

Oakland Schools Curriculum Unit Plan
Third Grade: Structure and Function

Unit C: Reduce, Reuse, and Recycle

Big Picture Graphic

Overarching Question: <p style="text-align: center;">What is the impact of non-renewable resources?</p>		
Previous Unit: <p style="text-align: center;">Using Natural Resources</p>	This Unit: <p style="text-align: center;">Reduce, Reuse, and Recycle</p>	Next Unit: <p style="text-align: center;">Forces and Motion</p>
<pre> graph TD A[renewable and non-renewable resources] -- "is about" --> B(()) B -- "that explores the" --> C(helpful or harmful effects of humans on the environment) B -- "that can be grouped into" --> D(materials that can be reused or recycled) </pre>		
Questions to Focus Assessment and Instruction: <ol style="list-style-type: none"> 1. What is trash? 2. What are renewable and non-renewable resources? 3. What are the 4 R's and why are they important? 		Intellectual Processes: Cause and Effect Issue Analysis Researching

Unit Abstract

This earth science unit focuses on what students can do within their homes and school to create habits regarding recycling. They begin with classification of renewable (i.e., fresh water, farmland, forests) and non-renewable (i.e., fossil fuels, metals) resources. Students begin to explore the helpful and harmful effects that humans have on the environment, such as habitat destruction and land management. They discover various ways that they can protect, extend, and restore various resources – recycle, reuse, reduce, and renewal. Students learn what trash is, the effects of littering, and inappropriate waste disposal. They classify litter according to material type, such as paper, plastic, metal, and glass and recognize that it can be recycled. Students explore what happens to trash after it leaves their home or school and are introduced to the purpose of landfills.

Grade Level Content Expectations

Students will:

- classify renewable (fresh water, fertile soil, forests) and non-renewable (fuels, metals) resources (E.ES.03.42).
- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal) (E.ES.03.43).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).
- recognize that paper, metal, glass, and some plastics can be recycled (E.ES.03.44).
- share ideas about recycling through purposeful conservation in collaborative groups (S.IA.03.12).
- identify current problems regarding renewable and non-renewable resources that may be solved through the use of technology (S.RS.03.17).
- use evidence when communicating ideas about how to recycle within your school or home (S.RS.03.15).

Key Concepts

habitat destruction

litter/trash

recycle

reduce

renewable/non-renewable resource

renewal

reuse

Duration: 4 – 6 weeks

Supplemental Materials

The Oakland Schools Curriculum
scope.oakland.k12.mi.us

SCoPE Lesson 1
SCoPE Lesson 2
SCoPE Lesson 3
SCoPE Lesson 4
SCoPE Lesson 5
SCoPE Lesson 6
SCoPE Lesson 7
SCoPE Lesson 8
SCoPE Lesson 9
SCoPE Lesson 10

Recommended (not required) Instructional Resources

Student Resource

Hewitt, Sally. *Reduce and Reuse (Green Team)*. New York: Crabtree Publishing, 2008.

---. *Waste and Recycling (Green Team)*. New York: Crabtree Publishing, 2008.

---. *Your Local Environment (Green Team)*. New York: Crabtree Publishing, 2008.

Robinson, Fay. *Recycle That*. Danbury, CT: Grolier Publications, 1995.

Suid, Annalisa. *Learn to Recycle*. Palo Alto, CA: Monday Morning Press, 1993.

Williams, Rozanne, and Neena Chawla. *Reduce, Reuse, Recycle*. Fresno, CA: Creative Teaching Press, 1995.

Teacher Resource

Garbage 1: The Roots of Trash. 2006. AAAS – Science NetLinks. 11 February 2008
<<http://www.sciencenetlinks.com/lessons.cfm?Grade=3-5&BenchmarkID=8&DocID=384>>.

Garbage 2: Recycling. 2006. AAAS – Science NetLinks. 11 February 2008
<<http://www.sciencenetlinks.com/lessons.cfm?Grade=3-5&BenchmarkID=8&DocID=386>>.

Michigan Department of Natural Resources, Waste Management Division, and the Michigan Department of Education. *Project Wise*. Lansing, MI: Michigan United Conservation Clubs, 1996.

Sample Performance Assessments

1. Illustrate the “life” of a piece of trash (E.ES.03.52).
2. Given a grouping of resources, work in small groups to classify as renewable or non-renewable (E.ES.03.42, S.IA.03.12).
3. Choose a piece of trash and explain ways in which it could be reduced, recycled, or reused (E.ES.03.43, E.ES.03.44, S.RS.03.15).
4. Give examples of ways in which the school is being wasteful, explain how one of these examples could effect the natural environment, and provide at least one solution to help alleviate the waste (E.ES.03.42, E.ES.03.52, S.RS.03.17, S.RS.03.15).

Connections

Mathematics

While studying recycling students can measure the amounts of various types of trash discarded by the school.

Social Studies

While studying recycling, students can connect to the concept of social responsibility.

Unit 6: Reduce, Reuse, and Recycle Teacher Background

Content and Methods

Recycling is a method through which a consumer society saves resources and minimizes the space needed for disposal. While most communities only recycle paper, plastic, metal, and glass, there are many other opportunities for young people to practice the habits of conservation. Batteries, computers, cell phones, and televisions should be recycled because they can release toxic chemicals and contain rare metals. Paper can be reused, and consumers can demand simpler packaging on their products. There are many examples of recycling in a child's world.

This unit concentrates on the science process skills of observation and classification. They can be encouraged to describe their observations in words and pictures, and classify the waste products they produce. When students investigate the recycling of plastics, they can also learn to identify symbols on product labels. Helping them identify symbols for dangerous chemicals is an added benefit.

Advanced Preparation

1. Schedule a field trip to a recycling center or invite a representative to present at the school.
2. Arrange for a visit by the school/district custodian to discuss school waste and recycling plans already in place.
3. Invite the principal to the classroom to present him/her with possible school-wide recycling plans.
4. Send a letter requesting several recycled or reusable items.
5. Send a letter requesting a plain white T-shirt for each child. Or if this is not a possibility you may have to purchase them.

Safety Precautions

Discuss picking up litter (broken glass, unsafe objects, etc.) with the children. Another safety precaution is how to handle plastic bags (not on head, around mouth, or nose, etc.) Let parents know you are doing this unit, since a child might decide to go through trash at home.

Teaching Resources

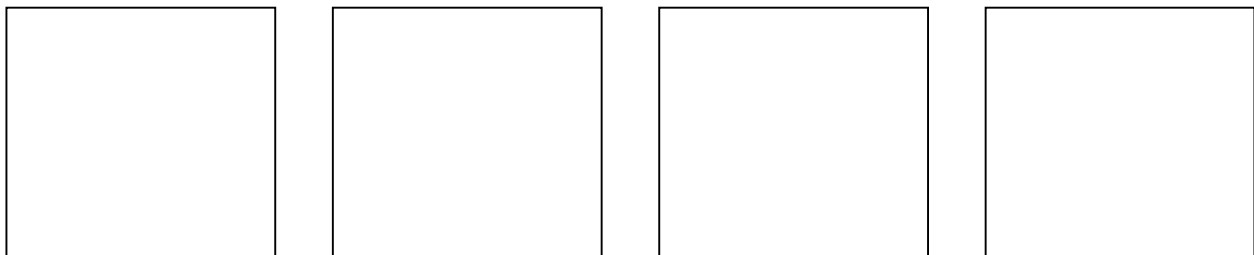
Make two large charts similar to the one shown here. Use one chart after reading the book, *Brother Eagle, Sister Sky*, and the other after taking a walk around the school grounds.

Natural Resource	Manufactured Material

<u>What Is Pollution?</u>		
Land	Air	Water

Clean Earth	Polluted Earth

The Lifecycle of a Piece Of Trash



Types of Waste

Glass	Paper	Plastic	Metal	Wood	Food

Recycling

Paper	Plastic	Glass	Metal

Packaging

	Small Amount of Packaging	Large Amount of Packaging
Cookie A # of cookies _____		
Cookie B # of cookies _____		
Cookie C # of cookies _____		

School Waste

Reduce	Recycle	Reuse

Send a letter home to parents requesting various reusable items. A letter similar to this needs to be sent home several days or weeks prior to doing this lesson.

Dear Family,

Our class is beginning an exciting science unit on reducing, reusing and recycling. As a part of this unit, we will need many “trash” items. If you can send any of these items to school with your child, we would greatly appreciate it. All items must be cleaned prior to sending to school. Thank you for your cooperation on this matter.

pizza boxes	milk cartons or jugs
egg cartons	cardboard tubes
Styrofoam meat trays	Kleenex boxes
shoe boxes	2-liter plastic bottles
margarine tubs	plastic soap dispensers
film canisters	yogurt containers
magazines	plastic laundry containers
brown paper bags (large and small)	

Our study of reducing, reusing, and recycling will be fun and exciting for everyone. Thank you in advance for being a part of your child’s learning experience.



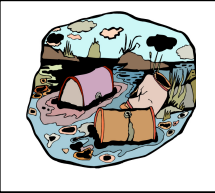
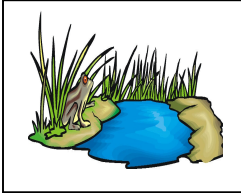

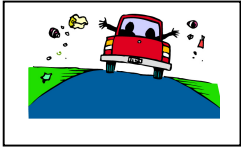
Sincerely,

*Kids Taking Care
Of The Earth*

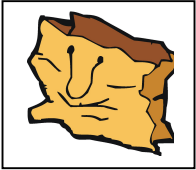



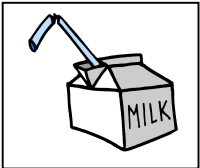
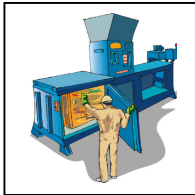


Being Wise	Being Wasteful

Word Cards

<p style="text-align: center;">1 natural resource</p> <p>A material that is naturally part of the earth.</p>  <p>Example: The tree is a natural resource.</p>	<p style="text-align: center;">2 manufactured material</p> <p>A material that is made by people or machines.</p>  <p>Example: The pencil is a manufactured material.</p>
<p style="text-align: center;">3 pollution</p> <p>Harmful substances put into the land, air, or water.</p>  <p>Example: There is a lot of pollution in the water.</p>	<p style="text-align: center;">4 environment</p> <p>Everything that surrounds a living thing.</p>  <p>Example: The pond is the environment for a frog.</p>
<p style="text-align: center;">5 trash</p> <p>Anything that is thrown away.</p>  <p>Example: The garbage can is full of trash.</p>	<p style="text-align: center;">6 litter</p> <p>Trash that has been thrown on the ground or floor.</p>  <p>Example: People should not throw litter on the ground.</p>

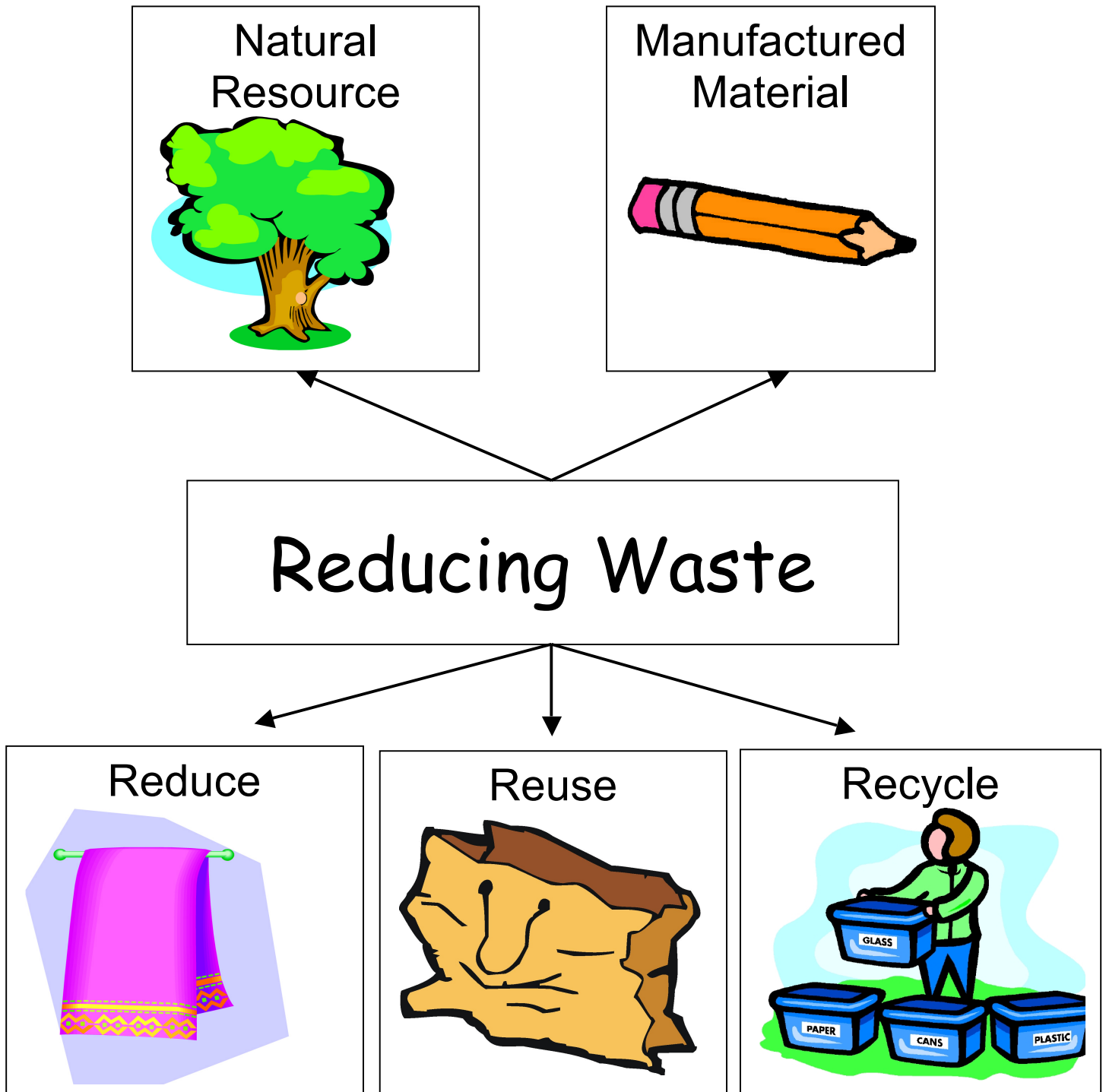
<p style="text-align: center;">7 landfill</p> <p>Land where garbage is dumped and covered with dirt.</p>  <p>Example: The landfill is full of garbage.</p>	<p style="text-align: center;">8 garbage</p> <p>Anything that is thrown away.</p>  <p>Example: The garbage can is full of garbage.</p>
<p style="text-align: center;">9 waste</p> <p>Anything that is thrown away.</p>  <p>Example: The waste is put into the garbage truck.</p>	<p style="text-align: center;">10 reduce</p> <p>To make less of something.</p>  <p>Example: Use a cloth towel instead of a paper towel to reduce waste</p>
<p style="text-align: center;">11 plastic</p> <p>A substance made from artificial material.</p>  <p>Example: The bottle is made of plastic.</p>	<p style="text-align: center;">12 metal</p> <p>A material such as gold, silver, or aluminum.</p>  <p>Example: The can is made of metal.</p>

<p style="text-align: center;">13 reuse</p> <p>To use for something else.</p>  <p>Example: People can reuse grocery bags.</p>	<p style="text-align: center;">14 recycle</p> <p>To put through a process that allows used things to be reused.</p>  <p>Example: People should recycle plastic bottles.</p>
<p style="text-align: center;">15 symbol</p> <p>An object or picture that represents something else.</p>  <p>Example: The symbol reminds people to recycle.</p>	<p style="text-align: center;">16 responsibility</p> <p>Something people are expected to do.</p>  <p>Example: It is everyone's responsibility to recycle.</p>
<p style="text-align: center;">17 packaging</p> <p>A container.</p>  <p>Example: There is more packaging for single servings.</p>	<p style="text-align: center;">18 recycling center</p> <p>A place where items are put through a recycling process.</p>  <p>Example: The cans were taken to a recycling center.</p>

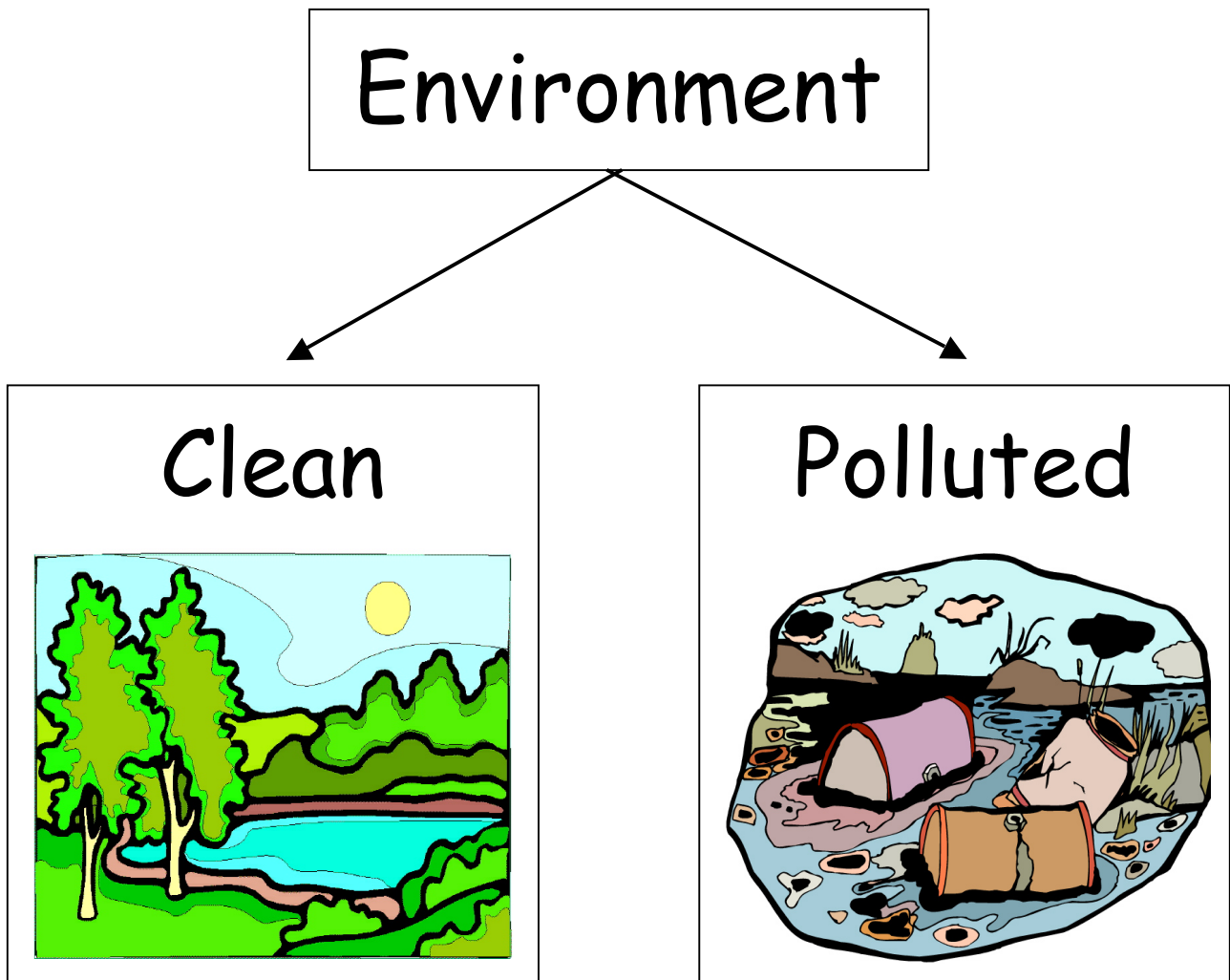
Questions Chart

Question	Answer
What are natural resources and manufactured materials?	Natural resources are materials that are naturally part of the earth. Manufactured materials are made by people or machines.
Where does garbage go after it is picked up?	Garbage goes to a landfill after it is picked up.
Which material, plastic or paper, takes longer to break down in a landfill?	Plastic takes longer to break down in a landfill.
What is the most common kind of material in the trash?	Paper is the most common type of material in the trash.
What kinds of materials can be recycled?	Glass, paper, plastic, and metal can be recycled.
Why should people buy things with less packaging?	People should buy things with less packaging to reduce waste.
Why is a cloth towel better to use than a paper towel?	A cloth towel is better because can be reused, and there will be less waste.
What does the recycling symbol mean?	The recycling symbol means that something has been recycled.
Why should people reduce, reuse, and recycle?	People should reduce, reuse, and recycle to reduce waste.
How can people share ideas about recycling?	Answers will vary. For example, people can make a poster or a T-shirt.

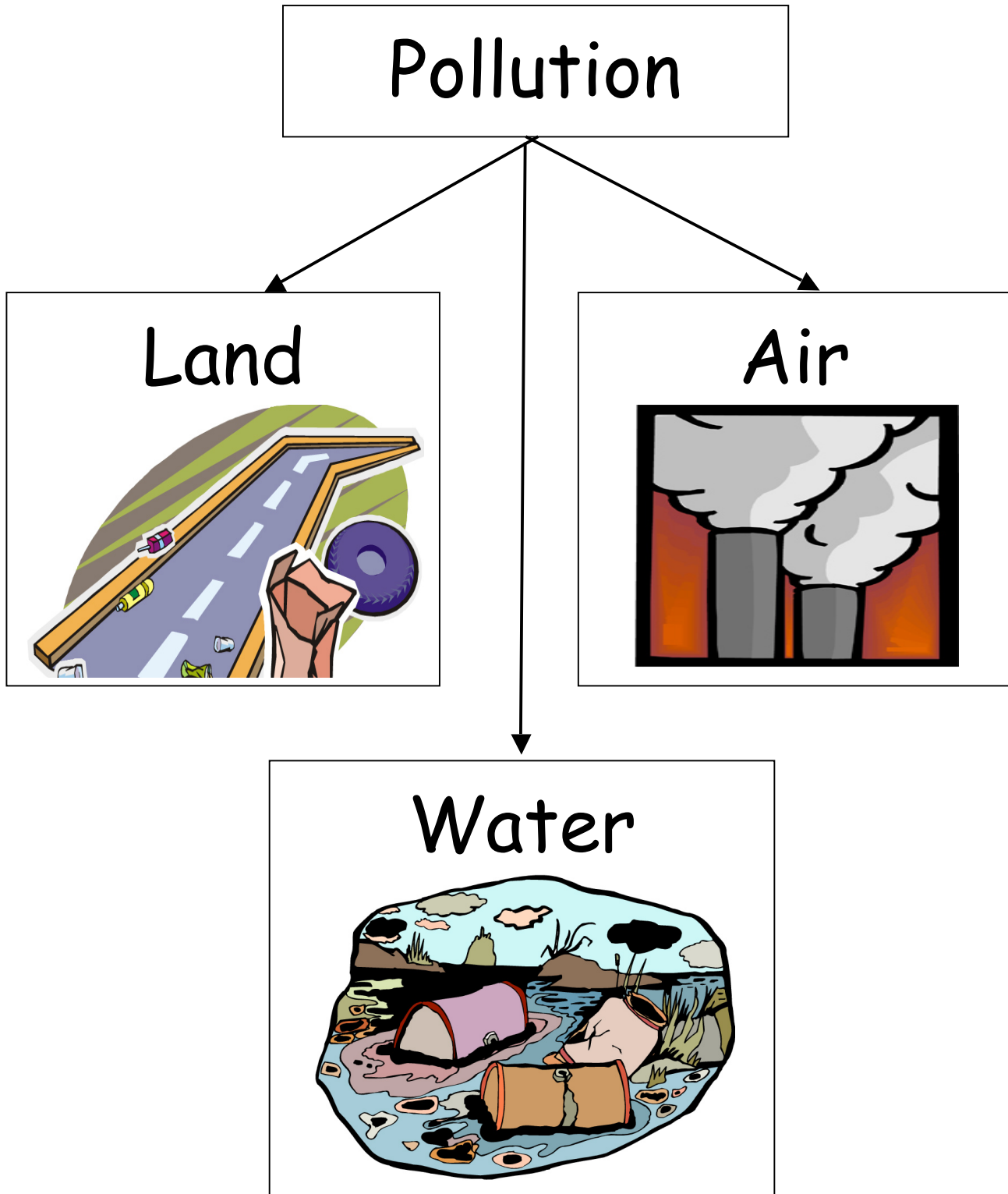
Unit Graphic Organizer



Graphic Organizer Lesson 1



Graphic Organizer Lesson 1



Graphic Organizer Lesson 2

Garbage

Garbage Can



Garbage Truck



Landfill



Graphic Organizer Lesson 2

Materials in a Landfill

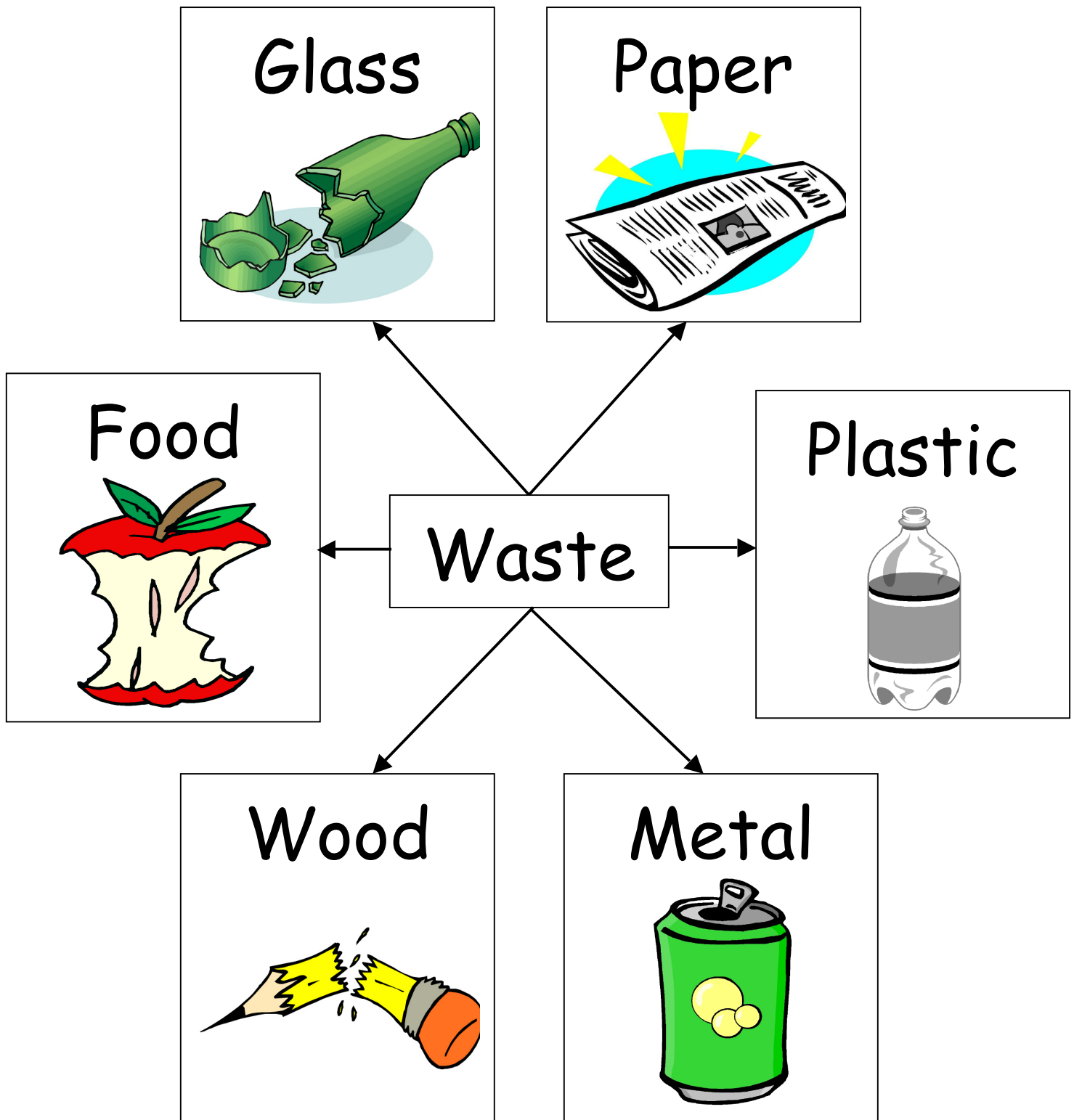
Breaks Down
Quickly



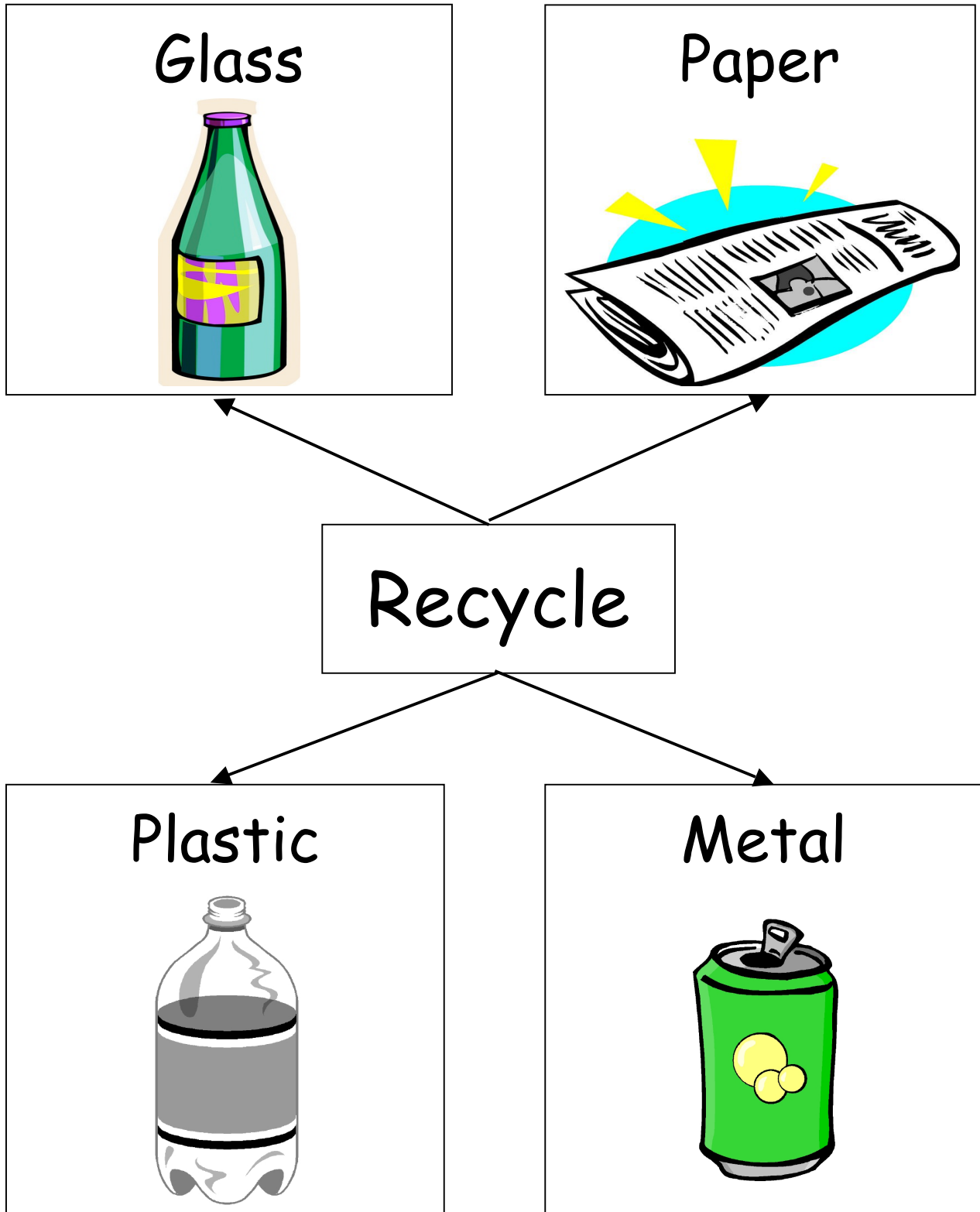
Breaks Down
Slowly



Graphic Organizer Lesson 3



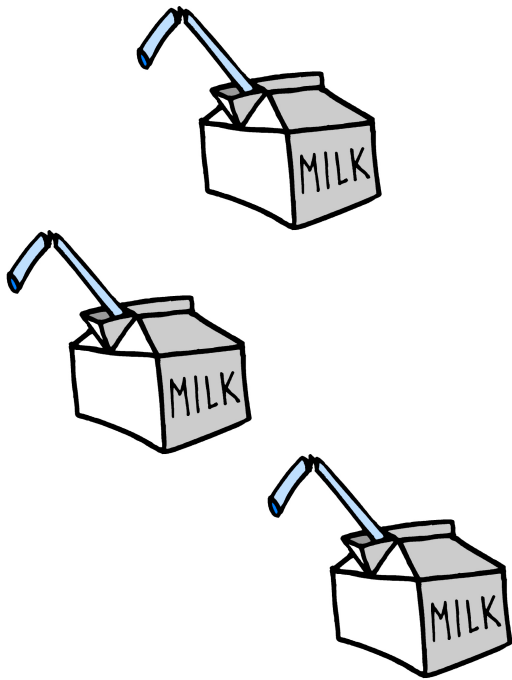
Graphic Organizer Lesson 4



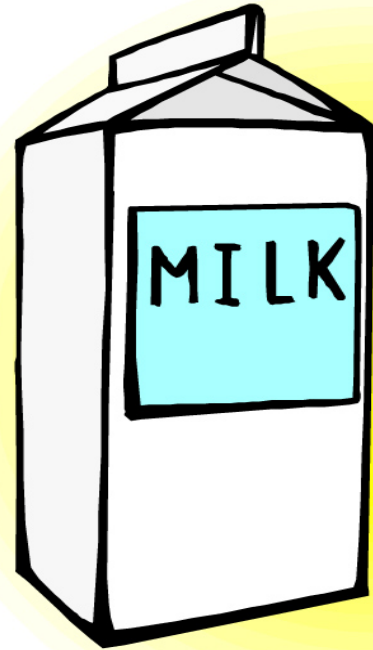
Graphic Organizer Lesson 5

Packaging

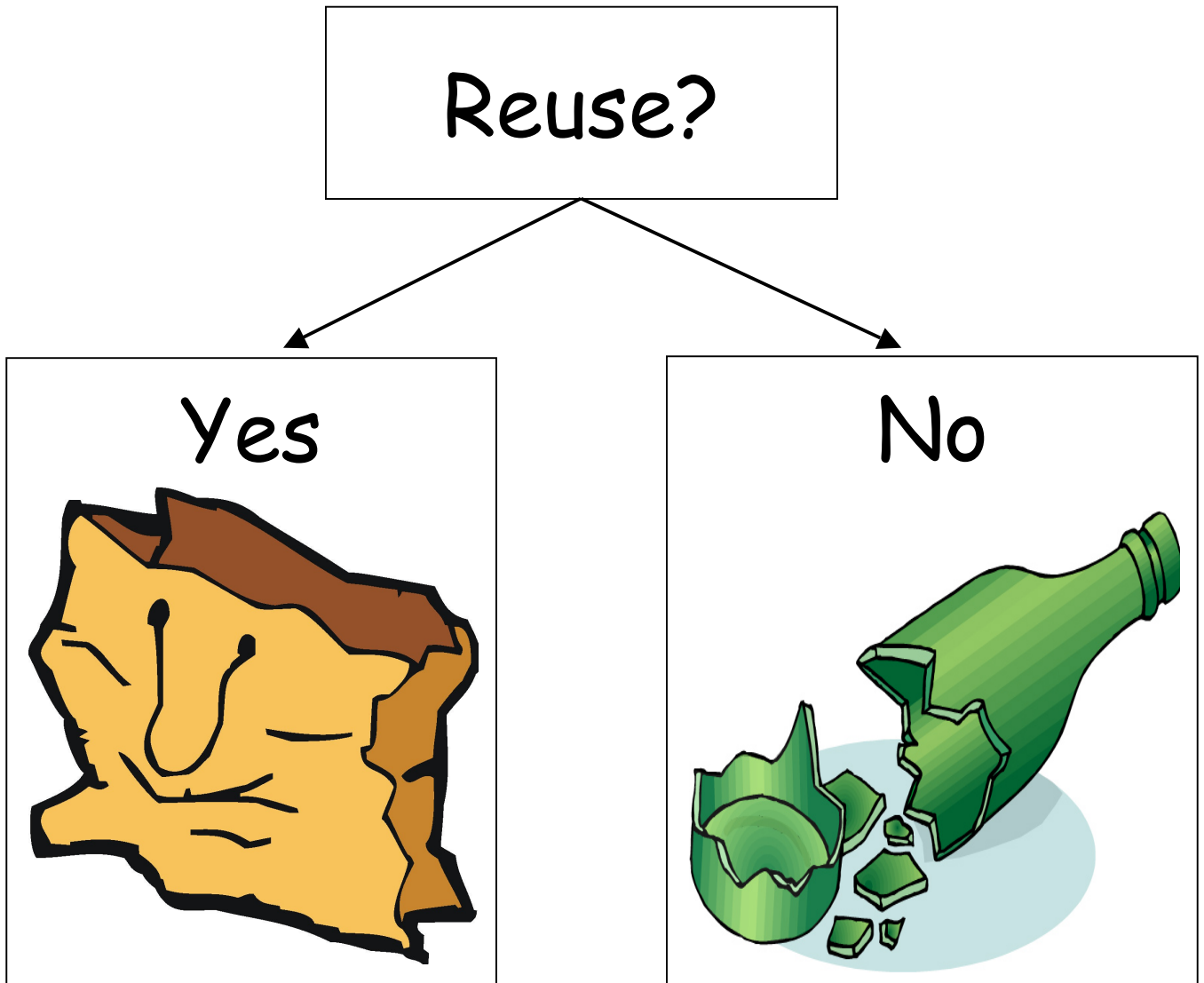
More Waste



Less Waste



Graphic Organizer Lesson 6



Graphic Organizer Lesson 7

Recycling

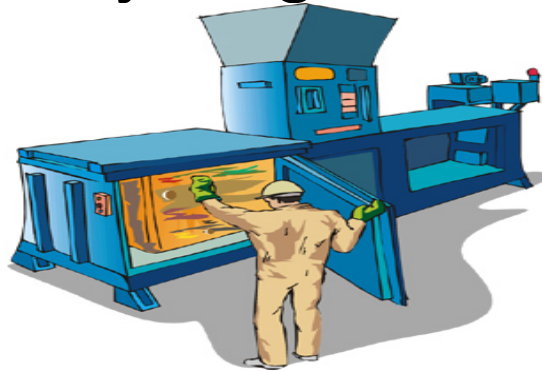
Recycling Bin



Recycling Truck

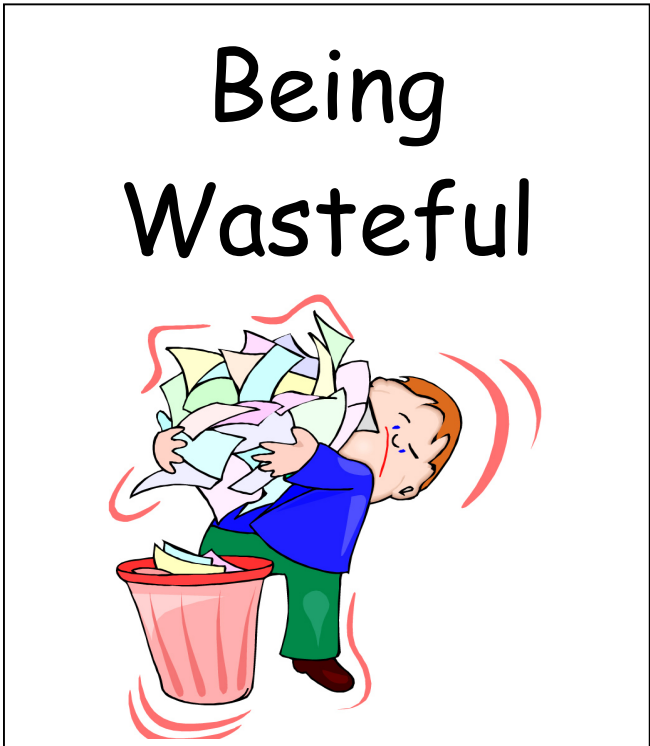
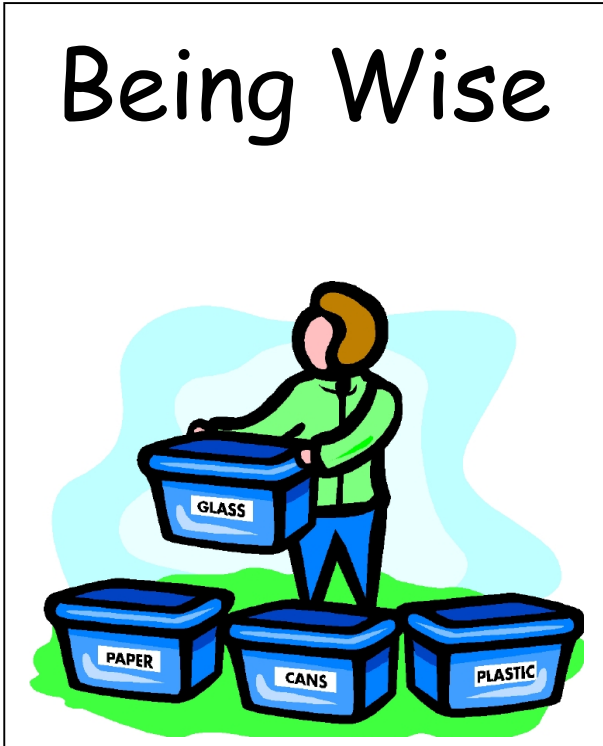


Recycling Center

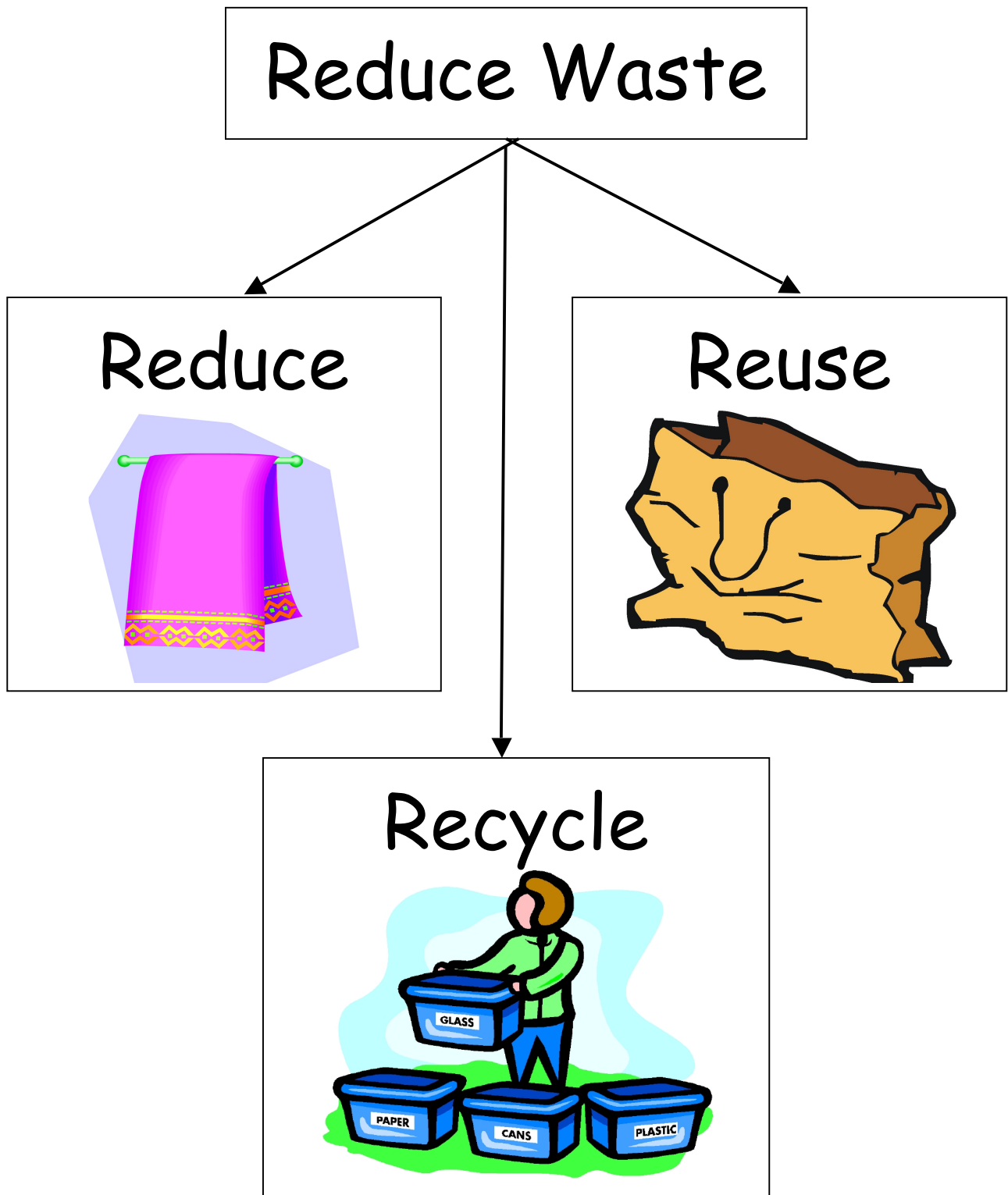


Graphic Organizer Lesson 8

Trash



Graphic Organizer Lesson 8



Reduce, Reuse, Recycle Pretest

Directions: Match the words below with the correct definition.

landfill	conserve	reduce	reuse	recycle
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1. A place where trash is buried: _____
2. To use something carefully in order to prevent loss or waste: _____
3. Use fewer resources: _____
4. Find a way to use a resource over again: _____
5. To make something new from something that has been used before:

6. Name 3 things that can be recycled. 1. _____
2. _____ 3. _____
7. Plastic is made from oil. **True or False** (*circle one*)
8. Fruits and vegetables can be recycled. **True or False** (*circle one*)
9. Why should we buy recycled products instead of new products?

10. Give an example of how you can reduce waste at home.

ANSWER KEY

1. Landfill
2. Conserve
3. reduce
4. reuse
5. recycle
6. (examples) paper, cans, cardboard, plastic bottles, glass bottles....
7. True
8. True (composting)
9. sample answer - to preserve/save our natural resources
10. Answers will vary

Lesson 1: Pollution

Big Ideas of the Lesson

- The environment is everything surrounding people.
- Pollution is the harmful substances that are put into the air, water, or land.
- People are responsible for cleaning up pollution.
- Garbage is taken to a landfill where it is covered with dirt.

Abstract

This lesson focuses on the effect humans have on the environment. Students are introduced to the types of pollution: land, water, and air. They are also introduced to the concepts of littering and trash. Students walk around the school grounds and pick up litter.

Grade Level Context Expectation(s)

Students will:

- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).

Key Concept(s)

litter/trash

reduce

Instructional Resources

Equipment/Manipulative

Chart paper (1 sheet)

Crayons

Gloves (rubber, 1 pair per child)

Marker

Pencils

Plastic grocery bags (1 per child)

Student Resource

- Glaser, Linda. *Our Big Home—An Earth Poem*. Brookfield, CT: Millbrook Press, Inc, 2000. (You Tube video available at http://www.youtube.com/watch?v=98DKZ0B6n_0)
- Kessler, Dawn, and Claudia Douglass. *Supplemental Materials (SC03060101.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.
- Rockwell, Robert A., et al. *Caring for Our Planet*. White Plains, NY: Dale Seymour Publications, 2001.
- Royston, Angela. *My World of Science: Materials*. Crystal Lake, IL: Heinemann Library, 2001.
- Showers, Paul. *Where Does The Garbage Go?* New York: HarperCollins, 1994.
- Van Allsburg, Chris. *Just A Dream*. New York: Scholastic Inc., 1990. (Flint ELA Mentor Text and Video available on You Tube <http://www.youtube.com/watch?v=P-9JCqMO5Wo>)

Teacher Resource

- Kessler, Dawn, and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.
- Ramsdell, Melissa. *A New Leaf: A Handbook for Preserving Michigan's Environment*. Lansing, MI: Michigan United Conservation Clubs, 1991.

Sequence of Activities

Advance Preparation: Make a chart similar to that in the Teacher Background entitled “Where is the Pollution?” with the subcategories of Land, Air, and Water to be used after reading *Just A Dream*.

1. Introduce this lesson by reading the story *Just A Dream* (*This is a mentor text*) (a lengthy story but it lends itself nicely to explaining different kinds of pollution and the effect people have on the environment) or another of the choices under Student Resource above. Explain to students that the book is about what happens if we do not take care of our environment. Use the text to define pollution (harmful substances deposited in the air, water, or land, leading to a state of dirtiness, impurity, or unhealthiness), environment (everything surrounding people, especially affecting the existence of people and nature), trash (anything we throw away), litter (trash that has been thrown on the ground or floor), and landfill (a large piece of land where solid waste is dumped in layers and covered with dirt) for the students.
2. After reading the story, show the students the chart and ask them to identify where the pollution is located: land, air, or water. Start with the first page of the story and have them describe where the pollution is located on each page. Record this information on the chart.
3. Take students for a walking tour outside of the school. Ask them to think about where they see land (trash on the ground), air (car exhaust or factory smoke), and water (garbage in the lakes, rivers, ditches, etc.) pollution.
4. If you have the book, read pages 4-11 in *Where Does The Garbage Go?* Use the text or the observations students have made in their walking tour to define *environment*, *trash*, *garbage*, and *waste*. Discuss why it is necessary to reduce and stop pollution.
5. Ask students to think about how we get pollution: “Who is responsible for the pollution in our environment?” and “Who should clean it up?” Help them make the connection that people are responsible for making it and also must clean it up. Discuss laws against littering and why they are necessary.
6. Take students outside to pick up litter. Explain to them that they are “Going On a Litter Hunt.” Pass out gloves and bags to the students and discuss procedures for finding broken glass and other “unsafe” objects. Keep the litter the students collect for Lesson 3.
7. Have students draw and color pictures on their “Clean Earth” and “Polluted Earth” Student Page.

Assessment

Listen carefully to the student’s contributions to the discussion to be sure they understand the concept of pollution and that it occurs on land, in the water, and in the air.

Application Beyond School

The students could pick up litter around their neighborhood or participate in an Earth Day clean up.

Connections

Social Studies

While studying recycling, students can connect to the concept of social responsibility.

Lesson 1: Pollution

Clean Earth	Polluted Earth

Lesson 2: Landfill

Big Ideas of the Lesson

- When a landfill is full, a new one is made.
- Some materials take longer to break down than others.
- It is important to reduce the amount of waste that goes to a landfill.

Abstract

In this lesson students look at trash and the path it follows once it leaves their home and school. They discuss what a landfill is and make a class landfill to determine which materials take longer to break down at a landfill.

Grade Level Context Expectation(s)

Students will:

- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal) (E.ES.03.43).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).
- recognize that paper, metal, glass, and some plastics can be recycled (E.ES.03.44).
- share ideas about recycling through purposeful conversation in collaborative groups (S.IA.03.12).

Key Concept(s)

habitat destruction
litter/trash
recycle
reduce

Instructional Resources

Equipment/Manipulative

Bucket
Chart paper (1)
Collection of materials (1)
Cookie (1)
Crayons
Marker
Pencils
Soil (1 bag)
White paper (plain, 1 sheet per child)

Student Resource

The Oakland Schools Curriculum
scope.oakland.k12.mi.us

Kessler, Dawn, and Claudia Douglass. *Supplemental Materials (SC03060201.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Showers, Paul. *Where Does The Garbage Go?* New York: HarperCollins, 1974.

Teacher Resource

Berger, Melvin. *Where Does All The Garbage Go?* New York: Newbridge Educational Publishing, 1993.

Here's My Question: Where Does My Garbage Go? Videocassette. Alpine, WY: Middlemarch Productions, 2000. (Available on United Streaming "Real World Science: Trash and the Environment" 12:27 minutes) (*Several other videos also available on YouTube*)

Kessler, Dawn, and Claudia Douglass. *Third Grade Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Lesson: Looking At A Landfill. 2001. Rethinking Recycling – An Oregon Waste Reduction Curriculum Oregon Department of Environmental Quality. 3 March 2010 <<http://www.deq.state.or.us/lq/education/curriculum.htm>>.

Sifting through Science. Berkeley, CA: GEMS (Lawrence Hall of Science), 1999.

Where the Garbage Goes. Seattle, WA: Fred Levine Productions, 1997.

Sequence of Activities

Advance Preparation: Make a collection of materials to put in the class landfill. Include a slice of an apple, a thick piece of wood, a piece of newspaper, a piece of plastic, and a piece of aluminum foil.

Safety Precautions: Students should not handle sharp or potentially dangerous trash. Enforce hand washing whenever the students handle dirt or trash of any kind.

1. Introduce this lesson by explaining to students that they are going to learn about where trash goes once it leaves the school or their home. Ask them to predict where they think garbage goes and how it gets there.
2. Show the video *Here's My Question: Where Does My Garbage Go?* or *Where the Garbage Goes*. It may be necessary to stop the video and discuss portions of the video with the students. Have students recall the various locations that the garbage goes to after it enters the garbage can at home or school.
3. Read the book *Where Does All The Garbage Go?* or one of the other books listed in Student Resource. Use the text to discuss with students what kinds of materials go to a landfill. Ask: "What kinds of items do you throw away at home and school?" [Toys, food packaging, etc.] "Do these items take up space?" Ask them to think about what happens when a landfill is full. Help students make a connection that when a landfill is full, a new one is made and more land becomes a landfill.

4. Ask students how they might make a classroom landfill. Through discussion develop the focus question, "Which types of materials take a longer time to break down and become part of the soil?" Use a bucket of soil and add a variety of materials to it. Ask them to predict which items will break down more easily and which ones will stay for a long time. Record their responses on chart paper and save. After six weeks and again

after 12 weeks gently dig up items and observe them. This exercise can also be done outside your classroom window if you have an area you can protect. Outside the classroom, you can add a wider variety of materials, such as peanut butter sandwiches and cookies, which would attract flies in the room. Help children make a connection between the rate of decay and the type of material. Discuss how some materials remain in the landfill for a long time. Have students predict which is better for the environment, paper or plastic bags based on the plastic and paper put in the classroom landfill. **Note:** As an illustration to help students understand what breaking down and becoming part of the soil means, crumble a cookie into small pieces and mix it into the soil. Explain to the students that in a landfill some materials will do this naturally and others will remain a solid piece taking up space. A variation of this activity is provided in the GEMS book *Sifting through Science*.

5. As a variation on this exercise, you might want to add redworms to your soil. If you do so, mix some scraps of paper into the soil and keep it moist. Redworms (Red Wigglers) are available at most bait shops.

6. Have students describe the sequence of events for a piece of trash from the time it enters the garbage can until it reaches the landfill. Make a class chart by drawing the pictures in order (small garbage can, large community garbage can, garbage truck, and landfill). Have them illustrate what happens to a piece of trash. Have students describe to a classmate what is happening to the piece of trash in each picture.

7. Ask students: "How can we reduce the amount of waste at a landfill?" Lead a discussion among with the class to generate ideas of ways that they could cut back on the amount of trash they send to a landfill.

Assessment

Circulate around the room and look at their drawings to check for the understanding of what happens to trash. Listen for reasonable ideas of ways to reduce the trash in the landfill.

Application Beyond School

Students could describe some ways they could cut back on the amount of trash they produce at home that goes to a landfill.

Connections

Mathematics

While making the class landfill, students could measure the size of the materials before they are put in the landfill and measure them again in six weeks and twelve weeks. Students can put the materials they dug up in order from the most to the least broken down.

Lesson 2: Make a Landfill

What We Threw Away	What We Found When We Dug It Up

Lesson 3: Types of Waste

Big Ideas of the Lesson

- The types of waste are glass, paper, plastic, metal, wood, and food.
- Paper is the most common material in the trash.

Abstract

This lesson focuses on the types of trash. Students classify the trash by the type of material. They compare the types of trash found on the school grounds.

Grade Level Context Expectation(s)

Students will:

- describe helpful and harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).
- recognize that paper, metal, glass, and some plastics can be recycle (E.ES.03.44).
- share ideas about recycle through purposeful conversation in collaborative groups (S.IA.03.12).
- use evidence when communicating ideas about how to recycle within your school or home (S.RS.03.15).

Key Concept(s)

habitat destruction

litter/trash

Instructional Resources

Equipment/Manipulative

Brown paper bags (6 large)

Crayons

Garbage from classroom and lunchroom

Gloves (rubber, 1 pair per child)

Litterbags from Lesson 1

Marker

Pencils

Plastic tablecloth

Student Resource

Kessler, Dawn, and Claudia Douglass. *Supplemental Materials (SC03060301.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Oxlade, Chris. *Materials, Materials, Materials: Cotton*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Glass*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Metal*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Paper*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Plastic*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Rubber*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Wood*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Wool*. Crystal Lake, IL: Heinemann Library, 2002.

Royston, Angela. *My World of Science: Materials*. Crystal Lake, IL: Heinemann Library, 2001.

Teacher Resource

Keeping Your Community Clean (16 min. United Streaming Video)

Kessler, Dawn, and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Lesson: A Lot of Garbage. 2001. Rethinking Recycling – An Oregon Waste Reduction Curriculum Oregon Department of Environmental Quality. 3 March 2010 <<http://www.deq.state.or.us/lq/education/curriculum.htm>>.

Maass, Robert. *Garbage*. New York: Henry Holt and Company, 2000.

Sequence of Activities

Advance Preparation: Take six large brown paper bags and label them (plastic, wood, metal, glass, paper, and food) with a marker. Arrange to use the classroom and lunchroom garbage to sort.

1. Introduce this lesson by reviewing what the students have learned about trash. [Too much going into landfills and taking up space.] Summarize these comments in a concept map on the board. Explain to students that they are now going to start looking at what kinds of things are put in the trash and what they are made from. As they listen to the story *Garbage*, have them look carefully at the illustrations and describe the types of things that are put in the trash. Help students identify the different types of materials that make up the trash. **Note**: It may be necessary to discuss what things around the classroom are made from to build prior knowledge.

2. Place a plastic tablecloth in the center of a group of students. Give each student a pair of gloves and review safety precautions when dealing with garbage. Dump the litter collected from the school yard in Lesson 1 on the tablecloth and ask the students to think about ways that they could sort the trash. Ask: “How are some of the items similar? How are they different?”

3. Explain to students that they are going to sort the trash by the type of material it is made from, for example, a candy wrapper is made of plastic so it will go into the brown paper bag labeled Plastic. Have students take turns selecting a piece of trash and placing it in the appropriate bag. As they are sorting, ask them to think about ways they could reduce the amount of garbage. Ask: “How could they use a piece of trash for something else?”

4. Next, move on to sorting the trash in the classroom and lunchroom waste cans. Ask students: “What differences do you notice in the type of trash found in the different locations?” [Litter from outside, classroom garbage, and lunchroom garbage]. Ask: “What kind of material was most common in each location?” [Paper.]
5. Ask students to compare what they found at school to what they think they have the most of at home. Discuss how and why the type of trash or material may be different. [Diapers will only be at home, for example.]
6. Give each student the Types of Waste Student Page along with a pencil and a pack of crayons. Explain to students that they need to draw pictures under the appropriate heading.

Assessment

Circulate around the room to observe student’s pictures under each category and check for accuracy.

Application Beyond School

Students could look carefully at their trash at home and compare it to the types of materials thrown away at school.

Connections

Mathematics

While studying recycling, students can weigh the bags of different types of trash.

Lesson 3: Types of Waste

Draw an item under each category.

Glass	
Paper	
Plastic	
Metal	
Wood	
Food	

Lesson 4: Recycling

Big Ideas of the Lesson

- Recycling means that used things are put through a process that allows them to be reused.
- A recycling symbol tells which objects can be recycled.
- Materials that are glass, paper, plastic, and metal can be recycled.
- People are responsible for recycling.

Abstract

This lesson introduces the concept of society's role in taking care of the Earth. Students are introduced to the term recycle. They learn how recycling helps to cut back on the amount of trash going to the landfills.

Grade Level Context Expectation(s)

Students will:

- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal) (E.ES.03.43).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).
- recognize that paper, metal, glass, and some plastics can be recycled (E.ES.03.44).
- share ideas about recycle through purposeful conversation in collaborative groups (S.IA.03.12).
- use evidence when communicating ideas about how to recycle within your school or home (S.RS.03.15).

Key Concept(s)

habitat destruction

litter/trash

recycle

reduce

renewal

reuse

Instructional Resources

Equipment/Manipulative

Chart paper (2)

Collection of recyclable objects

Marker

Pencils

Recyclable container provided by a waste management company (paper and/or plastic)

Teacher Resource

Gibbons, Gail. *Recycle! A Handbook for Kids*. New York: Little, Brown and Company, 1992.

The Internet Consumer Recycling Guide. 1996-2006. Evergreen Industries & Obviously Enterprises. 3 March 2010 <<http://www.obviously.com/recycle/>>.

Kessler, Dawn and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Oxlade, Chris. *Materials, Materials, Materials: Cotton*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Glass*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Metal*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Paper*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Plastic*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Rubber*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Wood*. Crystal Lake, IL: Heinemann Library, 2002.

---. *Materials, Materials, Materials: Wool*. Crystal Lake, IL: Heinemann Library, 2002.

Recycling: It's Everybody's Job. Videocassette. Washington, DC: National Geographic Society, 1992.

Recycling Symbols. Earth Odyssey. 2000 – 2009. Earth Odyssey, LLC. 3 March 2010 <<http://www.earthodyssey.com/symbols.html>>.

Roscoe's Recycle Room. 3 March 2010 <<http://www.recycleroom.org/>>.

The Recycle City website game on city recycling <http://www.epa.gov/recyclecity/>

Sequence of Activities

Advance Preparation: Collect (and clean if necessary) recyclable objects of each kind (paper, plastic, glass, and metal) to show the class. These may include plastic containers, metal cans, newspapers, and glass containers. Bring these materials in a recycling container(s) provided by a waste management company. Make a four-column chart for recyclable items with the subcategories of Paper, Plastic, Glass, and Metal.

1. Introduce this lesson by reviewing the concepts learned previously in this unit. Ask students to share what they have learned from the books, videos, and activities about trash. Reiterate to the students what a big problem too much trash is and ask what they can do to reduce the amount of trash going to the landfills. Read the book, *Recycle! A Handbook For Kids*, to students or read one of the websites on recycling (Earth Odyssey or Roscoes' Recycle Room) with them.
2. Use the collection of recyclable objects in the recycling container to show students which objects can be recycled. Show students that on the bottom of each plastic object is the recycling symbol. Draw the symbol on a piece of chart paper. Allow students to have an opportunity to explore the bottom of each object.



Recyclable
Recyclable glass

Some content recycled



PETE plastic is used for soft drink bottles, water bottles, beer bottles, peanut butter containers, salad dressing containers, juice bottles, and vegetable oil bottles.



HDPE plastics include milk cartons, juice bottles, water bottles, bleach, detergent, and shampoo bottles, trash bags, grocery and retail carrying bags, motor oil bottles, butter and margarine tubs, household cleaner bottles, yogurt containers, and cereal box liners.



PVC is used for bottles that hold cooking oil and detergent, as well as some household piping.



LDPE plastic is used for bread and dry-cleaning bags as well as some

carpets.



PP PP (polypropylene) is found in syrup and catsup bottles and medicine bottles.



PS Polystyrene is soft and is used to make egg and meat cartons.

3. Make a list on chart paper of the types of materials that can typically be recycled (glass, paper, plastic, and metal). Have students participate by drawing pictures of items in the recycling container on the class chart under the appropriate heading.
4. Have students visit the web site *Roscoe's Recycle Room* to practice using their knowledge about recycling.
5. Facilitate a discussion with the class by asking: "Who has the responsibility to recycle?" [Everyone.] Then ask: "What happens to the recyclable objects that go to the landfill?" [They take up space.] Inform students that there is a little extra work involved with recycling. People need to clean plastic and glass objects before a recycling center will take the objects. Sometimes it is necessary to bundle newspapers. Show the video *Recycling: It's Everybody's Job*.

Assessment

Informally assess students by through their class discussion.

Application Beyond School

Students could start a recycling program at their home or discuss an existing program with the family.

Connections

English Language Arts

While students participate in drawing pictures on the recycling chart, they could create written descriptions of what they need to do to prepare (clean) the object for recycling.

Lesson 5: Comparing Packages

Big Ideas of the Lesson

- Some products have a lot of packaging and others have very little.
- There is more packaging for single serving sizes than large quantities.

Abstract

This lesson is about reducing waste. Students use problem-solving skills to discover ways that they can reduce waste. They look closely at the amount of packaging around a product and the amount of waste generated.

Grade Level Context Expectation(s)

Students will:

- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, and renewal) (E.ES.03.43).
- share ideas about recycling through purposeful conversation in collaborative groups (S.IA.03.12).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).

Key Concept(s)

litter/trash
recycle
reduce
reuse

Instructional Resources

Equipment/Manipulative

Bulk food cereal box (1)
Cloth bags (several)
Individual serving cereal boxes (1 package of 8)
Large bowls (2)
Lunch with prepackaged food
Lunch with reusable storage containers
Marker
Packaged cookies (3 kinds with different amounts of packaging)
Pencils
Plastic bags (several)

Student Resource

Kessler, Dawn, and Claudia Douglass. *Supplemental Materials (SC03060501.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Teacher Resource

Activity #4 – The Great Lunch Dilemma. Ed. Jennie Malonek. 1997. Waste Not, Want Not. Target Science. LAEP Learning Exchange. 3 March 2010 <<http://www.urbanedpartnership.org/target/units/recycle/activities/activity4.html>>.

Case of the Broken Loop. September 1998. EPA Explorer's Club. United States Environmental Protection Agency. 3 March 2010 <<http://www.epa.gov/waste/education/pdfs/4-6.pdf>>.

Kessler, Dawn, and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Lesson: So Many Cookies...So Much Packaging. 25 January 2002. Rethinking Recycling – An Oregon Waste Reduction Curriculum Oregon Department of Environmental Quality. 3 March 2010 <<http://www.deq.state.or.us/lq/education/curriculum.htm>>.

Ways to Reduce Trash. Pedal People. 3 March 2010 <<http://www.pedalpeople.com/index.php?page=43>>.

Wilkes, Angela. *My First Green Book*. New York: Dorling Kindersley, 1996.

Sequence of Activities

Advance Preparation: Prepare a lunch (A) with reusable containers and a lunch (B) using prepackaged food. In Lunch A, have a lunch box containing a thermos of drink, a piece of fruit such as an apple, pear, or plum, a sandwich, chips, and carrots in a reusable plastic container, and a cloth napkin. In Lunch B, have a paper bag containing a juice carton, sandwich wrapped in a baggy, bag of chips, Twinkie, fruit cup can, carrots in a baggy, a pudding cup, a paper napkin and plastic spoon. Locate three types of cookies that offer different packaging options for students to compare. Mark each package with the letter A, B, or C.

1. To introduce this lesson, show students the individual cereal boxes and the bulk food cereal box. Ask them to identify which is the best way to buy cereal to create the least amount of waste. Open each box, pour the cereal in large bowls, and show students the difference in the amount of waste.
2. Next, show them the lunch with a lot of packaging. Ask students to share some ways that they could have the same lunch but with less packaging and less waste. Guide them to look at one item at a time and discuss how they could have the same or similar item with less waste. After discussing each item, show them the lunch with less packaging.
3. Share pages 24 and 25 of the book *My First Green Book*. Discuss the text as it relates to packaging options for prepared food.
4. Show students the plastic bags and cloth bags for carrying groceries home. Ask them which type of bag produces less waste. Ask who has the responsibility to bring their own bags each time.

5. Share other ways of reducing waste that are suggested on the web site *Ways to Reduce Trash*.

6. Place the three packages of cookies in front of the students. Give each child a pencil and Student Page for recording information. Ask the children to look at each package and explain to them that they are going to try to discover which package of cookies has the least amount of packaging. Start with package A. Open and count each layer of packaging. Count the cookies. Record the number of cookies on the board and place the wrapping where the students can see it. Discuss whether the cookies had a small amount of packaging or a large amount of packaging. Repeat this procedure for packages B and C. Look at the three piles of packaging. Ask: "Which package of cookies generated the least/most amount of trash. Follow up with a discussion of why there may be a lot of packaging around a cookie. [So they do not break or to keep them fresh, etc.] Ask them to "invent" new packaging that would protect cookies, but limit the amount of waste going to the landfill.

Assessment

Informally assess students by observing their participation in the classroom discussions throughout this lesson.

Application Beyond School

Students could count the number of food packages that have little packaging and the number of food packages with large amounts of packaging at home.

Connections

English Language Arts

While studying recycling, students can discuss ways of using less packaging for other items such as boxes containing toys.

Lesson 5: Comparing Packages

Record the number of cookies in a package and determine if the brand of cookies used a small or large amount of packaging. Mark an X in the appropriate box.

	Small Amount of Packaging	Large Amount of Packaging
Cookie A <i>How many?</i> _____		
Cookie B How many? _____		
Cookie C How many? _____		

Lesson 6: Trash to Treasure ~ Engineering Lesson

Big Ideas of the Lesson

- Some things can be reused.



Abstract

This lesson is about reusing materials. Students look at ways they can reuse waste. They are to use items brought from home to create a new useful product. Students will have the choice to create a pencil box to fit in their desk, a change purse or wallet to hold their change, or a bird feeder to feed the birds.

Grade Level Context Expectation(s)

Students will:

- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, and renewal) (E.ES.03.43).
- share ideas about recycling through purposeful conversation in collaborative groups (S.IA.03.12).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).
- recognize that paper, metal, glass, and some plastics can be recycled (E.ES.03.44).

Key Concept(s)

litter/trash

recycle

reduce

reuse



Instructional Resources

Equipment/Manipulative

Collection of various reusable items students bring in from home

Garbage ties (various) or pipe cleaners

Glue bottles

Markers

Paint

Scissors

Straws

Duct Tape



Student Resource

Kessler, Dawn, and Claudia Douglass. *Supplemental Materials (SC03060601.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Teacher Resource

Recycle Cereal Boxes <http://www.onegoodthingbyjillee.com/2012/09/simple-and-creative-ideas-for-recycling-cereal-boxes.html>

Bag It: Recycling Plastic Bags. 1995 – 2001. Teachnet.com. 3 March 2010 <<http://www.teachnet.com/lesson/misc/bagit.html>>.

Brackett, Karen, and Rosie Manley. *Beautiful Junk: Creative Classroom Uses for Recyclable Materials*. Columbus, OH: Fearon Teacher Aids, 1990.

Earth Day Groceries Project. 1994 - 2010. Earth Day Groceries Project. 3 March 2010 <<http://www.earthdaybags.org/>>.

Kessler, Dawn, and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Lesson: Trash or Treasure? 25 January 2002. Rethinking Recycling – An Oregon Waste Reduction Curriculum Oregon Department of Environmental Quality. 3 March 2010 <<http://www.deq.state.or.us/lq/education/curriculum.htm>>.

Riley, Karen. *Landfill Lunch Box*. Indio, CA: S.C.R.A.P. Gallery, 2001.

Ways to Reduce Trash. Pedal People. 3 March 2010 <<http://www.pedalpeople.com/index.php?page=43>>.

Sequence of Activities

Advance Preparation: Send a letter home to parents several days or weeks prior to doing this lesson asking for various items that would normally be thrown away that could be reused for creating a pencil box for the desk, a change purse/wallet, or bird feeder. (Students may also come up with their own idea to create something useful out of the trash that they bring in. They must be able to explain its usefulness.) Make arrangements for additional adult assistance.

6. Introduce this lesson by placing a variety of reusable items in front of the students. Have them look closely at the items and ask: "How can you reuse some of the items?" Have students describe how they can reuse the object and what they would need to reuse it (e.g., paint, cut, and glue). Encourage them to put items together to create something new. Place the items at an Invention Center to give children ample opportunity to explore and manipulate the items. Allow students an opportunity to collaborate with each other.
7. Share examples of items that can be created from websites or pictures from various resource books to help spark their imagination.
8. Put the donated items for the students to use at a table along with scissors, glue, garbage ties, paint, straws, etc. Instruct the students that they will create a new product. They can choose from three suggested items or design a product of their own as long as it has a useful purpose. Choice #1 is to design a new pencil box to help keep their pencils organized in their desks. Choice #2 design a change purse or wallet to hold their money. Choice #3 is a birdfeeder to take home and feed the birds. Create an area in the classroom or hallway to display these recycled products.
9. Visit the *Ways to Reduce Trash* web site (see link above) that offers a variety of uses for reusable items. Share the ideas with the students.
10. On the Student Page, students can circle the items that they can use again another day and list possible uses for these items. [Answers will vary, since some students now know that things that cannot be used immediately can be recycled. For example, the two paper products in the photo might be discarded, reused for scrap, or recycled. The food could not be reused but could be fed to wild animals. The computer represents an interesting issue, since many parts are made of scarce resources and batteries are dangerous. Some companies are now recycling computers.]

Assessment

Individually ask the students to choose a piece of trash and explain ways in which it could either be reused or recycled.

Application Beyond School

Students could create a recycle craft from objects at home.

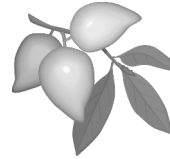
Connections

English Language Arts

While creating their creature, students can tell a story about their creature.

Lesson 6: Trash to Treasure

What can you use again?



Lesson 7: Recycling in Action

Big Ideas of the Lesson

- Paper is recycled so it can be used again.
- The recycling symbol on something shows that it has been recycled.
- Recycled objects are picked up by a recycling truck and taken to a recycling center.

Abstract

In this lesson students explore recycling waste. They learn about other recycled paper products and make recycled paper. The students visit a recycling center.

Grade Level Context Expectation(s)

Students will:

- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, and renewal) (E.ES.03.43).
- share ideas about recycling through purposeful conversation in collaborative groups (S.IA.03.12).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).
- recognize that paper, metal, glass, and some plastics can be recycled (E.ES.03.44).

Key Concept(s)

litter/trash

recycle

reduce

renewal

reuse

Instructional Resources

Equipment/Manipulative

Cornstarch (1 box)

Electric blender (1)

Glue sticks

Large pan (1)

Magazines (1 per child)

Measuring cups (1/4 cup and 1/8 cup)

Old newspapers (2 days)

Recycled toilet paper (1 package)

Recycled cards (several)
Recycled paper (various types)
Rolling pin (1)
Scissors
Stapler
Stirrer (1)
Water (sink close by)
Wax paper (1 package)
Wire screening (1 to fit over pan)

Student Resource

Kessler, Dawn, and Claudia Douglass. *Supplemental Materials (SC03060701.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Teacher Resource

Kessler, Dawn, and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Lesson: Recycle Lifecycle. 25 January 2002. Rethinking Recycling – An Oregon Waste Reduction Curriculum Oregon Department of Environmental Quality. 3 March 2010 <<http://www.deq.state.or.us/lq/education/curriculum.htm>>.

Recycle City. 31 October 2003. United States Environmental Protection Agency. 3 March 2010 <<http://www.epa.gov/recyclecity/>>.

Recycle That Trash. Videocassette. Santa Monica, CA: Pyramid Media, 1990. You tube and United Streaming has many videos that can be used to replace the videocassette.

Sequence of Activities

Advance Preparation: Arrange a field trip to a recycling center or invite a presenter from a recycling center to the class. You can also get help discussing composting (another form of recycling) from master gardener volunteers associated with your local branch of the Michigan State University Cooperative Extension.

11. Introduce this lesson by reviewing the types of items that can be recycled. [Glass, plastic, metal, and paper.]
12. Ask students if they know why we recycle paper. [They use it again to make more paper.] Tell them that today they will be making recycled paper. First, have students tear a page of newspaper into small pieces. Place the pieces in a large pan and add

enough water to cover the paper. Soak for 10 minutes. While the paper is soaking, mix one-fourth of a cup of water with about one-eighth of a cup of cornstarch. Stir until the cornstarch dissolves. Pour off the excess water. Put the paper in a blender and add the cornstarch and water mixture. Cover the blender and run on high for two minutes. Place the screen over the pan and pour the material from the blender onto the screen. Have a volunteer spread the mixture evenly over the screen so that it is flat and thin. Cover the material with wax paper. Use a rolling pin to squeeze out the excess water. Remove the wax paper carefully and allow the new paper to dry completely (this may take a couple of days). Remove the paper gently from the screen and give students an opportunity to touch it and tear off a small piece to write on and take home.

13. Display for students other recycled paper products (e.g., cards, paper, toilet paper, etc.). Show the recycling symbol on packages that identify it as being made from recycled materials.
14. Show the video *Recycle That Trash*. Discuss the path of a recycled item from the school or home garbage to the recycling truck and on to the recycling center. Ask students to remember what it looks like when it leaves the recycling center.
15. Take students on the field trip to a recycling center or have a presentation in the classroom. Give opportunities to observe the materials that can be recycled and to ask questions. Have them recall how each material is cleaned, heated, or mixed and then made into something new.
16. Use the Student Pages to create booklet about recycling. Give students a pair of scissors, a glue stick, and magazines to complete booklets. Students look for a plastic item, a glass item, a paper item, and a metal can that can be recycled. They cut out the picture and glue it to the appropriate place in the book and underneath the picture they explain the recycling process for each item.

Assessment

As students are making their booklet about recycling, ask them to explain the items they have chosen to put on their pages. Each item should be able to be recycled.

Application Beyond School

Students can identify recyclable items in their home and encourage the habit of recycling with their families.

Connections

Mathematics

Students can use measurement skills while making recycled paper.

Lesson 7: Recycling in Action

I Can Recycle!!

By: _____

I can recycle paper.

I can recycle plastic.

I can recycle glass.

I can recycle metal cans.

Lesson 8: School Waste

Big Ideas of the Lesson

- People can find ways to reduce, reuse, and recycle items to reduce waste.

Abstract

In this lesson students look carefully at their classroom and school environment to identify ways the school is creating waste. They come up with ways that they can manage waste at school that involves reducing, reusing, and recycling. Students interview a custodian at their school to learn about how the school participates in recycling programs. They also discuss ways the school is being wasteful and design programs to reduce the waste. Students implement programs that they design.

Grade Level Context Expectation(s)

Students will:

- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, and renewal) (E.ES.03.43).
- share ideas about recycling through purposeful conversation in collaborative groups (S.IA.03.12).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).
- recognize that paper, metal, glass, and some plastics can be recycled (E.ES.03.44).
- use evidence when communicating ideas about how to recycle within your school or home (S.RS.03.15).

Key Concept(s)

habitat destruction

litter/trash

recycle

reduce

reuse

Instructional Resources

Equipment/Manipulative

Chart paper (2)

Crayons

Marker

Pencil

Student Resource

Kessler, Dawn, and Claudia Douglass. *Supplemental Materials (SC03060801.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Teacher Resource

Earthworks Group Staff. *50 Simple Things Kids Can Do to Save the Earth*. Madison, WI: Turtleback Books, 1990.

Kessler, Dawn, and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc.)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

School Recycling. Pennsylvania Department of Environmental Protection. 3 March 2010

<http://www.dep.state.pa.us/dep/deputate/airwaste/wm/recycle/School/School_Guide.htm>.

GLR Recycling Solutions Center- possible field trip and/or drop center for recycled materials.

Website – go-qlr.com for more information.

Sequence of Activities

Advance Preparation: Arrange for a visit with a custodian and principal in the school. Make a two-column chart with the categories Being Wise and Being Wasteful.

17. Introduce this lesson by taking a walk around the school grounds inside and out to locate litter, trash containers, and dumpsters. As students as they walk around to look carefully and briefly at the types of items being thrown away. Also refer back to previous lessons in order to review what they found in the school trash.

18. Invite a custodian to the classroom and ask him/her to share ways that the school recycles. Help students to be prepared with questions about what materials are recycled and where they are collected. Allow them to ask questions regarding recycling and waste. Review what a question is prior to this visit. Ask the custodian to share areas where the school could improve and be less wasteful.

19. After the custodian leaves, review the conversation and summarize it on a chart. List the ways the school recycles on the side labeled “Being Wise.” Make a list of all the ways that the students and custodian noticed the school was being wasteful on the side of the chart “Being Wasteful.” Next, ask them to look at each wasteful problem and to come up with a solution on how not to be wasteful. Discuss possible ways for reducing, reusing, or recycling for each problem written on the “Being

Wasteful” side of the chart. Add these ideas to the side of the chart “Being Wise.” It may be helpful to add pictures to accompany the text.

20. As students look at the chart ask them to think about which ways they could start to reduce, reuse, and recycle in the classroom. Brainstorm a classroom recycling system and have them set up something reasonable in the classroom. Encourage students to expand their plans if they see a need for them.
21. Next, ask them to think about ways the rest of the school could cut back on being wasteful by reducing, reusing, and recycling. Ask them how they would set up a program and how they would inform other students about it.
22. Give students the Student Page, a pencil, and crayons. Instruct them to draw and describe one idea that they have for reducing, reusing, and recycling at school. Facilitate a short discussion to allow them to share their ideas with the class.
23. As a class, decide on one program that will help reduce waste. Have the students write a letter to the principal asking him/her for permission to start a reducing, reusing, or recycling program. Invite him/her to the classroom and have the students present their ideas. Have them participate in selecting locations, materials, etc. for setting up a program. Implement additional programs as necessary.
24. Ask students for an idea of something they can do at home. Using the Student Page, students can create a Be Wise—Don’t Waste poster with a picture of something that they can do at home. Then ask them to bring their idea home and show their parents.

Assessment

Given examples of ways in which the school is being wasteful, have the students explain how one of these examples could effect the environment and suggest one solution to help alleviate the waste.

Application Beyond School

Students can look at their home for ways their family is being wasteful and help develop solutions to these problems.

Connections

Social Studies

While making attempts to solve the waste problem in their school, students can learn about their role as a member of the school community.

Lesson 8: School Waste

Draw and describe ways in which you could reduce, recycle, and reuse waste at school.

Reduce	Recycle	Reuse

Lesson 9: Recycling T-shirt (Optional Activity)

Big Ideas of the Lesson

- People can share their ideas about the importance of recycling.

Abstract

This lesson is a culminating activity where students use their knowledge of recycling to design a T-shirt that promotes either reducing, reusing, or recycling.

Grade Level Context Expectation(s)

Students will:

- describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, and renewal) (E.ES.03.43).
- share ideas about recycling through purposeful conversation in collaborative groups (S.IA.03.12).
- describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources) (E.ES.03.52).

Key Concept(s)

litter/trash

recycle

reuse

Instructional Resources

Equipment/Manipulative

Magazines (1 per shirt)

Paper (white, 1 per child)

Pencils

Permanent fabric markers (various colors, 1 set per group of children)

T-shirt (1 per child)

T-shirt Iron On Computer Paper (1 sheet per child)

Student Resource

Happy Earth Day Coloring and Activity Book. 25 April 2002. United States Environmental Protection Agency. 3 March 2010 (Download as Student Pages) <<http://www.epa.gov/region5/publications/happy/happy.pdf>>.

Teacher Resource

Kessler, Dawn, and Claudia Douglass. *Grade 3 Unit 6 Teacher Background (SC030600TB.doc)*. Teacher-made material. Waterford, MI: Oakland Schools, 2010.

Sequence of Activities

Advance Preparation: Ask parents to send in a clean, plain white T-shirt several days or weeks prior to doing this lesson or purchase T-shirts for the class. Write the names of the students on the tag of the shirt with a permanent fabric marker. Insert a magazine inside the shirt to prevent the marker from bleeding through to the other side. Make a sample T-shirt. Additional adult supervision would be helpful while making the T-shirts. If you have the resources, the student's drawings from Lesson 8 can be scanned onto a T-shirt iron on pattern. Inexpensive paper for this purpose is available at office supply stores, and works in most laser printers.

25. Introduce this lesson by telling students that they are going to use permanent markers to make a T-shirt that promotes reducing, recycling, and reusing. Explain to them that they need to think about all the things that they have learned about reducing, reusing, and recycling in this unit and decide on one idea that they can draw on their shirt. Model how to take their idea and make a drawing of it on chart paper.
26. Print out a copy of the *Happy Earth Day Coloring and Activity Book* to use as Student Pages. Show students the sample pictures that deal with recycling to give them some other ideas. Allow them to look through the collection of books used for this unit. Show them the sample T-shirt.
27. Give students paper and a pencil to draw their idea prior to giving them the markers and T-shirt. Instruct them to only draw on the front of the T-shirt where the magazine is. Have them write text to support their picture. Once their idea has been approved and the text has correct spelling, give them their T-shirt and the permanent fabric markers.
28. When the shirts are completed, draw a recycling symbol on the back of each student's shirt and add the words above Kids Taking Care and the words Of The Earth underneath. See the sample on the Teacher Resource page.
29. Select a day for all the students to wear their T-shirts, possibly on Earth Day.

Assessment

Listen carefully to the student's idea and understanding of concepts as they share ways to reduce, reuse, and recycle. Assess their drawings for accuracy.

Application Beyond School

Students can make a poster with reducing, recycling, and reusing ideas with their family.

Connections:

Social Studies- While studying recycling, students can connect to the concept of social responsibility.

Alternative Lesson Links

Five Lessons to Teach Students How to Reduce, Reuse, and Recycle

http://www.educationworld.com/a_lesson/lesson308.shtml

Reduce, Reuse, Recycle

Objectives

- Students will match ecology vocabulary words to their corresponding definitions.
- Students will actively research ecology terms and demonstrate hands-on understanding of a variety of environmental issues that impact their community.

Click on the Link Below (Ctrl + click)

http://www.lakeshorelearning.com/media/images/free_resources/teachers_corner/lesson_plans/3_4/lessonReduceReuseRecycleFull.pdf?ASSORTMENT%3C%3East_id=1408474395181113&bmUID=1406409079349

How Long Does Trash Last?

Objective:

Student learn how long trash lasts in landfills in this cooperative activity.

Click on the Link Below (Ctrl + click)

http://www.educationworld.com/a_lesson/03/lp308-04.shtml

ECO KIDS <http://www.ecokidsusa.org/3rs.html>