Story of Litter

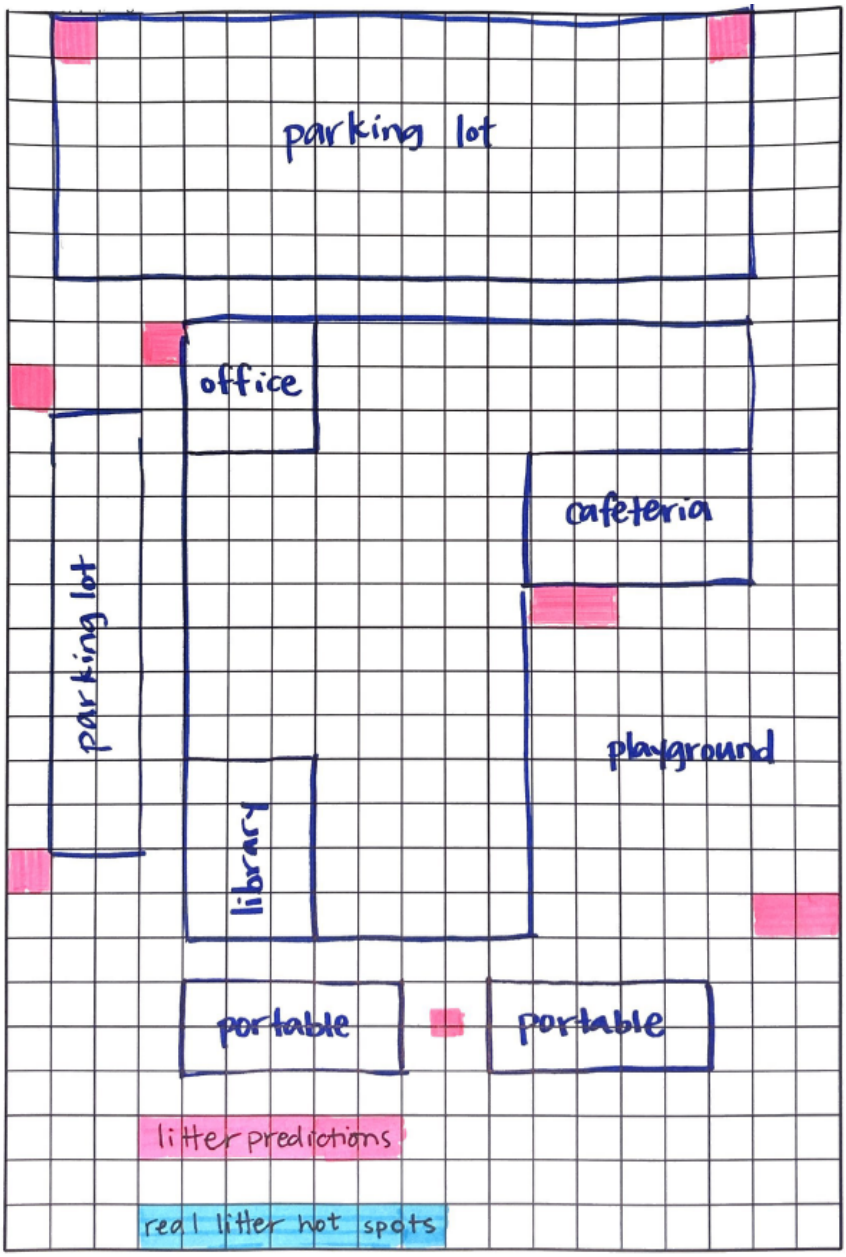
Optional Extension Activities

Creating Categories

1. Ask students for their observations of the litter they picked up. Did they see a lot of a particular item? Did they notice a lot of different items made of the same material?
2. Together, brainstorm different categories you can divide the litter into. Examples include material (such as plastics, paper, or metal) or recyclables and non-recyclables. You can even turn this into a density experiment and ask students to predict what items may sink or float based on their physical properties. The sky's the limit, y'all!
3. Ask students to predict what the most common litter item was and/or which category will contain the greatest number of items.
4. Lay out large pieces of newspaper or craft paper on the floor and sort the litter into the different categories you decided on (see the example photo below).
5. Ask students to describe any patterns they notice. Were their predictions correct? If not, why?
6. Ask students how they can use this information to educate their community.
7. Consider creating a bar graph that illustrates the relative number of items found in each category.
8. Refer to the City of San Antonio's recycling guidelines and dispose of the items properly.

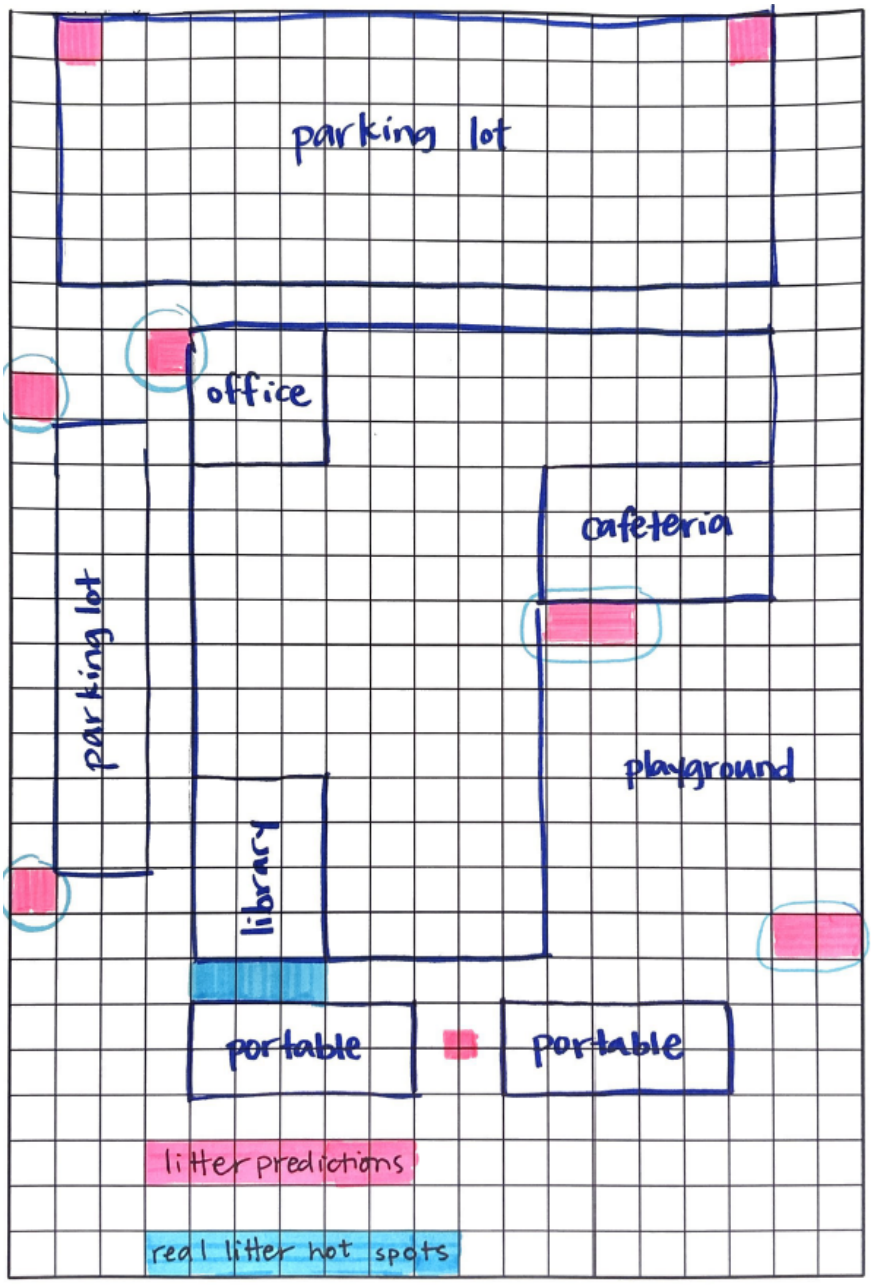
Mapping Your Campus Part 1 – Before the Litter Pickup

1. Use satellite view on Google Maps to get a bird's-eye view of your school grounds. Divide the students into groups and ask them to draw a map of the school property on graph paper. It may be helpful to label parts of the school, like the cafeteria or parking lot, as well as adjacent streets to orient them.
2. Ask students if they remember whether there are certain places where trash seems to collect. Where do they predict they will find litter during the litter pickup? Have the students label those locations on their map (see example below).



Mapping Your Campus Part 2 – After the Litter Pickup

1. Ask the students to discuss the spots where they found the most litter on campus. Why do they think litter collected in those locations? Does the land slope in a way that leads to a lower point where rainwater flows? What can this tell you about how water flows throughout a watershed?
2. Have the students revisit their map from before the litter pickup. Were their predictions correct?
3. Ask the students to document the locations where litter actually collected on their map.
4. Referring to their maps, challenge the students to think of solutions to this problem. For example, would it be helpful to have trashcans in specific locations? What about informational signs? Perhaps a school litter patrol? Let them take ownership of the solutions they propose!



Create an Educational Campaign

One of the most impactful ways to make a difference is through education. Challenge your students to create an educational campaign that inspires people at their school or in their community to take action.

A great example of an educational campaign is making informational posters to display at school, at the bus stop, next to your neighborhood mail center, etc. It's a challenge to create something informative, concise, *and* aesthetically pleasing. Take a look at the hallway exhibit created by Ms. Richie's middle schoolers at Gus Garcia University School below!

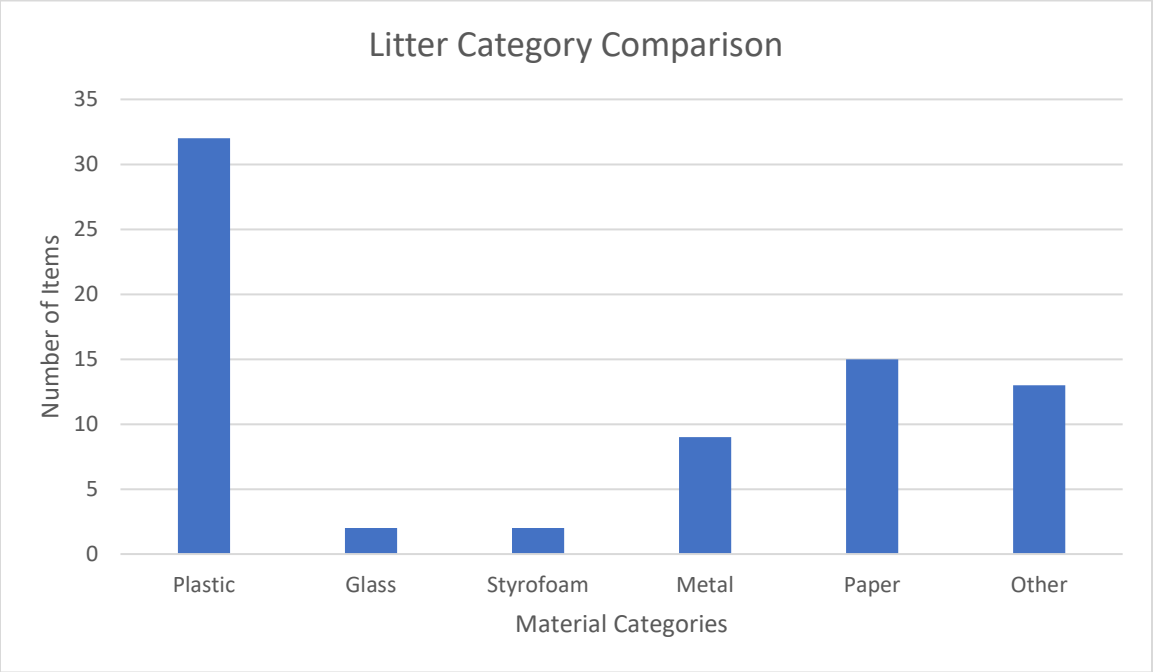
Have you ever had a song in your head that just wouldn't leave?! Same. Students who love to create music may choose to write a song to spread the word. Check out the San Antonio River Authority's Trash Pledge Song!

There are countless other methods to get the word out. Feel free to get creative!

Math Connections

We love the idea of incorporating multiple content areas into an activity to help students make cross-curricular connections. Here are a few ideas for connecting math with *The Story of Litter*.

1. Create a bar graph to compare the number of items collected in different categories. This data is a great visual that can be incorporated into school or community messaging to increase awareness around the issue of litter. See the example below.
2. Extrapolate the data! Ask the students to determine the number of schools that are in their school district. Multiply the total weight of the litter you collected by the number of schools in your district to approximate the amount of litter that is cluttering up campuses within your district. What actions might your students recommend to solve that problem? Ask students to write a letter to your district superintendent with their suggestions.
3. Expand on the activity above by having students estimate the amount of litter that is cluttering up the grounds of every school in your city and/or county. Ask students to write a letter to the appropriate city and/or county official with their recommendations.
4. Pose this math problem to your students. Think about what you learned today about litter and how to solve this problem. If you told 2 people what you learned, how many people would know the information you shared? What if those 2 people told 2 more people? What if each of those people told 2 people? Ask students to determine the number of "rounds" that their information would have to travel in order for 1 million people to know. It's like good gossip!



Classroom Trash Audit

Reducing litter in the environment may seem like an overly ambitious goal, but we can simplify the process by generating less waste. A great place to start is a classroom trash audit.

1. Ensure that your entire classroom – students and teachers – collect all of the trash and recycling that is produced in the classroom during a set period of time such as one day or one week.
2. Once that time period has passed, students and teachers sort through the trash and place it into categories, much like the “Creating Categories” activity above.
3. Dig into the data! Consider asking questions such as:
    a. What was the predominant type of material of trash items in our classroom?
    b. Is there something that was thrown away that could have been reused, such as scrap paper?
    c. How much of our waste was just packaging material?
    d. Are we using disposable items that could be replaced with a sustainable option?
    e. Is there a certain brand or company whose products we often throw away? Does that company have a take-back program we can utilize instead of throwing those items away? If not, how can we advocate for that change?
4. If students wish to expand on this, encourage them to conduct a trash audit at home. The results are sure to be enlightening!

Other Ideas

- Visit The Ocean Cleanup Plastic Tracker to track plastic litter's potential path just about anywhere on the planet!
- Challenge your students to identify the natural resources that were used to create the litter items you picked up and describe how the conservation of resources may benefit the ecosystem.
- Now that your students know how litter on the land makes its way into storm drains and eventually into our creeks, rivers, and marine ecosystems, challenge them to design a machine that can help us combat this issue. Bonus points for building a prototype!
- Explore the data regarding waste generation, recycling, composting, various materials, and much more on the EPA's Facts and Figures about Materials, Waste and Recycling website.
- Did you and your students find a bunch of items belonging to the same brand, company, or organization? Use the data you collected and reach out to those organizations to start a conversation around how they can reduce waste.
- Play the game "Oh, Deer!" with your students to model the natural changes in animal populations as the availability of resources in the ecosystem changes. Expand on this by "removing" resources from the game in response to a negative human activity such as an increase in the amount of litter from a new development. What happens to the population of that species when more litter makes its way into the environment? Follow up by modeling the effects of positive human activity, such as litter pickups, by "adding" resources back into the ecosystem.