

# LAUNCH for Long Beach Toolkit: ReTHINK Waste Game

**Defeat the trash monster by reducing your waste!**

Our landfills are filling up at an alarming rate, often with resources that can be reused, recycled, composted, donated, or better yet: not even used in the first place. We are running out of space to put waste in our landfills. Play the ReTHINK Waste Game to take action on reducing landfill waste!

Within this toolkit, you'll find various downloadable resources. For your convenience, you can access them all in one place by scanning the Toolkit Resources QR code on the last page to view them in a Google Drive folder.

This toolkit was created in partnership with the City of Long Beach Utilities.



**Have you registered?**



## Toolkit Details

The graphic is a green rectangular box with a white border. At the top left, it says 'GRADES of green LAUNCH Eco-Toolkit' and 'ReTHINK Waste Game'. Below that, it says 'Learn more about how waste is managed across the world using the ReTHINK Waste Game!'. On the right side, there is an illustration of a teacher and a student. Below the text, there are four columns, each with an icon and text:

- Skill Level**: Grades K-5, led by a teacher, parent or school administrator. Icon: puzzle pieces.
- Climate Crisis Topic**: Waste. Icon: globe and trash can.
- Project Time**: 1 week. Icon: calendar and clock.
- What You'll Need**: Writing utensil, wipe board/poster paper, Optional: clean trash. Icon: tools in a box.

## NGSS

This toolkit address the following Science and Engineering Practices (SEPs) within the Performance Expectations of NGSS for Grades K-2 and 3-5:

- Asking Questions and Defining a Problem
- Analyzing and Interpreting Data
- Constructing Explanations and Designing Solutions
- Obtaining, Evaluating, and Communicating Information

## Why It's Important

Learning about the impact of waste is important to the environment because it allows you to make informed decisions on how to manage your resources and minimize waste.

## What You Will Accomplish

Students will learn the impact of waste on the environment and how to classify waste categories by playing interactive games.

## How Will This Benefit My School, Community, and City?

There are many misconceptions about collecting and sorting recyclables that the City of Long Beach is trying to correct. One of these misconceptions refers to the Resin Identification Codes that are normally found on the bottoms of plastic items with triangular arrows. These arrows and numbers were not created to tell you if an item is recyclable, rather it was meant to tell recycling facilities what kind of plastic resin the item is made of. Recycling officials in Long Beach advise community members to follow the City's guide to sorting waste items at home and at school to avoid any further misconceptions down the line. By following your local waste haulers' rules and engaging in waste-related activities for all ages, you will be able to maintain a positive recycling experience for all.

## Learning Objectives

### Analysis

- Students will analyze how waste is managed and its impact on the environment

### Project Management

- Students will exercise effective communication and accountability

### Evaluation and Assessment

- Students will assess the impact of waste on the environment and determine the best outcome to manage waste

### City of Long Beach Guide to

#### Sorting Waste:



## Educator Project Plan

**Follow the steps below to set up a successful ReTHINK Waste Game at your school!  
Need help? Email us at [info@gradesofgreen.org](mailto:info@gradesofgreen.org)!**

Track your metrics and submit your impact after implementing this toolkit. Your feedback helps keep our programs free for all across the globe.

## Determine Participants

Divide your class into groups or pairs.

# Why Should You Reduce Your Waste?

The resources provided can be shown as a slideshow or printed out as individual worksheets for students to learn.



## We Produce A LOT of Trash

Our landfills are filling up at an alarming rate, often with resources that can be reused, composted, donated, recycled, or not even used in the first place. We are running out of space in our landfills, which stresses the importance of reducing the amount of waste we produce. For instance, one big issue with plastic recycling in Long Beach is that many believe that the triangle arrows on a plastic bottle (Resin Identification Codes) means that it is recyclable, when in reality it really is not. This means many of these items we think are being recycled actually end up in the landfill. Recycling officials recommend following your local waste hauler's rules and regulations [1]. Find more tips on what is considered recyclable in Long Beach by checking out the Recycling Guidelines below!

## Most Packaging is Difficult to Recycle

Most packaging is difficult to recycle because it is made with hard to recycle materials like plastics or is contaminated with leftover food. In Long Beach, City Officials are trying to urge residents to follow correct recycling rules and avoid contamination between recyclable items. Of the 14.5 million tons of container and packaging plastics produced in the US yearly [2], less than 9% of it is actually recycled. This plastic packaging is made from oil, a natural resource that requires energy to produce and release greenhouse gasses that cause climate change throughout its lifecycle.

## Waste Causes Greenhouse Gas Emissions

Everything we buy and throw away including clothing, electronics, single-use plastics, and food has a large environmental cost. The manufacturing, distribution, and use of the goods and food we rely on most – as well as management of the resulting waste – all require energy, which mostly comes from fossil fuels that pollute and damage our environments. This represents an issue where we are actively taking resources from the environment to make these goods and we later throw it away and rely on fossil fuel-powered machines to clean up our mess. [3]

Slideshow:



## Citations and Resources

[1] - Zero Waste  
Schools Activity Guide



Long Beach Recycling  
Guidelines



[2] - Plastics:  
Material-Specific Data



[3] - Greenhouse Gas  
Reporting Program:  
Waste



### Why Waste is an Environmental Justice Issue in Long Beach

Waste as an environmental justice issue in California is primarily linked to the unequal distribution of the negative impacts of waste management and disposal facilities on marginalized communities. The slew of problems across the City of Long Beach has historically excluded the livelihoods of low-income communities of color where these communities did not receive the same level of public investment as more affluent parts of Long Beach. Today, many disenfranchised communities are still concentrated in the portions of the city with the worst air quality levels and other environmental health metrics due to varying circumstances such as living close to industrial areas and waste treatment facilities.

#### Additional Resources

Want to connect your students and their families to engaging activities and workshops with The City of Long Beach Recycling Department outside of school? Check out their monthly calendar for recycling events by scanning the QR code to the right.

#### Long Beach Recycling Events:



### Watch these two short videos to learn why it's important to reduce waste!



'Classroom Recycling - Poly'



'The Majestic Plastic Bag - A Mockumentary'

### Think About It!

#### Pre-Activity Questions:

- What are the different waste bins you use at home?
- What materials should be thrown in the landfill?
- What materials should be recycled?
- What materials can be classified as organics?

# Take Action: How to LAUNCH the ReTHINK Waste Game

Lead students through the ReTHINK Waste Game with guided instructions. Check out “Pro Tips” with each step for useful help:

## 1. Gather Participants

Determine who and how many students are participating.

- Divide students into groups and allow them to collaborate with each other on each of the games.

## 2. Prepare Your Materials

Gather the following materials and give them to participants to use for the ReTHINK Waste Game.

- Handout of waste items
- Cards for each student team with 3 different colors to represent trash, recycle, and organic waste (organics is optional, if applicable to your school)
- Pictures of waste items
- Waste timeline handout
- Poster paper or dry erase boards
- Writing utensils
- Optional: Clean trash

## 3. Game A: What Bin Does It Go In?

Students will collaborate to decide how to sort waste items, learning which items can be recycled or diverted from the landfill, and what must be thrown away.

- Have your students form teams or work together at their tables. Using the handout of waste items, instruct the teams to decide as a group which bin each item goes in. Pass out color cards to each team and explain that Purple is for Recycling, Gray is for Landfill, and Green is for Organic waste (optional).
  - Recycling
    - Definition: recycling is the process of converting waste materials into new materials and objects
    - Common Items: Water bottles, paper, beverage cans, clean cardboard, etc.
  - Organic Waste
    - Definition: Biodegradable waste includes any organic matter in waste

Handout of Waste Items:



Cards for Each Student Team:



Pictures of Waste Items:



Waste Timeline Handout:



### Pro Tip:

Bring in clean trash from your school so students know how to manage the waste they encounter every day.

which can be broken down into carbon dioxide, water, methane, compost, humus, and simple organic molecules by micro-organisms and other living things by composting, aerobic digestion, anaerobic digestion or similar processes.

- Common Items: fruits, vegetables, leaves, etc.
- Landfill
  - Definition: Landfill waste is any waste that cannot be recycled or put into organic waste receptacles.
  - Common Items: Styrofoam, plastic, glass, etc.
- Hold up a picture of each item or call off the items from your list. Instruct the student teams to hold up the color of the bin where they would place the specific piece of waste.
- Share correct answers from the answer key.

#### 4. Game B: How Long 'Til It's Gone?

Students will collaborate to estimate how long waste items take to break down in a natural environment and gain an understanding of why recycling (and composting, if applicable) is important.

Background: Much of what we make, use, and discard lasts for a very long time. Items sent to a landfill will last even longer than those in a natural environment. This is because the dry and oxygen-poor conditions found in modern landfills cause organic matter to mummify rather than decompose. When left in a natural environment, many items will eventually decompose. Fossil fuel derived plastics will simply break down into smaller and smaller pieces known as microplastics, which will pollute our soil and waterways indefinitely.

- Distribute the waste picture cards to each team of students. Instruct students to look at the pictures and discuss how long they think each item will last before they break down or decompose.
- Ask students to then create a timeline by ordering items based on how long it will take to break down. Show timeline handout as a reference.
- Lead a class discussion on the timelines they created. Share correct answers with the answer key.

#### Pro Tip:

Use these printable resources from the City of Long Beach to see what bin waste goes in!



#### Waste Picture Cards:



#### Waste Timeline Handout:



#### Answer Key:



Remember to keep the difference between decomposing and breaking down in mind:

- **Decomposition:** Decomposition or rot is the process by which dead organic substances are broken down into simpler organic or inorganic matter such as carbon dioxide, water, simple sugars and mineral salts.
- **Breaking Down:** Breaking down refers to items breaking into smaller pieces as it decays in the environment. The pieces do not change into other chemicals, rather they break into smaller pieces.

## 5. Game C: Brainstorm!

Students will think about how to apply what they've learned from this lesson into their lives.

- Ask each team of students to brainstorm alternatives or reusable items that can replace single-use items. Encourage students to get creative with ideas and think of ways to repurpose items they already have.
- Instruct students to write their ideas on poster paper or wipe boards to share with the class.
- Have each group share key observations or interesting alternatives with the class.
- Want to incorporate other activities for students to learn about recycling? Check out this activity booklet provided by The City of Long Beach!

City of Long Beach Recycling  
Activity Booklet:



## Reflection Questions

### How'd It Go?

- What changes in your daily life can you implement to reduce your waste or divert waste away from landfills?
- What was the most interesting or surprising fact that you learned from this lesson?
- What would you say to educate a friend or family member about reducing waste?

## Report Students' Impact

Congratulations!! You've played the ReTHINK Waste Game! Don't let all that hard work go unnoticed. **Submit your results by scanning the QR code below.**



Project ongoing? No problem! Let us know what you've done so far.

By reporting your impact, Grades of Green can:

- CELEBRATE and elevate your students' hard work and success.
- Offer our programs FREE for all students across the globe.
- AWARD stipends and certificates to hard-working educators and students.

Please take a few minutes to submit your results. Thank you!

## Provided Resources

ReTHINK Waste Game Lesson Plan:



ReTHINK Waste Game What Bin Item List:



ReTHINK Waste Game What Bin Picture Cards:



ReTHINK Waste Game How Long Timeline:



ReTHINK Waste Game How Long Answer Key:



ReTHINK Waste Game Wrap Up Form:



ReTHINK Waste Game Slideshow:



Toolkit Resources – Google Drive Folder:





**Congrats on completing the ReTHINK Waste Game Eco-Toolkit!**

**Did you enjoy this toolkit? Find your next project below!**

