

LESSON 12: Sharing What We Know About Reducing, Reusing, and Recycling

LESSON'S CONCEPT

Showing and teaching others about reducing, reusing, recycling, and buying products made from recycled materials reinforce what students have learned and encourage others to participate in waste management.

PURPOSE

Students will teach others about reducing, reusing, recycling materials, and the importance of buying products made from recycled materials.

OVERVIEW

In this lesson students will:

- Work in groups to plan and complete a project, such as a display, newsletter, slogan, skit, or story, that will teach others about reducing, reusing, and recycling materials or that will encourage people to buy products made from recycled materials.
- Design a rubric to evaluate their projects.
- Present their projects to the class and decide which projects should be shared with the entire school.

CORRELATIONS TO CALIFORNIA'S CONTENT STANDARDS AND FRAMEWORKS AND TO BENCHMARKS FOR SCIENCE LITERACY

- Students work in groups to plan and complete a project.
 - "Students create original artworks based on personal experiences or responses." (*Visual and Performing Arts Framework, Visual Art: Creative Expression Component, Goal 4, page 101*)
- Students complete a project proposal form.
 - "By the end of the 5th grade, students should be able to write instructions that others can follow in carrying out

a procedure; make sketches to aid in explaining procedures or ideas" (*Benchmarks for Science Literacy, page 296*)

- Students present their projects to the class.
 - "Students deliver brief recitations and oral presentations about familiar experiences or interests that are organized around a coherent thesis statement." (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve, page 27*)
- Students listen to presentations by their classmates, determine the main message that the project is portraying, and summarize major ideas.
 - Students "summarize major ideas and supporting evidence presented in spoken messages and formal presentations." (*English–Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve, page 26*)

SCIENTIFIC THINKING PROCESSES

observing, communicating, comparing, relating

TIME

20–30 minutes to prepare for the lesson;
45–60 minutes per day for five days to implement the lesson

Note: Allow plenty of class time for students to complete their projects, but agree with your students on a deadline. You might allow one hour per day (e.g., after lunch) for students to work on their projects. They can

also work on their projects quietly when their regular class work has been completed. For those students who finish their projects early, advise them on ways that their projects can

be improved or allow them to select other projects to complete.

VOCABULARY

public service announcement, slogan

PREPARATION

- 1. Read the “Background Information for the Teacher” at the end of this lesson.
- 2. Duplicate the “Project Proposal” for each project group (page 445).
- 3. Make a transparency of “An Example of a Rubric for a Reducing, Reusing, or Recycling Project” (page 444).
- 4. If you have not already done so, contact the local recycling coordinator or city or county solid waste director and find out what he or she does to promote the reducing, reusing, and recycling program. Ask to have brochures and other advertising materials sent to you and your class.

MATERIALS

Note: Encourage students to reuse materials whenever possible.

- A variety of art supplies for students to use, including paints, crayons, felt-tipped pens, glue, scissors, rulers, scraps of construction and other paper; cardboard boxes.
- A copy of “Project Proposal” for each project group
- The transparency, “An Example of a Rubric for a Reducing, Reusing, or Recycling Project”

Note: Once students have determined how they will be presenting their information, you might need to obtain additional materials for them or encourage them to provide their own materials.

PRE-ACTIVITY QUESTIONS

- A. Discuss with students what they have learned about reducing, reusing, and recycling materials and buying products made from recycled materials. What would they want to do with this information? (Some students might say that they would like to share what they have learned with others.)
- B. Ask students to describe some ways that we can show others (and teach others) what we

have learned about reducing, reusing, recycling materials and about the importance of buying products made from recycled materials. Make a list on the chalkboard or on a piece of butcher paper. Save this list for later use. Some ideas are listed in “Procedure” sections “A” and “D.” Discuss with students:

- Which of the ideas listed can help to promote a reducing, reusing, and recycling program at home? *e.g., showing and telling family members what we have learned.*
 - Which of the ideas listed can help to promote a reducing, reusing, and recycling program at school? *e.g., making presentations to other classes, making posters.*
 - Which of the ideas can be used to teach others in our community about reducing, reusing, and recycling materials and about the importance of buying products made from recycled materials? *e.g., make a display to set up in a library or other public location.*
- C. Have students add ways that we can teach others about reducing, reusing, and recycling materials and about the importance of buying products made from recycled materials.
 - D. Discuss with students the reasons why people use different ways to teach others about something. For example, slogans are used to attract attention and can promote a program. A play will entertain people and can also convey a message.
 - E. Discuss with students ways to persuade people to reduce, reuse, and recycle materials and to buy products made from recycled materials. Emphasize the importance of reinforcing people’s success with reducing waste and reusing and recycling materials. (People need to be reminded continuously until habits are changed.)

PROCEDURE

- A. Ask students what they would like to do individually, in small groups, or as a class to show what they have learned and/or to teach others about reducing, reusing, and recycling materials. Some ideas are listed below, or students can develop their own ideas.

Note: For younger students, consider narrowing the list to two or three choices that you think your students could do easily. Also, if all grades in your school are implementing this unit, you could select one or two ideas for each grade level.

- Show how to recycle at home (e.g., how to set up various recycling bins at home and how to prepare newspapers or cardboard for curbside pickup).
 - Show how to set up a recycling area in the classroom.
 - Show how to reuse some items that are commonly thrown away.
 - Show how reducing, reusing, and recycling conserves natural resources.
 - Promote a reusing and recycling program at home (e.g., tell why it is easy and why it is important and how it can save money).
 - Promote a reusing and recycling program at school (e.g., encourage students to reuse and recycle to conserve natural resources).
 - Encourage people in the community to reuse and recycle items.
 - Encourage people in the community to buy recycled products.
 - Educate people about what can be recycled in their community.
 - Educate people about the importance of buying products made from recycled materials.
- B. Refer to the list developed in “Pre-Activity Questions” section “B.” Ask students to select a project. Tell students that they can work by themselves, in small groups, or as a class, depending on the project they select. For example, a student might write a story individually, two students might design a slogan, or the entire class might produce a newsletter.

- C. If students decide to work individually or in small groups (instead of as a class), have them help you develop a rubric for these projects to identify what will be excellent, very good, acceptable, or unacceptable work.
- Project the transparency of “An Example of a Rubric for a Reducing, Reusing, or Recycling Project.”
 - Have students help you complete the rubric so all students will know exactly what criteria will be used to judge their projects.

- D. Listed below are some ideas that students can implement:

- Before students actually do the activity, they should gather some examples of whatever media they choose to use. For example, the group that wants to design a slogan and logo for the school’s reducing, reusing, and recycling program should first gather examples of slogans and logos from magazines, newspapers, and publications from local businesses. If examples of some media (such as displays) are not available, students should first brainstorm what information can be included in a display about recycling.
- Distribute a “Project Proposal”¹ form to each student or group doing a project.

At first you might need to assist each group in getting started, but students should develop and implement their own ideas.

Slogan and logo

Students should first obtain examples of slogans and logos. The slogan should be short and clear. The logo should be simple, yet should clearly represent the idea of reducing waste and reusing and recycling materials or the importance of buying products made from recycled materials. These can be placed throughout the school and in prominent places, such as the library and recycling center, and throughout the community.

Poster

Have students locate examples of posters. Then they can design one of their own to promote or explain reducing, reusing, and recycling materials and/or the importance of

¹Jacqueline Faber and Melissa C. Williams, *PBL: Beginning Steps—It’s a Process!* Paper presented at the Fifth Annual Conference on Project-Based Learning, March 10, 1997.

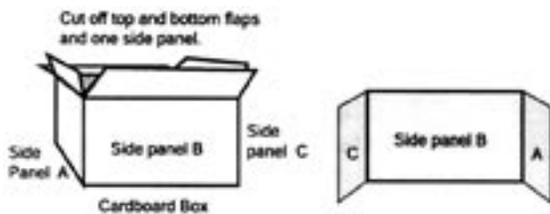
buying products made from recycled materials. Encourage students to use paper made from recycled fibers from which to make posters.

- Posters can be hung in local stores.
- If your local solid waste company sponsors a poster contest, students can be encouraged to participate in the contest.

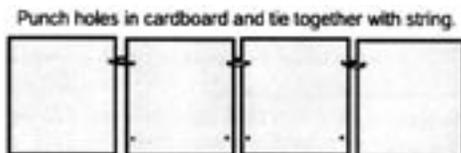
Display

Students should first brainstorm the information that can be included in a display about reducing waste and reusing and recycling materials. This can include general information on how to reduce, reuse, and recycle materials. It can include ways for reusing an item. It can also include several different types of materials that can be recycled (e.g., aluminum, glass) or only one type of material that can be recycled (e.g., different types of paper, such as newspaper, white office paper, magazines, junk mail).

- Students can also do a display on the importance of buying products made from recycled materials.
- Students can make a display panel in one of the following ways, or they can come up with their own design:
 - Cut out three sides of a large box to form the backdrop for the display. The three-sided cardboard panel will look like those often used in science fairs.



- Another alternative is to cut four or five pieces of cardboard (approximately 8½ by 11 inches), punch two holes on one side of two panels and two holes on each side on the other two or three panels, and use yarn, twine, or ribbon to attach all of the pieces.



Radio announcement

Students should first brainstorm the type of information that is usually included in a radio announcement; e.g., who, what, when, where, and why. Most announcements are between 30 and 60 seconds in length. A group can write and record on a tape recorder information about reducing, reusing, and recycling materials and/or buying products made from recycled materials.

Note: Before the announcement is actually aired, make sure that approval is secured from the school administrator.

Newsletter

Students should first locate examples of newsletters. Next, students need to determine whether they will design the newsletter on a computer or by hand. Then they will need to decide the type of information that should be in the newsletter.

Each student should be responsible for a specific part of the newsletter. This can include:

- An editorial (e.g., what the student thinks about reducing, reusing, and recycling materials or about buying items made from recycled materials)
- A news report (e.g., a factual piece about how to reuse certain items or how to recycle materials or how a class recycles its materials)
- An advertisement for items made from recycled materials
- A cartoon (about reducing, reusing, and recycling materials or buying material made from recycled materials)
- An illustration (e.g., on how to reduce, reuse, or recycle)

One student will need to be the editor to direct the preparation of the newsletter. Another student can be the layout artist, who will lay out the copy and determine where each article goes.

Poem or song

Students should first locate examples of a poem or song. Then they can write a poem or song (using an existing tune could help) about reducing, reusing, or recycling materials. For more information on this, see the K-3 Module, Unit 2, Lesson 5.

Skit or Play

Students can write a skit or play about the importance of reducing, reusing, and recycling materials and/or buying products made from recycled materials.

Story

Students can write a story about reducing, reusing, and recycling materials or buying products made from recycled materials. They should include the following components of a story:

- Setting—Where the story takes place
- Characters—The people (or plants and animals) involved in the story (There are usually one or two main characters and several minor characters.)
- Plot—A series of events (The story often starts with an introduction of the setting and characters. Then there is usually some type of conflict that needs to be resolved. In the climax part of the story, the conflict gets resolved and the story ends with some type of conclusion.)

It is helpful for students to read a piece of literature and identify the various parts of the story before they begin this project.

A prompt for the story can also be offered to students. For example:

- On my way to the landfill . . .
- Before I knew what happened, the garbage . . .
- The recycling center was . . .
- Cans were everywhere at the . . .
- The recycled products were. . .
- No one believed that this item could have been reused for . . .

Bulletin Board

This bulletin board can be full of articles on reducing, reusing, and recycling materials; articles on buying products made from recycled materials; and diagrams and illustrations dealing with various solid waste topics.

Other ideas for projects are listed below:

- Essay
- Pamphlet
- Drawing

- Photo display
- Slides
- Video
- Commercial
- Bumper sticker

- E. Use the rubric that the students helped to design to evaluate each project. The class can also help to evaluate each project. Students can recommend ways the projects can be improved, but they should also describe positive aspects of each project.

DISCUSSION/QUESTIONS

When groups have completed their tasks, ask them to present their projects to the class. Have the students who are listening to a presentation determine the main message that the project is portraying and ask them to summarize major ideas.

APPLICATION

- A. Decide which projects should be shared with the entire school and develop a plan to share the information with other classes. Students might also want to enter some projects in a science fair.
- B. Have students share with the local solid waste company their campaign ideas. The company can give students ideas on who the target audience should be. Then a plan can be developed to reach that particular audience.

Project Idea: Students could develop a holiday display (Thanksgiving, New Year's Day, Valentine's Day, Fourth of July) to raise awareness about waste during the holidays and how to reduce it.

EXTENSION

Have students conduct a pre-survey and post-survey to see whether their projects and campaigns made a difference; e.g., pre-survey and post-survey parents and students in other classes. Discuss different types of surveys; e.g., observations, questionnaire, random phone survey. Compare the results of the survey and share the information with the class and school.

AN EXAMPLE OF A RUBRIC FOR A REDUCING, REUSING, OR RECYCLING PROJECT

1 (A)	2 (B)	3 (C)	4 (D)
1. The project is described in complete sentences, there is a clear sketch of the project, and the materials list is complete.	1. The project is described in complete sentences, there is a sketch of the project, and the materials list is complete.	1. The project is described and the materials list is complete.	1. The project is incomplete.
2. Materials were gathered and the project was started on time.	2. Materials were gathered and the project was started on time.	2. Materials were gathered.	2. Materials were not gathered and the project was not started on time.
3. All members stayed "on task" and actively participated.	3. All members stayed "on task" and participated.	3. All members stayed "on task."	3. Members did not stay on task.
4.	4.	4.	4.
5. Project is complete, neat, and easy to read.	5. Project is complete and neat.	5. Project is complete.	5. Project is not complete.
6. Project is presented to the class and includes visu-	6. Project is presented to the class.	6. Project is presented to the class.	6. Project is not presented to the

Note: Students will need to complete the row #4 in order to complete the rubric.

Student's Page
PROJECT PROPOSAL

Name(s): _____ Date: _____

Project name: _____

What is your project? Briefly describe your project in complete sentences:

What will your project look like? Draw a sketch. If you need more room, draw on the back of this sheet.

What materials will you need? Who will supply each item? List these.

Material	Supplier	Material	Supplier
1. _____	_____	5. _____	_____
2. _____	_____	6. _____	_____
3. _____	_____	7. _____	_____
4. _____	_____	8. _____	_____

BACKGROUND INFORMATION FOR THE TEACHER

In order to have a reducing, reusing, and recycling program that works, people need to know about the program and be willing to participate. To encourage people to participate, you must develop a good public education program. Sometimes just raising awareness of the problem and showing how easy it is to recycle can get people to move into action. Learning about the importance of buying products made from

recycled materials could motivate some people to buy these products.

The purpose of this lesson is to provide choices for students to present what they have learned in Unit 2. At the same time, they can promote reducing, reusing, and recycling at school, home, or in their community; and they can encourage people to buy products made from recycled materials.