

Waste and Consumption Field Research

Grades 9-12: Personal & Home Audit



Resources developed by San Mateo County Office of Education's (SMCOE)
[Environmental Literacy and Sustainability Initiative \(ELSI\)](#) • Last updated October 2020

Purpose and Overview of Field Research Activity

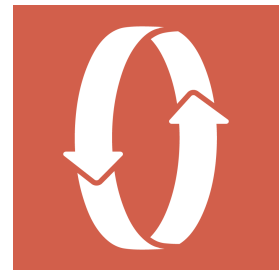
Field Research is the collection of data and observations. In this type of field research, the purpose is to help students investigate what is going on with an environmental topic in their local context (home, school, or community). Parents and Educators, see *overview video to Field Research guides* [here](#).



- **What materials do I need for doing field research?** The most important thing you will need is this document outlining the field research activities. Depending on the focus it might also be useful to have a clipboard, or pencil/pen, paper or journal, gloves, binoculars, etc.
- **How long will it take me to do this field research?** Field research tasks may range from 30 minutes → 3 hours depending on the topic and activities. Observations and data collection may also be done as a one-time collection, or pattern based data collection may take place over multiple days. It is recommended that you break the field research up into multiple activities based on each section.

Background information for this Field Research Task:

The average American creates [4.5 pounds of trash](#) per day! This large volume of trash speaks to how much waste is generated just by going through our normal activities throughout the day. To gain a deeper understanding of the waste system, utilize the [Waste Webquest](#) (optional).



CONTINUE ON TO THE NEXT PAGE

PERSONAL WASTE AUDIT



Step 1: Use the waste journal on the next page to track what you throw away for five to ten days.

Materials: Printed journal *or* field journal and pencil, and adult help if needed.

Directions: Students will complete the chart below to track the waste they generate over five to ten days. Adults can print the chart or students can copy it into their journal or on a piece of paper.

Students *should*:

- Take detailed notes
- Include items you share with family or friends if you used them (ex: milk container)
- Research items if you're uncertain which container they belong in (trash, compost, recycle)

Students *should not*:

- Collect the waste
- Touch waste without wearing gloves or thoroughly washing hands afterwards

Glossary

- **Waste Journal**: A record of waste generated over a period of time
- **Recycle**: Items that can be turned into into new items in a commercial facility. Examples: glass, aluminum cans, clean paper
- **Compost**: Items that can be sent to a commercial composting facility. Examples: yard waste, food scraps, food-soiled paper
- **Trash**: Items that are sent directly to the landfill. Examples: soft plastic bags, wrappers, rubber bands

CONTINUE ON TO THE NEXT PAGE



PERSONAL WASTE AUDIT: WASTE JOURNAL



| Date & Time of Day | What did I throw away? | What material is the item made of? | What bin was the item thrown away in: Trash, Recycle, or Compost? | Notes Why did I use this item? Why did I throw it away? Other notes. |
|-------------------------------|---------------------------------------|---|--|--|
| <i>Example:</i> 2/20 | <i>Example:</i> Nature bar wrapper | <i>Example:</i> Soft plastic (non-recyclable) | <i>Example:</i> Trash | <i>Example:</i> I missed breakfast and had to grab this from the vending machine. I ate the bar and threw away the wrapper. |
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Step 2: Reflect on the Waste Journal

→ Discuss your results with a parent or classmate, or write responses on paper/in your field journal.

A) What did you notice about the waste you recorded/observed? What did you find most interesting?

B) List the most common waste items you recorded during your personal waste audit:

C) Over the course of a year, you might create other types of waste (ex: clothes, electronics) - what didn't show up in your waste stream this week, but still produces waste?

D) How might you change your own personal waste choices moving forward?

E) What obstacles do you foresee in reducing your waste, and how can you overcome them?

CONTINUE ON TO THE NEXT PAGE

WASTE WALK-THROUGH AT HOME

Overview

Complete three steps:

1. Waste Walk-Through
 - Indoor Bins
 - Outdoor Bins
2. Home Waste Audit
3. Reflection

Together, these three steps will give you an overview of your home waste stream.

Each step is one page, front and back. Print these worksheets or copy the questions and your responses into your field journal.



Step 1: Waste Walk-Through

Materials: Printed journal or field journal and pencil, and adult help if needed.

Directions: Complete the Waste Walk-Through Worksheet on the next page. The walk-through is split into two parts:

1. *Indoor bins* are all of the containers or receptacles used to collect waste inside your home.
2. *Outdoor bins* are where your waste is put to be collected by a hauler.
 - Visit these with an adult or permission.
 - These might be in a gated area outside the back or side of a building, in a garage, or a back patio.

Students *should*:

- Take detailed notes

Students *should not*:

- Collect the waste
- Touch waste without wearing gloves or thoroughly washing hands afterwards

Glossary




- Waste Stream: How waste moves through an area from its creation, to its use, and finally to its disposal.
- Bin: A container or receptacle for collecting waste.
- Hauler: A company that collects and transports municipal solid waste, recycling, and/or compost.


CONTINUE ON TO THE NEXT PAGE



WASTE WALK-THROUGH WORKSHEET



| INDOOR BINS | | | |
|--|---|--|---|
| Circle or mark the type of bins you have in your home. |  LANDFILL |  RECYCLING |  ORGANICS |
| Total number of bins in your home: | | | |
| Where are the bins located? Describe the locations for all bins. (ex: near the door) | | | |
| Are the bins labeled? If so, what are they called? | | | |
| Are contents correctly sorted? (Do a quick visual observation) | | | |

| OUTDOOR BINS | |
|---|--|
|  | |
| Where are the bins located, and how many are there? | What types of bins are there? - Trash, recycling, compost |
| Are the bins labeled? - If YES, that is the company that is your "hauler" (ex: Recology). - If NO, ask an adult and go online to find out who your "hauler" is. | Record "bin label" and "hauler" notes here: |
| Look inside each bin, what are your basic observations about the contents? | |

CONTINUE ON TO THE NEXT PAGE



Step 2: Home Waste Audit

Materials: Printed journal *or* field journal and pencil, and adult help if needed.

Directions: Pick the room in the home where the most bins are to analyze the contents of the bins. Use the Home Waste Audit Worksheet (Observations and Calculations) on the next two pages to guide you through the waste audit.

Students *should*:

- Take detailed notes
- Include items you share with family or friends if you used them (ex: milk container)
- Research items if you're uncertain which container they belong in (trash, compost, recycle)

Students *should not*:

- Collect the waste
- Touch waste without wearing gloves or thoroughly washing hands afterwards

Glossary

- **Diversion:** Amount of waste not going to landfill. Waste is instead repurposed through recycling or composting.
- **Potential Waste Diversion:** Amount of waste you could divert from the landfill through composting and recycling.


CONTINUE ON TO THE NEXT PAGE



HOME WASTE AUDIT WORKSHEET






WASTE AUDIT - Observations

| | |
|---|---|
| <p>Do you have rubber gloves to perform the waste audit?</p> |  <p><input type="checkbox"/> YES <input type="checkbox"/> NO</p> |
|---|---|

| | |
|---|---|
| <p>If YES...</p> <ul style="list-style-type: none"> • Put gloves on and carefully sift through the contents of the bins. • Do not touch hazardous or unsanitary items. | <p>If NO...</p> <ul style="list-style-type: none"> • Use visual observations of waste items. • Do not touch hazardous or unsanitary items. |
|---|---|

Record your observations of the contents in each bin:

- Write down everything you find, even if it is not sorted correctly.

|  <small>LANDFILL</small> |  <small>RECYCLING</small> |  <small>ORGANICS</small> |
|---|--|---|
| | | |

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HOME WASTE AUDIT WORKSHEET



WASTE AUDIT - Calculations

If you have gloves, complete this section. If not, use visual observations to estimate.

Total Waste Calculation

- Using gloves, sort your waste into three categories: Landfill, Recycling, and Compost.
- *If you have a scale*, separate your waste into those three categories and weigh them individually. Then add them together to get the total weight of all your waste.
- *If you don't have a scale*, visually estimate what percentage of the waste from your bin belongs in those three categories.

Landfill: _____ lbs or %

+ Recycling: _____ lbs or %

+ Composting: _____ lbs or %

= _____ lbs (*Total Waste*)

Waste Diversion Calculation

- Calculate your potential waste diversion from landfill.
- *If you don't have a scale*, use the percentage estimates from above to approximate the diversion rate.

1) _____ (Compost) lbs or %

+ _____ (Recycling) lbs or %

= _____ (DIVERSION) lbs or %

2) _____ (DIVERSION) lbs or %

÷ (Total Waste) lbs or %

X 100

= _____ % Potential Waste Diversion

CONTINUE ON TO THE NEXT PAGE



Step 3: Reflect on the Waste Walk-Through and Home Waste Audit

→ Discuss your results with a parent or classmate, or write responses on paper/in your field journal.

A) What did you find interesting about the locations and labeling of the indoor bins you observed on your walk-through?

B) What did you find interesting about the locations and labeling of the outdoor bins you observed on your walk-through?

C) List the most common waste items found in your home during your waste audit.
- Examples: Paper, Cardboard, Food waste, Plastic Bottles, Plastic Wrappers, etc.

C) On a scale of 1-10, how well was your waste sorted before your home waste audit?
- 1 = Waste was not sorted correctly at all.
- 5 = About half of the waste was sorted correctly.
- 10 = Waste was sorted perfectly in the correct bins

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|----|

D) What did you find interesting about the waste stream and waste sorting methods in your home?

E) What is something you could do to reduce waste in your home? And how could you improve your waste sorting to increase the amount of waste you divert from the landfill?

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You've Completed the Waste and Consumption Field Research!



Great job! You've studied your own personal waste habits, performed a waste audit of your home, and reflected on the waste and consumption system. Reducing our consumption, the amount of waste we produce, and sorting where our waste goes to divert it from landfills are steps we can all take to reduce our ecological footprint and the greenhouse gas emissions that enhance climate change. Discuss the lessons you've learned from this Field Research with the folks in your life and implement solutions into your daily activities to reduce the impact you have on the waste and consumption system. (Optional) Check out the [resources curated by The San Mateo County Office of Education](#) to explore more about water systems.