3.3 Trash Tally

A Look at What's In Our Trash

Overview

During the Trash Tally, students will collect and analyze trash to understand how much of it could or should have been recycled. This activity will serve two purposes:

1. Students do a public service by collecting trash; and
2. By analyzing that trash, students will become more aware of how they might be contributing to the trash problem.

Lesson Planner

Use the table below for lesson planning purposes.

Time Required	Trash Collection: 10-20 minutes Data Analysis: 5-15 minutes
Key Concepts/Terms	Watershed, 4 R's: Rethink, Reduce, Reuse, & Recycle
Prerequisites	Understanding of the watershed concept
Setting	Outside, Small groups of 3-5 students

Learning Objectives

After completing this activity, students will be able to:

- Understand how trash travels throughout the watershed and ends up in our streams, rivers and bays;
- Realize how much of the trash we find could have and should have been recycled or reused; and
- Explain how personal actions might be contributing to a major environmental problem.

Materials Required

The following materials are required to complete this activity:

- Bags for collecting trash (grocery bags are a manageable size; each group should have separate bags for recyclables and all other trash)
- ***Student Sheets – Trash Tally,*** pg. 14
- Clipboards
- Pencils
- Spring scales (if scales are not available, trash can be analyzed by volume / number of bags)
- Container for sharp objects, such as needles or broken glass* (An empty detergent bottle works well.)

  NOTE: Only adults should handle these objects, not students, and these should be disposed of as per biohazard guidelines.
- Optional: work gloves

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Procedure

Follow the steps in the table below to conduct the activity. **Sentences in bold are suggestions for what teachers might say to students.** *Items in italics are possible student answers to questions.*

Phase	Step	Action
Engage	1	Preparation • Choose a site that will be safe to clean. If along a shore, avoid areas with very deep water or swift current. Also, avoid steep ravines or hillsides, or areas of deep mud. If cleaning up a schoolyard, clearly define areas that are off-limits. • Determine how to dispose of trash. Get permission to use school or other trash facilities. Find out what is recyclable in your area.
	2	**"We are going to collect trash and analyze it to determine how it got there and how much of it could/should have been reused or recycled. One member of each group is going to be the data recorder, and the others will collect the trash and report their findings."**
	3	Divide students into teams of 3-5 people. Assign each team a specific area to clean.
	4	To each group distribute: • One clipboard, with a ***Trash Tally Worksheet*** attached • Two sets of bags: one for collecting trash, the other for collecting recyclables • A pencil • A spring scale • Optional: work gloves (one pair per student collector)
	5	**"When you collect a piece of trash, you need to decide if it is a recyclable item or not. Recyclables should go in separate bags from the non-recyclables. When a bag is full, take it to your data recorder, who will weigh it and record it on the Trash Tally worksheet. The first full bag that is weighed is Bag #1, etc.** As an alternative to having one person record as you go along, all group members can collect trash, and then measure and record data at the end of trash collection.

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Procedure (continued)

Phase	Step	Action
Engage	6	Go over safety rules: **a) Do not pick up hypodermic needles or waste medical supplies*.** **b) Do not pick up broken glass or bulging cans, which might explode when touched*.** c) **Do not pick up aerosols or propane containers*.** *Inform an adult, who will safely pick up these items.
Explore	7	Give students 10-20 minutes to pick up trash and collect the data, depending on the amount of trash and size of your chosen site.
	8	Dispose of the trash properly. Items that are in recyclable condition (relatively clean and free of dirt/sand) should be bagged separately and recycled.
	9	Compile the class data. Calculate the approximate percent that could have been recycled. This could be done by counting items, by weight, or by number of filled trash bags (if recyclables were bagged separately).
	10	Have students complete the rest of the ***Trash Tally Student Worksheet***, pg. 14.

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Procedure (continued)

Phase	Step	Action
Explain	11	Discuss student answers to the analysis questions on the ***Student Sheet – Trash Tally***, pg. 14. Sample answers are listed below: **What are the most common types of litter?** *Plastic is probably a large portion of the trash in any littered area because it lasts almost forever, and is light enough to be carried by wind or water. Other non-biodegradable trash will also rank high.* **Where did all this litter come from?** *The trash found on a shoreline could have come from anywhere in the watershed, even areas far from any stream. In heavy rainstorms, trash is carried by runoff into storm drains that empty into streams and rivers. Anything that can float could be carried long distances.* *Often, trash may be linked to a particular activity. For example, an oil container comes from someone who changed their oil, fishing line and chicken liver containers (livers are used for bait) from someone who fishes, etc.* **Are any of the collected types of litter hazardous to wildlife or the environment?** *Many types of trash put animals or water supplies in danger. Six-pack plastic rings and fishing line entangle animals, preventing them from moving or feeding. Oil and other automotive fluid containers usually leak small amounts of toxic chemicals into the environment. Bits of Styrofoam may be mistaken for food by animals leading to digestive problems and possible death when eaten.* **What else can we do to help solve the problem?** *The suggestions students have may range from deciding that they will not drop litter, to thinking about recycling at home or school, to thinking about buying products in containers that can be easily reused or recycled.*

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Procedure (continued)

Phase	Step	Action
Elaborate	12	• Assist the class in organizing cleanups on the school grounds involving other classes or grades, on a continuing basis. • Have students identify the trash that is most commonly found caught in the school fence, or along the edge of a parking area, and trace it to its source. Find ways to prevent its recurrence.
Evaluate	13	Use the ***Student Sheet – Trash Tally*** for evaluation.

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Trash Tally Student Worksheet

What You Are Going to Do

With your group, you are going to collect, sort and weigh trash to figure out what portion of it is recyclable, how it got there and how to solve the trash problem.

Objectives

After completing this activity, you should…

- Understand how trash moves through the watershed and ends up in our streams, rivers and bays;
- Explain how much of the trash you find could and should have been recycled or reused; and
- Be able to give two examples of how people's actions are contributing to this major environmental problem.

Materials Needed

Your group will need:

- Trash collection bags – one for recyclables, and one for all other trash
- A clipboard
- This worksheet
- A spring scale (to weigh your trash)

Part A. Collect the Trash

1. One person in your group needs to be the data recorder. This person will use the clipboard and the data table to record the data you collect during this activity.

2. Collect all of the trash in your area. Separate recyclables from non-recyclables in different bags.

3. When you have a full bag, take it to the data recorder. This person will weigh it and record the weight on the data table.

4. After the trash collection time is over, dispose of all the trash as your teacher tells you.

Part B. Collect the Data

Now we need to collect the data from the entire class.

5. Your teacher will put each group's data on the board. Copy down the all of the data on your data table.
6. Calculate the total weight of the following categories and fill in these numbers on your data sheet:
    - all of the bags,
    - just recyclable bags, and
    - just the non-recyclable bags.

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Part C. Analyze the Data

7. Answer the questions below to analyze your data.

What are the most common types of litter?

Explain how the litter got here.

Explain which kinds of litter are dangerous to wildlife or the environment and why.

What else can we do to help solve the problem?

Trash Tally Data Table

Bag #	Recyclable? (Yes or No)	Weight of bag

Total Weight of Recyclables = _____

Total Weight of Non-Recyclables = _____

Total Weight of All Trash = _____