Grade 2

SWA Classroom Presentation Pre Lesson Plan

Objectives:
1) Students will learn how garbage is processed in Palm Beach County.
2) Students will gain an understanding of how recycling reduces the amount of garbage that has to be thrown away.
3) Students will select the appropriate math operation and use it to solve recycling math problems.

Sunshine State Standards:
Science:
How Living Things Interact With the Environment
Standard 2: Benchmark 2: Knows that the activities of humans affect plants and animals in a variety of ways.

Language Arts:
Listening, Viewing, and Speaking
Standard 1: Benchmark 1: Listens for a variety of informational purposes including curiosity, pleasure, getting directions, performing tasks, solving problems, and following rules.

Materials:
1) Illustration of Transfer Station
2) Pictures of recyclables
3) "Milk Mon' " activity sheet
4) "Milk Mon'" activity answer sheet

Time:
45 minutes

Evaluation:
Assess students' understanding of the material presented by questioning them throughout the lesson.

Homework:
Ask the students to find out which day the recycling truck comes to their neighborhood to collect recyclables.

Background for Teachers:

The garbage from your home, apartment or townhome is collected by garbage trucks and taken to one of five transfer stations located throughout Palm Beach County. At the transfer station, garbage is transferred onto large semi-trailer trucks. The large trucks can hold 4 truck loads of the smaller ones. (*This procedure allows the smaller trucks more time on their route, it reduces traffic on the highway and saves fuel.)*

After the garbage is loaded into the larger trucks, it is driven to the Solid Waste Authority of Palm Beach County's Waste-to-Energy facility in West Palm Beach. The lightweight garbage is shredded and burned so that it can be used as a fuel source to generate electricity. The ashes leftover from the burning process are placed in a sanitary landfill along with any unburned garbage. (*Sometimes people say that garbage goes into a dump; however, dumps are no longer used because they* were not *environmentally-friendly. State and federal regulations require landfills to have many environmental protective systems installed and maintained. In addition, the landfill is monitored on a regular basis.)*

The landfill is filling up rapidly because so many people throw away a lot of garbage. One way to stop the landfill from filling up is to recycle as much of the garbage as possible. Right now in Palm Beach County, the following items are recyclable at home:

Place in the recycling bin for containers:
aluminum cans
aluminum foil
aluminum trays
glass bottles & jars
milk cartons
juice cartons
drink boxes
all plastic containers

Place in the recycling bin for paper:
newspapers
magazines
catalogs
phone books
brown paper bags
corrugated cardboard

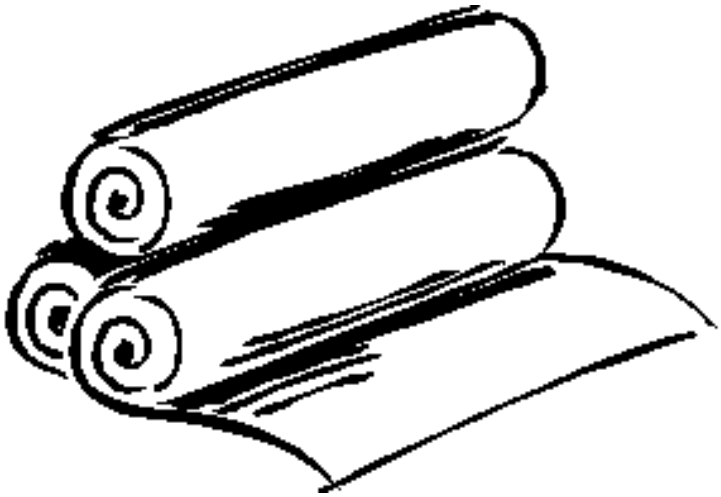
Procedure:

1. Elicit responses from students as to what happens to garbage after the garbage truck comes to collect it at their house.
2. Explain how garbage is processed (*refer to background section and use illustration of a Transfer Station).*
3. Stress the fact that landfills are filling up quickly and that means the land will be used up for that purpose instead of providing homes for plants, animals and people.
4. Tell the students that we can help stop the landfill from filling up as quickly by recycling because when we recycle, we throw away less garbage.
5. Emphasize that we can recycle many things. Show them the pictures of the items that are accepted in Palm Beach County's recycling program.
6. Tell the students that you want them to solve some math problems about recycling. Ask the students to take out a scrap paper to write down the problems and then solve them. Give the following example:

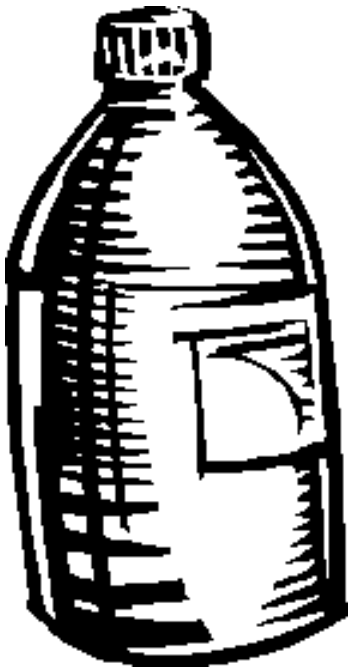
   Example: Kaylee recycled 21 magazines. Her brother recycled 24 magazines. How many magazines were recycled all together? Explain to the student that they will write only the numbers on their paper: 21 and 24. Then they must decide if they have to add or subtract to solve the problem. Write on the the board 21 + 24= 45. Explain that the key words "all together" indicate it is an addition problem. After the students understand the assignment, read the problems below and ask them to solve each one. Then check their answers.

   1) May-Ling recycled 14 aluminum cans, John recycled 23 cans. How many cans did they recycle all together?
   (2) Kayla recycled 10 milk cartons, Thomas took 4 of the milk cartons out of the recycling bin to make a toy boat. How many milk cartons were left in the recycling bin?
   (3) Jamel collected 45 aluminum cans from his neighbors to recycle. His sister took 10 cans away to make an art project. How many aluminum cans did Jamel recycle?
   (4) Alexandra and Jose recycled 22 drink boxes each. How many drink boxes were recycled all together?
   (5) Ms. Williams class recycled 35 aluminum cans one day and 12 aluminum cans the next day. How many cans were recycled all together in the two days?
7. Distribute "Milk Mon'" activity sheet to each student and explain the directions for side one.
8. Allow students time to complete side one of the activity sheet.
9. Review the answers to side one of the worksheet.
10. Explain the directions for side two of the activity sheet and allow students time to complete it.
11. Review the answers to side 2 of the worksheet.
12. Review the importance of recycling.
13. Explain and assign the homework.

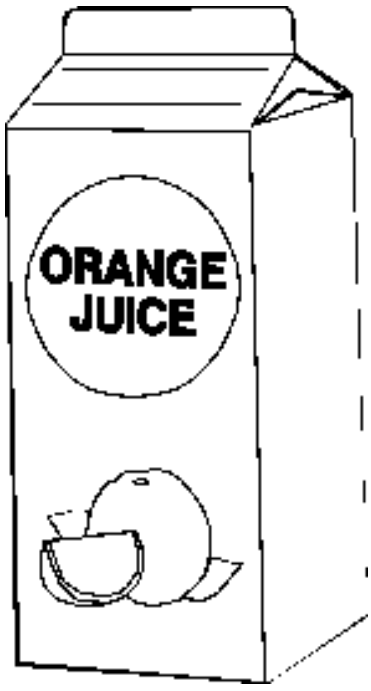
PICTURES OF RECYCLABLES



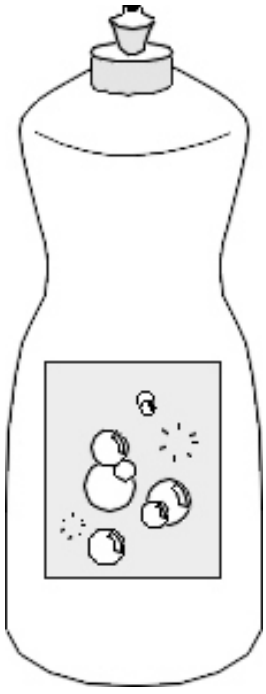
aluminum foil



plastic soda bottle



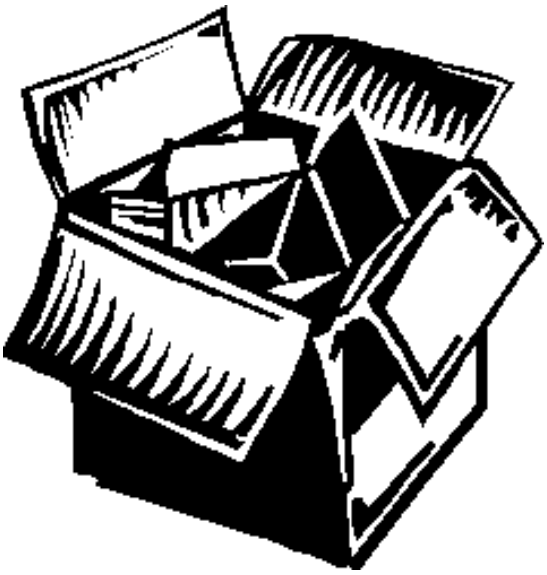
juice carton



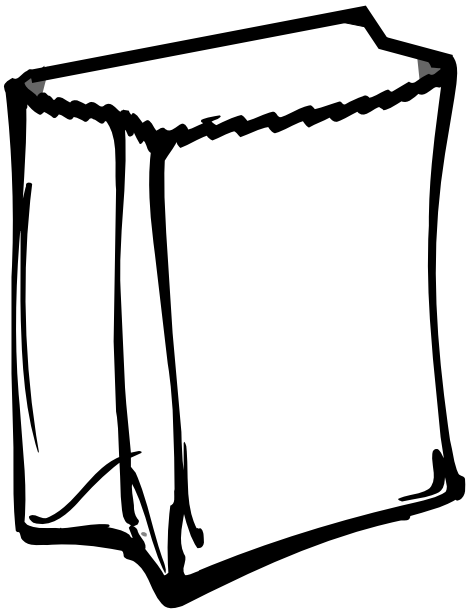
plastic bottle

PICTURES OF RECYCLABLES

catalog



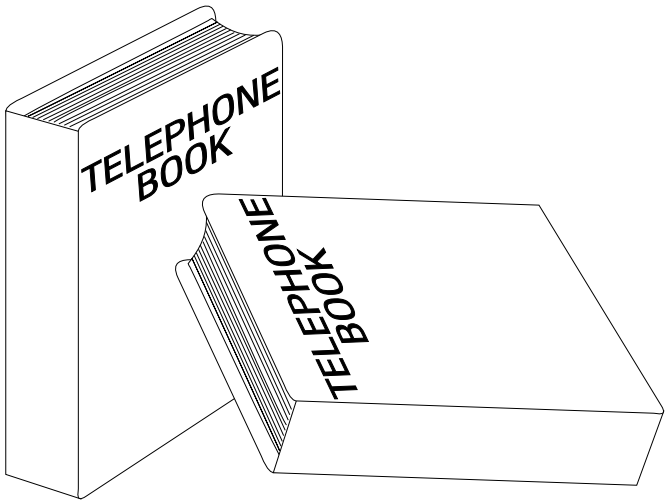
corrugated cardboard box



brown paper bag

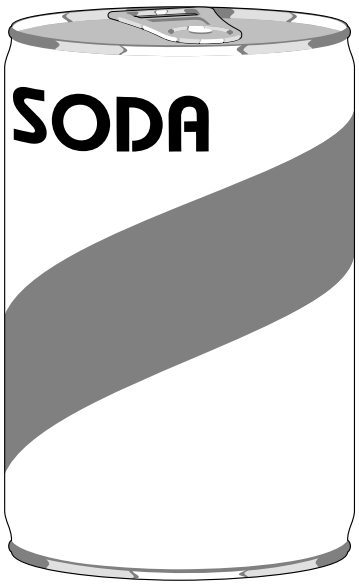
Newspaper

PICTURES OF RECYCLABLES

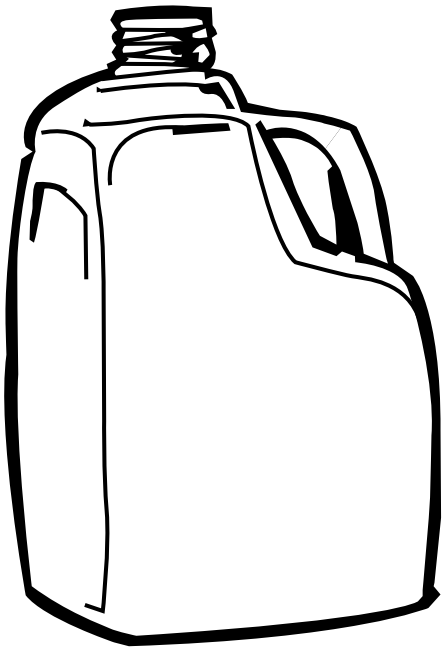


telephone books

magazine



aluminum can

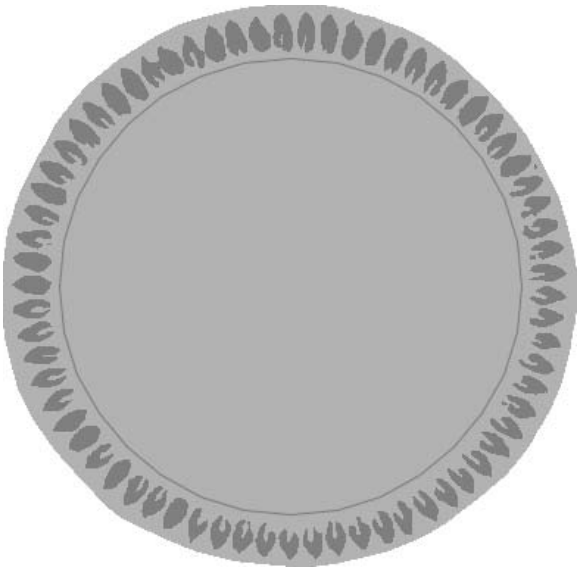


plastic jug

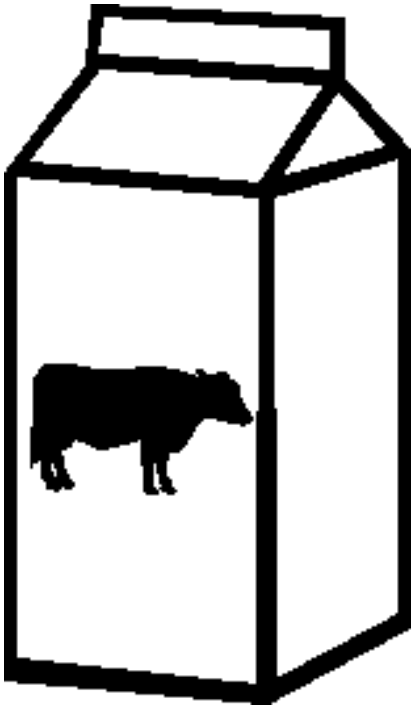
PICTURES OF RECYCLABLES

glass jar

plastic bottle

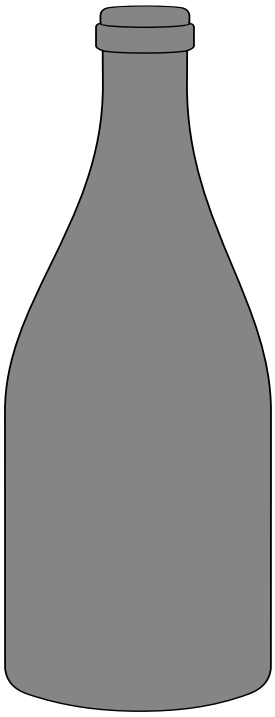


aluminum foil tray

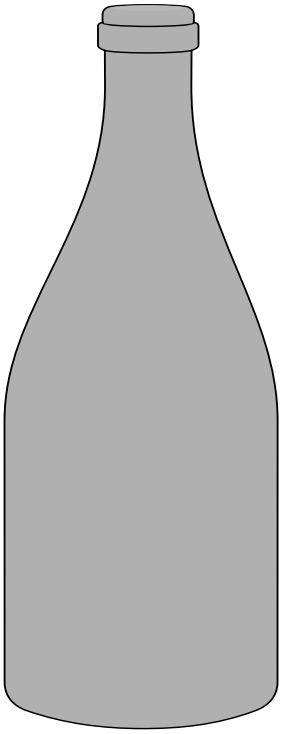


milk carton

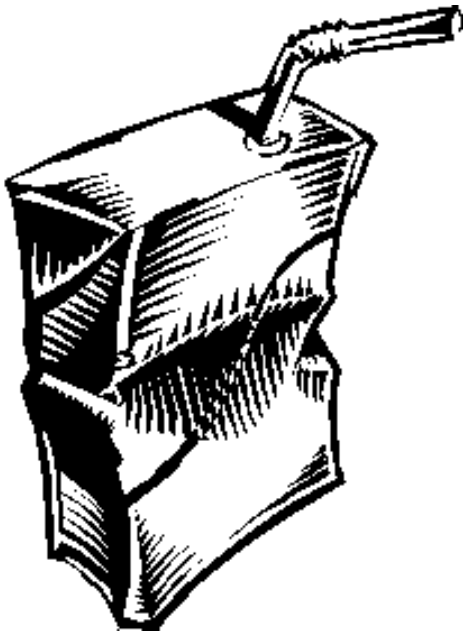
PICTURES OF RECYCLABLES



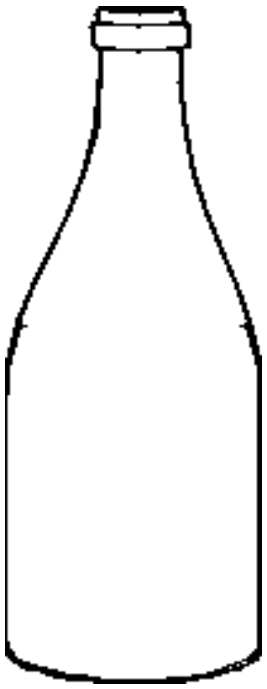
brown glass bottle



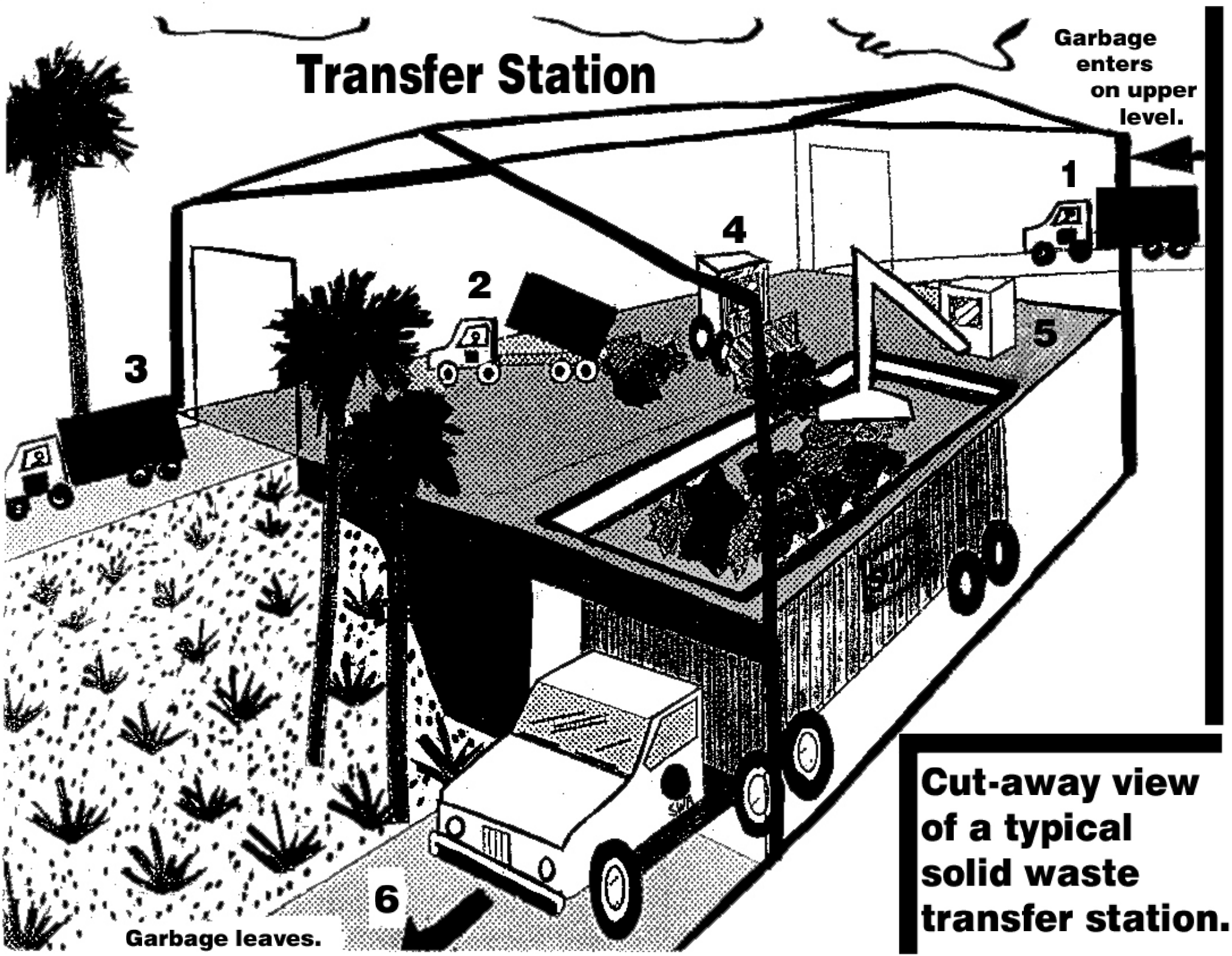
green glass bottle



drink box



clear glass bottle



Cut-away view of a typical solid waste transfer station.

Milk Mon' Activity Sheet

Name: _____ Date: _____

Color the recycling bin blue.

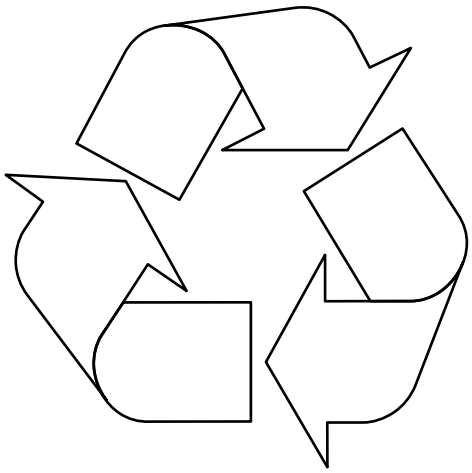
Write seven things that you can put in your blue recycling bin.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

Color the recycling bin yellow.

Write five things you can recycle in your yellow recycling bin.

1. _____
2. _____
3. _____
4. _____
5. _____



Color the recycling symbol.
Be creative!

Milk Mon' Answer Sheet

Name: **Answer Sheet** Date: _____

Color the recycling bin blue.

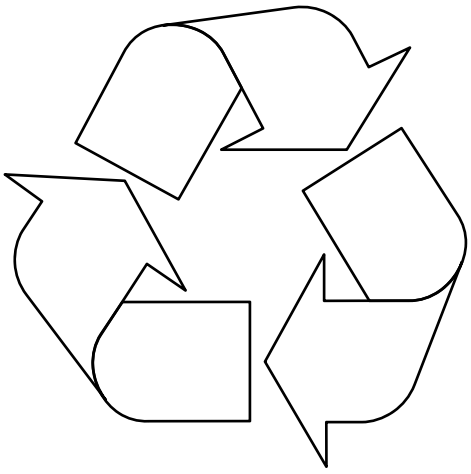
Write seven things that you can put in your blue recycling bin.

1. **aluminum foil**
2. **aluminum cans**
3. **aluminum foil trays**
4. **plastic bottles**
5. **glass bottles and jars**
6. **drink boxes**
7. **milk cartons**

Color the recycling bin yellow.

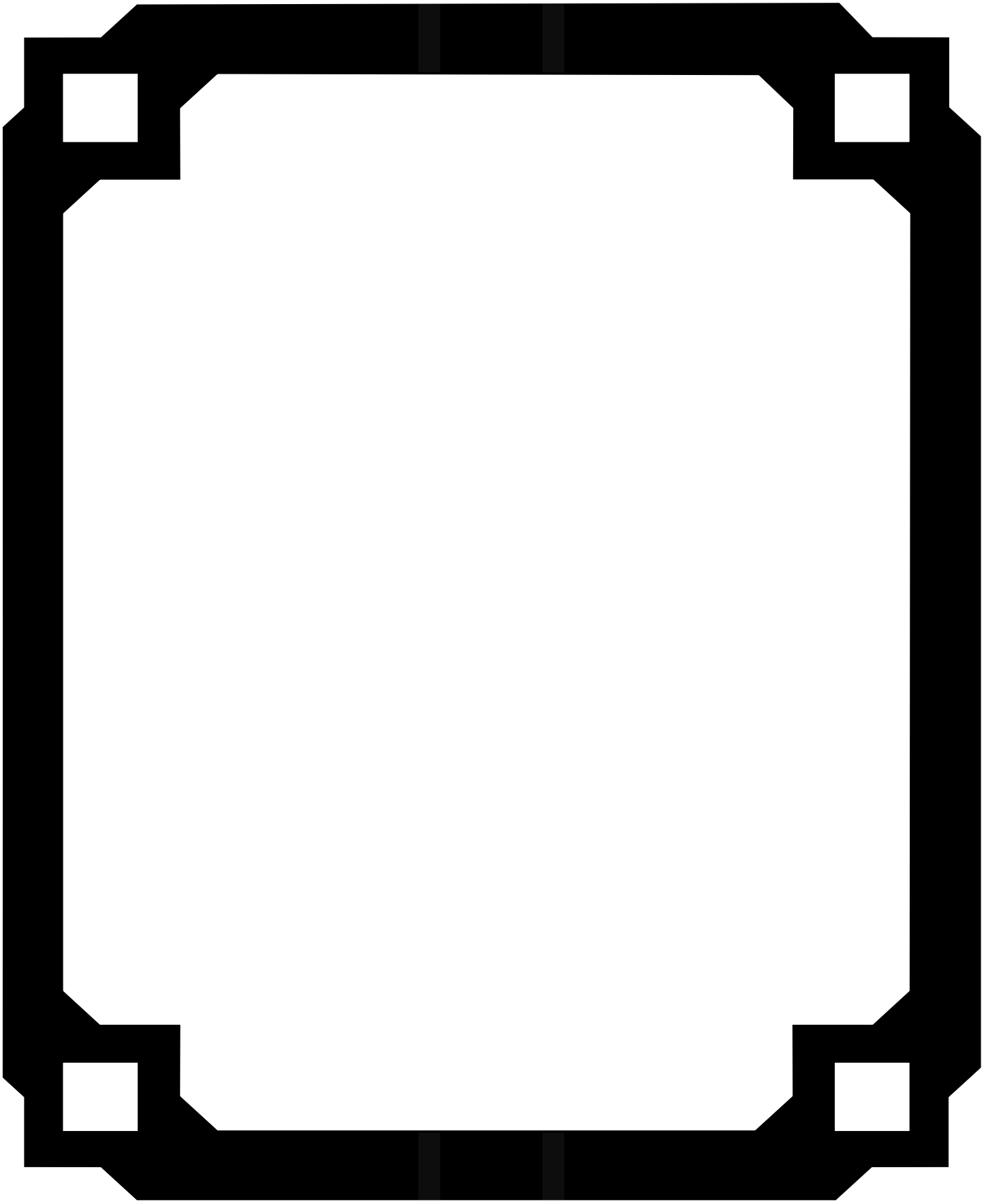
Write five things you can recycle in your yellow recycling bin.

1. **newspapers**
2. **corrugated cardboard boxes**
3. **brown bags**
4. **magazines**
5. **phone books**



Color the recycling symbol.
Be creative!

Draw a picture of yourself recycling things in the yellow recycling bin and the blue recycling bin.



Side 2

Grade 2

SWA Classroom Presentation Post Lesson Plan

Objectives:
1) Students will review the items that are accepted in Palm Beach County's recycling program.
2) Students will write simple instructions using logical sequence to describe how to recycle an aluminum can in the blue recycling bin at home.

Sunshine State Standards:
Language Arts:
Writing
Standard 2: Benchmark 4: Composes simple sets of instructions for simple tasks using logical sequencing of steps.

Math:
Measurement
Standard 1: Benchmark 2: Uses standard customary and metric and non-standard units such as links or blocks in measuring real quantities.

Materials:
1) Five of each of the following items: recycling bins, rulers, aluminum cans, drink boxes, newspapers, magazines, milk cartons
2) "I Recycle Right" certificate
3) Aluminum Can Recycling Activity Sheet
4) Aluminum Can Recycling Activity Sheet – answer key

Time:
35 minutes

Evaluation:
Assess students' understanding of the material presented by questioning them throughout the lesson.

Check students' measurements of the recycling bin and recyclables.

Review the students written instructions for recycling an aluminum can at home.

Homework:
Aluminum Can Recycling Activity Sheet

Background for Teachers:

Recycling is beneficial for the environment because it saves natural resources, conserves landfill space, and conserves energy. For example, aluminum is made from a non-renewable resource called bauxite ore. It is most prevalent in Australia. Much pollution is created and much energy is used when bauxite ore is mined and extracted from the earth. On the other hand, when aluminum is recycled, much energy is saved and bauxite ore, a precious natural resource, is saved.

In Palm Beach County's recycling program, we can recycle many items at home, at school, at work, at parks and even beaches. Our program is among the top in the country. Through the active participation of residents, approximately 50% of the waste generated in the county is recycled. This percentage will continue to increase in the future because children today recycle out of habit, making it a part of their daily routine. That means the landfill will not fill up as quickly. In one year, recycling saved the equivalent of 2 acres of landfill space 74 feet high from being filled in Palm Beach County. Recycling matters!

Procedure:

1. Review the importance of recycling.
2. Explain to the class that you have a very crowded garage and you are not sure if the recycling bins will fit in there or if they should be left outside. Tell the students that you will be dividing them into groups so that they can measure the recycling bins and some other things that can be recycled.
3. Divide the class into five groups. Distribute a recycling bin and ruler to each group.
4. Write on the board "recycling bin".
5. Call on students to tell the measurement of the bin.
6. Explain to the students that their measurements indicate that you will be able to store the bins in your garage.
7. Next, distribute an aluminum can, milk carton, newspaper, drink box, and magazine to each group.
8. Ask the students to measure each item and to estimate how many of each item it would take to fill the entire recycling bin. (The students should estimate, for example, 100 magazines would fill the bin, 60 aluminum cans would fill the bin, etc.)
9. Review the students' estimates.
10. Tell the students that it is important to recycle aluminum cans because it is made from a non-renewable resource which means once it is used up, there is no way to get it back.

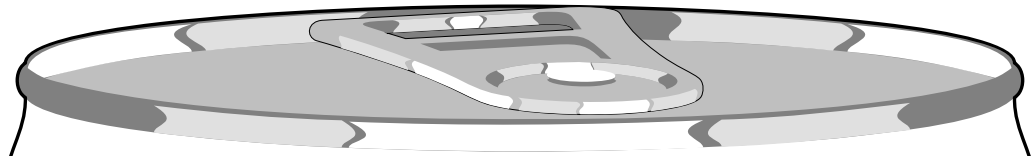
(continued)

Procedure Continued:

11. Describe how aluminum cans are recycled.
    - Make certain the can is aluminum. You can use a magnet to make sure because a magnet will not stick to an aluminum can.
    - Rinse the can out with water.
    - Step on the can to crush it. That way it will take up less space.
    - Put the can in the blue recycling bin.
    - Place the blue recycling bin at the curb on your specified collection day.
12. Tell the students that they are going to imagine that a new neighbor has moved in next door that does not know anything about the recycling program. Tell the students to write instructions for the neighbor on how to recycle an aluminum can at home. Give the students ten minutes to complete the assignment. Review the instructions written by the students.
13. Distribute the “I Recycle Right” certificates to students.
14. Encourage the students to tell their family and friends about the importance of recycling.
15. Hand out and explain the homework.

Aluminum Can Recycling Activity Sheet

Name: _____ Date: _____



Directions: Read the sentences and arrange the steps of aluminum can recycling in order by placing number 1 in the box next to the first step, number 2 in the box next to the second step, and so on.

☐ **The recycling truck brings the can to the recycling center so that it can be sent to a company that will make it into a new can.**

☐ **You buy a can of soda at the store.**

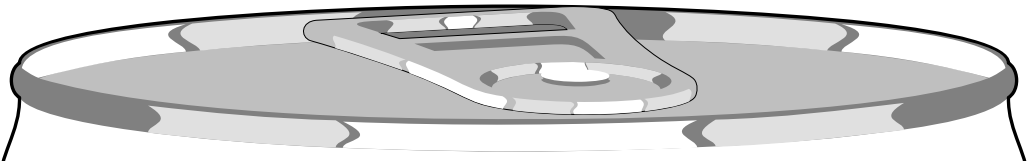
☐ **You rinse the can, crush it and placed it in the recycling bin.**

☐ **You drink all the soda in the can.**

☐ **The recycling truck comes to your neighborhood to pick up the things in the recycling bin.**

Aluminum Can Recycling Activity Sheet

Name: **ANSWER SHEET** Date: _____



Directions: Read the sentences and arrange the steps of aluminum can recycling in order by placing number 1 in the box next to the first step, number 2 in the box next to the second step, and so on.

5	**The recycling truck brings the can to the recycling center so that it can be sent to a company that will make it into a new can.**
1	**You buy a can of soda at the store.**
3	**You rinse the can, crush it and placed it in the recycling bin.**
2	**You drink all the soda in the can.**
4	**The recycling truck comes to your neighborhood to pick up the things in the recycling bin.**

Recycling Saves Resources and Energy.

Recycling Helps the Earth.

CERTIFICATE

I

Recycle Right

_____

Name

Signed _____

Date _____

SWA
SOLID WASTE AUTHORITY

Printed on recycled paper.