

Ocean Plastic: The Problem and the Solution


Third Grade - Unit PowerPoint
Sustainability for Young Learners Courses
Lessons 1-5

Standards Covered – Main Standards

- LS2.C: Ecosystem Dynamics, Functioning, and Resilience - When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.
- 3-LS4-4: Biological Evolution: Unity and Diversity - Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
[Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]

Standards Covered – Standard Connections

- RI.3.1: Literacy Common Core State Standards Connection: Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers. (3-LS4-1), (3-LS4-2), (3-LS4-3)

A decorative blue watercolor splash is located on the left side of the slide, extending from the top to the bottom edge. The splash has a textured, organic appearance with varying shades of blue.

Vocabulary words and single use plastics

Lesson #1



Vocabulary Words

Lesson #1, Activity #1

Ocean

- The vast body of saltwater covering about three quarters of the earth's surface.



Pollution

- Pollution happens when the environment is contaminated, or dirtied, by waste, chemicals, and other harmful substances.
- There are three main forms of pollution: air, water, and land.



Plastic

- An artificial substance made from certain kinds of chemicals that can be easily shaped when soft.



Micro Plastic

- Microplastics are small plastic pieces less than five millimeters long which can be harmful to our ocean and aquatic life. Micro plastics come from larger pieces of plastic that break down in the ocean.



Great Pacific Garbage Patch

- A vast accumulation of trash made up primarily of tiny plastic particles floating at the surface of water in between California and Hawaii



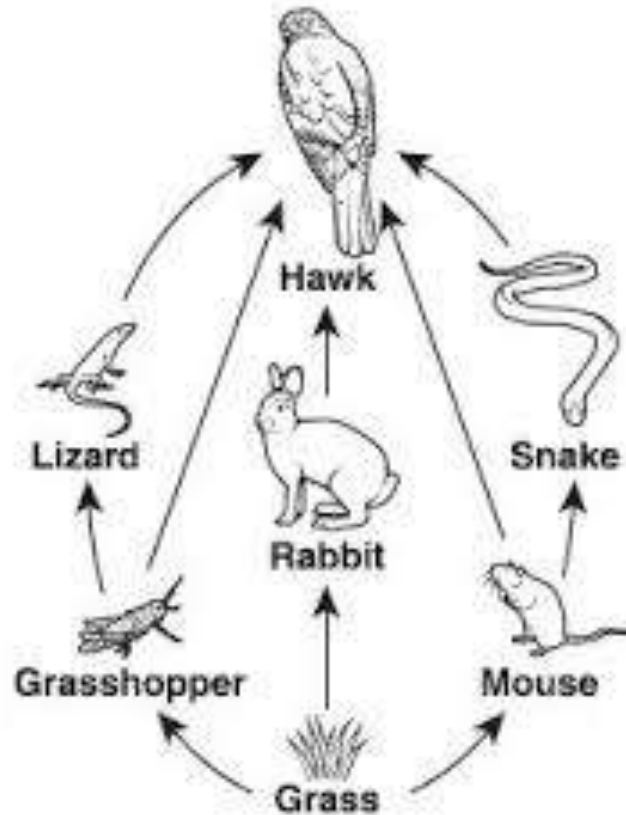
Environmental Change

- Disturbance of the environment most often caused by human influences and natural ecological processes.



Food Web

- The interlocking food chains within an ecological community.



Reduce

- To make less in amount or size.



Reuse

- To use something more than once or often.



Recycle

- The process of taking materials ready to be thrown away and changing them into reusable materials.



Compost


- A mixture of decaying leaves, vegetables, or manure that is used to improve garden soil.



Single use plastic

- Plastic materials only designed to be used one time.



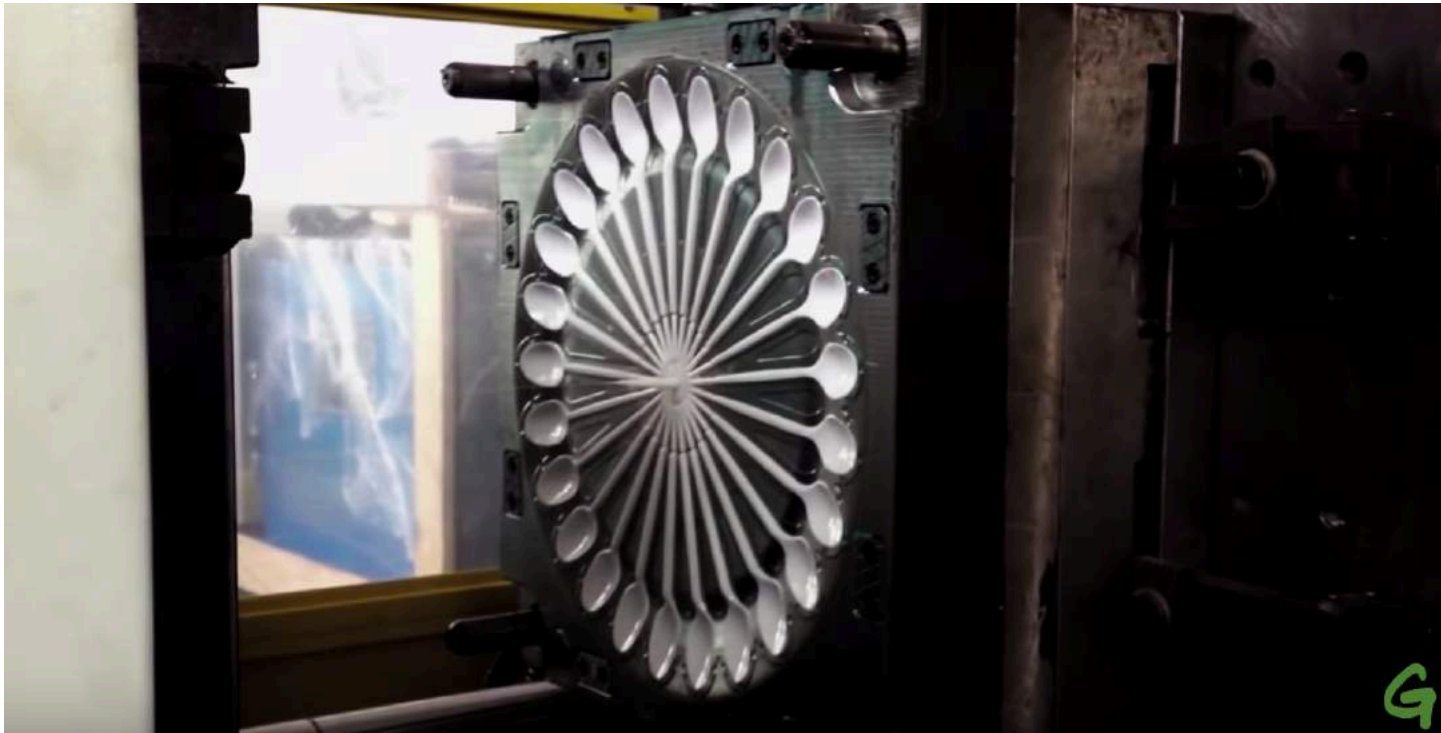


Life of a Spoon
Video” and single-
use plastics
worksheet

Lesson #1, Activity #2

Life of a Spoon Video

- [Click here to watch the video.](#)
- Link to the video: <https://www.youtube.com/watch?v=eg-E1FtjaxY>



Single Use Plastics – Identification and Alternatives Worksheet

- Students will work on the following worksheet.

STUDENT WORKSHEET

SINGLE USE PLASTICS – IDENTIFICATION AND ALTERNATIVES

Name: _____

Single use plastics are: _____

Directions: Identify a single use plastic that you use in your own life. Then, identify a different alternative that can replace the single use plastic items. This new product would last longer, produce less waste, and would conserve resources.

Example:

1. Single use plastic product #1: One single use plastic product that I use is a plastic sandwich bag to hold my sandwich.

Replacement: I could use a metal container or Tupperware to store my sandwich to replace the single use plastic bag.

1. Single use plastic product #1: _____

Replacement: _____

2. Single use plastic product #2: _____

Replacement: _____

Why is it important to conserve resources and reduce our plastic waste? _____



Ocean plastics are a big problem

Lesson #2



Video and Discussion

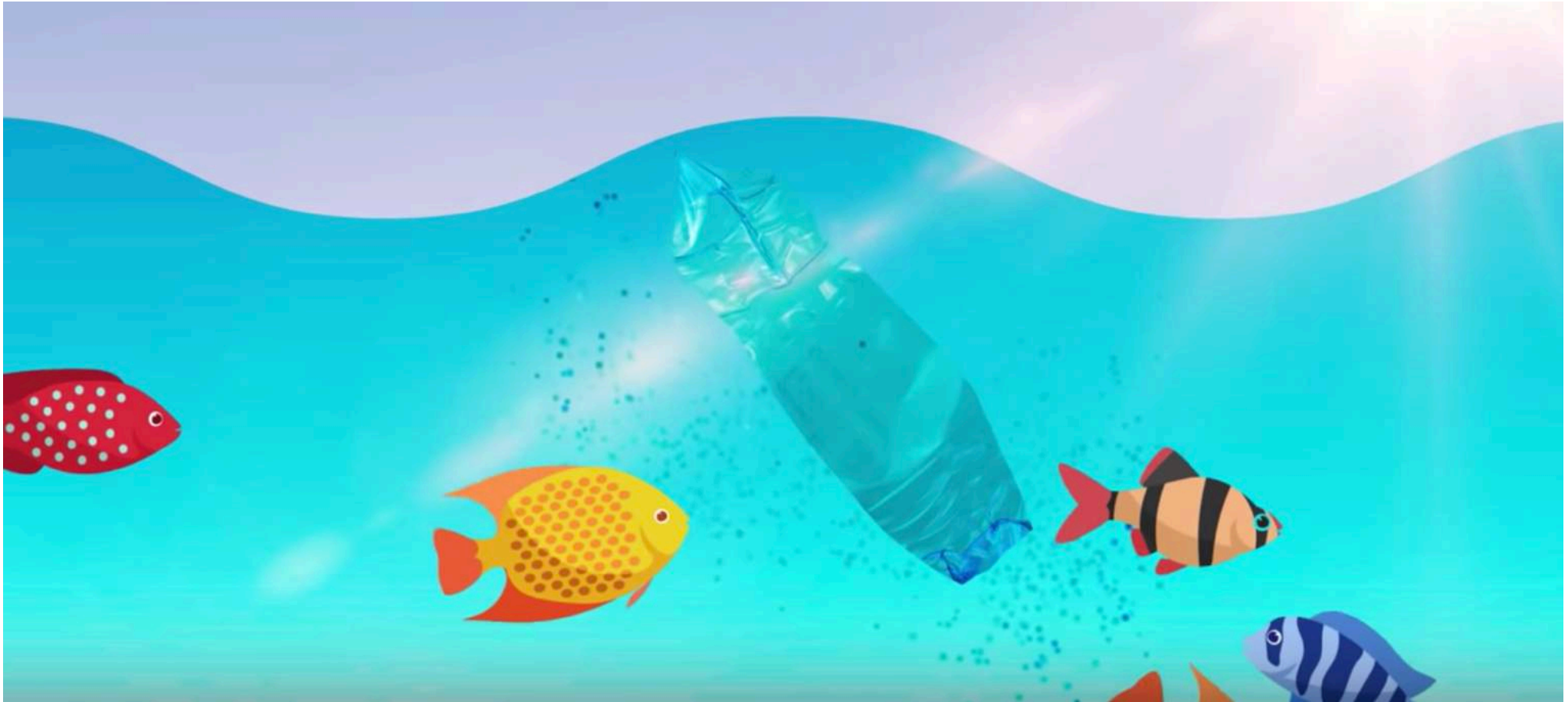
Lesson #2, Activity #1

How much plastic is in our ocean – Video

- [Click here to watch the video.](#)
- Link to the video: <https://www.youtube.com/watch?v=YFZS3Vh4IfI>



How much plastic is in our ocean – Discussion





Reading, Quiz, and Discussion

Lesson #2, Activity #2

Reading - *Tons of Trash in the Ocean Hurt Animals*

Students will read this article independently.

Tons of trash in the ocean hurt animals

By Los Angeles Times, adapted by Newsela staff on 04.02.18

Word Count **397**

Level **380L**



Image 1. A piece of floating debris snagged during an ocean sampling operation. Photo from Ocean Cleanup/TNS.

The Great Pacific Garbage Patch is a big glob of trash. It floats in the middle of the Pacific Ocean. It is between California and Hawaii. It is mostly made of plastic. It is very big. A lot bigger than we thought it was. It is twice the size of Texas. And it is only getting bigger.

Where is the Great Pacific Garbage Patch located?

1. Near the state of Texas
2. In between California and Hawaii
3. Off the coast of Japan
4. In between Hawaii and Japan

Where is the Great Pacific Garbage Patch located?

Answer:

2. In between California and Hawaii

What is the MAIN reason why scientists want to study the Great Pacific Garbage Patch?

1. Because it is as big as Texas
2. Because they did not know it was made of trash
3. Because plastic garbage can hurt animals
4. Because it is made up of fishing nets

What is the MAIN reason why scientists want to study the Great Pacific Garbage Patch?

Answer:

3. Because plastic garbage can hurt animals

Why is a lot of the trash in the Great Pacific Garbage Patch from Japan?

1. Because Japan uses more plastic than other places
2. Because a tsunami hit Japan and washed tons of trash into the sea
3. Because the Great Pacific Garbage Patch floated near Japan
4. Because fishing boats from Japan leave most of the trash in the ocean

Why is a lot of the trash in the Great Pacific Garbage Patch from Japan?

Answer:

2. Because a tsunami hit Japan and washed tons of trash into the sea

Where did most of the trash in the Great Pacific Garbage Patch come from?

1. Groceries
2. California
3. Fishing boats
4. The ocean floor

Where did most of the trash in the Great Pacific Garbage Patch come from?

Answer:

3. Fishing boats

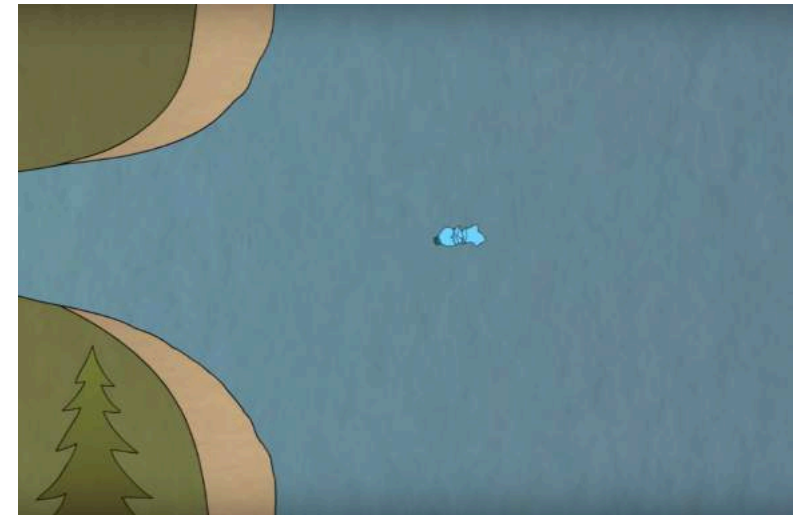
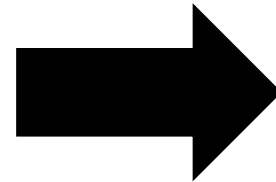
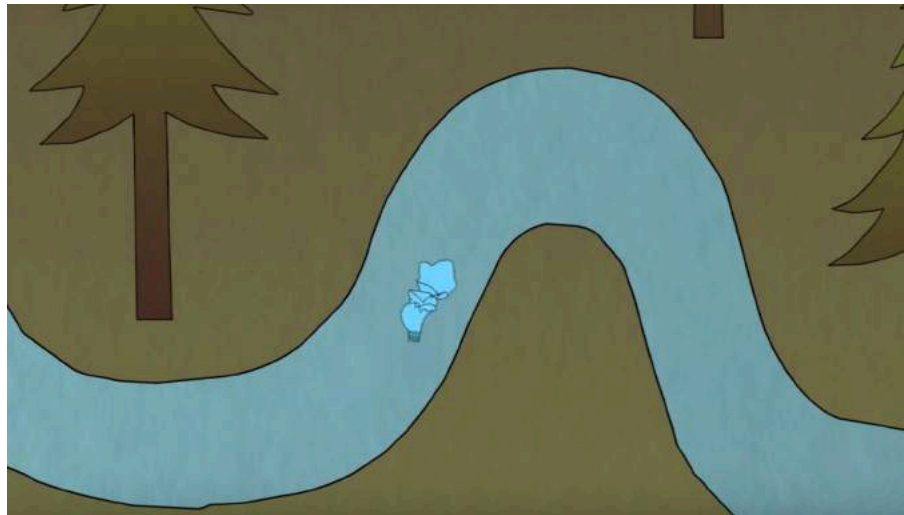


Rivers and Streams Connect to Our Oceans

Lesson #2, Activity #3

What really happens to the plastic that you throw away? – Video

- [Click here to watch the video](#)
- Link to the video: <https://www.youtube.com/watch?v=6xINyWPpB8>
- Note: Play the video from to *1:53 to 3:15*.



Worksheet – How Rivers and Streams connect to our oceans

- Students complete the following worksheet.

STUDENT WORKSHEET

HOW RIVERS AND STREAMS CONNECT TO THE OCEAN

Name: _____

Directions: Circle the state that you live in with a marker. Then, trace one of the smaller or big rivers from your state to the ocean or nearby lake.



Are you located close to the ocean or far away? _____

How many states does the river pass through from your city to get to the ocean? _____

How can plastic thrown into a river or stream in your city end up in the ocean?



Ocean Pollution Experiment

Lesson #3



Ocean Pollution Experiment

Lesson #3, Activity #1

Pre-Pollution

- Here, the water in the bin is clean and healthy for the animals.



Adding in Pollution

- Trash and oil is added to the bin, and the water gets dirty.



How Whales Eat - Video

- “See Blue Whales Lunge For Dinner in Beautiful Drone Footage” (1 minutes, 28 seconds)
- [Click here to watch the video.](#)
- Link to the video: <https://www.youtube.com/watch?v=cbxSBDopVyw>





Cleaning up the Mess and Working on the Worksheet

Lesson #3, Activity #2

Working on the worksheet

- Students will work on the first page of the worksheet.

STUDENT WORKSHEET - PAGE 1 OF 2

OCEAN PLASTIC –THE PROBLEM AND THE SOLUTION

Name: _____

Directions: Draw a photo describing the plastic pollution problem in our ocean.



Describe the plastic pollution problem in our ocean:

SUSTAINABILITY FOR YOUNG LEARNERS COURSES

Cleaning up the water

- Students will begin to clean up the water with sponges, coffee filters, and cotton balls.





Experiment Wrap-up

Lesson #3, Activity #3

Experiment Wrap-up

- Compare the jars when the water was collected:
 - Pre pollution
 - Pollution
 - Clean up





Solutions to the Plastics Problem

Lesson #4

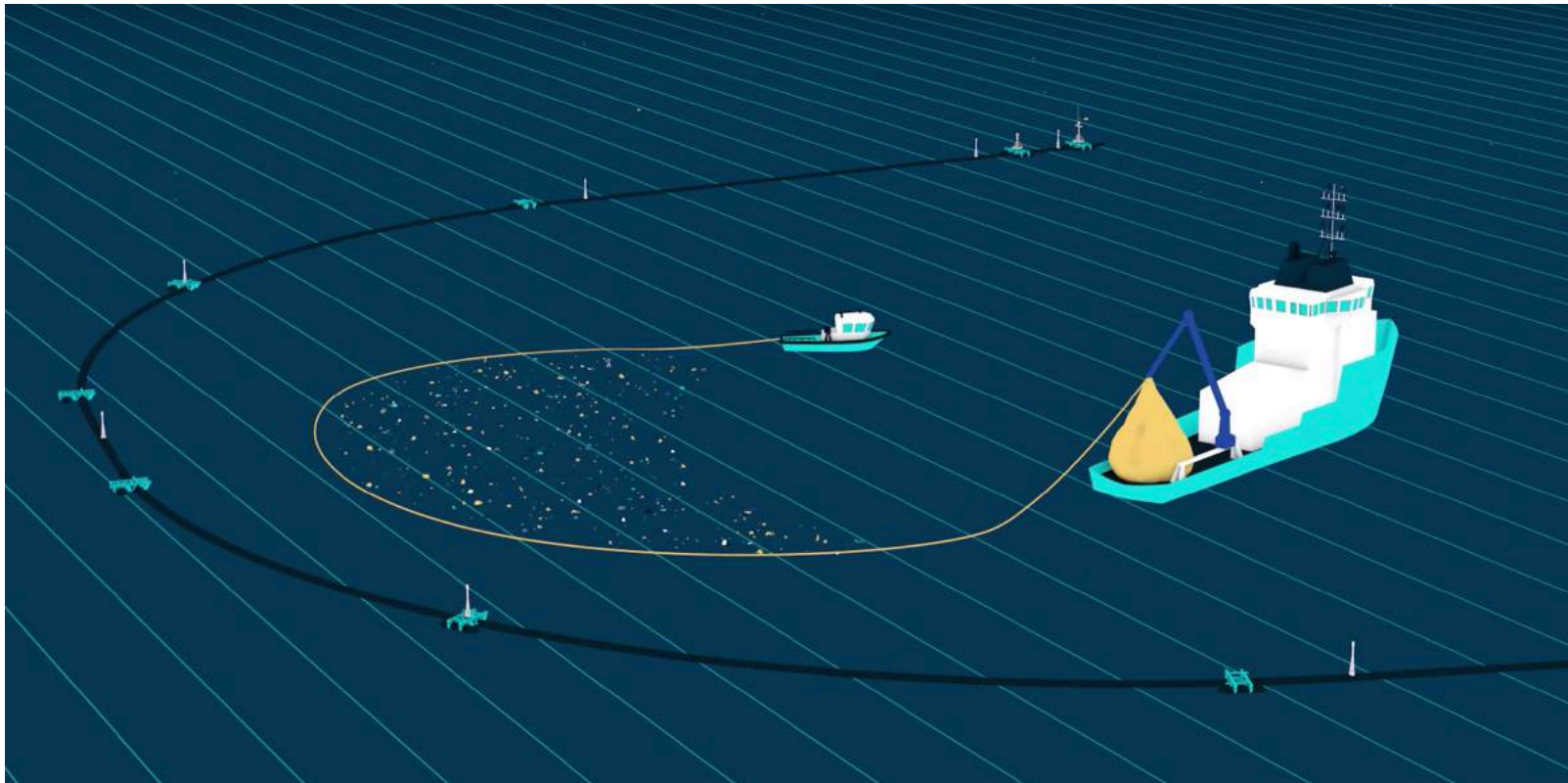


Solutions – Technologies

Lesson #4, Activity #1

The Ocean Cleanup – Video #1

- Video #1: [The Ocean Cleanup, System 001, Technology Explained](#) (two minutes, 2 seconds)
- Link to the video: <https://www.youtube.com/watch?v=O1EAeNdTFHU>

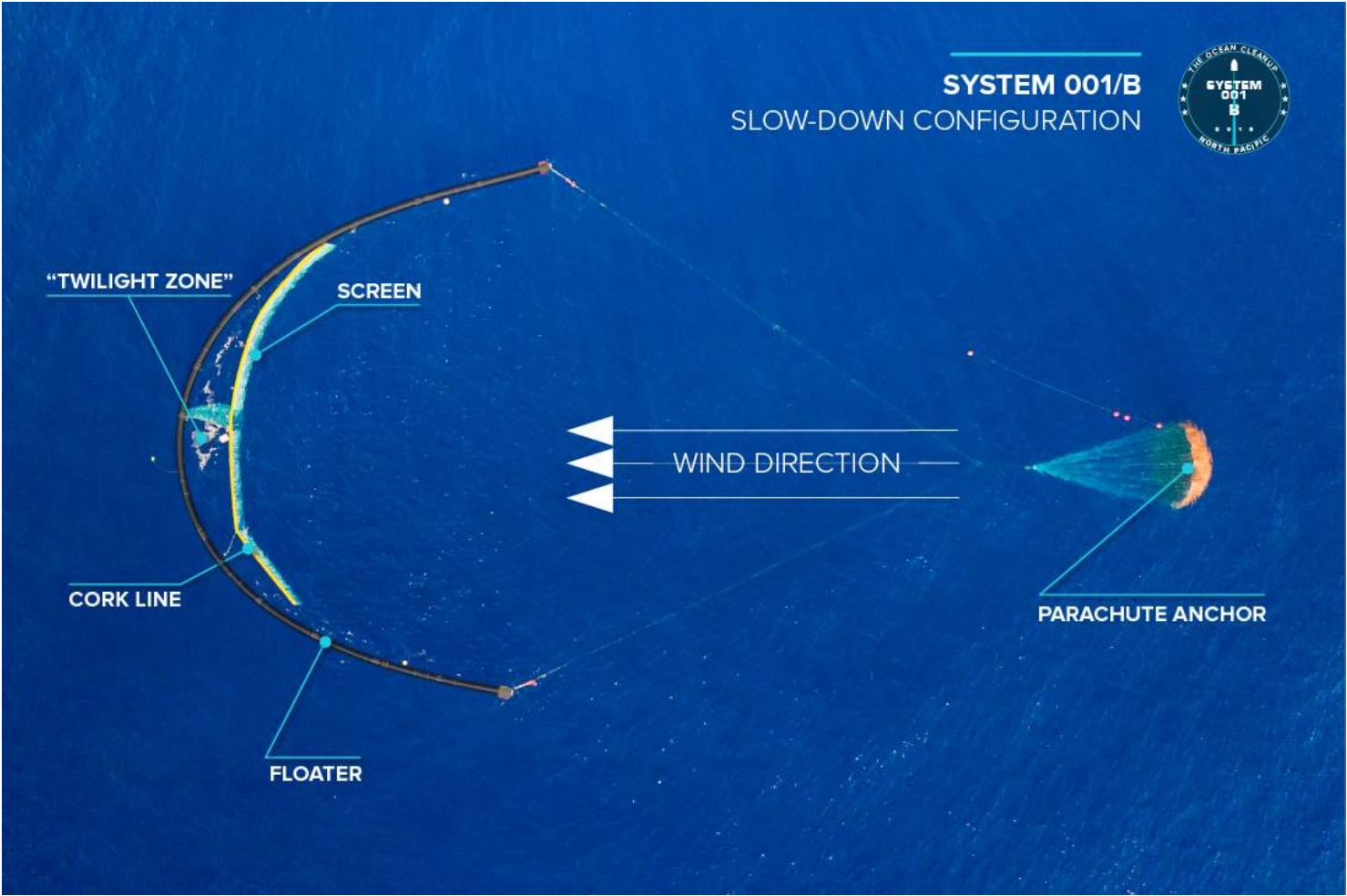


The Ocean Cleanup – Video #2

- Video #2: [Ocean Cleanup: Plastic-harvesting device 'successful'](#) (two minutes, six seconds)
- Link to the video: <https://www.youtube.com/watch?v=e-fl4ahyHNg>



The Ocean Cleanup Discussion



The Ocean Cleanup Discussion





Learning about the solutions

Lesson #4, Activity #2

Refuse

- Refuse single use plastics, such as:
 - Plastic straws
 - Plastic water bottles
 - Plastic bags
 - Plastic spoons
 - Styrofoam containers
 - Single-use coffee cups



Reduce

- Reduce your consumption of plastics and other goods.
- Replace plastic goods with durable, eco-friendly materials

8 WAYS TO REDUCE YOUR SINGLE-USE PLASTICS

There are an estimated **5 TRILLION** pieces of plastic in the ocean worldwide, with **8 MILLION** metric tons added to the ocean each year*. **Wildlife are dying at a rapid pace due to the ingestion of or entanglement in plastics.**

1. **PLASTIC WATER BOTTLE** → **REUSABLE BEVERAGE CONTAINER**

2. **TO-GO COFFEE LIDS** → **TRAVEL COFFEE MUG**

3. **PLASTIC AND PRODUCE BAGS** → **REUSABLE CLOTH BAGS**

4. **SINGLE-SERVE COFFEE PODS** → **A POT OF COFFEE**

5. **COFFEE PLUGS AND STIR STICKS** → **TRAVEL COFFEE MUG**

6. **BALLOONS** → **ECO-FRIENDLY DECORATIONS**

7. **STRAW** → **STRAW FREE**

8. **DISPOSABLE LIGHTER** → **MATCHES**

YOU can help reduce waste by removing single-use plastics from your everyday activities.

CANADIAN WILDLIFE FEDERATION | #StopSingleUse

* ERICPIN ET AL. 2014; JAMBECK ET AL. 2013

Reuse

- Reuse items that you already have.
- Examples:
 - Use the back side of your paper
 - Reusable water bottle
 - Reusable lunchbox instead of a plastic bag
 - Reusable grocery bags



Repair

- Fix things that might be broken to extend the life of a product.
- Examples:
 - Tape a folder that has a rip
 - Patch a t-shirt that has a hole in it
 - Fix a toy instead of buying a new one.



Recycle

- Recycle plastic, glass, paper, cardboard, and metal items once you are done using these products.
- Note: All cities and counties have different recycling guidelines. Check with your city to see what you can properly recycle.



Video: Composting for Kids

- [“Composting for Kids”](#) video
- Link to the video: <https://www.youtube.com/watch?v=dRXNo7leky8>





Sorting Activity and the 5 R's Worksheet

Lesson #4, Activity #3

Sorting Activity: Small Groups

- Students will sort different objects into one of three bins labeled: recycling, compost, and trash.



Refuse, Reduce, Reuse, Repair, and Recycle Worksheet

- Students will complete the following worksheet.

STUDENT WORKSHEET

THE 5 R'S TO WASTE - I CAN REFUSE, REDUCE, REUSE, REPAIR, AND RECYCLE

Name: _____

Directions: List two examples of ways you can use the 5 R's in your life.

List two examples of how to **Refuse**:

1. *I will refuse single use plastic water bottles and drink from a reusable cup at home.*

2. _____

3. _____

List two examples of how to **Reduce**:

1. _____

2. _____

List two examples of how to **Reuse**:

1. _____

2. _____

List two examples of how to **Repair**:

1. _____

2. _____

List two examples of how to **Recycle**:

1. _____

2. _____

A decorative blue watercolor splash is located on the left side of the slide, extending from the top to the bottom. The splash has a textured, organic appearance with varying shades of blue.

Solutions, Presentations, and Class Pledge

Lesson #5



The Solutions Worksheet

Lesson #5, Activity #1



Filling out the Solutions Worksheet

- Students will fill out the following worksheet.
- Note: This is the back side of the worksheet titled “Ocean Plastic – The Problem and the Solution”

STUDENT WORKSHEET - PAGE 2 OF 2

OCEAN PLASTIC –THE PROBLEM AND THE SOLUTION

Directions: Draw two photos and write the name of two solutions to reduce plastics in the ocean.

Solution #1:	Solution #2:
	

Description of solution #1:

Description of solution #2:

SUSTAINABILITY FOR YOUNG LEARNERS COURSES

Student Presentation Time

Lesson #5, Activity #2





Call to Action: Pledge

Lesson #5, Activity #3

Call to Action

- The class will create a pledge and every student will sign the pledge.

WE PLEDGE TO



Pledge - Sign your name here:

Thank you for your time.



Content Creator:

[Sydney Lund](#)

Master of Sustainability Leadership