Close the Loop Unit Overview

Grades K-8

Grade Level(s):
K-2, 3-5, 6-8

Concepts Taught:
Recycling, sorting/grouping and matching objects , letter-writing, sentence structure, proofreading, editing, environmental issues, research skills, computer skills, group collaboration, measurement, inquiry, invention

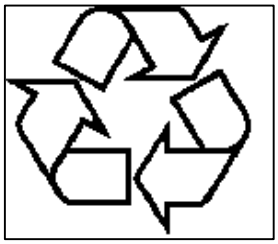
Unit Activity Time:
Lesson 1: 20 minutes (lesson), 10 minutes (follow-up)
Lesson 2 & 3: 20 minutes (lesson), 50 minutes (follow-up)
Lesson 4: 60 minutes (part 1), two-three days of 30-60 minutes (part 2)

Unit Essential Questions:
- What does "closing the loop" mean?
- What is recycled-content material?
- What are some examples of items made from recycled materials?
- How does buying recycled-content products conserve our natural resources?
- What is the friendly letter format?
- What is business style writing?

NC CORE/Essential Standards:

Kindergarten: Reading: Foundational Skills 1—3; Speaking/Listening 1, 6; Math K.MD.3; Science K.P.2.1; Soc Std K.G.2.2;
Grade 1: Speaking/Listening Std 1; Math 1.G.1; Science 1.L.1.3; Soc Std 1.G.2.1;
Grade 2: Speaking/Listening Std 1, 3, 6; Soc Std 2.G.2.1, 2.G.2.2;
Grade 3: Writing Std 1-6, 8; Speaking/Listening Std 1, 2, 4; Soc Std 3.G.1.3, 3.C&G2.2; Computer/Technology 3.TT.1.1– 3.TT.1.3;
Grade 4: Writing Std 1-8; Speaking/Listening Std 1, 4, 5; Soc Std 4.G.1.3; Computer/Technology 4.TT.1.1– 4.TT.1.3;
Grade 5: Writing Std 1-6; Speaking/Listening 1-6; Computer/Technology 5.TT.1.1– 5.TT.1.3
Grade 6: Reading for Info Text: 1-3, 5-8; Writing Std 1-9; Speaking/Listening 3,4; Computer/Technology 6.TT.1.1– 6.TT.1.3
Grade 7: Reading for Info Text 1, 3,5; Writing Std 4, 6; Computer Technology 7.TT.1.3
Grade 8: Writing Std 1,4,6,9; Speaking/Listening 4; Computer Technology 8.TT.1.3

Objectives:
- Students will recognize that recycled materials are made into new things.
- Students will match recycled content items to the recyclable materials they are made from.
- Students will explain the phrase "Buy Recycled" and recognize its importance.
- Students will write a friendly letter to someone to encourage him/her to buy recycled.
- Students will compose a business style letter to a company to persuade them to buy recycled-content products.
- Students will utilize proofreading and editing skills in preparation of a final draft letter.
- Students will investigate the properties of recycled paper versus non-recycled paper.
- Students will devise a method to test the strength of both types of paper.



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Close the Loop Overview Continued…

Materials:

Lesson 1: ***What am I Made of?*** **-**Recycled content products (cereal boxes, soda cans, aluminum foil, etc.), NEED Project book title

Trash Flipbook (optional). It can be found here online as a free download.

Lesson 2: ***Buy Recycled Friendly Letter Writing*** -Friendly letter example transparencies, Reusable stationery, grading rubric (included), Examples of packaging (e.g. cereal box, chip bag, candy wrapper)

Lesson 3: ***Buy Recycled Business Letter Writing***—Business letter example, Editing mark handout, Grading rubric, Examples of packaging (e.g. cereal box, chip bag, candy wrapper)

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Lesson 1: What Am I Made Of?

Grade Level:
K-2

Concepts Taught:
Recycling, sorting/grouping/ matching objects

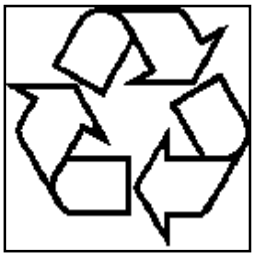
Activity Time(s):
20 minutes (lesson), 10 minutes (follow-up)

Essential Questions:

- What new items are made from recycling paper, plastic, and soda cans?

NC CORE/Essential Standards:
Kindergarten: Reading: Foundational Skills 1—3; Speaking/ Listening 1, 6; Math K.MD.3; Science K.P.2.1; Soc Std K.G.2.2;
Grade 1: Science 1.L.1.3; Soc Std 1.G.2.1; Speaking/Listening Std 1; Math 1.G.1;
Grade 2: Speaking/Listening Std 1, 3, 6; Soc Std 2.G.2.1, 2.G.2.2;

Materials:
Recycled content products (cereal boxes, soda cans, etc.)
NEED Project book Trash Flipbook (optional) Download online at http://www.need.org/node/67



Objectives:
- Students will recognize that recycled materials are made into new things.
- Students will match recycled content items to the recyclable materials they are made from

Procedure:
When we recycle materials, they are used again to be made into new products. Use the NEED Project's Trash Flip Book to discuss with students how items we recycle are used to make new things.

1. Show the students recycled content products along with the materials used to make them. For example, explain that recycled cereal boxes are made from old boxes and paper that people have recycled, showing the three-arrow recycling logo and message that says that the box is made from recycled materials. Repeat for the other items that can be found easily at home or school:

Bathroom tissue made from recycled paper
Cracker or cake boxes made from recycled paper/chipboard
Sticky notes made from recycled paper
Pencils made from recycled paper
Fleece made from recycled plastic bottles
Steel food cans made from recycled steel

2. Continue to show the items to the students, allowing them to pass the items around to find the three-arrow recycling symbol. Include some items that do not have the symbol and allow students to discuss how that product could possibly be made from recycled materials.

3. Use the matching worksheet for students to independently match an item that can be recycled to its final recycled-content product. The sheets may be laminated and marked on with crayon and wiped clean with tissues or other soft paper such as scraps of construction paper and reused. Students may exchange cards and check each other's answers.

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Lesson 1: What Am I Made Of? Continued...

Extensions/Modifications:

Students can participate in a scavenger hunt to look for items that contain recycled content.

Students can look at home, school, stores, or in catalogs for items that have the three-arrow recycling symbol or labels that indicate the product is made from recycled content.

They can collect items from home and bring them in or make a list of the things they found, or cut out pictures of the symbol or label. Students can exchange items or lists, and discuss how the items could be used at home or school.

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Name_____

What Am I Made Of?

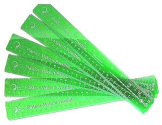
Draw a line from the pictures on the left to what it is made of on the right.

Classroom Bin

Soda Can

Pencil

Toilet Paper



Rulers

Newspaper

Foil

Aluminum Can

Paper

Plastic Bottle

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Close the Loop

Name__**ANSWER KEY**_____

What Am I Made Of?

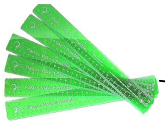
Draw a line from the pictures on the left to what it is made of on the right.

Classroom Bin

Soda Can

Pencil

Toilet Paper



Rulers

Newspaper

Foil

Aluminum Can

Paper

Plastic Bottle

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Lesson 2: Buy Recycled Friendly Letters

Grade Level:
3-5

Concepts Taught:
Letter-writing, sentence structure

Activity Time(s):
20 minutes (lesson), 50 minutes (follow-up)

Essential Questions:

- What does "buy recycled" mean?
- What is the friendly letter format?
- How do I know something was made from a recycled material?

NC CORE/Essential Standards:
Grade 3: Writing Std 1-6, 8; Speaking/Listening Std 1, 2, 4; Soc Std 3.G.1.3, 3.C&G2.2; Computer/Technology 3.TT.1– 3.TT.3;
Grade 4: Writing Std 1-8; Speaking/Listening Std 1, 4, 5; Soc Std 4.G.1.3; Computer/Technology 4.TT.1– 4.TT.3;
Grade 5: Writing Std 1-6; Speaking/Listening 1-6;

Materials:
Friendly letter sample transparencies
Friendly Letter template (included
Reusable stationery
Grading rubric (included)
Examples of packaging

Objectives:

- Students will understand the phrase "Buy Recycled" and realize its importance.

- Students will write a friendly letter to persuade another person to buy recycled.

- Students will utilize proofreading and editing skills in preparation of a final draft letter.

Procedure:
1. Review or teach the friendly letter format of writing. Remind students what the three-arrow recycling symbol means and why it is important to close the loop and buy recycled.

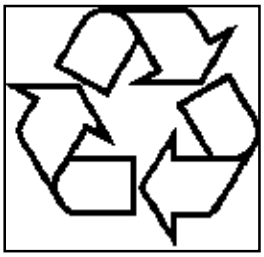
1. Show students examples of the three-arrow recycling symbol on packaging (cereal boxes, cracker boxes, and similar boxes are usually good examples).

2. Ask students what they think a "pen pal" is and if they have ever had a pen pal. Explain to students that they will write a letter to a friend telling them why buying recycled is important. Remind students that they should ask questions in the letter so that the person receiving it will have something to respond to.

3. Brainstorm ideas to write about and write them on the board. Ideas could include reasons why buying recycled is important, explaining the phrase "close the loop," and giving examples of recycled content products. Brainstorm and record questions that might be included in the letter.

4. Review the format of a friendly letter using the friendly letter template included in this kit. A sample letter is also provided.

5. Have students write a rough draft of their letter. Students should then exchange letters with a partner and proofread each other's work. Instruct students to write their revised letters on final stationery.



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Close the Loop

_____

_____,
(Greeting)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____,
(Closing)

_____

Close the Loop

Friendly letter template

__Date_____

__Greeting_____,

Body_____

_____

_____

_____

_____

_____

_____

Body_____

_____

_____

__Closing_____,

__Signature_____

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Close the Loop

Tuesday, April 12, 2010

Dear Susan,

I hope you are doing well! I learned some really cool information at school today! Do you know how important it is to buy recycled products? Well, let me tell you, it's really important! When you buy recycled products it saves natural resources like trees and land. You can tell if the product is made with recycled material by looking for the three-arrow symbol and reading words that say the product is made with recycled materials. Buying recycled products also saves energy because it takes less energy to make something using recycled materials than it does to use new materials to make it.

I was amazed at how many products can be made from recycled materials. Some of these products are notebook paper, pencils, toys and even t-shirts. I think we should plan to go shopping this summer and buy some recycled products. What do you think? I will be out of school on June 1. Write back soon.

Your friend,

Charlie

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Grading Rubric

CATEGORY	4	3	2	1
Layout/Design	The letter is creatively designed with easily read text. Grammar, style, and purpose are excellent for a friendly letter.	The letter is eye-catching and attractive. Text is easy to read. Grammar, style, and punctuation is indicative of a friendly letter.	Letter appears messy. Text may be difficult to read. May have some grammar and/or punctuation that indicates it is a friendly letter.	Letter is inappropriate. Text is difficult to read. It does not have proper grammar or punctuation for a friendly letter.
Use of Time	Used time well during each class period (as shown by observation by teacher) with no adult reminders.	Used time well during most class periods (as shown by observation by teacher) with no adult reminders.	Used time well (as shown by observation by teacher), but required adult reminders on one or more occasions.	Used time poorly (as shown by observation by teacher) in spite of several adult reminders.
Spelling & Grammar	No spelling or grammatical mistakes within the letter.	Few spelling or grammatical mistakes within the letter.	Several spelling or grammatical errors within the letter.	Many spelling and/or grammatical errors within the letter.
Content	All content is in the student's own words and is accurate and creative.	Most content is in the student's own words and is accurate and interesting to read.	At least half of the content is in the student's own words, but information is limited.	Less than half the content is in the student's own words and/or is poorly written or incomplete.
Required Elements	Letter is complete with all required elements.	One friendly letter element is missing.	Two friendly letter elements are missing.	Three or more friendly letter elements are missing.
Cooperation	Worked cooperatively with partner all the time with no need for adult intervention.	Worked cooperatively with partner most of time but had a few problems that the team resolved themselves.	Worked cooperatively with partner most of the time, but needed limited adult intervention.	Worked cooperatively with partners some of the time, but needed frequent adult intervention.

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Lesson 3: Buy Recycled Business Letters

Grade Level:
6-8

Concepts Taught:
Letter-writing, sentence structure, proofreading and editing

Activity Time(s):
20 minutes (lesson), 50 minutes (follow-up)

Essential Questions:

- What does the phrase "buy recycled" mean?
- What does it mean to "close the loop?"
- How is a business letter written?
- How is a business letter different from friendly-letter format?

NC CORE/Essential Standards:
Grade 6: Reading for Info Text: 1-3, 5-8; Writing Std 1-9; Speaking/Listening 3,4; Computer/Technology TT.1.1– 6. TT.1.3;
Grade 7: Reading for Info Text 1, 3,5; Writing Std 4, 6; Computer Technology 7.TT.1.3
Grade 8: Writing Std 1,4,6,9; Speaking/Listening 4; Computer Technology 8.TT.1.3

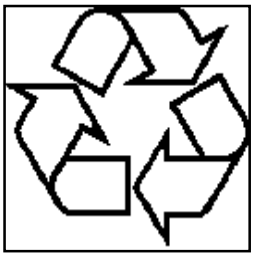
Materials:
Business letter example (included)
Editing mark handout (included)
Grading rubric (included)
Examples of packaging

Objectives:

- Students will understand the phrase "Buy Recycled" and realize its importance.
- Students will write a business letter to persuade a business or organization to buy recycled.
- Students will utilize proofreading and editing skills in preparation of a final draft letter.

Procedure:

1. Review the Teacher Background Section on closing the loop.
2. Review or teach business letter writing format. Review different letter formats such as the friendly letter form.
3. Remind students what the three-arrow recycling symbol means and why it is important to close the loop and buy recycled.
4. Show students examples of the three-arrow recycling symbol or label on packaging and products.
5. Explain to students that they will write a persuasive letter to a business or organization asking them to buy and use recycled content products. Brainstorm names of businesses and ideas to write about and map them on the board. Ideas could include reasons why buying recycled is important, thinking of examples of recycled content products applicable to a particular business or organization, and explaining the phrase "close the loop."
6. Review the format of a business letter using the provided template. Remind students that they must maintain a professional tone throughout the letter, while still sounding persuasive and passionate about the topic. Students should explain why they are writing and express their feelings toward buying recycled, as well as give opinions and suggestions for implementation at the business. Letters should end on a positive note, with students thanking the organization for their attention. (A sample business letter is provided).



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Lesson 3: Buy Recycled Business Letters Continued...

6. Review commonly used editing marks on the provided handout and explain to students that they will use these marks to edit another student's letter.
7. Have students write a rough draft of their letter. Students should then exchange letters with a partner and proofread each other's work using appropriate editing marks.
8. Instruct students to write their revised letters on final stationery. Letters can be typed, printed, and edited using computers.
9. Letters can be typed, printed, and edited using computers. Letters could be sent to the PTA or principal of the school, to the Wake County Public School System, the school board, or a parent's place of work. Students can also use the Internet to research companies that sell recycled content products and list those companies in their letters.

Extensions/Modifications:

Students can use the Internet to research the economic and environmental issues associated with products made from recycled content and virgin material. Books are also useful but may be outdated in terms of correct data.

Useful Internet sites:

http://www.ciwmb.ca.gov/Schools/WasteReduce/Purchasing/

http://www.mass.gov/epp/info/whyepp.htm

http://www.buyrecycled.com/facts.htm

http://www.nrc-recycle.org/americarecycles.aspx

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Business Letter Template

Your street address

Your city, state, and zip

Date

-----Leave one blank line------

First and last name of the person to whom you are writing

Their street address

Their city, state, zip

-----Leave one blank line-----

Dear Mr./Mrs./Ms./Miss first and last name:

-----Leave one blank line-----

The text will be typed here. Business letters typically are not indented. You should maintain a professional tone throughout the letter, while still sounding persuasive and passionate about the topic. Explain why you are writing to this business and why you chose to write to them. Express your feelings toward buying recycled and why you think it is important for individuals and businesses to buy recycled.

-----Leave one blank line between each paragraph-----

Your second paragraph should offer assistance in some way. You could give opinions and suggestions for how the business could use recycled content products, or list examples of products that company could use. End on a positive note by thanking the company for their time.

-----Leave one blank line-----

Sincerely,

Your signature

If your letter is typed, leave three blank lines between the closing and your typed name. This space will be where you sign your name.**

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Close the Loop

112 Elm Street

Anytown, NC 27987

May 2, 2005

Mr. David Smith

4378 Main Street

Anytown, NC 27897

Dear Mr. Smith:

Our seventh grade environmental education class recently had a speaker talk about recycling and buying recycled products. It is important to buy products with recycled material so that the recycling cycle works. I'd like to see our school begin buying recycled products for our students and staff.

Some of the products that we use in our school that could be made from recycled products include notebook paper, pencils, rulers, bleachers, bathroom tissue and playground equipment. You can be sure that you are purchasing materials made from recycled products if you see the three arrow recycling symbol or the company indicates on the product that it is made from recycled materials. I think we could save trees and energy and reduce the amount of trash our schools produce if we make a commitment to buy recycled products. I do hope you will give this idea some serious consideration. Thank you for your time and please contact me if I can help you get this project underway.

Sincerely,

Mary Jones

Mary Jones

Close the Loop

Editing Marks:	Examples:
Add a word or words	^
Omit a word or words	
Add a period	
Add a comma	
Start new paragraph	¶
Correct the spelling	sp
Make a capital letter	≡
Close space	
Add space	|
Take out word	—
Transpose words	

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Grading Rubric

CATEGORY	4	3	2	1
Writing Process	Work shows evidence of all stages of the writing process: prewriting, drafting, revising, editing, and publishing.	Work shows evidence of some stages of the writing process: prewriting, drafting, revising, editing, and publishing.	Work shows evidence of few stages of the writing process: prewriting, drafting, revising, editing, and publishing.	Work shows little or no evidence that the writing process was used.
Neatness	The final draft of the letter is readable, clean, neat and attractive. It is free of erasures and crossed-out words.	The final draft of the letter is readable, neat and attractive. It may have one or two erasures and/or crossed out words, but they are not distracting.	The final draft of the letter is readable and may have several erasures and/or crossed out words, but they are not distracting.	The final draft is not neat or attractive.
Organization	The letter is very well organized. One statement follows another in a logical sequence with	The letter is fairly well organized. One statement may seem out of place. Clear transitions	The letter is difficult to follow. The statements and transitions are sometimes not clear.	Ideas and statements seem to be randomly arranged.
Spelling and Punctuation	There are no spelling or punctuation errors in the final draft. Businesses and names are spelled consistently throughout.	There are few spelling or punctuation error in the final draft.	There are several spelling and punctuation errors in the final draft.	The final draft has many spelling and punctuation errors.
Purpose and Audience	Demonstrates a clear understanding of purpose and audience. The student uses specific vocabulary to provide a persuasive tone.	Demonstrates a general understanding of purpose and audience. The student uses a persuasive tone.	Demonstrates little understanding of purpose and audience. The student uses a somewhat persuasive tone.	Demonstrates no understanding of purpose and audience. The student lacks use of a persuasive tone.
Point of View and Sentence Structure	Maintains consistent point of view and organization. Uses a variety of sentence types.	Maintains a mostly consistent point of view with a variety of sentence types.	Maintains inconsistent point of view with little variety in sentence types.	Lacks a clear point of view with no sentence variety.
Requirements	All of the written requirements were met. Format is indicative of a business letter	Almost all (about 90%) the written requirements were met. Format is indicative of a business letter	Most (about 75%) of the written requirements were met, but several were not. Format is somewhat indicative of a business letter.	Many requirements were not met. Format is not indicative of a business letter.

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Lesson 4: Strong and Mighty Paper

Grade Level:
6-8

Concepts Taught:
Reduce, reuse, recycle; material origins and end-uses; inquiry

Activity Time(s):
Part 1: 30-45 minutes
Part 2: 45-60 minutes

Essential Questions:

- How can a material such as paper be tested for quality?
- What is tensile strength?
- Is there a difference in quality between regular paper and paper made from recycled-content?
- What is the difference between pre-consumer and post -consumer recycled content?
- How are different recycling messages or symbols used on consumer products?

NC CORE/Essential Standards:
Grade 6: Math 6.NS.3, 6.SP.1, 6.EE.9; Visual Arts 6.V.2, 6.V.3

Grade 7: Math 7.NS.2, 7.NS.2.d, Soc Studies 7.G.1.1, 7.G.1.3; Visual Arts 7.V.2, 7.V.3;

Grade 8: Math 8.G.0; Visual Arts 8.V.2. 8.V.3;

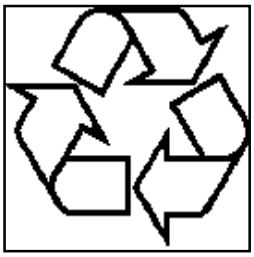
Objectives:
- Students will work collaboratively to hypothesize and investigate paper products made from raw materials versus recycled-content materials
- Students will recognize how recycling labels are commonly found on packaging
- Students will design and demonstrate an experiment that compares a recycled-content item with a non-recycled content item.
- Explain how the product can be reused or recycled instead of wasted.

Materials:
1 roll of regular non-recycled paper towels
1 roll of recycled paper towels
1 roll regular toilet paper
1 roll recycled toilet paper
(Note: make sure both types of towels and toilet paper are of the same thickness- one or two-ply and about the same size and weight)
paper masking tape, small bowl for water, small empty collection container
microscopes
balance or weight scale
graduated cylinders
Approx 100 metal washers, pennies or other object of the same size to use as weight
Science journal or data sheets
Station direction cards (included with this lesson)

Procedure:
Teacher Note: depending on how many microscopes are available small groups or pairs can be created for lesson one.

Teacher Prep:

1. Review the Teacher Background Section.
2. Save the information about length, weight, ply, etc. from the box or wrapper of the paper towels and toilet paper. Tear off 1-2 sheets of each type of paper towels for each group.



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Close the Loop

2. Mark the recycled-content paper towel with a small ink dot in the corner so you know which one is recycled and which one isn't. ***Do not tell students what the dot represents!

3. Repeat steps 1 and 2 for the toilet paper tearing a strip of about five squares worth. Keep a few extra prepared sets of paper towels and toilet paper on hand for the investigation.

Part 1:

Before doing the investigation ask students to imagine that they are working for a Consumer Reports® Testing lab and have to decide which type of paper towel—recycled or non-recycled– is better quality. ***Ask: how can I tell that something was made from recycled paper?*** (The recycling symbol and an explanation of the percent of recycled content will be on the package). ***If it has the recycling symbol on the package does that mean it's made from recycled materials?*** (no. It may be telling us that we can recycle it after we've used the item). Continue to ask leading questions until someone suggests that paper can be tested for strength, weight, and absorption. Student pairs or groups will make a hypothesis of the differences between non-recycled and recycled paper products. *Are the weights different? Do they absorb the same amount of water? Are they the same thickness?*

**Have students write their hypothesis down in a science journal or other data collection sheet.

Station Set-up: Arrange 3 areas as stations for the following investigations. Make copies of the following station direction cards (at the end of this lesson).

Station A. Observations & Weight–

Materials needed: 1 recycled and non-recycled piece of paper towel and toilet paper; balance or scale

* Have students observe and record the color, texture, and thickness of each type of paper.
* Weigh a sheet of paper towel and a 5-square sheet of toilet paper using a scale or balance.
* Weigh both recycled and non-recycled types. Record on log sheet or in notebook.

Station B. Absorption –

Materials needed: 1 recycled and 1 non-recycled piece of paper towel and toilet paper; small bowl with water, small empty collection bowl; graduated cylinder or measuring cup

* Have students place one piece of paper towel into a container of water allowing it to absorb.
* Carefully take it out, letting the water drip back into the container.
* Once the dripping has stopped, squeeze the paper towel into a graduated cylinder and record the amount of water that the towel held. *Repeat the process* for the 5-square sheet of toilet paper.
* Record on log sheet or in notebook.

Station C. Strength –

Materials needed: 1 recycled and 1 non-recycled piece of paper towel and toilet paper; paper tape; 100 metal washers or other heavy object

* Have students place a piece of paper towel between two desks or other hard surface and secure

ends with a piece of masking tape. Make sure the paper is stretched tightly with no breaks in the paper towel.

* Using pennies, washers, or other metal item place them one at a time on top of the paper towel until it breaks.

* Count the number of pennies (or other object) it could hold and record.

* *Repeat the same steps* for the toilet paper.

Part 2: Understanding recycling symbols & labels on packaging

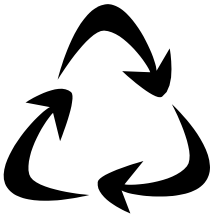
1. Have several students bring in a piece of packaging that has the recycling symbol on it. Try to get a variety of items such as a cereal box, cracker box, aluminum can, plastic bottle, wrappers, etc.

2. Working in a group or team have them separate differing labels. Discuss the differences in meaning among several labels that are used. For example, the label "Please Recycle" does not indicate that the item was made with recyclable materials. It is only a reminder to recycle it.

How is this different from all of the other labels?

CARTON MADE FROM 100%
RECYCLED PAPERBOARD

MINIMUM 35% POST-CONSUMER CONTENT



PLEASE

RECYCLE

3. Discuss the difference between *pre-consumer and post-consumer*. **Pre-consumer** content is scraps of material that come from factory leftovers or materials that never make it into consumer hands. **Post-consumer** content is the content from an item that an actual person used before it was recycled.

4. Have students draw their own recycling label that provides just enough information for the consumer while making it usable by anyone, including other countries. Labels should have at least one picture and some kind of text. Labels can represent any kind of material (e.g. plastic, steel, etc.)

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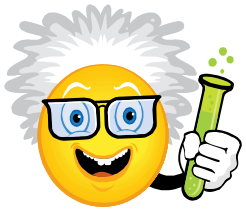
STATION A: Observations & Weight



Materials:

1 piece of regular paper towel

1 piece of recycled-content paper towel

1 segment of regular toilet paper

1 segment of recycled-content toilet paper

1 weight scale or balance

Data sheet or log book for your notes

Task:

1. Observe and record similarities and differences between the two types of paper towels and the two types of toilet paper. (You do not need to know which pieces are made from recycled paper right now)

Be as specific and detailed as possible.

2. Find the weight of each paper towel and each segment of toilet paper separately. Record the weights.

3. After weighing each paper type make further observations based on the data that you've collected. *Did weighing the paper towels and toilet paper help you determine which is made from recycled-content paper?*

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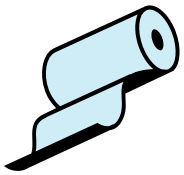
STATION B: Absorption



Materials:

1 piece of regular paper towel *

1 piece of recycled-content paper towel*

1 segment of regular toilet paper (about 5 squares)*

1 segment of recycled-content toilet paper (about 5 squares)*

2 small bowls

water

graduated cylinder (or a measuring cup)

*You do not need to know which one is recycled paper

Task:

1. Carefully place one piece of paper towel in a bowl with water until completely wet.
2. Carefully lift up the paper towel without squeezing and allow the excess water to drip back into the bowl.
3. After the dripping has slowed or stopped squeeze the remaining water into the graduated cylinder or measuring cup.
4. Record the amount on your data sheet or log book.
5. Repeat steps 1-4 with each separate paper type and record on your sheet.
6. *Were you able to discover yet which paper towel and which piece of toilet paper was made from recycled-content material?*

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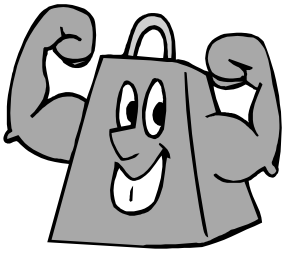
STATION C: Tensile Strength



Materials:

1 piece of regular paper towel *

1 piece of recycled-content paper towel*

1 segment of regular toilet paper (about 5 squares)*

1 segment of recycled-content toilet paper (about 5 squares)*

Paper tape

100 metal objects that are the same (pennies, washers, etc.)

Data sheet or log book

*You do not need to know which one is recycled paper

Task:

1. Place one sheet of paper towel between 2 desks or other hard surfaces and carefully pull it tight, securing with tape.
2. Using the metal objects at the station, place one object at a time in the center of the paper towel.
3. Continue adding more weight one piece at-a-time until it breaks.
4. How many pennies or metal objects did it take before the paper towel broke? Record your information
5. Repeat steps 1-4 with the other paper towel and the two types of toilet paper. Record your information.
6. *Were you able to discover which paper towel and toilet paper were made from recycled material?*

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Close the Loop

Extensions/Modifications:

Write a research paper on the origins and uses of paper and how we use it today. Why do we still need paper in society?

Hold a class debate with one side representing a paper mill business and the other representing a group trying to preserve forests.

Visit a local paper mill company (if available) or make your own paper in class.

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