

Middle School

Pre SWA Classroom Presentation Lesson Plan

Objective:

1. Students will gain an understanding of how garbage is processed in Palm Beach County.
2. Students will develop and present a television commercial which encourages teenagers to recycle.

Next-Gen Sunshine State Standards:

Reading / Language Arts:

Strand: Communication

Standard 2: Listening and Speaking

The student effectively applies listening and speaking strategies.

Materials:

*Check ahead of time to see if it is possible for some of the students to perform a television commercial during the school's ITV morning announcements.

Length:

60-90 minutes

Evaluation:

Assess students' knowledge of the presented material through questions during the presentation.

Assess students' understanding of the importance of recycling by reviewing the television commercial they develop.

Assess students' speaking skills during the group performance of a recycling television commercial.



Background

In order to fully understand the impact of recycling on a local level, it is first necessary to understand the issue of garbage.

In Palm Beach County, the garbage from your home, apartment or townhome is collected by garbage trucks and taken to one of five Solid Waste Authority (SWA) transfer stations located throughout Palm Beach County. At the transfer station, garbage is placed onto large semi-trailer trucks. The large trucks can hold four truck loads from the smaller garbage trucks. (*This procedure allows the smaller trucks more time on their route, it reduces traffic on the highway and saves fuel.*) Then the semi-trailer trucks drive the garbage to the Solid Waste Authority's main facility in West Palm Beach where it is unloaded at the Waste-to-Energy Plant.

The lightweight garbage is shredded and burned so that it can be used as a fuel source to generate electricity. This electricity is sold to FPL and it provides enough power to service 37,000 homes in Palm Beach County as well as all the SWA's facilities in West Palm Beach.

The ashes left over from the burning process are placed in a 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 that landfills have environmental protective systems installed. In addition, the systems are monitored on a regular basis.*) The landfill is filling up rapidly because so much garbage is thrown away. In fact, approximately 4,000 tons of garbage is thrown away daily. (*To help you visualize that quantity, just imagine a football field full of garbage from one to the other with the pile ten feet high all the way across.*)

One way to stop the landfill from filling up is to recycle as much garbage as possible. Right now in Palm Beach County, we can recycle the following items at home:

Place in the Blue Recycling Bin:

Aluminum Cans
Aluminum Foil
Aluminum Pie Pans
Glass Bottles & Jars
Milk Cartons
Juice Cartons
Plastic Containers (# 1-7)
Drink Boxes
Steel Cans

Place in the Yellow Recycling Bin:

Newspapers
Magazines
Catalogs
Phone Books
Brown Bags
Corrugated Cardboard
School/Office Paper
Cereal/Tissue Boxes
Soda Boxes
Mail

(If you or your students do not have recycling bins, please call the SWA at 1-866-NEW-BINS (1-866-639-2467) to receive the free recycling bins.)

Many schools have recycling programs. In addition, many beaches and parks have recycling containers so that people can recycle in places other than home.

(Continued on back)

Procedure:

1. Explain how garbage is processed in Palm Beach County. (*Refer to the "Background" section.*) Emphasize that dumps were used years ago for the disposal of garbage and that landfills are currently used.
2. Reiterate that the landfill fills up quicker when recyclables are thrown into the garbage instead of placed in recycling bins for recycling.
3. Discuss the following questions:
 - What would life be like if there was no garbage collection service and each one of us was responsible for his or her garbage? What would you do with your garbage?
 - Do you believe you can make a positive difference for the environment?
 - Do you think there will be changes in the future as to how garbage is collected and managed?
 - What types of things are mainly thrown away in the school garbage?
 - What types of things are mainly thrown away at your house?
4. Emphasize that reusing and recycling garbage are effective ways to reduce the amount of garbage we generate.
5. Ask the students to brainstorm examples of the way some garbage can be reused.
6. Ask the students if they recycle at home.
7. Tell the students that you are going to give them two minutes to write as many things as they can think of that can be recycled in the yellow recycling bin at home. After the two minute time limit, find out which student had the most correct items on their list.
8. Tell the students that you want them to try it again but this time, they are going to list the items that can be placed in the blue recycling bin at home. After they have finished, check to see which student had the most correct items.
9. Divide the class into groups of five.
10. Tell each group that they must develop a television advertisement about the importance of recycling. Advise them that the target audience is teenagers. **If possible, choose the best one and arrange for the students to perform it on the school's in-house television during the morning announcements.*
11. Ask each group to perform their television commercial.
12. Review the lesson by encouraging the students to recycle at school and at home.



Middle School

Post SWA Classroom Presentation Lesson Plan

Objectives:

1. Students will gain the importance of recycling as a waste reduction method.
2. Students will select the appropriate operations to compute and solve recycling math problems.

Next-Gen Sunshine State Standards:

Science

Big Idea 17: Interdependence

B. Both human activities and natural events can have major impacts on the environment.

Reading / Language Arts

Strand: Communication

Standard 2: Listening and Speaking

The student effectively applies listening and speaking strategies.

Materials:

"Recycling Activity Sheet" (*master enclosed*) for each student

Evaluation:

Assess students' knowledge of the presented material through questioning during the presentation.

Check students' answers on the activity sheet.

Length:

60 minutes



Background

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 the natural resource, bauxite ore, is saved.

Interesting recycling facts

- It takes 17 trees to make 1 ton of paper.*
- The following is saved each time one ton of glass is recycled: 1,330 pounds of sand, 433 pounds of soda ash and 433 pounds of limestone.**
- Every ton of steel that is recycled saves 2,500 pounds of iron ore, 1,000 pounds of coal, and 40 pounds of limestone.***
- Recycling one aluminum can will save enough energy to give power to a television set for 3 hours. **

Procedure:

1. Discuss the environmental benefits of recycling.
2. Elicit responses from students as to the items that are recyclable at home in the blue recycling bin and the yellow recycling bin.
3. Review the Recycling Facts in the "Background" section.
4. Discuss non-renewable and renewable resources.
5. Distribute the "Recycling Activity Sheet" to each student and allow them time to complete it.
6. Check students' answers to the activity sheet.
7. Divide the class into groups of five.
8. Ask the students to work in their group to develop a waste reduction plan that can be implemented in the classroom.
9. Ask the groups to read their waste reduction plan for the classroom. Record the answers on the board.
10. After each group has read their plan, refer to the board and ask the students if they will work to incorporate these ideas into their habits to help reduce waste in the classroom.
11. Ask the students to write a letter to the principal to encourage him/her to incorporate waste reduction practices at the school. Tell the students to list examples of different methods that can be implemented.
12. Collect the letters and correct later.
13. Review the importance of recycling. Encourage the students to recycle at home and at school.



Recycling Activity Sheet

Name: _____ Date: _____

Directions: Choose from the words on the right to complete the sentences in the paragraph.

Recycling is good for the environment. It saves _____
_____, reduces pollution and prevents the _____ from
filling up quickly. Therefore, it is important to recycle as much as you can at
home and at school.

In your blue recycling bin at home and at school, you can recycle

_____, _____, _____, _____,
_____, _____, _____,
_____, _____, and _____.

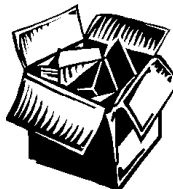
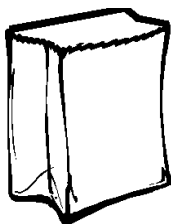
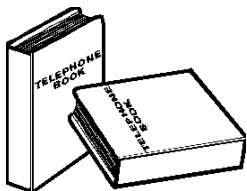
In your yellow recycling bin at home, you can recycle _____

_____, _____, _____, _____,
_____, _____, _____,
_____, _____, and _____.

Words

Environment
Catalogs
Airport
Landfill
Cardboard boxes
Plastic containers
Phone books
Glass bottles
Natural resources
Magazines
Beaches
Aluminum cans
Juice cartons
Paper bags
Newspapers
Drink boxes
Steel Cans
School Paper
Cereal Boxes

Recycling bins are located at many places. For example, you can recycle aluminum cans and plastic containers at many parks and _____. You can recycle paper and cardboard at school. And, you can even recycle newspapers at the _____. So, look for recycling containers wherever you go. By recycling, you will be helping the _____.



Complete the following math problems.

1. Ms. Milowsky's class recycles 32 aluminum cans each week. How many cans do they recycle in 12 weeks? Answer: _____
2. Alicia recycled 3,457 aluminum cans in one year. Jamel recycled 4,945 aluminum cans in one year. How many cans did Alicia and Jamel recycle all together? Answer: _____
3. Dave recycles 5 newspapers a week. How many newspapers does he recycle in a year? Answer: _____
4. Mr. Alvarez has 38 students in his class. Each week the class recycles 152 plastic soda bottles. How many plastic soda bottles are recycled per student? Answer: _____
5. The Uy family recycles 3 plastic containers each day. How many plastic containers do they recycle in one year? Answer: _____
6. Last year, Sommerville Middle School recycled 3,259 aluminum cans. This year the school recycled 5,678 aluminum cans. How many more cans did the school recycle this year than last year? Answer: _____

DIRECTIONS: Complete the sentences and find the words in the word search puzzle.

1. Recycling reduces _____.
2. Recycling saves natural _____.
3. Recycling prevents the _____ from filling up quickly.
4. Do not place plastic _____ in your recycling bins.
5. Many new products can be made from recycled _____ containers.
6. Paper towels are made from recycled _____.

Z	T	P	L	A	S	T	O	G	H	T	S
P	W	A	T	L	L	I	N	S	G	A	B
O	R	E	C	Y	C	L	E	T	P	R	A
L	K	T	R	L	L	I	F	D	N	A	L
L	A	T	J	K	N	B	V	R	O	P	D
U	M	A	G	A	Z	I	N	E	S	L	K
T	S	I	P	O	L	L	C	T	M	A	S
I	K	M	Y	J	W	A	T	R	L	S	T
O	D	N	I	B	C	N	S	I	U	T	N
N	S	E	C	R	U	O	S	E	R	I	C
X	H	Y	E	A	T	E	B	P	E	C	S



Recycling Activity Sheet

Name: Answer Sheet Date: _____

Directions: Choose from the words on the right to complete the sentences in the paragraph.

Recycling is good for the environment. It saves Natural resources, reduces pollution and prevents the Landfill from filling up quickly. Therefore, it is important to recycle as much as you can at home and at school.

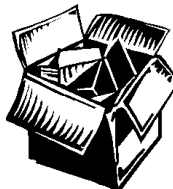
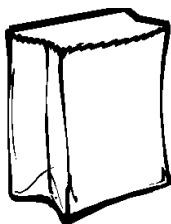
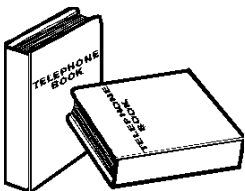
In your blue recycling bin at home and at school, you can recycle plastic containers, glass bottles, aluminum cans, juice cartons, drink cartons, and steel cans.

In your yellow recycling bin at home, you can recycle cardboard boxes, catalogs, magazines, newspapers, paper bags, phone books, school paper, and cereal boxes.

Recycling bins are located at many places. For example, you can recycle aluminum cans and plastic containers at many parks and beaches. You can recycle paper and cardboard at school. And, you can even recycle newspapers at the airport. So, look for recycling containers wherever you go. By recycling, you will be helping the environment.

Words

Environment
Catalogs
Airport
Landfill
Cardboard boxes
Plastic containers
Phone books
Glass bottles
Natural resources
Magazines
Beaches
Aluminum cans
Juice cartons
Paper bags
Newspapers
Drink boxes
Steel Cans
School Paper
Cereal Boxes



Complete the following math problems.

- Ms. Milowsky's class recycles 32 aluminum cans each week. How many cans do they recycle in 12 weeks? Answer: 384 aluminum cans
- Alicia recycled 3,457 aluminum cans in one year. Jamel recycled 4,945 aluminum cans in one year. How many cans did Alicia and Jamel recycle all together? Answer: 8,402 aluminum cans
- Dave recycles 5 newspapers a week. How many newspapers does he recycle in a year? Answer: 260 newspapers
- Mr. Alvarez has 38 students in his class. Each week the class recycles 152 plastic soda bottles. How many plastic soda bottles are recycled per student? Answer: 4 per student
- The Uy family recycles 3 plastic containers each day. How many plastic do they recycle in one year? Answer: 1,095 containers
- Last year, Sommerville Middle School recycled 3,259 aluminum cans. This year the school recycled 5,678 aluminum cans. How many more cans did the school recycle this year than last year? Answer: 2,319

DIRECTIONS: Complete the sentences and find the words in the word search puzzle.

- Recycling reduces pollution.
- Recycling saves natural resources.
- Recycling prevents the landfill from filling up quickly.
- Do not place plastic bags in your recycling bins.
- Many new products can be made from recycled plastic containers.
- Paper towels are made from recycled magazines.

Z	T	P	L	A	S	T	O	G	H	T	S
P	W	A	T	L	L	I	N	S	G	A	B
O	R	E	C	Y	C	L	E	T	P	R	A
L	K	T	R	L	L	I	F	D	N	A	L
L	A	T	J	K	N	B	V	R	O	P	D
U	M	A	G	A	Z	I	N	E	S	L	K
T	S	I	P	O	L	L	C	T	M	A	S
I	K	M	Y	J	W	A	T	R	L	S	T
O	D	N	I	B	C	N	S	I	U	T	N
N	S	E	C	R	U	O	S	E	R	I	C
X	H	Y	E	A	T	E	B	P	E	C	S