

LESSON 10: What Are We Reusing and Recycling at School?

LESSON'S CONCEPT

Some school waste can be reused or recycled.

PURPOSE

Students will identify the types of materials that are currently being reused and recycled at school and determine what they can do to add to the success of the reusing and recycling program.

OVERVIEW

In this lesson students will:

- Conduct an audit by using a questionnaire and other methods of gathering data to determine what waste is being generated, what is being thrown away, what currently is being reused or recycled, and what could be reused or recycled at their school.
- Identify ways to make the existing reusing and recycling program more effective at school, or design a plan to start reusing or recycling at least one type of material if there is no reusing or recycling program at their school.
- Analyze the way their trash is handled at home, apply some of the waste minimization concepts learned at school in the home, and share what they learned with the class.

CORRELATIONS TO CALIFORNIA'S CONTENT STANDARDS

- Students participate in surveys and discussions about ways they can improve the existing reusing and recycling program or start such a program at their school.
 - Students “ask thoughtful questions and respond to relevant questions with appropriate elaboration in oral settings.” (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*, page 26)
- Students conduct a home audit on reducing, reusing, and recycling waste. They write up their findings and include a plan for reducing their household’s wastes.

- Students “ask questions that seek information not already discussed.” (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*, page 33)
- Students “use traditional structures for conveying information, e.g., chronological order, cause and effect, similarity and difference, and posing and answering a question.” (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*, page 23)
- Students describe in their journals what they learned about the reusing and/or recycling program at school or what can be done to get such a program started.
 - Students “select a focus, an organizational structure, and a point of view based upon purpose, audience, length, and format requirements.” (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve*, page 23)

SCIENTIFIC THINKING PROCESSES

observing, communicating, comparing, ordering, classifying, relating

TIME

20–30 minutes to prepare for the lesson;
60–90 minutes to implement the lesson
(More time may be needed, depending on how much students want to implement a reusing and recycling program at school or to improve the existing program.)

VOCABULARY

Have the class select two vocabulary words that they learned in this lesson.

PREPARATION

- 1. Read the “Background Information for the Teacher” at the end of this lesson.
- 2. If your school has some type of reusing and recycling program, invite a speaker to your class who can answer some of the questions students have about what is being reused and recycled at school and who can identify some of the pluses and minuses of the school’s existing reusing and recycling program. If there is a recycling area at school, schedule a tour for your students.
- 3. If your school does not have a reusing and recycling program, invite someone from a school that has a reusing and recycling program. Staff from your school district or the California Integrated Waste Management Board, (916) 341-6769, could provide you with names of schools in your region that recycle and people to contact about their recycling programs.
- 4. Copy the “School Questionnaire on Reusing and Recycling” (page 426) for each group of students and the “Home Audit on Reducing, Reusing, and Recycling” (pages 427 and 428) for each student.

MATERIALS

- The “School Questionnaire on Reusing and Recycling” for each group of students
- The “Home Audit on Reducing, Reusing, and Recycling” for each student

PRE-ACTIVITY QUESTIONS

Do section “A” if your school has a reusing and/or recycling program. Do section “B” if your school does not have a reusing and/or recycling program.

- A. If your school has a reusing and/or recycling program, do the following:
1. Make a chart with the following headings on the chalkboard or on a piece of butcher paper and save until the end of this lesson:
 - What I know about the reusing and/or recycling program at our school
 - What I want to know about the reusing and/or recycling program at our school

Recycling at Curtner School

We do recycle at Curtner. We recycle paper, milk cartons, and soda cans. In our classroom we have a box and in the box we put paper inside it and on Thursday we put it in a recycling bin.

I want to know where does all the the paper go? Does it go to the recycling center in San Jose?

I think each person should have their own recycling box so there won't be a bunch of paper inside the desks.

Submitted by Tina Porter, science teacher, Curtner Elementary School, Milpitas Unified School District.

- What I learned about the reusing and/or recycling program at our school
2. Ask students to write in their journals their responses to the first two statements in item section “A” step “1.” Then have students tell you what they know about recycling at their school and record this on the chart.
- B. If your school does not have a reusing and/or recycling program, have students come up with questions they might have on how they can start a schoolwide reusing and/or recycling program.

PROCEDURE

Do section “A” if your school has reusing and/or recycling program. Do section “B” if your school does not have a reusing and/or recycling program.

- A. If your school has a reusing and/or recycling program, do the following:
1. Using the chart completed in “Pre-Activity Questions,” section “A” step “1” and the “School Questionnaire on Reusing and Recycling,” ask groups of students to volunteer to find the answers to some of the questions. This may mean setting up at least one interview.
 - Invite a speaker who is knowledgeable about your school’s reusing

and/or recycling program to your class to answer some questions.

- The day before the speaker comes to your class, develop with students some additional questions about reusing and/or recycling to ask the speaker.
- Allow students to practice interviewing other students. They should focus on being polite and listening carefully to the student being interviewed in the mock interview.
- Now they are ready for the real interview. Assign various students one or two questions from the “School Questionnaire on Reusing and Recycling” and from the questions generated by the class. These students should write down the speaker’s answers.

Homework Assignment: Ask students to describe in writing two actions that could improve the reusing and/or recycling program at their school. If applicable, encourage them to think about what they did to implement reducing and recycling in their classroom (from Lesson 2).

A way to improve Gold Trail recycling plan would be to label cans because people get confused of which is which. Also they might get some helpers to patrol to make sure people dispose of their trash properly. We might also simplify the process of disposing.

We can put the boxes of colored paper back into the rooms and start to recycle colored paper again.

Submitted by Janet Cohen, sixth-grade teacher, Gold Trail Elementary School, Gold Trail Union School District.

2. Have students develop a plan on how the current reusing and/or recycling program at their school could be improved.
 - Students can develop a questionnaire to survey other students, teachers, and other school staff members to identify what is working well in the current reusing and/or recycling program and what needs improvement.

- Then students can list several ways that the current reusing and/or recycling program can be improved. For example:
 - Adding another type of material to recycle, or reusing materials that used to be thrown in a trash can
 - Designing an advertising campaign to promote the existing reusing and/or recycling program
 - Renewing interest in the reusing and/or recycling program with awards, media events, or contests among different groups in school
 - Initiating a reusing and/or recycling educational program for other students, faculty, clerical staff, administrators, and custodians
- Discuss how students will be able to determine whether what they recommended will indeed be an improvement.

- B. If your school does not have a reusing and/or recycling program, do the following:
 1. Find out whether any other group is providing informal reusing and/or recycling services at your school, such as custodians, cafeteria staff, teachers, and/or local youth groups. Determine how you can work together with these groups. For example, if the custodians are already recycling aluminum cans, you might try to incorporate their activities into your program and share the additional revenues with them.¹
 2. With your class, visit a school dumpster when it is empty. Then visit the dumpster the day before it is scheduled to be emptied. Do this every week for one month.
 - Have students visually analyze what type of trash they saw the most of. Determine:
 - What could have been reused?
 - What could have been recycled?

¹On the Road to Recycling! A Guide to Setting Up and Expanding Recycling Programs in San Francisco Schools. San Francisco: The City and County of San Francisco, 1992, p. 2.

- Students could also check the dumpster on a daily basis and record whether the dumpster is about one-fourth full, half-full, or entirely full.
 - How quickly did the school dumpster fill up?
 - If a special activities day was implemented, was there more waste generated that day? If so, how could the amount of waste be reduced?

Homework Assignment: Describe two things to consider when planning for a reusing and/or recycling program or what should be included in a reusing and/or recycling program. Students can contact a local recycler to get some answers or talk to their family members.

3. The next day compile a list of components of a successful recycling program. For example:

- Use safe and easy-to-use containers.
- Find an appropriate place to store the recyclables until they get picked up.
- Arrange for someone to pick up recyclables on a regular basis.
- Determine how and where materials will be stored for reuse.

4. For additional ideas, ask students to focus on what students are doing in their class's reusing and/or recycling program. Determine with students what is working in the classroom and what is not. If applicable, discuss how students could apply what they have learned about their class's reusing and/or recycling program to a schoolwide program.

5. If students want to actually implement a reusing and/or recycling program at school, they will need to develop a strategy for education, promotion, collection, storage, transportation, monitoring, evaluating, recording, and reporting the results of the waste reduction and recycling program. For the initial pilot, it is recommended that only one item be selected for reusing (e.g., white paper) and one item for recycling (e.g., white paper or aluminum) at school.

- Locate a recycler/hauler who will accept materials for recycling.

Students will need to find out whether the garbage company that currently

services the school is willing to recycle the school's paper; whether this service would cost the school or would be picked up free of charge; or whether the recycling hauler would actually pay the school to recycle its paper.

- Determine how and where materials can be stored for reuse.
- Monitor the progress of the project, noting successful components and the aspects that need modification.
- Measure, record, and report the amount of material being reused and/or recycled.
- After a designated period of successful reusing and recycling, add to the program another type of material to recycle and another material to reuse.²

Note: In the "Background Information for the Teacher" is a list of tips for implementing a recycling program at school to help students in their implementation of a recycling program. Encourage students to develop a list for their school's reuse program.

APPLICATION

- A. Discuss with students what they and other students could do to reduce (use less of in the first place) waste at school. These should be reasonable suggestions. Students can work in groups or as a class to make a list.

Project Idea: Have students select what they could do to reduce waste at school and develop a plan on how to implement it.

Project Idea: Have students find out what the school is recycling and determine what else can be recycled or what is currently being recycled that can be recycled more efficiently. They should develop a plan on how this can be done.

Project Idea: If there is no recycling program at school, students could organize a school recycling program, emphasizing collection and recycling of aluminum and paper.

Homework Assignment: Provide a copy of "Home Audit on Reducing, Reusing, and Recycling" to each student. Allow students several days to complete their audit. Then have students circle those items that they can reduce.

²*A-Way with Waste: A Waste Management Curriculum for Schools* (Third edition). Redmond, Wash.: Washington State Department of Ecology; Waste Reduction, Recycling and Litter Control Program, 1990, p. 226.

Note: If students cannot do the weekly audit, they can multiply their one-day figures by five or seven (have the class decide which) to get the numbers per week.

- B. Ask students to write up their findings and to include a plan for reducing their households' wastes. Assign at least four or five students to present their findings and their plans, and spend part of the class period discussing them.
- C. Do #1 or #2:
 1. If there is a reusing and/or recycling program at your school, ask students to write in their journals their responses to the "Pre-Activity Questions," section "A" step "1," "What I learned about the reusing and/or recycling program at school." They should write at least three paragraphs. Then discuss and record the students' responses on the chart.
 2. If there is no reusing and/or recycling program at your school, ask students to write in their journals their responses to what can be done to start a recycling program at their school. They should write at least three paragraphs.

EXTENSIONS

1. Have students develop a plan to begin to reduce, reuse, and recycle at home (if the family is not currently recycling) or describe how to implement additional reducing, reusing, and recycling strategies in their household.
2. Share the following with students: You can persuade nearly everybody to reuse or recycle if it costs them more to throw things out than to reuse or recycle. For example, in High Bridge, New Jersey, garbage companies pick up recyclables at no cost to the consumer. But consumers have to buy a sticker for each regular trash bag they leave at the curbside. If the garbage haulers see a bag without a sticker, they will not pick it up.
Have students describe in writing how this plan could work or not work in their neighborhoods.
3. Have students find out the cost of disposal practices at school, how much waste is being placed in landfills, and if applicable,

how much is being recycled. Discuss how the figures would change if students and school staff members would reduce the amount of waste going to the landfill and increase the amount being reused and recycled. How much money could the school or district save by reducing garbage? Students could contact their local government recycling coordinators for some answers.

4. Publicize the results of the school waste audit either in the school newsletter or local paper. Also publicize waste reduction tips and ask community members to participate in reducing the amount of garbage they generate.
5. Have several students find out what recycling programs are being implemented at other schools. Ask them to report the information to the class.

RESOURCES

Video

Recycle That Trash. Santa Monica, Calif.: Pyramid Film and Video, 1990 (18 minutes).

Shows students from the town of Goleta, California, participating in various recycling activities.

Book

The Recycler's Handbook. Prepared by The EarthWorks Group. Berkeley: EarthWorks Press, 1990.

Contains information about why and how to recycle metal, glass, paper, plastic, organic waste, and other recyclables.

Other Publications

On the Road to Recycling! A Guide to Setting Up and Expanding Recycling Programs in San Francisco Schools. San Francisco: City and County of San Francisco, 1992.

The following two publications are available through the California Integrated Waste Management Board's Office of Integrated Education at (916) 341-6769.

- *Seeing Green Through Waste Prevention*
- *A District Wide Approach to Recycling: A Recycling Guide to School Districts*

Names of students: _____

SCHOOL QUESTIONNAIRE ON REUSING AND RECYCLING

Check off what is currently being reused, recycled, or could be reused or recycled; or that could not be reused or recycled at school.

Type of material	Already being reused	Already being recycled	Could be reused	Could be recycled	Could not be reused or recycled
1. Types of paper:					
a. White paper					
b. Colored paper					
c. Computer paper					
d. Newspaper					
e. Cardboard					
f. Construction paper					
g. Magazines					
h. Junk mail					
2. Metals					
a. Aluminum					
b. Tin cans					
3. Plastics					
a. PETE (pop bottles)					
b. HDPE (milk/ water jugs)					
c. LDPE (clear bags)					
d. PS (lunch trays)					
4. Glass					
5. Wood products					
6. Material for composting					

7. Milk cartons					
8. Juice boxes					
9. Other					

Name: _____ Date: _____

HOME AUDIT ON REDUCING, REUSING, AND RECYCLING

1. Does your neighborhood have a curbside recycling program? Yes No

2. What materials is your family currently recycling? Check all that apply.

- | | | |
|--|---------------------------------------|---|
| <input type="checkbox"/> Aluminum cans | <input type="checkbox"/> Junk mail | <input type="checkbox"/> Glass containers |
| <input type="checkbox"/> Metal cans | <input type="checkbox"/> Cardboard | <input type="checkbox"/> Yard wastes |
| <input type="checkbox"/> Newspaper | <input type="checkbox"/> Other: _____ | |

3. How many of the following did you reuse, recycle, or throw away (in one day and in one week)?

Type of trash	In one day			In one week		
	Reused	Recycled	Threw away	Reused	Recycled	Threw away
Aluminum cans (number of cans)						
Glass (number of bottles and jars)						
Paper (What type and how many sheets?) Example: <ul style="list-style-type: none"> • Writing paper • Newspaper • Cardboard • Construction paper • Magazines • Junk mail • Other 						
Metal cans from soups, canned vegetables, etc. (number of cans)						
Plastics						
Other						

4-6 Module
Unit 2

4. What type of material did you reuse the most? _____

5. What type of material did you reuse the least? _____

6. What type of material could you reuse more of? _____

7. What type of material did you recycle the most? _____

8. What type of material did you recycle the least? _____

9. What type of material could you recycle more of? _____

10. What type of material did you throw away more often than any other? _____

11. List at least three items that your family reused and describe how each item was reused.

Item 1: _____

Item 2: _____

Item 3: _____

12. List four items that could be reduced.

Item 1: _____ Item 2: _____

Item 3: _____ Item 4: _____

BACKGROUND INFORMATION FOR THE TEACHER

A school waste reduction and recycling program provides hands-on experiences for students to conserve natural resources and learn the business of establishing and maintaining a successful waste reduction and recycling program. It also encourages students to be responsible citizens at school, home, and in their community. In addition, the cost of disposal to school districts can be reduced, and the saved funds could be spent on instructional materials and/or field trips for students. The following are some suggestions for setting up a recycling program at your school.³

1. Obtain permission and support from administrators to explore the development of a recycling program at school.
2. Determine what can be recycled in your community.
3. Designate a coordinator to oversee the program.
4. Identify which items could or should be recycled at school. (Select only one or two at first.) A typical “waste stream” is 41 percent paper, 38 percent organic waste, 13 percent plastic, 6 percent metal, and 2 percent glass.
5. Find sources for the sale of the recyclable materials. Find out:
 - What materials will the hauler/recycler pay for? will haul at no cost? will charge for collection?
 - Will the recycler/hauler provide: containers? promotional material? transportation of recyclables from school?
 - What will be the frequency of service?
 - What is the minimum or maximum quantity accepted for collection?
 - Will the hauler/recycler monitor and report totals of materials being recycled?
6. Identify a location that is convenient for your school to set up recycling containers for one or two recyclable materials.
7. Determine how the material will be collected, separated, and stored.

³*A-Way with Waste: A Waste Management Curriculum for Schools* (Third edition). Redmond, Wash.: Washington State Department of Ecology; Waste Reduction, Recycling and Litter Control Program, 1990, p. 226.

8. Determine the number and type of containers necessary for recyclable items. Be certain that each of the containers is adequate for storing your material. Start small and build as opportunities present themselves.
9. Determine how the recycled material will be removed from the school grounds.
10. Establish a procedure for recycling.
11. Get support from organizations (e.g., service clubs could help coordinate the plan or construct recycling bins).
12. Present your proposal to the school board.
13. Implement your recycling plan.
14. Keep the site administrator involved. (If there are contracts to be signed, the site administrator will need to determine who the appropriate individual is to sign them.)
15. Advertise the recycling program throughout the school. Present skits, create a video, or invite the press for coverage.

The following are some problems that might need to be addressed concerning the recycling program:

- Equipment and storage needs
- Contamination or vandalism of recyclables
- Codes (health, fire, etc.)
- Poor participation rates
- Fluctuating markets that may affect the prices of recyclable materials

For additional information on setting up school and district recycling programs in California, contact the California Integrated Waste Management Board’s Office of Integrated Education, MS-14A, 1001 I Street, P.O. Box 4025 (mailing address), Sacramento, CA 95812-4025, (916) 341-6769.

Note: The purpose of the home audit is to inventory what is thrown away at home. The activity will give students a baseline of data for discussing with family members what can be done to prevent the dumping of otherwise reusable and recyclable materials in a landfill.

NOTES