

WASTE AUDIT

Grades:

5 – 6

Time Allotments:

Teacher preparation: 10 minutes
Introduction in class: 30 minutes
Collection Time: 1 week
Conclusion in class: 45 – 60 minutes

Vocabulary:

Waste Generation
Waste Disposal

Integrated Curricular Areas and Corresponding Core Curriculum Content Standards:

Science: **5.1:** (G4) A1-3
 5.3: (G4) A1, B1, D1
Social Studies: **6.5:** (G4) A4&6, B1
Mathematics: **4.1:** (G5) A1
 4.2: (G5) C5 (G6) D5
 4.4: (G5) A1-2 (G6) A1-3

Content Objectives: Students will be able to –

1. Examine the amounts and types of waste produced by students and their family members and analyze the contents; and
2. Compare and contrast their findings with results from other students.

Process Objectives: Students will –

1. Collect, weigh, count, analyze and record amounts of trash on a daily basis;
2. Calculate totals over a 5-day to 1-week period; and
3. Present amounts in a graph format.

Materials:**For teacher's presentation:**

- Flipchart paper and markers or chalkboard and chalk
- Copies of “Household Waste Audit Project Notification” to parents – one per student
- Copies of “Household Waste Audit Project” worksheet – one per student

For each student:

- One copy of the “Household Waste Audit Project Notification” to take home
- Assurance from parent of student having access to a scale at home
- One copy of the “Household Waste Audit Project” worksheet to take home
- Optional: Paper bags (1 – 2 per student) for newspaper and cardboard collection
- Optional: Plastic bags for trash collection (would vary per student based on family)

Anticipatory Set:

- Ask students to provide you with guesses for the following questions – write their names with their answers down on flipchart paper and save this information for later:
 - How many bags of trash might your family create in one day? How about in one week?
 - How many items might your family recycle each day? How about in one week?
 - How many paper bags full of newsprint and paper might your family create in one day? How about in one week?
- Announce to students that they will act as “Garbage Detectives” within their homes for a pre-determined period of 5 days to 1-week. During this time they will collect data about the waste their families discard or recycle while at home. At the end of this time they will perform calculations and graph the data then compare results with other students in class

Teacher’s Presentation or Modeling:

- Teacher reviews procedures for the waste audit and distributes copies of the letter and worksheet for students to take home. Teacher should discuss each column of the worksheet and give examples of what information can be logged into each, to help assure that students understand the assignment
- For at least five days each student will be in charge of analyzing, monitoring, calculating and recording the trash discarded by their family on a daily basis. The following information will be recorded:
 - # of pounds of trash (to be measured by scale or estimated based on # of filled garbage bags of the same size/volume)
 - Quantity of each type of recyclable item (plastics, glass, tin, aluminum)
 - # of pounds of newspaper/cardboard (to be measured by scale or counted by sheets)
 - # and description of any other items discarded (i.e., furniture, appliance, rug, etc.)

Guided and Independent Practice:

- Students complete the waste audit at home over a 5-day to 1-week period
- Students add up their quantities and/or weights of trash, recyclable items, newspapers and cardboard as well as other items
- Students contribute their results to a chart showing class totals
- Students calculate percentages of types of trash to trash total and present these findings in a graph format

Closure:

- Post up the information on flipchart paper collected during the “Anticipatory Set” for this lesson and encourage discussion on the following questions:
 - *Compare your findings with your earlier predictions. Were your estimates accurate or inaccurate? If they were inaccurate, what surprises you most about your findings?*
 - *Does your family discard the same amount of trash each day? Why or why not?*
 - *Do you think your family discards the same amounts of trash each week throughout the year? Why or why not?*
 - *Do you think certain factors influence what is discarded from a household? If so, what? Consider the following examples – are there any others not mentioned?*
 - # of people in the household
 - ages of people in the household

- *size and/or # of rooms of the living space*
- *personal preferences of persons in the household and/or what's affordable*
- Discuss any unusual items that can enter the waste stream on an occasional basis, such as household hazardous waste, batteries, items that could be re-used (i.e. clothing), furniture, or appliances that could possibly be recycled

Assessment:

- Participation in group discussion and responses to questions;
- Participation in accomplishing the project; and
- Correctness and comprehensiveness of graphs, worksheets and calculations.

Extensions:

- Invite a county or municipal solid waste or recycling official into the classroom to discuss how household waste and recyclable materials are handled after they are picked up from surrounding communities
- Take a class field trip to tour a local recycling center or an operating landfill.

Safety/Clean Up:

- Be sure that safety procedures are communicated to parents and guardians through the letter to be taken home by the students. Also, encourage that collected materials are recycled or discarded properly after the project is completed

Household Waste Audit Project Notification

Name of Student: _____

Date Notice is Sent Home: _____

Signature of Parent/Guardian: _____

Date Signed Notice is Returned: _____

Dear Parents and Guardians,

During the period of Day, Date through Day, Date, your child will participate in a household solid waste auditing project.

The purpose of the project is to have each student collect, count and/or weigh, analyze, monitor and record the various amounts of trash and recyclable items that are disposed of by members of their household. The students have been asked to be “Garbage Detectives” to perform this task.

Once completed, findings will be calculated and totals will be compared between students. Group discussion will focus on factors that effect the types and amounts of trash different households throw out, along with ways that trash can be reduced. How trash and recyclable materials are collected and managed within our nearby communities will also be explored.

Please help with this project by:

- Assisting your child with looking through household trash each day or advising them regarding safety issues (i.e., not to touch or pick up sharp or dirty objects);
- Providing your child with a pair of rubber gloves, a box of medium-size trash bags and 2 – 6 paper grocery bags, depending on how much newspaper and cardboard is discarded during this time;
- Providing your child with daily access to a home scale they will use to weigh bags of trash and bags of newspaper and cardboard; and
- Assisting your child with completing the calculations and worksheet (if needed).

Thank you for helping your child to learn about solid waste and our environment. Please have your child return the signed letter to me by Day, Date.

Sincerely,

Name of Teacher

Household Waste Audit Project Worksheet

Name of Student: _____

Location of Household – Street: _____

Town/Municipality: _____

Name and age of each person living in household during timeframe of project:

Name: _____ Age: _____

List here items that were disposed of by a member of your household during the auditing project that would be considered to be unusual or would enter the waste stream on an occasional basis. Items to consider include household hazardous waste, batteries, items that can be re-used (i.e. clothing), furniture, or appliances:

Day and Date	Disposed Trash - # of pounds or bags	Recycled Materials - # of each item for each material	Newspaper/ Cardboard - # of pounds or bags
Day One:			
Day Two:			
Day Three:			
Day Four:			
Day Five:			
Optional – Day Six:			
Optional – Day Seven:			