

## INTERMEDIATE

**Objectives** Students will be able to: (1) *describe special properties* of litter and waste objects; (2) tell whether these items are recyclable or not. Students will improve their ability to *work cooperatively and productively with others*.

**Method** Groups create an alphabet dictionary making illustrations and describing pieces of litter or waste that correspond with letters of the alphabet. They play a guessing and a rhyming game using information from pages of the dictionaries they made. They *infer* from descriptions of properties of waste items what the item is.

**Duration:** four or more class periods

**Setting:** classroom

**Subjects:** Science, Language Arts

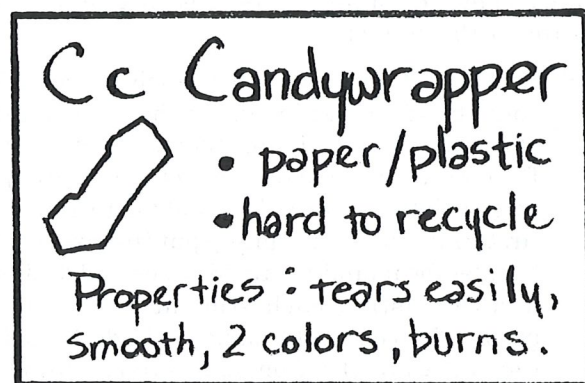
**Curriculum Reference:** 1.1

**Preparation** twenty-six sheets of drawing or construction paper and twenty-six sheets of draft paper available for each group of students; dictionaries, crayons, pencils and a variety of waste objects and/or pictures of potential throw-aways.

**Vocabulary** alphabet, properties, recyclable, rhyme

## Procedures

1. Collect a variety of litter and trash. Students might collect litter from an area around the school, bring in waste items from home and/or use magazines to find pictures of objects that usually end up being thrown away. Display these for everyone to see. Explain which materials are recyclable and which ones are not. (For a list of recyclable items see Background Information, Chapter 4.)
2. Divide students into teams or have them divide themselves into teams. Groups will identify objects of litter or waste according to letters of the alphabet. For each letter/object they will describe the following: a. material(s) used to make it (paper, glass, aluminum, etc.); b. whether it can be recycled or not; c. some of its properties (shiny, rough, bends easily, smooth, compacts easily, square, cylinder, etc.). Do an example for the class before having them begin.



If students in the group cannot think of a waste item to match with a letter, they should go on to the next letter. Once they have identified a waste item for a letter of the alphabet have them complete as much information as possible, but they should go on to another letter if they cannot fill in all the requested information.

3. Have groups make a picture of each item and work out picture and word displays on draft paper before arranging on the final page. They should work together eliciting ideas from every-

# 1 LITTER DICTIONARY COMPETITION

one in the group as to descriptions of each alphabetized item. Then have one or two students in the group copy onto the final page.

4. Tell each team to do as many letters of the alphabet as they can and not to discuss with other teams what they are doing. After allowing several class periods to complete, collect the finalized sheets from each team.

5. The winning team will be judged accordingly:

- 2 points for correctly identifying a piece of litter and spelling it correctly;
- 1 point for properly identifying material(s) used to make the item;
- 1 point for identifying correctly if it is recyclable or not, or difficult to recycle. This may be hardest to judge in some cases. Most waste can technically be recycled or composted, but efficient and remunerative systems are lacking for some waste materials such as certain plastics, batteries, aerosol cans, plastic coated papers, etc. (For an explanation of difficulties in recycling see Background Information, Chapter 4);
- 1 point for each property named.

(According to these criteria the example given above, in Step 2, would be worth 8 points.)

Tally points from all sheets of each group. Have a prize for the winners.

6. Sort out lettered sheets for which no waste item could be identified by any of the groups. Brainstorm as a class helping students think of items for these. Then have them return to groups to include letter/objects they could not think of the first time. Have each group put their sheets into booklet form binding all 26 pages and designing a cover, listing each student's name in the group. Or, you could make a single book from the best examples from each group. Display on classroom library table. Or, collect the sheets in loose but alphabetical order and use them to do the following exercise.

7. Choose the best pages from each group, especially those pages with correct "properties" descriptions. You may want to make photocopies of pages in order to preserve the book(s).

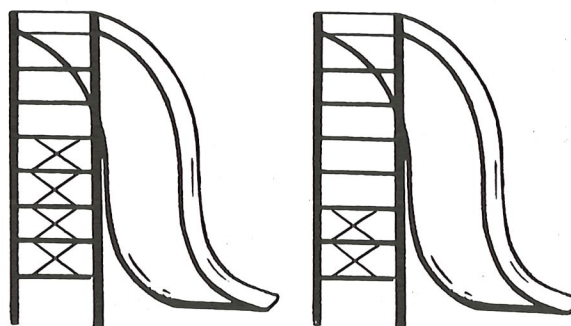
- a. Shuffle sheets of pages.
- b. Have a student read the "properties" description of the item on the page, and see

who can guess what waste item is referred to in the description. Repeat, allowing other students to participate.

- c. With older students, after each item is guessed, discuss how the properties described make it easy or difficult to recycle or dispose of that particular item. (e.g. Newspaper is not very durable and it absorbs water easily, so it can be turned back into pulp for recycling; it will biodegrade in a landfill. An aluminum can has a relatively low melting point so it can be recycled easily. It can be compacted for storage until it gets to the recycler, and because it does not oxidize rapidly it will not degrade very quickly in a landfill. Plastics can be melted to be recycled. Plastics can also be burned in a waste incinerator. Plastic, like glass, remains relatively unchanged in a landfill.)

8. Play a rhyming game using the list of waste objects the students described in their dictionaries.

- a. On the board, draw any number of slides depending on how many teams you divide the class into.



Team 1

Team 2

- b. Take turns giving one student from each team a word from the dictionaries the students made or any word related to litter. The student then has to find a word (not necessarily litter related) that rhymes with the given word. If the student has a rhyming word he/she goes up to the team slide and puts an "X" on the rung. The first team to the top wins. (NOTE: All slides must have the same number of rungs.)



Examples:

From the Dictionary Pages

Cc	Can
Ww	Wrapper
Ss	Shoe

Rhyming Words

Pan
Trapper
Blue

**Evaluation** Have students describe their roles in the group and then have them list as many objects of litter and waste as they can, designating which types are recyclable (without using the booklets they just made).

