>
<tr>
<td>• egg shells</td>
<td>• Any plastic containers with recycle sign #1 - 7</td>
</tr>
<tr>
<td>• meat bones</td>
<td>• Any clean paper</td>
</tr>
<tr>
<td>• Paper napkins</td>
<td></td>
</tr>
<tr>
<td>• Dirty cardboard trays</td>
<td></td>
</tr>
<tr>
<td>• Dirty paper plate</td>
<td></td>
</tr>
<tr>
<td>• Wax paper bags</td>
<td></td>
</tr>
<tr>
<td>• Dirty paper bags</td>
<td></td>
</tr>
<tr>
<td>• Raisin boxes</td>
<td></td>
</tr>
<tr>
<td>• Wood corn dog stick</td>
<td></td>
</tr>
<tr>
<td>• Wood chopsticks</td>
<td></td>
</tr>
<tr>
<td>• Babybel cheese wax shell</td>
<td></td>
</tr>
</tbody>
</table>

Red Bucket (Liquids)

• Milk
• Water
• Juice
• Coffee/tea

GRAY BIN (Landfill Waste)

• Straws
• Zip-lock bags
• Juice pouches
• Plastic bags/wrappers
• Plastic wrap
• Ketchup/Mustard wrappers
• Granola bar wrapper
• Chip bag
• Go-Gurt wrapper
• Plastic utensils (knife, fork, spork)
• Plastic trays without recycle symbol
• Plastic wrapper from cheese sticks
• Styrofoam plates and cups
OPTIONAL FOLLOW UP ACTIVITIES

• Review of classroom lesson in the lunch area:

Take your class or grade level to the lunch area before lunch to show them the new recycling station set up. Bring a collection of real waste items from the list of lunch waste items to use. Teachers lead the students in sorting these items one at a time into the correct bins.

• After lunch, review with students what items they recycled during lunch and which bins they used.
• Grades K/1: Write together as a class about our new recycling program at school and what they have learned about recycling. (Comprehension: Bloom’s Taxonomy)
• Grade 2: Write a letter home to your family telling how you recycle at school and about the importance of recycling. (Comprehension: Bloom’s Taxonomy)
• What do you think about your school’s new plan to recycle? Are there any ideas you can think of that would help students learn how to recycle more quickly during the lunch period? (Synthesize & Evaluate – Bloom’s Taxonomy)

Helpful Websites

http://www.kidsrecycle.org/
http://www.depweb.state.pa.us/justforkids/
http://www.wastefreelunches.org
http://www.epa.gov/epawaste/education/kids/planetprotectors/index.htm

Lesson Vocabulary:

anaerobically - in a way that does not require oxygen.

decomposition - The process of breaking down organic material, such as dead plant or animal tissue, into smaller molecules that are available for use by the organisms of an ecosystem. Decomposition is carried on by bacteria, fungi, protists, worms, and certain other organisms.

greenhouse effect - When the earth's atmosphere traps solar radiation, caused by the presence of greenhouse gases that allow incoming sunlight to pass through but absorb heat radiated back from the earth's surface.

greenhouse gas - any of the gases whose absorption of solar radiation is responsible for the greenhouse effect, including carbon dioxide, methane, ozone, and the fluorocarbons.

global warming - an increase in the earth's average atmospheric temperature that causes corresponding changes in climate and that may result from the greenhouse effect.

leachate [lee-cheyt] - a solution resulting from dissolving out soluble parts from (ashes, soil, metals etc.) as the solution passes/filters through.

liquid - a liquid is a fluid that has the particles loose and can freely form a distinct surface at the boundaries of its bulk material.

soluble - capable of being dissolved or liquefied.