



WASTE WARRIORS!



BACKGROUND

Nature recycles everything. Nothing is created or destroyed, it is just transformed. There is no “waste” in nature because, sooner or later, all organic matter becomes food for living organisms. Sadly, the same cannot be said for many human-made materials—such as plastics. While some plastics do eventually break down, even the smallest pieces can release toxins into the water, the soil and the animals that ingest them. Many plastic products are designed to be disposable after only one use, which results in a lot of garbage that ends up in landfill. Even so-called “biodegradable” plastics are problematic because many municipalities won’t accept them in green bins, they can’t go into backyard composters, and it’s difficult for anything in landfill to break down because items are trapped between layers of plastic garbage...so how are these “biodegradable” plastics ever going to biodegrade? Long story short, whether it’s single-use, recyclable or biodegradable, the less plastic we use, the better!

CURRICULUM CONNECTIONS

Key concepts include:

- Decomposers (such as fungi, microscopic organisms, and several invertebrates) turn dead organic matter into nutrients, but lots of human-made materials do not break down into nutrients.
- Some human-made items can be reused, repurposed, or recycled.
- Making new products from scratch generates more greenhouse gases than recycling used products into new products.
- Of the 3 Rs—Reduce, Reuse, Recycle—the best option for our planet is Reduce.
- Human activities can have both positive and negative impacts on habitats and communities.

The following activities allow students to observe, compare, contrast, classify, record, evaluate, and use various communication skills.

Discussion Starter

Watch ClearWaterKids Challenge – [Waste Warriors](#) (3:18)

Ava, Ari, and Potato the Chicken try to solve this riddle: What does a bicycle have to do with a tote bag? Along the way, they share ideas on how to “act like Nature” to recycle and repurpose waste for a healthier planet.



Pre-viewing Probes

- What does a bicycle have to do with a shopping bag? What do you think the link might be? Let's watch the video to find out.



Post-viewing Prompts

- Did anything in the video surprise you? What and why?
- What does a bicycle have to do with a bag? (Some tote bags, shopping bags, and other useful items are now made from recycled bicycle tires.)
- Why is it important that materials are recycled?
- Can you think of other things that are made from recycled materials?

Try This

Recycling Guessing Game

Set up a display of products that have been made from recycled materials along with samples of the items they were made from. Challenge the class to guess which item was the source of each product. For example:

- Plastic bottle – fleece hoodie, jacket lining or sleeping bag
- Aluminum can – thumbtack, pie plate, aluminum baseball bat, new cans
- Glass jar – new jars, bottles, fiberglass insulation
- Newspaper – paper berry container, paper egg carton, construction paper
- Yogurt cup – toothbrush handle, windshield ice scraper
- Laundry detergent bottle – flying disc (Frisbee), plastic bucket
- Wine cork – cork shoe insoles, dartboards, bulletin board

After the Game

- Research
 - What resources were used to make the original product. For example: Trees – paper; sand – glass; oil – plastic; cork oak tree – cork.
 - What uses more fossil fuels and generates more greenhouse gases: Making a new product out of an old one, or making a new product from scratch?
- Check your municipality's website or recycling app to find out which items cannot be recycled. Many municipalities do not recycle the following: plastic straws; take-out drink containers; black plastic containers; Styrofoam containers; "biodegradable" plastic containers; plastic cutlery of any kind. What happens to those items when they are put into the recycling box?



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Explore Outdoors

Before heading outside for this activity, refer back to the video: *Ava and Ari said that nature recycles everything. Can you think of some examples of how nature breaks things down or recycles? (E.g., plants and animals decompose to create nutrient-rich soil where new plants can grow; rocks erode into sand; the water cycle.)*

Can Nature Recycle This?

What You Need

- Timer
- A greenspace containing both natural and human-made objects (e.g., trees, grass, bench, playground equipment, litter)
- A notebook and pencil for each pair of student

What To Do

Divide the class into pairs. Set a time limit and give students the challenge of exploring the area to look for examples of things that break down/decompose and things that do not. How many can they find before time is up? They record their observations and share them back in the classroom.

Discuss:

- *Did anything surprise you?*
- *Do you have questions about what you observed?*
- *What will happen eventually to the things on each list?*

Follow-up: Our Discoveries

Make two lists of the information collected by the students as a lead-in to discussion. One list for natural materials that will decompose, the other for those that won't or will take a long time to break down

- *Did anything surprise you?*
- *Do you have questions about what you observed?*
- *What will happen eventually to the things on each list?*
- *What happens to the things made from plastic? (Plastics do not break down easily, if at all. It can take up to 200 years for a single plastic drinking straw to decompose! Plastics break down into tiny fragments [microplastics] that can be toxic in the environment for a very long time; some will last forever. If they get into soil and water, they can contaminate plants and animals – and even humans.)*

Ask students what they think they can do to reduce the amount of plastic in the environment.

- Stop buying (or reduce the number of) products with plastic packaging.
- Stop using single-use plastic products that often end up in landfill sites.
- Reuse or re-purpose plastic products you already have.
- And more!



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Take Action

Litter Pickup

Organize a clean-up around the school yard and encourage students to do the same in their neighbourhoods with family and friends. Collectively we can make a difference! A cleaner environment means better habitats for all living things.

Repurpose It!

Refer back to the video: *How did Ari and Ava reuse things instead of throwing them away?* (E.g., milk carton birdfeeder, coffee can piggy bank, magazine bracelet*, juice carton wallet**.)

Ask students to bring from home used items that might be transformed into products that are practical, not simply decorative crafts. Each student, pair, or team presents their finished product to the class explaining the process and its intended use.

- For instructions on how to make a friendship bracelet from old magazine pages:

[ClearWater Kids Beady Bracelet Activity Sheet](#)

- There are several blogs and videos online for transforming a juice carton into a wallet.

More to Explore

- Give students a close-up look at nature's recycling in action. Visit or bring into class a decaying log from the forest floor. Have the students speculate about why it is called a "nurse log" and challenge them to find at least five organisms the decaying log is supporting. (Magnifiers are useful.) Students can draw and record their observations.
- Look for these Canadian books for young readers:
 - **Bee & Flea and the Compost Capers** by Anna Humphrey and Mike Deas (Owlkids Books, 2022)
 - **Join the No-Plastic Challenge! A First Book of Reducing Waste** by Scot Ritchie (Kids Can Press, 2019)
 - **Justine Mckeen, Bottle Throttle** by Sigmund Brouwer and Dave Whamond (Orca Book Publishers, 2016)
 - **On Our Nature Walk: Our First Talk About Our Impact on the Environment** by Jillian Roberts and Jane Heinrichs (Orca Book Publishers, 2020)
 - **Trash Talk: Moving Toward a Zero-Waste World** by Michelle Mulder (Orca Book Publishers, 2021)
 - **Trash Revolution: Breaking the Waste Cycle** by Erica Fyvie and Bill Slavin (Kids Can Press, 2018)
 - **What a Waste: Where Does Our Garbage Go?** by Claire Eamer and Bambi Edlund (Annick Press, 2017)
 - [ClearWater Kids Booklist](#) for more great Canadian books on nature and science.
- Head to clearwaterkids.org and explore the yurt that kids can decorate as their own special place.
- Visit [Science North](#) for more hands-on, curriculum-linked learning resources and lesson plans