

Every Litter Bit Counts!

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K - 5th Grade

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Every Litter Bit Counts

Teacher Lesson Plan



Listen to audio instructions for this lesson [HERE](#)

Unit length: 2 weeks
Time: 10-30 minutes per day



Overview



0:00

This unit provides students with an opportunity to think critically about waste generation and solutions. After observing and collecting litter in their neighborhoods, students will analyze their data and write an advocacy letter to a company, organization, or governing body of their choice.

History

The first synthetic plastic, called Bakelite, was invented in 1907 by Leo Baekeland. During World War II, synthetic plastics like Bakelite rose in popularity - there was a great need to preserve certain natural resources, so synthetic materials became their substitute. This caused plastic production in the United States to increase by 300% ([Science History Institute, 2020](#))!

Soon, plastic became the material of choice for everyday items, such as foodware and grocery bags. In the last 70 years, more than 83 billion metric tons of plastic has been produced globally ([ABC News, 2019](#)). In 2016, it was estimated that about 8 million metric tons of plastic enter the ocean each year ([National Oceanic and Atmospheric Administration](#)).

We can protect our oceans by doing our best to reduce how much plastic we use. When you have a choice, try to choose glass, metal, or paper instead!

Materials

This activity has two format options, depending upon student access to a smartphone. It is recommended that classes collectively complete one format, in order to make data comparisons easier.

Because students will be outside collecting litter, they should wear a mask and gloves (or some other form of hand protection such as a small plastic bag). It's also recommended that the collection portion of the activity is completed with an adult or older family member.

We'd love to hear from you! After completing this lesson with your student(s), please fill out this short survey to provide feedback that will help us improve our future lessons: surveymonkey.com/r/WasteLessonSurvey. Thank you!

Every Litter Bit Counts

Teacher Lesson Plan



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★ Purpose & Learning Objectives

This unit provides students with an opportunity to think critically about waste generation and solutions. After observing and collecting litter in their neighborhoods, students will analyze their data and write an advocacy letter to a company, organization, or governing body of their choice.

Standards & Topics Connections

<p><u>One Planet Living Topic</u></p> <p>Zero Waste, Products & Materials (Consumption)</p>	<p><u>Standards: NGSS, HSS, Common Core</u></p> <p>Problem Exploration</p> <p><u>NGSS:</u> 3-5-ETS1-1, 3-5-ETS1-2, 5-PS1-3, 5-ESS3-1</p> <p><u>HSS:</u> Development of the Local Community: Change Over Time, Physical and Human Geographic Features That Define California</p> <p><u>Common Core:</u> 3.MD.3, 3-5.RL.1, 3-5.RI.2, 3-5.RI.8, 3-5.W.1-4, 3-5.W.7, 3-5.W.8, 3-5.L.1-3</p>	<p><u>Environmental Principles and Concepts (EP&Cs)</u></p> <p>This lesson covers EP&C Principles 1, 2, 3, 4, and 5.</p>
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Adaptations & Extensions

Format 1 (with Litterati app): Students will need a smart phone with the Litterati app downloaded. The app can be found in the App Store or in Google Play. They will be required to create an account to access the app features. Students will also need a mask, gloves, and small bag to collect and dispose of litter.

Format 2 (without Litterati app): Students will use a pencil and paper to record the location, item type, and brand of the litter they find. They will also need a mask, gloves, and small bag to collect and dispose of litter.

Every Litter Bit Counts

Instructions for Teachers



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Unit Overview

The suggested timeline for this unit is 2 weeks.

WEEK 1 Students will begin collecting litter on Monday and use the Litterati app OR the "RethinkWaste Litter Journal Worksheet" to document litter throughout the week. On Friday, students will complete the reflections worksheet to submit on Monday of Week 2.

WEEK 2 During Week 2, students will analyze their litter data and collectively decide as a class on one organization or governing body to write an advocacy letter to. Each student will write their own letter, and submit on Friday of Week 2.

> Suggestion: Frame this unit as a friendly challenge!
Invite other classes at your school to participate and compete for which class can collect the most litter. Then compare data!

FORMAT 1 (Students use Litterati app): To conduct this unit using the Litterati app, download the app and create a challenge for your individual class. You will have the ability to limit the geographic area and time constraints of the challenge, as well as the "target" litter goal. You can find an instructional video on how to begin a Litterati challenge [here](#).

FORMAT 2 (Students use "RethinkWaste Litter Journal Worksheet"): To complete this unit without the Litterati app, students can fill out the "Litter Journal Worksheet" while collecting litter. Teachers may want to ask students to keep track of how many pieces of litter they've collected if conducting this in a challenge format.

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Student Worksheet



TIME ESTIMATE
10--30 minutes

Instructions 2:16

When people litter, their trash ends up in the environment and can harm habitats and animals. This week, we will be searching for litter and cleaning up the environment around us.

1. Before you go out to pick-up litter, make sure that you ask an adult for permission.
2. You must wear a mask and gloves or use grabbers when collecting litter. Do not touch litter with your bare hands!
3. Go with a buddy. Ask your older sibling, parent, or someone else in your household to join you.
4. One person (Teammate #1) will write down all of the information needed for the litter journal, while the second person (Teammate #2) will collect the litter. Feel free to take turns picking up litter and filling out the journal.

Teammate Roles 3:27

TEAMMATE #1 Your job will be to fill out the litter journal.

Be sure to have a pencil or pen and a hard surface to write on (like a clipboard or book). As your partner picks-up litter, talk about what you are writing down in the field journal, and answer all the questions on the worksheet. Remember to draw a small picture of the item. If you aren't sure what category an item belongs in, look at the word bank on the next page for some help. If you run out of room on the worksheet, use the back of the page or another sheet of notebook paper.

TEAMMATE #2 Your job will be to pick-up the litter.

Before you think about picking up any litter, make sure you have something to protect your hands. You can wear gloves or even put a plastic bag over your hand. The best and safest option is using a trash grabber if you have one! Collect the litter in any kind of container or bag. If using a plastic bag, you should place the bag in your garbage cart once you're done with it. If you use a reusable container, be sure to get an adult's permission first and wash the container well after you're done picking up litter.



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Student Worksheet

★ Key Terms 4:56

Hard plastic: Plastic that does not change shape when you try to crumple it in your hand, like water and soda bottles, yogurt containers, peanut butter jars, etc.

Soft plastic: Plastic that easily crumples into a ball, like wrappers, zip-top bags, plastic lids to snack containers, plastic bags, etc.

Metals: Cans for tuna, soup, beans, soda cans, aluminum foil, etc.

Paper/Cardboard: Boxes, junk mail, newspaper, wipes, tissues, napkins, etc.

Glass: Soda bottles, jars for pasta, jam, pickles, etc.

Food Scraps: Any uneaten food items

Landfill/Other: Plastic straws, plastic utensils, cigarette butts, masks, gloves, juice boxes, diapers, pet waste, etc.

Sample Litter Journal 6:54

Date: Tuesday, November 3



Item & Quantity	Drawing	Where	Category (Hard plastic, soft plastic, metals, paper/cardboard, glass, food scraps, other)	Brand
Item: Headphones Quantity: III (3)		Next to a soccer field	Other	Sound B. Gone

Let's Go!

Print the litter journal on the next page as many times as you need to document all the litter you find this week! If you don't have a printer, use a piece of notebook paper and copy the table.



Litter Journal

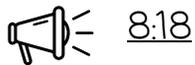


Date:

Item & Quantity	Drawing	Where	Category (Hard plastic, soft plastic, metals, paper\cardboard, glass, food scraps, other)	Brand

Litter Flow Activity

Grades 1-5



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Let's spend a moment thinking about how litter gets into our environment, and where it might end up. Take a look at the image below. For each of the circled objects or places, trace with your finger or say out loud the path that the litter might have taken to get there, and then how the litter might end up in the creek.

Optional: Print this page and draw arrows to show the path of the litter.

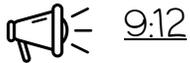


Source: Santa Clara Valley's Pollution Prevention Program

Next: Once litter makes it to the ocean, does it ever really break down? Take a look at the image on the next page to find out.

Litter Flow Activity

Grades 1-5



Source: NOAA (National Oceanic and Atmospheric Administration) and Woods Hole Sea Grant, US

Let's Rethink...

Are you surprised by the amount of litter that you found outside? Plastic, paper, glass, and more are commonly found on our streets, roads, and even places in nature like beaches! According to an organization called Keep California Beautiful, we are never more than 12 steps away from a piece of litter when we are outside. That's a lot of litter! It's important for all of us to understand the negative impact litter has on our world. Let's reflect on our findings and brainstorm solutions.

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Reflection Questions 9:59

**Answer the questions below
in complete sentences:**

1. What were the three most common items that you found during your litter hunt? Why do you think people litter these items so much?
2. Use the chart in the Litter Flow Activity to figure out how long it will take for these 3 items to break down.
3. How do you think so much litter gets into our environment?
Hint: Refer to the diagram in the Litter Flow Activity for clues!
4. You looked for litter around your neighborhood, but litter is everywhere! Where did you find the most litter? Why do you think it was a common place for litter?
5. Imagine an empty plastic water bottle out on the side of a road. Because it is empty, the bottle is light enough for the wind to carry it away and into a storm drain. The storm drain empties into the bay, and the bay leads to the ocean. What might happen to the plastic water bottle once it is in the ocean?

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Reflection Questions Continued



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6. Kelly just finished having a picnic at the park with his dad and sister. They're all packed up and ready to head home. Kelly notices that his little sister has left her plastic fruit snack wrapper in the grass. What should Kelly (nicely!) say to his sister?

7. By now, we know that the best way to prevent litter from entering the environment is to not litter in the first place. The next time you're in a natural space (a yard, a park, a beach, etc.), what are two new things that you can do to make sure that your waste does not end up in the environment? Hint: "Don't litter" is not the answer!

8. Now, let's take a good look at our data. Use the graph below to compare the 5 items that you found the most of. Write the name of each item below the x axis. Don't forget to give your graph a title!



Advocacy Letter

Use Your Voice for Good!  12:57

Grades 3-5

One way that we can use our voices to speak up for positive change is by writing letters to companies, organizations, and governing bodies like city councils that make important decisions. This is called an advocacy letter. Advocacy letters are meant to share feedback and ideas that we might have for the letter reader.



Getting Started

1. Think about an item that we found a lot of during the week.
2. Then, think about who would be the best person or group who could help change that.
3. What do we want to ask them to do to prevent that item from being littered so often?

Look at your litter data - what item did you find the most of and who would you like to write to? When writing the letter, you can follow this format:

1. Greeting
2. Introduce yourself
3. Explain why you are writing and the item you found a lot of
4. Why is littering, especially of this item, bad for the environment?
5. What can the reader do to help?
6. Thank you
7. Signature

Advocacy Letter

Use Your Voice for Good!



Use this example as inspiration for your own advocacy letter:

Dear Arrowhead,

My name is Xavi and I am a 3rd grade student in East Palo Alto, CA. This week, my classmates and I went around our neighborhoods and picked up litter. I picked up 15 plastic water bottles with Arrowhead's label on them. My class picked up a total of 52 plastic bottles.

When plastic bottles are thrown into the environment instead of into the recycling bin, they can make their way to the ocean and hurt animals like fish and birds. The animals think the plastic is food and can swallow bottle caps and get very sick.

I think it would be really great if Arrowhead shared how people can protect the environment. One example could be encouraging people to use reusable water bottles. Another example could be buying the big containers of water instead of the little ones. You can also remind people that they need to put the bottles in the recycling bin when they are done with them so they can be made into something new.

These would help us make less plastic waste and not hurt animals and the environment. I hope to hear from you soon!

Sincerely,
Xavi