

The Plastic Cycle

Grades 4 - 8
Activity



Main Objective

Learners reflect on the plastic cycle, their effects on the environment regarding plastic waste, as well as ways that they can personally reduce plastic in our environment. They will also explore how our community can work together to reduce the impact of plastic on our ecosystems.

Learning Outcomes

(Suggested level grades 4 - 8)

- Explore the reason for having multiple waste management bins, and what can go in the garbage versus the recycling
- Explain what the plastic cycle is and why it is important to be aware of
- Explain what can be done to reduce the negative impacts of plastic in our environment



Length of Activity: 2 hours

We recommend the following breakdown for this activity:

Step 1+2: Intro to plastic waste (30 min)

Step 3: Interactive Plastic Cycle Infographic (30 min)

Step 4: Sequencing the story of the plastic cycle (30 min)

Step 5: Create a comic strip (30 min)

Materials Required

- Internet enabled device(s)
- Option of a physical or digital copy of "The Plastic Cycle Worksheet"
- Access to The Plastic Cycle Infographic:
(https://greenlearning.ca/the_plastic_cycle/story.html)

Background Information

Using the Interactive Plastic Cycle Infographic, investigate how plastic interacts with us and our environment. As you explore above and below the water, notice how plastics move through different parts of our water cycle and infiltrate our ecosystems.

Plastic is extremely durable and therefore can last for hundreds, if not thousands of years in our environment. However, we can't always see the huge impact that plastic is having on our environment because over time, plastic breaks down into smaller and smaller pieces called microplastics. These are the plastic pieces that move through our water cycle and carbon cycle.

The Interactive Infographic- How To Guide

Accessing the site - Be sure that your students have the URL below to access "The Plastic Cycle" Infographic https://greenlearning.ca/the_plastic_cycle/story.html

Using the site

1. Upon reaching the web page, have the students click "**Restart**" at the bottom to begin the activity.
2. After reading the main page, students can select "**Dive In**", where they will be taken to an instruction page, with a brief introduction on what microplastics are.
3. Once they hit "**Continue**", students will be taken to the infographic, where they will click on the red icons to learn more about each element of the plastic cycle.
4. Once students have clicked on and read about each of the paragraphs "above water", they will be prompted to click on the **location symbol** to the left of the "Above Water" button in the top left of the infographic, to switch over to the "Underwater" infographic.
5. Students will explore the effects of plastic and microplastic under the water by clicking each of the red icons.
6. Once they have read each section on both infographics, they will receive a notification to click on the **checkmark button** on the top left of the screen. In doing so, they will see a pop-up "You did it" screen, noting that they have finished with the infographic and can continue to the next part of the activity.

Glossary - In the top left corner of the page is a drop-down menu, containing a glossary of key terms relating to different ecosystems and the plastic cycle. This is a great resource for students to use as they are working through the infographic.

Activity

Step 1: Kick Off Questions

Ask the following thought-provoking questions related to waste in our environment:

- What are examples of things that break down well in the environment? What about things that do not break down well? What helps to break materials down?
- How long do leaves last in the environment after they fall?
- How long do you think plastic can last in the environment? Do you think it breaks down well?
- How can plastic impact our environment and the organisms living in it?

Step 2: Which Bin Does It Go In?

Take a few minutes with the class, hold up various items and allow the students to decide if it should be discarded as waste or recycled. (ex. hold up a milk carton, then a granola bar wrapper). Please refer to your region's waste management requirements for sorting waste and recycling. A great place to look for this information is your municipal government site. They often have apps and games for students, like the example below.

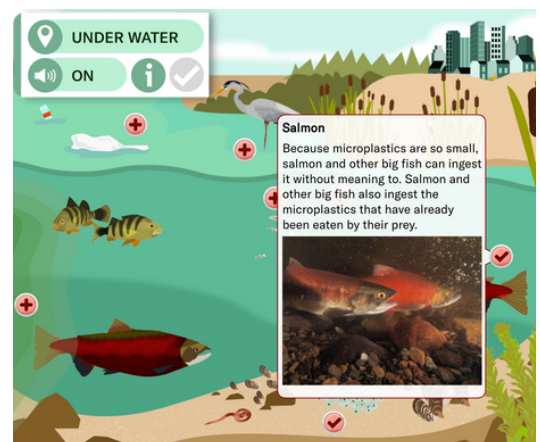
An example of a waste management resource is the [Region of Waterloo's Whiz App](https://www.regionofwaterloo.ca/en/living-here/my-waste-app.aspx#Special-features-of-our-Waste-Whiz-app). Visit the website using the URL below, where you are able to type the name of a waste item, and it'll tell you how to recycle or dispose of it.

<https://www.regionofwaterloo.ca/en/living-here/my-waste-app.aspx#Special-features-of-our-Waste-Whiz-app>

Step 3: Learn About The Plastic Cycle

Explore the interactive plastic cycle infographic to learn how plastic makes its way into different ecosystems and disrupts their order. Have students click on the link below and explore the infographic, individually or in pairs. Review the "How To Guide" on the previous page for any further clarification on how the infographic works!

[Interactive Plastic Cycle Infographic](https://greenlearning.ca/the_plastic_cycle/story.html)
https://greenlearning.ca/the_plastic_cycle/story.html



Step 4: The Life of a Plastic Water Bottle

On The Plastic Cycle Worksheet, there are two stories of the life of a plastic water bottle that are not in sequential order. Using their learnings from the infographic, have the students arrange the phrases into the proper order to reveal the story. The educator answer key with the response that students should come to is on the following page. This worksheet is available for student use as a copy that can be printed off as well as an online copy, for digital use.

Step 5: Create a Comic Strip

Now that the students understand the life cycle of plastic and how microplastics impact the environment, they will create a comic strip that demonstrates how they will personally reduce the amount of plastic waste they produce, or how as a community, we could work together to reduce the negative environmental impacts of plastic waste. Students can use a digital platform (ex. Canva or Google Docs) or the comic strip template on page 2 of their Plastic Cycle Worksheet to create their comic. It has also been attached on page 6 of this document.

Educator Answer Key

Story 1: The Life of a Plastic Water Bottle- On land

1. *The plastic water bottle is produced from fossil fuels*
2. *The plastic water bottle is used*
3. *The plastic water bottle is littered onto the ground or thrown out as waste instead of being recycled*
4. *The plastic water bottle breaks down into smaller pieces called microplastics*
5. *These microplastics from the water bottle are taken by wind into the air*
6. *When it rains, the microplastics from the atmosphere are carried down to the land*
7. *The microplastics land into the groundwater*
8. *Groundwater is used for drinking and farming*
9. *The microplastics are ingested by animals (by eating or drinking) and can get into the soil and plants*

Story 2: The Life of a Plastic Water Bottle- In water

1. *The plastic water bottle is produced from fossil fuels*
2. *The plastic water bottle is used*
3. *The plastic water bottle is littered onto the ground or thrown out as waste instead of being recycled*
4. *The plastic water bottle breaks down into smaller pieces called microplastics*
5. *These microplastics from the water bottle are taken into the air by the wind*
6. *When it rains, the microplastics from the atmosphere are carried down to a river. The river takes the microplastics into a lake*
7. *Zooplankton in the lake eat the microplastics*
8. *A larger fish eats the zooplankton*
9. *Bears, birds and humans eat the fish, containing the toxins of the microplastics*

