INTRODUCTION

On the first day of the new recycling program students will make a poster to show how waste will be sorted at lunch.

BACKGROUND

Recycling is important for the environment to preserve and protect our resources for ourselves and for future generations. Today we are proud to be extending our recycling program at school 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 US 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 landfill also produces leachate [lee-cheyt]: 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 responsible for global warming. To do this at school we need your help. By teaching and learning the correct procedures we can reach our goal of keeping most of our school waste out of the landfill.

This year recycling in school will be different; there will be more bins. Today we will learn how to identify different types of waste and the type of bin they go in. This is an important skill – it will help you successfully recycle.

Objectives:
- understand why recycling is important
- be able to identify and sort the three types of waste (organic, recyclable and landfill)
- understand and explain the changes in their school recycling program

Standards: Science, Social Studies

Skills: Analysis, classification, description, problem sorting.

Grades: 3rd - 5th

Time: Approximately 30 minutes

Materials:
- Chart paper
- Markers
- Handout “Recycling Bins”
- Handout “Waste”
- Tape or Glue

Advanced Preparation: Read the lesson plan. If working in groups to produce posters (activity in #6) you need an extra copy per group of handouts; “Recycling Bins”, and “Waste”.

PROCEDURE

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

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.

Go through some of the waste in the handout “Waste”. Ask questions like “What is paper/cardboard (paper plate) 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
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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 liquids. Ask: “Give some examples of liquids?”

Explain that before cartons and bottles are put in the organic or recycling bins they must be emptied into the red bucket.

4. RECYCLABLES (Blue bin waste): Why is it important to recycle and which bin do we put recyclables in?

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.

Last year the amount of energy saved from recycling aluminum and steel cans, recyclable plastic and glass containers, newsprint and corrugated packaging was equivalent to:
- The amount of electricity consumed by 17.8 million Americans in one year.
- The amount of gasoline used in almost 11 million passenger cars in one year****.

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 end up in the landfill. Before you put something in the gray bin, you need to stop and make sure it isn’t recyclable or organic waste. We can reduce our landfill waste by choosing recyclable organic materials. Ask: How can we reduce the amount of landfill waste we create at school?

If you bring in your lunch from home one way of reducing waste is to bring in a waste-free lunch. That is a lunch that has organic and reusable items only e.g. food, drink, reusable containers and a reusable drink bottle. (Reduce and Reuse)

Ask: What kind of things do you think we have to put into the gray bins and send to the landfill? (See attached list of gray waste.)

6. Activity: Make a poster showing which color bins different items go in.
a) Either in groups or whole class start with the “Recycling bins” handout. Cut out the bins and tape/glue onto the lower half of a large sheet of chart paper to make a poster size display.
b) Cut out pictures of lunch waste from the “Waste” handout. Help students identify which color bin each piece of waste goes in. Glue/tape onto the area above the correct “bin”. (Optional: Collect real waste items to stick on the poster)

See attached list of Lunch Waste Items (Sorted).

7. Display poster in classroom or lunch area.

8. Remind students that, starting today, they will be sorting their lunch waste and they should look for the colored bins. They can ask adult helpers if they are unsure which bin to use for a particular item.

9. Keep or display the list of Lunch Waste Items for future reference.

Sources
*http://www.epa.gov/epawaste/conserve/materials/organics/food/fd-basic.htm
****from http://www.nrc-recycle.org/whyitsimportant.aspx
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OPTIONAL FOLLOW UP ACTIVITIES

• In the lunch area (prior to lunch) show students 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.

• For reinforcement, after lunch, review with students what items they used during lunch and which bins they used.

• Write an article for the local newspaper explaining why people recycle and the benefits of recycling. (Comprehension – Bloom’s Taxonomy)

• Write a letter home to your family explaining the importance of recycle or describing the new recycling program at school. (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)

DEFINITIONS

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.

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
# LUNCH RECYCLING AT SCHOOL

## LUNCH WASTE ITEMS (SORTED)

### GREEN BIN (Organic Waste)
- Milk cartons
- Food scraps e.g.
  - apple core,
  - banana peel,
  - half eaten sandwich,
  - half eaten hot dog,
  - egg shell
  - meat bones
  - pizza etc...
- Paper napkins
- Raisin boxes
- Dirty cardboard trays
- Dirty paper plates
- Wax paper bags
- Dirty paper bags
- Wood corn dog sticks
- Wood chopsticks
- Babybel cheese wax shell

### BLUE BIN (Recyclable Waste)
- Clean cardboard trays
- Apple sauce and yogurt pots
- Aluminum foil wrapping
- Juice/drink boxes
- Plastic water bottles
- Aluminum foil (tops of yogurts/apple sauce)
- Paper plate where food can be brushed off.
- Paper bags (not soiled)
- Any plastic with recycle sign (1 – 7)
- Any clean paper

### GRAY BIN (Landfill Waste)
- Straws
- Ziplock bags
- Juice pouches
- Plastic bags/wrappers
- Ketchup/sauce packets
- Granola bar wrappers
- GoGurt wrappers
- Plastic wrap
- Chip bags
- Plastic utensils (knife, fork, spork)
- Plastic trays without recycle sign
- Plastic wrapper on cheese sticks
- Styrofoam plates and cups

### RED BUCKET (Liquids)
- Milk
- Water
- Juice
- Coffee/Tea