

Grades 3–5: Where Does Our Waste Go?

Purpose

Students will identify and explain different types of trash that are put into the waste stream. Students will research where these different items end up in their community.

Engage

Show students the cover of the book *Where Does the Garbage Go?* and ask them to consider the question for a moment and then accept answers. Common answers may include the landfill or dump for trash, some students may say that they burn garbage in their backyards, and others may include recycling centers for items that can be recycled. Write the following items on the board or chart paper: garbage, trash, waste, and recyclables, and ask the students to brainstorm the differences. Many students may say there is no difference between garbage and trash as they are often used as general terminology. Once students have had a chance to discuss those terms, add the following terms: paper,

Materials

- *Where Does the Garbage Go?*
- chart paper
- student data sheet (see NSTA Connection)
- internet (to research local waste stream)

glass, plastic, and metal, and pose the question, “Where do these items fall within the other terms.” All of these items are shown at the beginning of the book as items that can be recycled (CC ELA Connection: Language Standards – Vocabulary Acquisition and Use; Reading Standards for Informational Text K–5 – Craft and Structure). After providing a chance for discussion, encourage the students to develop a definition of these words as they listen to *Where Does the Garbage Go?* While reading the story to the students, stop at the pages that introduce each of these terms and ask the students to explain what each means based on the context of the story. As the story progresses, students hear about other methods of waste disposal that communities use, such as incinerators, landfills, and recycling centers (CC ELA Connection: Language Standards – Vocabulary Acquisition and Use).

Where Does My Waste Go?

The difference between garbage and trash is



A recyclable is



When I use the following and then throw them out they would be examples of

Garbage	Trash	Recyclable

Illustrate or describe the waste stream that you researched and explain “where does my trash go?”

I promise to reduce, reuse, or recycle by

This will help in waste reduction by

1).

2).

Explore/Explain

Once students have developed an understanding of the difference between garbage (food scraps) and trash (dry waste material excluding food wastes) as well as recyclables (paper, glass, metals, and plastics) ask them to make a list of items in the classroom and home that they discard that would fall into each of those categories and record it on their data sheet. After students have considered what waste they create, pose the question, "Where does our town's garbage go once it's picked up?" Have them refer back to the possible locations that waste ends up from the text, which may include dumps, landfills, incinerators, and recycling centers (CC ELA Connection: Reading Standards for Informational Texts K-5 – Integration of Knowledge and Details). Ask the students to research this question using the internet as well as reference materials that may be available for your local community (CC ELA Connection: Writing Standards K-5 – Research to Build and Present Knowledge). Prior to conducting this activity, determine where the local trash is taken and your community recycling options. Some municipalities still use dumps, others use landfills, and some larger cities have trash incinerators. The local trash may actually be transported out of state to a neighboring state that has larger landfills. Information related to the local community can be obtained from the department of public works or a private trash company. If the local community information cannot be obtained, students can research another city close to their home town or where the waste from their school goes as most schools employ a waste management company. One website that may assist with locating information is the EPA's Wastes Where You Live (see Internet Resource).

Provide students with time to research where the solid waste and recyclables are taken to for their community, including how much waste is deposited there each day on average. If your community's waste management system also provides information regarding the percentages of different types of waste that are found there, ask the students to record that as well. Categories for solid waste may include metals, wood, plastics, food scraps, rubber and textiles, glass, paper/cardboard, yard trimmings, and others (CC ELA Connection: Language Standards – Vocabulary Acquisition and Use). Ask students to either illustrate or describe the waste stream that they investigated on their data sheet. Questions for students to consider and discuss in a large group include Does all waste go to one location? What happens to different types of recyclables when they go to a recycling center? How can we reduce the amount



of waste we generate? Students can refer back to the examples within the text associated with the different ways waste and recycling can be processed (CC ELA Connection: Reading Standards for Informational Text K-5 – Key Ideas and Details).

Elaborate/Evaluate

After reading the story to the students and allowing them to research where their waste goes, return to page 17, which shows a pie graph of "What Is in Our Landfills." Ask the students to name the largest category, the smallest, and what categories could be kept out of the landfill and recycled (CC ELA Connection: Reading Standards for Informational Text K-5 – Key Ideas and Details). Using the information they obtained from their local community, construct a pie chart with them to represent the percentage of solid waste in their local landfills. You may choose to create this pie chart in advance to share with students using general information from the Environmental Protection Agency. Ask students if there is any category that could be reduced by objects being reused or recycled—this will most likely be plastics, metal, glass, and paper. Some students may also include food scraps and yard trimmings through the process of composting. Once students have examined the charts, ask them to develop two commitment statements about how they individually will try to reduce waste and protect the Earth. Examples of such statements can be found on page 28 in the story and include statements such as "I carry a lunch box instead of a lunch bag that I would throw away," or "We are using recyclable bags when we go to the grocery store rather than using the plastic bags." Individual students can sign their name to their statements similar to the example in the book (CC ELA Connection: Writing Standards K-5 – Text Types and Purposes). Develop an overall class list of potential ways the students can be stewards of the Earth. Students can take their individual ideas and organize it into a class list—items related to reducing paper or plastic use and recycling materials may be example categories.

Internet Resources

EPA Wastes: Where You Live

www.epa.gov/waste/wyl/index.htm

NSTA Connection

Download the data sheets and find additional print and internet resource lists at www.nsta.org/SC1403.

Connecting to the Common Core

This section provides the *Common Core for English Language Arts and/or Mathematics* standards addressed in this column to allow for cross-curricular planning and integration.

The Standards state that students should be able to do the following at grade level.

English/Language Arts

Reading Standards for Informational Texts K-5 – Key Ideas and Details

- Grade 1: "Ask and answer questions about key details in the text."
- Grade 4: "Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text."

Reading Standards for Informational Texts K-5 – Craft and Structure

- Grade 5: "Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area."

Reading Standards for Informational Texts K-5 – Integration of Knowledge and Ideas

- Grade 3: "Use information gained from illustrations and the words in a text to demonstrate understanding of the text."

Language Standards

Writing Standards K-5 – Text Types and Purposes

- Grade 4: "Write informative/explanatory texts to examine a topic and convey ideas and information clearly."

Vocabulary Acquisition and Use is one of the standards for language. This particular standard is across grade levels. "Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade [appropriate] reading and content."

Writing Standards K-5 – Research to Build and Present Knowledge

- Grade 3: "Conduct short research projects that build knowledge about a topic."
- Grade 5: "Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic."

Speaking and Listening Standards K-5 – Presentation of Knowledge and Ideas

- Kindergarten: "Add drawings or other visual displays to descriptions as desired to provide additional details."
- Grade 1: "Add drawings or other visual displays

to descriptions when appropriate to clarify ideas, thoughts, and feelings."

- Grade 4: "Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace."

Furthermore the Common Core for ELA provide a standard related to the Range of Text Types for K-5 where it indicates that students in K-5 should apply the Reading standards to a wide range of texts to include informational science books.

Common Core State Standards Initiative
www.corestandards.org/the-standards

Connecting to the Standards

Standard K-ESS-3 Earth and Human Activity

Performance Expectation:

K-ESS3-3 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

Science and Engineering Practice:

Obtaining, Evaluating, and Communicating Information

Disciplinary Core Idea:

ESS3.C Human Impacts on Earth Systems

Crosscutting Concept:

Cause and Effect

NGSS Table: K-ESS3 Earth and Human Activity

www.nextgenscience.org/kess3-earth-human-activity

Standard 5-ESS-3 Earth and Human Activity

Performance Expectation: 5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Science and Engineering Practice:

Obtaining, Evaluating, and Communicating Information

Disciplinary Core Idea:

ESS3.C Human Impacts on Earth Systems

Crosscutting Concept:

Cause and Effect

NGSS Table: 5-ESS3 Earth and Human Activity

www.nextgenscience.org/5ess3-earth-human-activity