

Name: _____

Date: _____

Waterway Cleanup Pollution Study – Activity Guide

Background

Marine and aquatic habitats worldwide are contaminated with man-made debris. Man-made debris includes any form of manufactured or processed material discarded, disposed of or abandoned in the environment as litter. Litter is not only a serious aesthetic problem; it is a serious water pollution problem that impacts wildlife and their habitats, human health and safety, the economy and social values. The problems of litter in the environment are now recognized internationally alongside other major global challenges facing the environment. Litter is now found all over the Earth, from the poles to the equator, from shorelines to estuaries and the sea surface to the ocean floor.

Research, monitoring and assessment of litter in the environment are important for developing solutions. Through this activity, you will collect and report data characterizing the type and amount of litter you are finding in your local watershed. You can use this information to identify and propose solutions for litter in your watershed. This activity uses the online mapping and reporting platform Litterati. Litterati uses an interactive photography app for mobile devices to allow users to upload photos of litter to a global map and database along with the location of where the litter was found. You can go to Litterati.org to view an interactive map of litter photographed around the world and for current reports of litter photographed by litter type (i.e., plastics, paper etc.,...). Before starting this activity, you will need the Litterati app or Instagram installed on a mobile device. We also recommend reviewing the information in “Staying Safe Outdoors and Online” available on the Delta Conservancy’s website at www.deltaconservancy.ca.gov.

Materials

- 1 mobile device per group (mobile phone or other mobile device compatible with the Litterati app or Instagram)
- Plastic bag for recyclables (Glass bottles, aluminum cans, plastics numbered 1 and 2)
- Plastic bag(s) for all other trash
- Pen/pencil and something to write on
- A scale for weighing litter (optional)
- Protection from the sun (sunscreen, hats, etc.)
- Sturdy shoes that you don’t mind getting wet (rain boots, hiking boots, etc.)
- Gloves (dishwashing, gardening, etc.)
- Long pants and sleeves if you are walking in tall weeds

Pre-Lab:

What possible causes might lead to litter in the creek: _____

Where do you think litter in the creek may ultimately end up? _____

What problems do you think litter in the environment might cause and why? _____

Name: _____

Date: _____

Hypothesis:

Create a hypothesis as to what kind of litter you expect to find the most at the creek and its impact on the health of the watershed. Include a reason why you expect to find this type of litter the most:

Procedures

1. Organize into a group of three and write the name of the person who is responsible for each job.
 - Collector – Picks up the trash and places it in either recyclable bag or the non-recyclable bag.
Name: _____
 - Photographer – Takes a picture of the trash using Instagram or the Litterati mobile app and assigns hashtags.
Name: _____
 - Recorder – Records and tallies the trash.
Name: _____
2. First photograph the litter, then collect it and lastly tally it.
3. When photographing the trash, a hashtag needs to be added to categorize the type of litter. See the list of hashtags on the last page of this activity guide. If you are using Instagram, also add #Litterati. If you are in the California Bay-Delta region, add #CaDelta. Your organization may also have a hashtag to include. For more information on hashtags, see the guide to “Staying Safe Outdoors and Online” available on the Delta Conservancy’s website at www.deltaconservancy.ca.gov.
4. Tally each piece of trash on the tally sheet. If it is something not listed you can list new categories on the Notes page at the end of this handout.

Data

Number of Recyclable Bags collected: _____

Weight of Recyclable Bags collected: _____

Number of Nonrecyclable Bags collected: _____

Weight of Nonrecyclable Bags collected: _____

Most peculiar item(s) collected: _____

Results

- With your group members, organize your tally sheet into categories.
- Please use the most prevalent kind of litter as its own category.
- Total the tallies for each category.
- Create a bag graph using your groups selected categories.
- Please make sure that your graph includes a title, legend, an x-axis that is labeled and has the correct unit, a y-axis that is labeled and has the correct unit, and axes are correctly scaled.

Questions

1. Was your hypothesis correct? Why or why not?
2. What kind of litter was found most often?
3. Based on what you saw during the cleanup, what do you think about the health of the waterbody?
4. How did you feel when you picked up someone else’s litter?
5. What do you think were the behaviors or activities that resulted in the litter you found?
6. How do you think litter affects human health and safety?

Name: _____

Date: _____

7. How do you think litter affects wildlife and habitats?
8. How did the site compare before and after the cleanup?
9. Who could we ask to help solve the problem of litter in the environment and what would you ask for?
10. What could we ask surrounding community members to do to help keep the creek clean?
11. What can you do to minimize the problem of litter pollution?

Conclusions

Write a conclusion in 2-3 paragraphs. Please include:

- The purpose of the experiment (hypothesis).
- How you conducted the experiment (methods).
- Your results as well as an analysis of your results. Did the data agree with your hypothesis? Explain why or why not.
- Using the data, explain how the types of litter might affect stream flow, water quality and wildlife.
- Explain possible strategies that might be taken by individuals, communities, and society to reduce litter pollution in watersheds.

Name: _____

Date: _____



Waterway Cleanup Tally Sheet

Wear gloves and please pick up all litter, unless it is unsafe (i.e., sharp, unhygienic or heavy). Remember small litter may be confused with food and ingested by wildlife. While the Collector is collecting, the Recorder should keep a tally of the items listed below. Write the final total for each item at the end and circle it.

Packaging

- | | |
|--------------------------|---------------------------|
| #plasticbag _____ | #glassbevbbottle _____ |
| #ziplocbag _____ | #plasticcap _____ |
| #paperbag _____ | #metalcap _____ |
| #otherbag _____ | #bevcan _____ |
| #foodwrapper _____ | #plasticcontainer _____ |
| #plasticcup _____ | #styrofoamcontainer _____ |
| #papercup _____ | #plasticplate _____ |
| #styrofoamcup _____ | #paperplate _____ |
| #stirrer _____ | #plasticsilverware _____ |
| #straw _____ | #6packrings _____ |
| #plasticlid _____ | #cleanerbottle _____ |
| #plasticbevbbottle _____ | #petroleumbottle _____ |

Other Litter

- | | |
|-------------------|-------------------------|
| #pen/pencil _____ | #smallelectronics _____ |
| #toy _____ | #plasticnetting _____ |
| #balloon _____ | #fishinghook _____ |
| #ball _____ | #fishingline _____ |
| #shoe _____ | #fishinghook _____ |
| #clothing _____ | #otherfishinggear _____ |
| #rope _____ | #miscplastic _____ |
| #styrafoam _____ | #battery _____ |
| #carpart _____ | |

Smoking Related Debris

- | | |
|-------------------------|-----------------------|
| #cigarettes _____ | #cigar _____ |
| #cigarettelighter _____ | #tobaccopacking _____ |

Large Debris (Remember you are not responsible to pick up large debris only for tallying it.)

- | | |
|------------------------|-------------------------|
| #largeelectronic _____ | #buildingmaterial _____ |
| #appliance _____ | #tire _____ |
| #furniture _____ | #foamcushion _____ |

Name: _____

Date: _____



SACRAMENTO - SAN JOAQUIN
DELTA CONSERVANCY
A California State Agency

Small Debris Less than 2 cm

#styrafoampieces _____

#plasticpieces _____

#glasspieces _____

Notes