



# LESSON: SOLUTIONS TO PLASTIC POLLUTION

## Activity 1: What is the Solutions Hierarchy?

### OVERVIEW

In this activity, participants will learn about the “Solutions Hierarchy” and become introduced to some current examples of solutions-based research for plastic pollution.

### LEARNING OBJECTIVES:

After completing this activity, participants will be able to:

- Describe the ‘Solutions Hierarchy’ approach to waste reduction and provide examples for each level.
- Understand how different actions to reduce plastic pollution are interconnected.
- Describe different examples of research, innovation and technology for plastic pollution.

### SETUP AND MATERIALS

This activity takes approximately  
**15 minutes.**

- Print a copy of the worksheet (or recreate your own on scrap paper) and grab a pen or pencil.
- Open up the Solutions Hierarchy [video](#) found on the U of T Trash Team YouTube channel (length: 6 min 12 s)

### INSTRUCTIONS

- Provide participants with a copy of the worksheet.

#### **1. Share an overview of plastic pollution and introduce the "Solutions Hierarchy".**

- Discuss with participants how litter is found all over the world and that most of this litter is plastic. Share that a lot of this ends up in landfills and approximately 40% of plastic produced each year is single-use packaging.
  - **Optional:** If they haven't done lessons 1 through 3, ask participants to think of a few common examples of plastic litter they've seen in the environment and to share examples of where they've seen them.
- Explain that although this is a large problem, together we can all make a difference and will explore some potential solutions in order to feel empowered about the difference we can make.
- Share that they will first watch a short cartoon to introduce something we call the **Solutions Hierarchy**.
- Ask participants if they have heard of a **hierarchy** before and ask them to share what they think it might mean before sharing the actual definition.
  - **Definition: A way we can rank and organize different concepts.**
- Explain that for the **Solutions Hierarchy** we are going to rank the actions we can take to reduce waste and keep it from ending up in the environment.
- Open the **Solutions Hierarchy** Video found here: <https://youtu.be/x5wCFPsaQ3Q>
- After viewing the video, it is now time to review the concepts learned. Ask participants to list the levels of the solutions hierarchy on page 1 of their worksheet, in the correct order from the top (Refuse) to bottom (Landfill), then ask participants to think about why they are listed in that order (ie. why would you refuse before recycling?).

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### INSTRUCTIONS (CONTINUED)

#### 2. Share more plastic pollution solution examples

- Explain to participants that you will now share some additional examples of other plastic pollution solutions, by taking a look back at the first four levels of the **Solutions Hierarchy**. For each level, there is a short activity on the worksheet to complete.

#### REFUSE: Meet the microbead! Share 2018 microbead ban and recent Canadian government discussion on single-use plastics

- Have participants look at the image of purple and orange microbeads on the second page of the worksheet and imagine a tiny plastic that used to be found in a common household product. Explain that these small orange and purple spheres are a type of microplastic called a microbead, and they are made that size and shape on purpose. Remind participants that as learned in **The Plastic Cycle - Activity 1**, micro-plastics are less than 5 mm in size.
- Ask participants to guess which household product they think these were used in and to write their guess on the worksheet. Let participants know the microbeads were often added to face scrubs (and some toothpaste) as an abrasive to help scrub your face (or brush your teeth).
- Ask participants to think about what might happen to these microbeads after they were washed off your face. Where might they end up and why is this a problem? **Answer: It would rinse off your face, into the sink, down the drain and into our watersheds/lakes/rivers/oceans and become a form of plastic pollution.**
- Explain that research was finding high numbers of microbeads in aquatic systems and showed indications they were having a negative impact. Because of this, many countries banned companies from using these in their products, including Canada in 2018. Share that after this ban, researchers from the University of Toronto Trash Team now find fewer microbeads in research samples when studying microplastics in the Great Lakes.
- Another great example is happening right now in Canada! Do you know that the Canadian government announced that will ban single-use plastics? This ban includes 6 items: checkout bags, straws, stir sticks, six-pack rings, cutlery, and food containers made from hard-to-recycle plastics across the country by the end of 2021. All these products may no longer be available in Canada which means hopefully we'll have more sustainable alternatives for those items.
- The government consulted with many experts and scientists including Chelsea Rochman, one of the scientists from the U of T Trash Team, non-profit organizations, individuals, other groups and from shoreline cleanup data. Together, all of this knowledge helped inform this decision.

#### REDUCE: How to use less plastic?

- Ask participants what we can do to use less plastic before it ends up in the environment.
- An example of waste reduction is reducing unnecessary packaging from manufactured products and produce. If this excess packaging could be avoided, we wouldn't have to collect the excess packaging, separate it for recycling, transport it to manufacturers, and then integrate the recycled materials back into the manufacturing process.
- Have participants think about their daily lives and what simple changes they can make in their home or in their schools to reduce plastic waste and write it down on their worksheet.
- Share some of these additional examples if they need extra help thinking of ideas:
  - Using less packaging in your lunchbox.
  - Buying in bulk is a great way to use less plastic and reduce packaging waste.

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### INSTRUCTIONS (CONTINUED)

#### **3. REUSE: Share examples of reuse in the community.**

- Ask participants to think about different examples of programs that encourage people to reuse materials and to list these on their worksheets. Encourage them to indicate which examples are local programs by drawing a star on their worksheet.
- Share some of these additional examples if they need extra help thinking of ideas:
  - Some grocery stores reuse cardboard boxes by leaving the empty boxes by the register for customers to use instead of bags.
  - Some independent stores have reuse programs for containers to put your products.
  - Second-hand stores where you can donate your items for someone else to reuse.
  - Some groups host repair events to help fix items so they can be reused instead of thrown away. Learn about the City of Toronto's [Bicycle Repair](#) and [Sewing Repair Hubs](#).

#### **4. RECYCLE: Discuss awareness campaigns about proper recycling and incentives to improve recycling systems.**

- Recycling is the process of converting waste materials into new materials and objects. For example, plastic from water bottles can be transformed into a fleece jacket.
- Ask participants to share any creative posters, awareness programs, events or art that have helped others learn about how to recycle properly. This could be at home, school or in the community.
- Remind participants that recycling is important, it's just lower on the list because there are other steps you can take before you recycle. Then explain that recycling systems are actively looking for ways to improve so that when we do recycle, more of our items are recycled properly. This includes policies that make sure new products are made with a minimum % of recycled content.
- Ask participants to return to the worksheet and list what items they recycle the most in their own household and for each item, think if there was a way they could use one of the earlier levels of the **Solutions Hierarchy** instead.

### FINAL REFLECTION

Now that you have completed all parts of the activity, it's time to reflect back on what participants have learned.

- Have participants return to the last page of their worksheet to answer the questions below.
  - Why is the order of the **Solutions Hierarchy** so important to help reduce waste?
  - Describe some different examples of plastic pollution solutions.
  - Describe some actions you have taken or plan to take to help reduce plastic pollution.

**Coming up next: We'll take a closer look at all the different people involved in building solutions to plastic pollution in Activity 2: Groups for Solutions!**