

RECYCLING AND COMPOSTING AT MEAL TIMES

Recycling & Composting at Meal Times

A lesson plan for Grades TK-5

INTRODUCTION

Please help your school sustain our recycling program by teaching/reviewing this lesson before the first day of breakfast after the bell or lunch at school. 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.

BACKGROUND

Recycling is important for the environment to preserve and protect our resources for ourselves and for future generations.

We are proud to be extending and improving on our recycling program in more places on our school campus.

“The decomposition of food and other organic materials 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 compostables (food scraps and soiled paper) in a typical landfill is equivalent to driving 6,400 – 9,200 miles in a 25 miles/gallon car.

Compostables in landfills also produce 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 compostables both at home and at school we can help reduce greenhouse gases 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 discarded materials out of the landfill.

Today we will learn how to identify different types of materials 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 materials (recyclables, compostables, and landfill)
- Understand and explain the changes in their school recycling program

Standards: Science, Social Studies

Skills: Analysis, classification, description, problem sorting.

Grades: TK - 5th

Time: Approximately 30 minutes

Materials:

- Chart paper
- Markers
- Handout “Recycling Bins”
- Handout “Stuff”
- Tape or Gluestick

Teacher Preparation:

- Read the lesson plan.
 - Attach a large piece of chart paper to the board.
 - If working in groups to produce posters (activity in #6) you need an extra copy per group of handouts; “Recycling Bins”, and “Stuff”.
 - Cut out the “Recycling Bins” pictures[^]
 - Cut out the “Stuff” pictures[^]
- [^]Consider laminating your picture cards for future use.

PROCEDURE

1. Read aloud or summarize the background information above so students understand why diverting recyclables and food scraps from landfill is important.

2. FOOD SHARE (clear bin): [This might be optional depending on your school.] **Explain that we use a clear plastic bin for the food share bin, which gives students the opportunity to pick up extra items that they like, and discard items that they do not like.** Remind them only items from lunch line go in the bins.

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3. COMPOSTABLES (green bin): Ask: What are food scraps and soiled papers and in which bin do we put food scraps?

Compostables are materials which come from animal or plant sources.

Go through some of the materials in the handout "Stuff". Ask questions like "Where does bread come from? (wheat – plant). We put food scraps in the green bin. The recycling company will use our food scraps to make compost to give to farmers and gardeners so their plants are healthy. (See *attached list of food scraps.*)

4. LIQUIDS (small bucket): Explain that we use a red or white bucket for liquids. [Note: Not all schools use a bucket for liquid.] Ask: "Give some examples of liquids?"

Explain that before cartons and bottles are placed in the recycling bins they must be emptied into the liquid dump bucket.

5. RECYCLABLES (blue bin): 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.

Each 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 recyclables.*)

6. LANDFILL (gray bin): Tell the class:

Any materials that are not recycled or composted 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 compostable. We can reduce our landfill waste by choosing recyclable or compostable 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.

A waste-free lunch is a lunch that has only food 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 landfill waste.*)

7. 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 items from the "Stuff" handout. Help students identify which color bin each item goes in. Glue/tape onto the area above the correct "bin". (Optional: Collect real lunch items to stick on the poster)

See attached list of Stuff We Sort at Lunch.

8. Display poster in classroom or lunch area.

9. Remind students that they will be sorting their recyclables and food scraps at lunch 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.

10. Keep or display the list of Stuff We Recycle and Compost at Lunch for future reference.

OPTIONAL FOLLOW UP ACTIVITIES

- In the lunch area (prior to lunch) show students the recycling station set up. Bring a collection of real stuff from the list of lunch items to use. Teachers lead the students in sorting these items one at a time into the correct bins.

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- 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 recycling or describing the new recycling program at school. (*Comprehension – Bloom's Taxonomy*)
- What do you think about your school's recycling program? 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.

digestate – organic materials remaining after the anaerobic digestion process. These materials can be used as a soil amendment for further cured through composting.

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.stopwaste.org/recycling/schools>
- <http://www.kidsrecycle.org/>
- <http://www.wastefreelunches.org>
- <http://www.epa.gov/epawaste/education/kids/planetprotectors/index.htm>
- <http://www.calrecycle.ca.gov/Education/>

Questions?

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STUFF WE SORT AT LUNCH

GREEN BIN (Compostable Material)

Food scraps, such as:

- Apple core
- Banana peel
- Half eaten sandwich
- Half eaten hot dog
- Egg shells
- Meat bones
- Pizza etc...)

Paper napkins, paper cups and paper plates that are soiled with food scraps

BLUE BIN (Recyclable Materials)

Clean cardboard trays
Apple sauce and yogurt cups (cleaned out)
Aluminum foil wrapping
Milk cartons
Juice boxes
Plastic water bottles
Aluminum foil (tops of yogurts/apple sauce)
Paper bags (not soiled)
Plastic trays
Any plastic with recycle sign (#1-7)
Any clean paper

GRAY BIN (Landfill Waste)

Straws
Ziplock bags
Juice pouches
Plastic wrappers
Ketchup/sauce packets
Granola bar wrappers
Yogurt wrappers
Plastic wrap
Chip bags
Plastic utensils (knife, fork, spork)
Plastic wrapper on cheese sticks
Styrofoam plates and cups

SMALL BUCKET (Liquids)

Milk
Water
Juice
Coffee/Tea

FOOD SHARE BIN (Unopened Food from Meal Program)

Unopened entrees
Unopened vegetables (including carrot packs)
Whole Fruit
Unopened milk carton