



Oklahoma Alliance for Geographic Education

Teacher Training | Curriculum Development | Outreach Programs

Exploring Careers in Waste Management



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Lesson Title: Exploring Careers in Waste Management

Grade Level: 6th, 7th

Purpose/Overview:

In this lesson, students will learn about waste management and recycling and will research types of careers in this field. These include jobs in collection, distribution, manufacturing, research and development, maintenance, and sales. Students will examine real job postings online and reflect on the job duties along with the required skills, experience, and education.

National Geography Standards from *Geography for Life*

Geographic Elements & Standards:

<https://www.nationalgeographic.org/standards/national-geography-standards/>

- 4. The physical and human characteristics of places
- 11. The patterns and networks of economic interdependence on Earth's surface
- 14. How human actions modify the physical environment
- 16. The changes that occur in the meaning, use, distribution, and importance of resources
- 18. How to apply geography to interpret the present and plan for the future

Oklahoma Academic Standards for the Social Studies:

[Oklahoma Academic Standards - SOCIAL STUDIES](#)

- 6.C.1.2:** Integrate visual information to organize understandings about the people and environments of the Western Hemisphere.
- 6.C.1.4:** Describe and analyze the role of geographic factors on events which impact the people and places of the Western Hemisphere, using both primary and secondary sources.
- 6.C.4.3:** Describe how humans modify the natural environment to support human development, such as subsistence and commercial agriculture, extraction of fossil fuels and minerals, development of industry, and urbanization.

6.C.4.4: Identify environmental challenges (e.g., air pollution, acid rain, deforestation) and explain how they can impact a region (e.g., oil spills in the Gulf of America, ranching and logging operations in Amazonia, urban sprawl of Mexico City).

6.C.4.6: Describe the role of citizens as responsible stewards of natural resources and the environment (e.g., recycling campaigns, water conservation, national parks, protection of wildlife preserves).

6.C.6.2: Analyze the benefits and limitations of various economic systems.

6.C.7.4: Describe patterns of economic independence and trade linking regions of the Western Hemisphere.

7.C.1.1: Describe the role of geographic factors on events, explaining the importance of spatial perspective and integrating specific geographic information to support analysis from primary and secondary sources.

7.C.1.2: Reinforce geographic skills through the routine practice and use of geographic tools (e.g., thematic maps, graphs, charts, satellite imagery, GIS technologies) in order to draw conclusions and make predictions from geographic data.

7.C.3.4: Describe the role of citizens as responsible stewards of natural resources and the environment through sound resource use and conservation.

Oklahoma Academic Standards for Science

[Oklahoma Academic Standards - Science](#)

7.PS1.3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

7.ESS3.1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

7.ESS3.3 Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.

7.ESS3.4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Geographic Themes:

Location: United States and Canada; adaptable to 7th grade Eastern Hemisphere Geography

Place: The physical and human characteristics of the United States and Canada; how waste management needs and practices vary depending on the physical environment or limitations from existing infrastructure

Movement: How waste is transported from the point of collection to its final destination in a landfill, recycling center, incinerator, or other processing facility

Human-Environment Interaction: How waste impacts the physical environment and how humans create processes and infrastructure to manage large quantities of waste

Region: How waste collection and recycling practices differ across the United States and Canada depending on both physical and cultural regional characteristics

Objectives:

(Related to the standards listed above)

Each lesson plan should answer in a short narrative these questions:

1. What **key topic/issue(s)** is/are associated with this lesson/unit?
Waste management and types of careers in this field are key topics associated with this lesson.
2. **What should students know** after this lesson/unit?
Students should understand waste management issues, why there are many career paths within this field, and how people employed in this industry work together to improve waste collection and processing.
3. **How will students apply** this lesson/unit **content**?
Students will research and analyze real job postings in waste management. In their analysis they will consider where the job is located, job duties, salary, and any education or experience requirements.

Materials:

Careers in Recycling Job Posting Worksheet (Print or Digital)

Types of Careers in Recycling Handout

Devices with internet access

Time Frame: One class period

Procedures:

Begin with engaging students in a discussion about trash and recycling.

Consider asking the following questions to guide the discussion.

- Where do you think your trash goes once it is picked up from your home or school?
- What, if any, recycling opportunities are available in your community?
These could include residential curbside recycling collection, or community recycling centers. Is recycling available for commercial properties?
- Why do you think some communities have more robust recycling programs than others?
- How do you think waste can impact your community? List one or two examples.
- Who do you think is responsible for managing a community's waste?
- What types of careers do you think are available in waste management?

Following the initial discussion, the teacher may use the student responses to the questions above to further explore waste management and careers in this field. Consider showing students pictures of landfills, incinerators, or recycling centers and ask them to comment on the photos. If the teacher can project their computer screen for the class, they may use Google Maps to see if there are any nearby waste management or recycling facilities and where they are located. If students have their own devices, they could search for surrounding facilities. The teacher can ask students why these might be located where they are. For instance, landfills have specific requirements for size, access to transportation networks, topography, and climate conditions. Hydrogeological conditions must also be considered to prevent groundwater pollution from landfills. The teacher may also explain that municipalities may have zoning requirements which restrict where a landfill or other waste management facility can be located.

The teacher will explain that while landfills are one typical destination for a community's waste, recycling centers are another option for municipalities

with recycling programs in place. Recall the student responses from the initial discussion related to who is responsible for managing a community's waste. Ask students if they can think of what types of jobs might be available in the field of recycling. Suggested guiding questions are:

- Who initially picks up recyclables from the point of collection?
- Who determines collection routes and schedules?
- How do you think recyclables are processed and sorted at a recycling facility?
- Who manages the employees and equipment in a recycling center?
- What happens if a piece of machinery malfunctions at a recycling facility?

Who might fix this?

- Who performs maintenance on recycling trucks?
- Where do recycled materials go once they leave the recycling facility? Who do you think facilitates the sales of these materials? How are these materials transported from the recycling facility to the purchaser?

After students have answered these questions to the best of their ability, the teacher can fill in any gaps by discussing in more depth the types of jobs depicted in the Careers in Recycling resource from the US Bureau of Labor Statistics (<https://www.bls.gov/green/recycling/>).

At this point, students should understand that careers in recycling or waste management extend far beyond truck drivers who collect trash from neighborhoods and businesses. The teacher will then complete the following activity with the class.

1. The teacher will provide each student with a copy of the Careers in Recycling Job Posting Worksheet.
2. The teacher will instruct students to visit the website located in the directions at the top of the page (<https://resource-recycling.com/recycling/jobs/>).
3. The teacher will find one job posting to work through as a class to demonstrate how they will complete the assignment.

4. Students will browse the listed job postings and select one they find interesting. They will complete the Careers in Recycling Job Posting Worksheet with the information available in their selected posting.
5. After students have completed their Careers in Recycling Job Posting Worksheet, the teacher will show the Types of Careers in Recycling document and ask students to identify which category best encompasses their selected position.
6. The teacher will then ask students to share their results with both someone in the same category and someone in a different category and ask them to discuss similarities and differences.
7. If desired, the teacher may repeat this exercise by asking students to identify a waste management career in Oklahoma via an internet search rather than the initial list provided in the Careers in Recycling Job Posting Worksheet.

Extension and Enrichment/Simplification:

This lesson can be connected to the Geo-Inquiry Process (https://www.nationalgeographic.org/wp-content/uploads/2023/08/Geo-Inquiry_Educator_Guide_K-2.pdf). Students can investigate waste collection practices at their school and identify ways in which they can be improved. For more information, see the Investigating Pollution and Establishing Environmental Stewardship lesson (<https://okageweb.org/new-blog/geo-inquiry-pollution>).

If the teacher elects to complete Step #7 of the activity outlined in the procedures, they will then ask students to locate the contact information of someone in the organization who might be willing to speak with the class or host a field trip to their facilities.

Assessment Options:

The teacher can collect the completed Careers in Recycling Job Posting Worksheet and use them to assess students' understanding of the subject.

Alternatively, the teacher can pose the same questions from the beginning of the lesson to compare how students' responses have changed.

- Where do you think your trash goes once it is picked up from your home or school?
- What, if any, recycling opportunities are available in your community? These could include residential curbside recycling collection, or community recycling centers. Is recycling available for commercial properties?
- Why do you think some communities have more robust recycling programs than others?
- How do you think waste can impact your community? List one or two examples.
- Who do you think is responsible for managing a community's waste?
- What types of careers do you think are available in waste management?

Resources:

Bureau of Labor Statistics Careers in Recycling Report

<https://acrobat.adobe.com/link/track?uri=urn:aaid:scds:US:8d47b73c-bfc6-3f8c-8165-af1b9a8377d1>

Jobs and Economic Benefits of Zero Waste

<https://ecocycle.org/learn-about-zero-waste/jobs-and-economic-benefits/>

Recycling, Sustainability, and Waste Management Jobs

<https://resource-recycling.com/recycling/jobs/>

Where does garbage go?

<https://www.budgetdumpster.com/resources/where-does-trash-go.php#:~:text=Beyond%20landfills%2C%20waste%20in%20the,waste%2Dto%2Denergy%20plants.>

CAREERS IN RECYCLING

Directions: Go to <https://resource-recycling.com/recycling/jobs/> to explore current job openings in recycling, sustainability, and waste management across the United States and Canada. Use the information provided in the job posting to answer the questions below by clicking on the empty boxes and typing your response.

Title of Position	
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Summarize the job's description.

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Select 3 duties that you believe to be the most important in the role.

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What are the qualifications and/or requirements for the position?

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How would someone be able to meet the qualifications and/or requirements?

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Details

Pay/Salary		Location of Job	
Company			

Look up the company who is posting the job, briefly describe their purpose and/or mission statement.

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CAREERS IN RECYCLING

DIRECTIONS: AFTER RESEARCHING A JOB POSTING RELATED TO RECYCLING, WHERE WOULD THE POSITION YOU SELECTED FALL INTO PLACE WITHIN THE CAREERS IN RECYCLING CATEGORIES?

COLLECTION PICK-UP
SORTING
PACKING

DISTRIBUTION TRANSPORTING
WASTE AND
PRODUCTS

MANUFACTURING TURNING
MATERIAL INTO
A NEW PRODUCT

RESEARCH & DEVELOPMENT FIGURING OUT HOW TO
TURN MATERIAL INTO
NEW PRODUCTS

RETAIL SELLING NEW
PRODUCTS IN STORES
OR TO COMPANIES

MAINTENANCE ENSURING VEHICLES
AND MACHINERY ARE
UP AND RUNNING

OTHER DOES YOUR JOB NOT FIT WITHIN
THE OTHER CATEGORIES? IF SO,
SHARE YOUR REASONING!