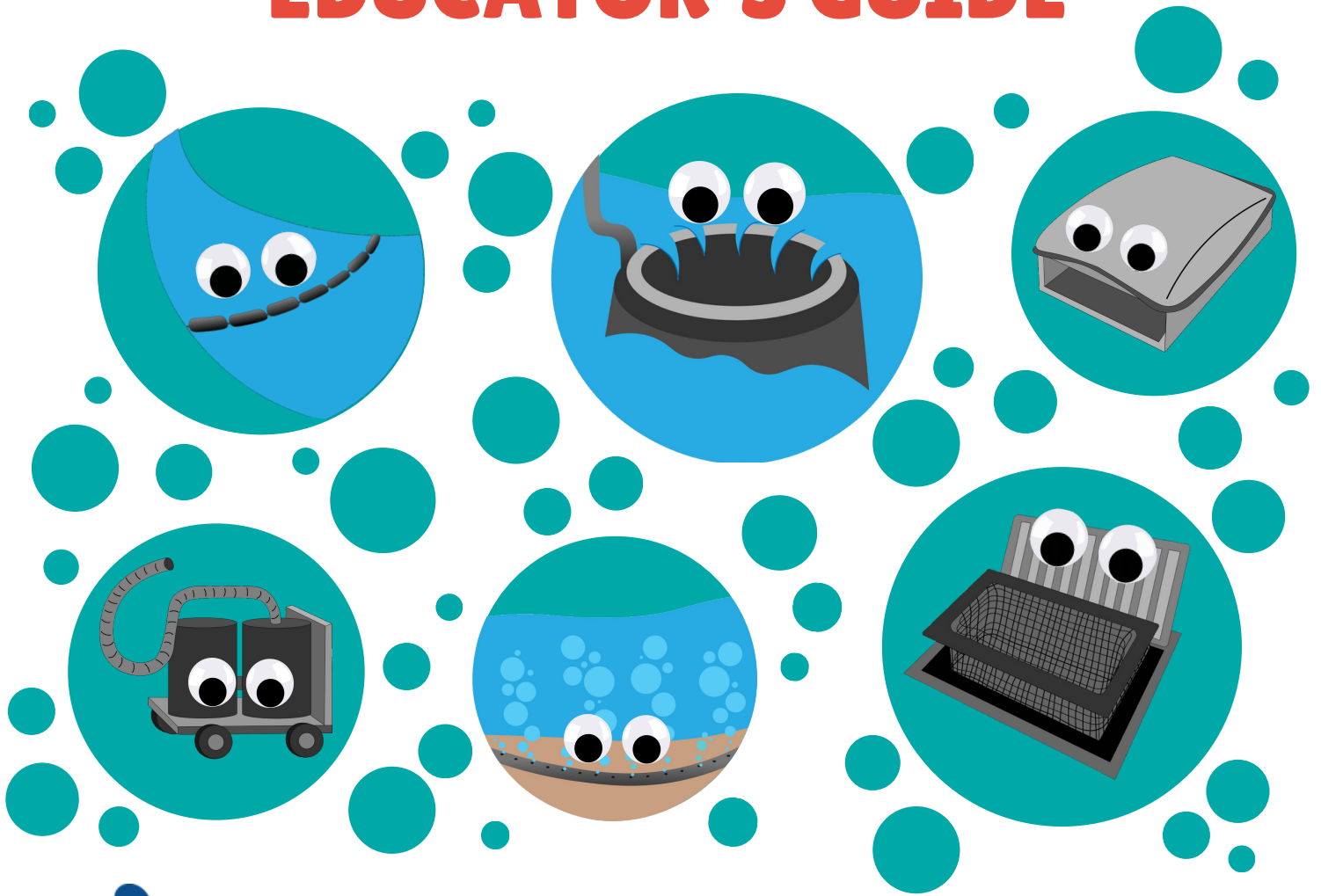


TRASH TRAP ACTIVITIES

EDUCATOR'S GUIDE



**INTERNATIONAL TRASH
TRAP NETWORK**

Ocean Conservancy

University of Toronto Trash Team

CONTENTS

This educator's guide contains three activities designed for members of the International Trash Trap Network to use for local education and outreach.

Activities In This Guide:

1

How a trash trap, traps trash: Understanding how trash traps work, the different types of trash traps and the waste items they capture and divert from the environment.

2

Trash trap dive: A guided waste characterization to observe the weight and types of waste captured by your local trash trap, including most common items.

3

Science to solutions: Understanding how trash traps can be used to inform upstream solutions through the collection of data and the collaboration of local stakeholders.

These activities are designed to be delivered sequentially, but may be adapted to be delivered individually as stand-alone activities. These activities were created with an audience between the ages of 8 and 12 in mind, however all activities can be adapted for different ages.

Each activity includes an overview, learning objectives, recommended setup and materials, instructions, and a conclusion and reflection to tie it all together. For each activity, there is an accompanying worksheet within the [workbook](#) for participants to complete.

For more information about the International Trash Trap Network, including access to other online resources, visit our website: trashtrapnetwork.org.

ACTIVITY 1:

HOW A TRASH TRAP TRAPS TRASH



OVERVIEW

In this activity, participants will be introduced to what a trash trap is, and they will learn about different types of traps and explore how they are best suited for different scenarios. Participants will also discuss what they think the most common waste items collected by their local trash trap(s) are.

LEARNING OBJECTIVES

After completing this activity, participants will:

- Understand the purpose and value of a trash trap to increase cleanup efforts.
- Learn the importance of a trap to increase awareness of plastic pollution and inform solutions to reduce plastic waste at the source.
- Understand the different types of trash traps, how they function and how they are each suited for different scenarios.
- Consider the common waste items in their local waterways and predict which of these might be collected most often by their local trash trap.

SETUP AND MATERIALS

- **Workbook:** Familiarize yourself with the trash traps included in Activity 1 within the workbook, note how each trash trap functions and the differences between them.
- **Scissors and Glue:** Provide to participants for the matching game. Glue is optional.

MEET THE TRASH TRAPS!

Explain the definition of a trash trap including how different trash traps function, and how they are an important addition to community cleanups:

- Trash traps are technologies designed to clean up plastics and other waste from the environment.
- There are many different types of trash traps. Some traps are passive and stay in one location, e.g., mounted to a dock. Other traps are active and move around, e.g., remote controlled devices.
- Trash traps can also be used in a variety of environments, from urban storm drains, to lakes, to river channels. The environment that a trash trap is used in depends on its design.
- To tackle plastic pollution requires a combination of reduced plastic production, improved waste management and cleanup. Community cleanups, where groups of people gather to remove plastic and other anthropogenic debris from our local environments (coastlines, parks, etc.) collect large amounts of trash every year, and trash traps can help us increase this number.
- Trash traps are a great addition to community cleanups because they can function throughout all hours of the day.

- Trash traps can also be designed to collect a wide range of waste items, including tiny fragments of plastics (such as microplastics) that are challenging to collect by hand.
- Trash traps can be used to collect data. By weighing, counting and categorizing the trash diverted by trash traps, this information can be used to identify the most common local waste items and inform upstream solutions to prevent these forms of pollution from entering local waterways.
- Trash traps are cool! For this reason, they often grab the attention of members of the public and can be used as a focus point to talk to people about plastic pollution and share information about actions they can take to tackle this issue.

Ask participants to read the descriptions in Activity 1 of the workbook for some of the different types of trash traps currently in use around the world. This information includes how each trash trap functions, the environments they are best suited for and the types of trash they typically capture.

PLAY THE MATCHING GAME

Have participants review the image within the workbook, showing different environments within a watershed. Participants will use their scissors to cut out the pictures of trash traps and match each trash trap to the environment they think it would be most suitable for.

After everyone has finished matching the traps and environments, as a group, discuss which environment they have matched with each trash trap and the reasons why.

The answers to the matching game are below:

- Coastal waters - Drone OR Stationary Skimmer
- Marina – Drone OR Stationary Skimmer
- River – Boom OR Bubble Barrier
- River - Boom OR Bubble Barrier
- Beach - Vacuum
- Car Park – Stormwater Filter

After the participants are familiar with the different types of trash traps, have a group discussion about the kind of trash trap you have locally, where it is located, and why it is needed in this location.

GUESS THE TOP WASTE ITEMS

Ask participants to use the space within the workbook to draw and/or list the top five waste items they might expect to find in their local trash trap. Number these from 1 to 5, with 1 being the most common item they expect to find.

Ask participants to share their top items. As they do, encourage them to discuss the sources of each item, what they are used for and why they think these items might be the most common.

CONCLUSION AND REFLECTION

To conclude Activity 1, remind participants of how trash traps can play a valuable role in local solutions to plastic pollution. There are many different types of traps, and each is suited to a different scenario, which means that planning before installing the trash trap is important to ensure long term success. As well as ensuring your local trash trap is the right one for you, it is also important to monitor what the trap collects and use this data to inform other solutions and management actions, which is what you will be exploring in Activity 2.

ACTIVITY 2:

TRASH TRAP DIVE



OVERVIEW

In this activity, participants will carry out a guided waste characterization of the waste captured in their local trash trap. For this activity, we suggest following the International Trash Trap Network [Detailed Waste Characterization protocol](#) from start to finish (i.e., from emptying the trap through to complete waste characterization). This protocol and datasheet can be found on the ITTN website.

For a shorter activity, trash can be collected and separated from organic matter ahead of time, or participants can characterize a portion of the total waste collected.

We encourage you to include data collected in this activity as part of your data reported to the International Trash Trap Network. If the data collected is incomplete, we would love to hear from you anyway! Please send photographs and feedback to info@trashtrapnetwork.org.

LEARNING OBJECTIVES

After completing this activity, participants will:

- Have hands-on experience in characterizing waste collected by their local trash trap, and data collection.
- Be able to summarize data to identify the most common items of waste collected by their trap and the total amount of waste captured during a certain time period.
- Consider the sources of waste collected by the trash trap.

SETUP AND MATERIALS

- **Workbook:** Participants should have their workbook with them for the trash trap dive so that they can compare what they find during the waste characterization with their top item guesses from Activity 1.
- **Waste Characterization Materials:** Refer to the [ITTN Detailed Waste Characterization Protocol](#) for a suggested materials list.
- **Waste Characterization Datasheets:** For a small group (~5 individuals), one datasheet can be used for all data recording. For groups of more than 5, divide the group into two or three and provide each with a datasheet to complete.
- **Sharps and safety plan:** Plan for handling sharp items, including syringes or pieces of broken glass. For young participants, trash may need to be sorted prior to the activity to remove any sharps or unsafe items.
- **Location:** Identify a suitable location for the waste characterization activity and where to leave the bags of trash and recyclables for collection.

TRASH TRAP OBSERVATION

Bring participants to the site of a local trash trap that will be used for the waste characterization activity.

Discuss with the group how the trash trap functions and observe it in action.

- Is it stationary or moving?
- Does it require a power source?
- How does it collect trash?
- What types of trash do you anticipate finding in the trap?
- Can you identify any of items currently captured in the trap?

WASTE CHARACTERIZATION

Begin the waste characterization following the ITTN Detailed Waste Characterization Protocol, i.e., remove the debris from the trash trap and separate this into several portions if you have multiple groups, weigh the debris, separate the large and small trash (if applicable), count and categorize the items captured.

Record the data on your datasheet(s). Summarize the data and fill in the following within the Activity 2 worksheet in the workbook:

- How long the device was active for
- Total weight of debris
- Top 5 items counted

Discuss the results together and scale up the numbers to estimate the amount of trash that could be diverted in the long-term. For example, if the trap captures 1 kg of trash per day, it could capture and divert 365 kg of trash per year from your local waterway.

Compare the top five trash items collected in the waste characterization activity with previous guesses noted by participants in Activity 1 within the workbook.

- Are the items the same or different?
- Were there any unexpected items captured by the trap?
- What are the sources of some of these items?

Don't forget to return the trash trap to its original position once you have finished this activity, and dispose of the waste appropriately.

CONCLUSION AND REFLECTION

To conclude Activity 2, discuss together why it is important to collect data on the waste collected by a trash trap. What does the data tell us about local sources of pollution and litter, or items that people are using most often? How might this data be useful to prevent plastic pollution in the future? Who else might this data be useful for? This is what you will be thinking about for Activity 3.

ACTIVITY 3:

SCIENCE TO SOLUTIONS



OVERVIEW

This lesson was inspired by the University of Toronto Trash Team's 'Solutions to Plastic Pollution' classroom lesson, available on [their website](#).

In this activity, participants will discuss how trash traps can be used to inform solutions to reduce plastic pollution, and how different groups can collaborate to implement management actions.

LEARNING OBJECTIVES

After completing this activity, participants will:

- Understand how the data collected from monitoring trash traps can be used to inform solutions for reducing plastic pollution.
- Be able to describe the different levels where action on plastic pollution can take place (individual, community, industry, government).
- Understand the value of different groups working together to implement solutions for plastic pollution.

SETUP AND MATERIALS

- **Workbook:** Identify the top 5 items collected from your local trash trap. For this, you can use one of the following:
 - Data collected during the trash trap dive in Activity 2.
 - Previous data collected from your local trash trap (e.g., an ITTN local data summary from a previous year).
 - Top items within the annual International Trash Trap Network reports, which can be found on the ITTN website.

WHO IS RESPONSIBLE FOR SOLUTIONS TO PLASTIC POLLUTION?

Explain to the group how waste characterization data collected from trash traps can provide information on the most common waste items that are entering the environment locally, and that by understanding the sources of these waste items, we can identify potential solutions to manage this pollution.

Introduce the different groups and their role in plastic pollution solutions. Explain that solutions for plastic pollution are most successful when carried out by a combination of local groups working together. There can be many different examples of groups, and four common examples of groups involved with plastic pollution solutions are below. Ask the groups to look at page 12 of the workbook, and share each of the descriptions below.

Note: We acknowledge other groups may play a role in your region and encourage you to work that into the discussion as appropriate.

- **Individuals:** People like you and me. We can take individual actions in our daily lives to reduce plastic pollution and share ideas with others to spread awareness. Examples: You, your classmates, teacher friends, principal, family members.
- **Community:** Groups of people that work together to reduce plastic pollution in the community. Examples: local non-profits or environmental volunteer organizations.
- **Companies:** Businesses that either make products or sell them and can help change how products are made and sold to reduce extra waste. Examples: grocery store, coffee shop, toy store.
- **Government:** A group of people that help create laws for individuals and communities. New laws can help ensure a long-lasting reduction in plastic pollution. Examples: Governance can happen at different levels, from your town, city, or province to the entire country.

While these are four different groups, they will often interact with each other. Each of these groups plays a role, and they can share a common interest in reducing local plastic pollution but approach the topic from different perspectives. Ask participants to look at the Group Interactions diagram in Activity 3 in the workbook, which visualizes this relationship, with individuals as the common link between all four groups.

SOLUTIONS FOR PLASTIC POLLUTION

Ask participants to separate into smaller groups and brainstorm actions that each of the stakeholders groups could take to reduce waste and waterway pollution of one of the top five waste items noted earlier. This should include details of a specific action, who will be leading it and who it will impact. E.g., a community educational campaign, a company making changes to a product design, a government law that bans a certain waste item. Ask participants to think about how these actions will impact plastic waste and pollution locally and imagine how each of the four groups (individuals, community, companies, government) might interact to make this solution a success.

Example responses for a plastic bottle:

- Individuals can choose not to use plastic bottles.
- Community can organize cleanups to remove littered plastic bottles.
- Companies can redesign the plastic bottle to use fewer materials/reuse materials or sell in a different way that encourages reuse.
- Government can ban plastic bottles or add deposits to the purchase of bottle that encourages returning them for refund when done.

Participants should fill in the table for workbook Activity 3 with potential actions for each group.

After each group has come up with actions to reduce pollution of their waste item, lead a discussion by asking each group to share their item, their proposed actions for each group and how the different groups might interact to make the actions a success. Ask participants if they think groups can have a stronger impact by working together or working on their own and to explain their answer in the workbook.

CONCLUSION AND REFLECTION

To conclude Activity 3, ask the group to think about what they can do as individuals to reduce pollution of the most common waste items found in your local trash trap. This can include small actions they can do today or tomorrow. Encourage participants to act on that idea and share their knowledge with others!

ADDITIONAL ACTIVITY IDEAS



ARTS AND CRAFTS

Using trash collected by your trash trap, you can create some artwork or build a sculpture to draw attention and build awareness to the local issue of plastic pollution.

EDUCATIONAL POSTERS

For one of the top five waste items collected by your local trash trap, design a poster that could be positioned around your local area to inform members of the community about this form of pollution and what they can do to prevent it.

USE YOUR VOICE

For one of the top five waste items collected by your local trash trap, write a letter to one of your four local groups (e.g., local government representative or a local business) encouraging them to play their part to reduce this form of waste and pollution. Example letters can be found on the [U of T Trash Team website](#) (Solutions to Plastic Pollution Activity 3).

U OF T TRASH TEAM: LESSON PLANS

The University of Toronto Trash Team has developed lesson plans that focus on waste literacy, with activities that explore our relationship with plastics and their impact on aquatic ecosystems. All lessons are designed to inspire solutions towards plastic pollution. While designed from our Grade 5 lesson plans, these can be adapted for all ages, and are designed to work both in the classroom and at home. Visit the [U of T Trash Team website](#) for more information.

TRASH FREE SEAS: TALKING TRASH & TAKING ACTION

Ocean Conservancy has partnered up with the NOAA Marine Debris Program to develop their 'Talking Trash & Taking Action' resources. These resources aim to educate the next generation about ocean trash, and most importantly, how we all can prevent it. Visit the [Ocean Conservancy website](#) for more information.

Through the International Trash Trap Network we hope to connect groups around the world to share knowledge as trash trapping efforts grow.

Join our [Facebook group](#) to stay connected with the network and to share your trash trapping experiences from data collection to education and outreach.

For any questions about the ITTN or the activities within this workbook, please contact us at info@trashtrapnetwork.org

Visit trashtrapnetwork.org for more information

JOIN THE CONVERSATION!



@UofTTrashTeam @OurOcean



@UofTTrashTeam @OceanConservancy



@UofTTrashTeam @OceanConservancy

