

# Decoding Recycling

## 1 OBJECTIVE

### Students will be able to:

- Identify the symbols for 'recycled content' and 'recyclable,' define the meanings of the symbols and describe the differences between the meanings
- Explain the differences between pre- and post-consumer recycled content
- Name the materials collected for recycling in their community
- Name the various raw materials used to create different products
- Identify different types of recycled content products

### Time:

30-45 minutes + Research

### Vocabulary:

- Recyclable
- Recycled
- Recycled content
- Recycling symbol
- Recycling markets
- Pre-consumer
- Post-consumer
- Upcycled

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For additional educational resources: [www.wasteinplace.org](http://www.wasteinplace.org)

**Supplies needed for this activity:**

*A range of products for illustrating recyclable and recycled content. Suggested items include:*

- Products that are recyclable and contain recycled content/material such as Pilot's B2P® pens, aluminum cans, steel food cans, glass jars and newspapers.
- Products that are recyclable and may or may not contain recycled content such as a plastic bottle, cardboard box, envelope, notebook paper, telephone book, plastic bag and magazine.
- Products that are not recyclable and contain recycled content such as certain plastic lumber, carpet and polyester fleece, a cereal box, and facial or toilet tissues.

## 2

## BACKGROUND

**The Difference Between 'Recyclable' and 'Recycled Content'**

*Products may be marked in a variety of ways with the recycling chasing arrow symbol*

The traditional recycling symbol means the product is 'recyclable.' The chasing arrows represent the three aspects of recycling;

1. *Collection* of recyclable materials,
2. *Process* materials into new goods, and
3. *Buying* products made with recycled materials.

While the Federal Trade Commission issues enforceable guidelines on how a product is labeled, the recycling logo is not regulated, nor is there a national standard on what is recycled. It is important to check with your local solid waste and recycling office to find which products and packaging are collected for recycling in your community.

- **Recyclable:** Products marked with the word 'recyclable,' or with the recycling symbol, do not indicate that the product is made of recycled material, rather that it can be used as a raw material to make something new.
- **Recycled:** Products and/or their packaging made with 'recycled content' may use the word 'recycled' or the phrase 'made of recycled materials.' The product information may also include the percentage of recycled material (pre- and/or post-consumer) included in the new product or packaging. This is most often found on paper products.

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### At left are a few examples of recycled content symbols.

1.



1. This label is the recycling symbol with a circle around it signifying it contains recycled content. The number in the center indicates how much recycled content the product contains.

2.



2. These two label examples indicate the material is made from 100% post-consumer waste. The second logo is often found on cereal and other food boxes.

3. This label located on plastic bottles provides information about how to recycle (the label on the right) as well as the recycled content of the package (the label on the left).



4. This label is used on Pilot Pen's bottle-to-pen packaging illustrating recycled content for their gel ink pens.

3.



a. Whether a product is 'recycled' or not depends upon global recycling markets.

b. Recycling markets are an excellent example of supply and demand. The good news is that today, more than ever, there is a demand for recycled materials – for example, plastic bottle makers cannot get enough supply of plastic bottles to recycle. So let's recycle more items such as paper, aluminum, and plastic to meet the growing demand for recycled materials!

c. Manufacturers won't make new products from a specific recyclable material (commodity); if there is no 'demand' to use it as a component in a new product.

4.



### The Difference Between 'Pre-consumer' and 'Post-consumer' Waste

- PRE-CONSUMER waste is generated during the manufacturing process and includes industrial scraps, trimmings and overruns. Often times this "waste" is collected and recycled back into the manufacturing process.
- POST-CONSUMER means the material has been used by a consumer who at the end of the products life, puts it in the recycling bin, it is collected, processed and used in the creation of a new product.

### Educator resources for additional background or for student research

#### Videos:

Materials Recovery Facility:

<https://www.youtube.com/watch?v=zgLW9CSvpRw&list=TLxqkVwQjzhvi9KQkQ9qMmI9E-jewHb5Ln>

Recycle Often. Recycle Right (5 minutes)

<https://www.youtube.com/watch?v=DfhOLtE4R5A>

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Bottle to Pen Video:

<http://www.pilot-b2p.eu/b2p-tv/-b2p-ball-point>

Aluminum can video:

<https://www.youtube.com/watch?v=P9UjmOHC300>

TV public service announcement (1 minute) about a bottle to a park bench:

<http://www.iwanttoberecycled.org/contribute>

**Infographics, activity guide and other facts and figures:**

EPA Solid Waste and Recycling Infographic:

<http://www.epa.gov/epawaste/nonhaz/municipal/infographic/index.htm>

America Recycles Day Toolkit and Activities:

<http://americarecyclesday.org/toolkit>

Relay Activity:

[http://americarecyclesday.org/wp-content/uploads/2012/06/Activity\\_Ready-Set-Sort1.pdf](http://americarecyclesday.org/wp-content/uploads/2012/06/Activity_Ready-Set-Sort1.pdf)

Recycling Fun Facts and additional education activities:

<http://www.wasteinplace.org/>

## 3

## ACTIVITY

**Engage:**

1. Engage: Students will collect and then examine various products to determine if they are recyclable or not through an interactive game. You will need:

a. Items to sort:

- Aluminum soda can
- Aluminum foil
- Cardboard
- Chip bag
- Cereal box
- Drink pouch
- Envelope
- Frozen dinner box and tray
- Glass bottle
- Laundry detergent bottle
- Magazine
- Office paper
- Paper cup
- Paper clip
- Paper napkin
- Pizza box
- Plastic grocery bag
- Plastic dry cleaning bag
- Plastic soda bottle
- Rubber band
- Steel food can
- Yogurt container

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- b. Other Materials:
- Recycling bin or box
  - Trash bin labeled 'Landfill'
2. Engage Students in a relay race. Divide the students into two or three teams, depending on the class size. Set the trash can ('landfill' bin) and recycling bin at the front of a large space. Give each team an equal number of items and use colored tape and a B2P® pen to make each team's set of materials. Make a start/finish line about 15 yards from the bins.
  3. Have each team line up behind the starting line, with one item in each student's hand. When the teacher says 'Go' the first student in each line will run up to the bins and place his or her item in the proper bin. Students will have to read the labels of each item carefully before selecting the appropriate bin. Then, the students will run back and tag the next person in line until all the materials have been sorted. Check to see which team had the most correctly sorted items. The team that finishes first and has the most items in the correct bin wins!
  4. Discuss with the students which items are incorrectly placed. How did they decide where to put each item? Have the students re-sort these items.
  5. After all items have been correctly sorted into the recyclable or landfill bins, have the students hypothesize which items have recycled content in them. Which items have post-consumer recycled content?
  6. Discuss what is used to make different recycled content products. For example: B2P® pens are made from recycled plastic bottles. Note that if the product did not have recycled content material, what raw material would it come from? For example: aluminum is derived from bauxite ore, paper is from trees, plastic is from petroleum or natural gas.

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**Explore:**

**Inquiry:** Collaborative Learning & Research. Stress to students that communities do not collect the same materials.

**Pose the Questions:** What materials are collected for recycling in our community and what products can be made using those materials?

1. Have students work in teams to:
  - a. List reasons to recycle
  - b. Research and discuss their local community's garbage and recycling collection
  - c. Record the materials that their community collects for recycling
  - d. Record what products can be produced using the materials collected by their community
2. If your community does not have a curbside recycling program have students research other ways your community recycles. For example: Community drop off centers, retail stores that collect plastic shopping bags.

**Explanation/Discussion. Communicate**

1. Have students present their research.
2. Discuss with students that what is recycled is dependent on
  - a. Local capabilities (technologically),
  - b. Costs to collect and sort the material, and
  - c. The markets that purchase the materials.
3. Discuss with students the difference between collecting, sorting, and recycling. In order to have a recycling program – recyclables must be collected, processed or sorted, manufactured, and ultimately sold as a new product.
4. Discuss the many benefits of recycling.
5. Discuss the life cycle of products and packaging (for example, aluminum can to a new aluminum can or a plastic bottle to ball point or gel ink pen). Highlight the importance of getting post-consumer material back into the recycling system, which displaces the use of virgin material thus conserving natural resources, and the importance of innovation to create markets that can utilize the recycled material.

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**Life cycle examples:**

The Journey from Bottle to B2P® Pen. See page 8.

Aluminum can to aluminum can. See page 9.



## 4 ELABORATION

1. Recyclable and Recycled Content:
  - a. As a group, or in teams, have students create a list of items found in their school that have recycled content or content that is recyclable and identify the symbol with which they would be marked.
  - b. Have students design “Recycled Content” and “Recyclable” symbols using their school colors.
2. Pledge:
  - a. Have students take the “I Recycle Pledge” see activity:  
[http://americarecyclesday.org/wp-content/uploads/2012/06/Activity\\_Take-the-Pledge\\_kids.pdf](http://americarecyclesday.org/wp-content/uploads/2012/06/Activity_Take-the-Pledge_kids.pdf)
  - b. Have students design a poster and hang for fellow students sign to take the “I recycle pledge.”

**Evaluate/Assessment**

1. Have students create a life cycle of a product/packaging, such as: A plastic bottle to a park bench.
2. Have students research if there are manufacturers in their community that utilize recycled content to make new products.

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AMERICANS USE  
2,500,000  
PLASTIC BOTTLES  
EVERY HOUR!  
LESS THAN 1 IN 3  
OF THOSE ARE RECYCLED.

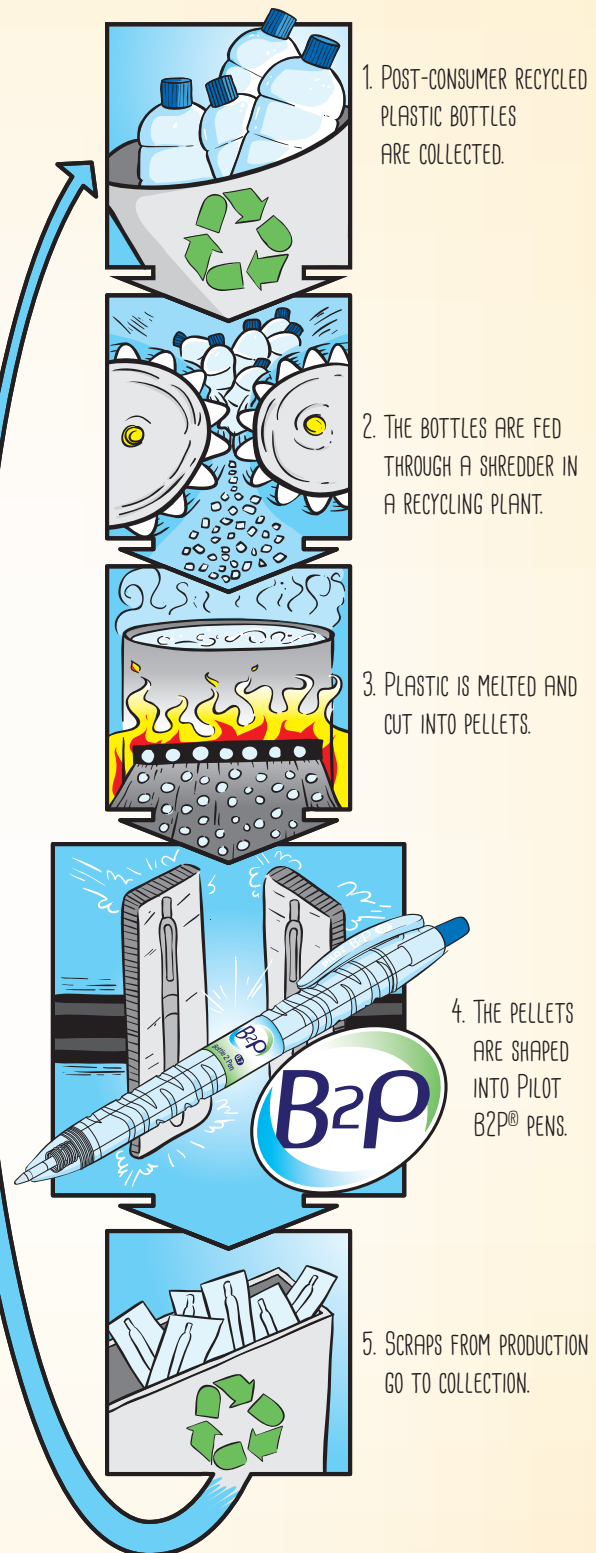
**World's First Pens  
Made From  
Recycled  
Bottles**

Pilot introduces the B2P® (from Bottle 2 Pen). This innovative new ball point pen is made from a minimum of 83% post-consumer recycled plastic bottles and offers smooth, effortless, smear-resistant writing.

THE PLASTIC FROM  
1 BOTTLE  
MAKES  
2 B2P® PENS!



HOW B2P® PENS ARE UPCYCLED:



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# Can Lifecycle



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