OCEAN PLASTIC – THE PROBLEM & THE SOLUTION

THIRD GRADE
SUSTAINABILITY THEMED UNIT PLAN

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SUSTAINABILITY FOR YOUNG LEARNERS
COURSES

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STANDARDS

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.]

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)

DESIRED RESULTS

OBJECTIVE

Our oceans are changing, and it is predicted that by 2050, there will be more plastic in the ocean than fish. Students learn about the physical changes of increased plastic pollution into the ocean and how that is affecting ocean life. Students learn about and come up with several solutions to mitigate the problem.

ESSENTIAL QUESTIONS

1. How are our oceans changing?
2. Why is there plastic in our oceans?
3. How does ocean plastic affect marine animals and humans?

FACTUAL KNOWLEDGE

Students will learn:

1. That the ocean ecosystems are changing and that is because of the plastic pollution problem.
2. About the Great Pacific garbage patch.
3. That there are five gyres collecting trash all throughout the world.

PROCEDURAL KNOWLEDGE

Students will be able to:

1. Properly recycle and compost within their own city and county.
2. Physically see ocean pollution (trash and oil) within an experiment and see how hard it is to clean it up.
3. Come up with several solutions that the student can implement to help solve this problem.

CONCEPTUAL KNOWLEDGE

Students will understand:

1. Many different solutions that can be implemented to prevent or clean up ocean pollution.

PERFORMANCE TASK

Students will work individually on a handout where they will show:

- The plastics problem in our ocean.
- How ocean plastic pollution is affecting plants and animals.
- Potential solutions to the problem.

MATERIALS NEEDED

Material	Lesson and Activity
Single Use Plastics – Identification and Alternatives – Student Worksheet • One copy per student	Lesson 1, Activity 2.2
Reading - *Tons of Trash in the Ocean Hurt Animals* • Students can read this on laptops, the article can be printed out, or students can read the article projected on the whiteboard	Lesson 2, Activity 2.1
How rivers and streams connect to the ocean: Student Worksheet • One copy per student	Lesson 2, Activity 3.2
Ocean Pollution Experiment • One large clear plastic tub or large clear bucket • 3 mason jars with lids • For the "pollution" part of the experiment: o Cooking oil: 3-5 tablespoons o Balsamic oil or cocoa powder (for brown color): 3-5 tablespoons o Used coffee grounds or dirt – 1-2 cups • For the trash - any type of plastic trash that is available, including: plastic bags, chip bags, plastic to-go containers, plastic bottles and bottle caps, etc. • For cleaning up the pollution: o Coffee strainer o Sponges o Cotton balls o Net – if available o Tongs	Lesson 3, Activity 1-2
Ocean Plastic – The Problem and the Solution: Student Worksheet • One copy per student	Front side: Lesson 3, Activity 2.1 Back side: Lesson 5, Activity 1
Sorting Hands on Demo 1. Print out the photos in the attached document titled, "Objects to print out for the sorting activity" 2. Bin labeled "compost" 3. Bin labeled "trash" 4. Bin labeled "recycling"	Lesson 4, Activity 3.1
The 5 R's to Waste - I can Refuse, Reduce, Reuse, Repair, and Recycle – Worksheet • One sheet per student	Lesson 4, Activity 3.2
We pledge to…. – Class Printout • One copy for the entire class	Lesson 5, Activity 3
PowerPoint – Fully created PowerPoint outlining all of the information within the lesson, including the vocabulary words, links to all videos, photos, and screenshots of the in-class worksheets.	Lessons 1-5

LESSON #1: VOCABULARY WORDS AND SINGLE-USE PLASTICS

LESSON TIME: 45 MINUTES

ACTIVITY #1: VOCABULARY WORDS (25 MINUTES)

Students learn about the lesson's vocabulary words. The teacher teaches the vocabulary word, uses it in a sentence, and then asks a question about the word.

Vocabulary words:

1. **Ocean** - The vast body of saltwater covering about three quarters of the earth's surface.
2. **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.
3. **Plastic** - An artificial substance made from certain kinds of chemicals that can be easily shaped when soft.
4. **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.
5. **Great Pacific Garbage Patch** - A vast accumulation of trash made up primarily of tiny plastic particles floating at the surface of the water in between California and Hawaii.
6. **Environmental change** - Disturbance of the environment most often caused by human influences and natural ecological processes.
7. **Food web** - The interlocking food chains within an ecological community.
8. **Reduce** – To make less in amount or size.
9. **Reuse** – To use something more than once or often.
10. **Recycle** - The process of taking materials ready to be thrown away and changing them into reusable materials.
11. **Compost** - A mixture of decaying leaves, vegetables, or manure that is used to improve garden soil.
12. **Single use plastic** – Plastic materials only designed to be used one time.

ACTIVITY #2: "LIFE OF A SPOON VIDEO" AND SINGLE-USE PLASTICS WORKSHEET (20 MINUTES)

Activity 2.1: "Life of a Spoon" Video (1 minute, 55 seconds)

Show the video titled, "Life of a Spoon" to the students. This video by Greenpeace shows the entire process that goes into making a single use plastic spoon that will be used only once.

- Click here to watch the video.
- Link to the video: https://www.youtube.com/watch?v=eg-E1FtjaxY

Activity 2.2: Single Use Plastics – Identification and Alternatives Worksheet (18 minutes)
After watching the video "Life of a Spoon," the students learn how much time and energy goes into making something that will only be used once. Students will then work independently on the "Single Use Plastics – Identification and Alternatives" Worksheet. In this worksheet, students will write about single use plastics and then identify two different single use plastics that they use within their lives. They will then propose alternatives to these single use plastics.

- For this activity, project the definition of single use plastics onto the whiteboard (slide 17 in the PowerPoint) for the students to see the definition and the photos on this slide.

- Some options of single use plastic products, along with the replacement, that students could write about includes:
  - Single use plastic water bottle --> Reusable water bottle
  - Single use plastic spoon --> Reusable metal spoon
  - Plastic shampoo bottle --> Shampoo bar
  - Individual packages of chips/cookies --> Placing these items in reusable containers
  - Plastic straw --> No straw or metal straw
  - Plastic grocery store bag --> Reusable cloth bag
  - Thin plastic produce bag --> Cloth produce bags

LESSON #2: OCEAN PLASTICS ARE A BIG PROBLEM

LESSON TIME: 45 MINUTES

ACTIVITY #1: VIDEO AND DISCUSSION (10 MINUTES)

Students start by watching the video, "How much Plastic is in our Ocean." This video explains the Great Pacific Garbage Patch, what microplastics are, and provides some tips on how to reduce individual plastic usage.

After watching the video, the students will engage in a brief five-minute discussion. The following questions can be used to guide the discussion:

1. Why are microplastics a problem?
2. Where is plastic found in the ocean?
3. Why do animals eat the microplastics?

Video: "How much Plastic is in our Ocean" (5 minutes)

- Click here to watch the video.
- Link to the video: https://www.youtube.com/watch?v=YFZS3Vh4lfI

ACTIVITY #2: READING, QUIZ, & DISCUSSION (15 MINUTES)

Activity 2.1 – Reading "Tons of Trash in the Ocean Hurt Animals" (7 minutes)

Students read the article titled "Tons of Trash in the Ocean Hurt Animals." This article discusses ocean trash and explains the Great Pacific Garbage Patch. The article contains roughly 400 words.

Activity 2.2 – "Tons of Trash in the Ocean Hurt Animals" Quiz (8 minutes)

After the students are done reading the article, the students will take a four-question quiz about the reading. The Power Point contains the quiz questions, with the answer on the following slide after each quiz question. Students can either answer the questions on their white boards, or by holding up either 1 to 4 fingers to represent their answer choice.

- Link to article: https://newsela.com/read/elem-great-pacific-garbage-ocean-patch/id/41749/
- Please note that this article is found on Newsela.com. You will need to make a free account to access this article via the link provided above. A PDF version of the article is also attached to the unit materials.

ACTIVITY #3: RIVERS AND STREAMS CONNECT TO OUR OCEANS (20 MINUTES)

Activity 3.1: Video: "What really happens to the plastic that you throw away" (3-5 minutes)

Students will watch the video "What really happens to the plastic that you throw away?" The segmented part of the video shows how a plastic water bottle can move from a stream to a river into the ocean. This video and activity are particularly important for those students who live great distances away from the ocean, to show how rivers and streams all connect to lakes or oceans.

Video: What really happens to the plastic that you throw away? (segmented: 1 minute, 30 seconds) (whole video: 4 minutes 6 seconds)

- Click here to watch the video
- Link to the video: https://www.youtube.com/watch?v=_6xlNyWPpB8
- Note: Play the video from to 1:53 to 3:15. You can also play the entire video. However, this portion of the video shows how plastic bottles that end up in streams can make its way into the ocean.

Activity 3.2: How Rivers and Streams connect to our ocean - Worksheets (15 minutes)

Students will complete the worksheet titled "How rivers and streams connect to the ocean." This activity is a place-based activity, showing students how the major rivers along with smaller rivers and streams connect to the ocean. Students will identify where they are located on the map. They will then trace the rivers and/or streams that goes from their location to the ocean. After this, students will write a few sentences describing how plastics thrown into rivers can make their way into the ocean.

LESSON #3: OCEAN POLLUTION EXPERIMENT

LESSON TIME: 45 MINUTES

ACTIVITY #1: OCEAN POLLUTION EXPERIMENT (20 MINUTES)

Students conduct an ocean pollution experiment. In this experiment, a plastic tub represents the ocean. At first, the water in the ocean is clean. Once trash and oil are added to the tub, the students see that the water is dirty. Then, students begin to attempt to clean up the tub and see that cleaning up the ocean is a difficult challenge. The key takeaway is that students see that cleaning up oceans and rivers is much harder than simply discarding our trash in a responsible manner.

Activity #1.1 – Pre-Pollution (5 minutes)

The teacher takes a clear plastic tub and puts water into the tub. If the teacher has toy ocean animals or figurines, the teacher can put these in the water to represent ocean animals. The teacher tells the students that the tub represents the ocean and/or river.

The teacher makes three columns on the whiteboard, with the following headings: Pre-Pollution, Pollution, and Clean-up.

The teacher asks the students to describe what the tub looks like using a few adjectives or a short sentence. The teacher writes some of these words on the board under the column “Pre-Pollution.”

The teacher then takes a sample of the water and puts it into a jar before moving on.

Activity #1.2 – Adding in Pollution (10 minutes)

Students start to put different pieces of trash into the tub. This trash could have been collected from the playground by the students before coming into class, or the teacher can bring some trash for the experiment. Trash could include plastic containers, plastic bags, chip bags, plastic bottle tops, water bottles, etc. After the students put the trash into the bin, the teacher puts a few tablespoons of oil or balsamic vinegar into the tub, which shows oil pollution from oil spills. Then the students put in a handful of used coffee grounds or dirt into the water and explains that this represents microplastics.

The teacher asks the students to describe what they see in the dirty water. The teacher writes some of the words on the board in the column titled “pollution.”

The teacher again takes a sample of the polluted water and puts it into a jar.

Activity #1.3 How Whales Eat Ocean Plastic (5 minutes)
Students then watch the National Geographic video titled, "See Blue Whales Lunge for Dinner in Beautiful Drone Footage." This video shows how whales open up their mouths in order to eat and then filter out the water through their blow holes. This video shows students that some animals eat by taking big gulps of water filled with small fish. If there is plastic or other trash in the ocean, then the whales could mistakenly catch this in their mouths and digest the plastics.

After watching the video, the teacher can ask the following questions:
- How do whales eat?
- If there is plastic in the water, do you think that the whales might accidentally eat this?
- What happens if a whale accidentally eats plastic?

Video: "See Blue Whales Lunge For Dinner in Beautiful Drone Footage" (1 minute, 28 seconds)
- Click here to watch the video.
- Link to the video: https://www.youtube.com/watch?v=cbxSBDopVyw

ACTIVITY #2: CLEANING UP THE MESS AND WORKING ON THE WORKSHEET (20 MINUTES)

Activity #2.1 – Working on the worksheet
The teacher will hand out the worksheet titled "Ocean Plastic – The Problem and the Solution." The students will work on the first page of this worksheet, where they will draw the dirty ocean, similar to what they witnessed during the experiment. Then, they will write a paragraph describing why plastic and trash that ends up in our ocean is a problem.

Activity #2.2 – Cleaning up the water
While the class is working independently on the worksheet, the teacher will call groups of students to the tub to help clean up the water. Students begin taking turns attempting to clean up the trash, oil, and dirt within the tub. The students can first try cleaning up the trash with a net or picking out the pieces of trash with their hands. However, once all of the trash is gone, the water is still dirty. Students than use sponges, a coffee filter, or cotton balls to clean up the oil and other dirt within the water. Each student will see than even though they attempted to clean the water many different ways, it is still dirty.

While the students are cleaning up the trash, the teacher can ask the students to describe the water and the clean-up process. The teacher can write some of these words on the board in the column titled, "Clean-up."

After the water is cleaned to the best of the student's abilities, the teacher will then take a sample of the water and put it into a jar.

Activity #3 – Experiment wrap-up (5 minutes)
The teacher will show the students the three jars full of water, which shows the clean water, the dirty water, and the water after the students have cleaned up the water. The teacher will engage the students in a wrap up discussion, and can ask the students the following questions:

- What happened during the experiment?
- Was the water easy or hard to clean up?
- Is the water after the pollution as clean as the water before the pollution?
- Why is it bad for trash and plastics to be in our ocean?
- How can we stop plastic and trash from entering into the ocean?

*Similar activity with photos can be found here.

LESSON #4: SOLUTIONS TO THE PLASTICS PROBLEM

LESSON TIME: 45 MINUTES

ACTIVITY #1: SOLUTIONS – TECHNOLOGIES (10 MINUTES)

Explanation: In Lesson #3, Activity #2, students learned first-hand how hard it is to clean up the ocean. Now, students will learn about the Ocean Cleanup Project, which is a non-profit that has created an autonomous and solar run technology that is designed to pick up 90% of the ocean trash by 2040. The technology is a U-shaped device that floats in the five ocean trash gyres and collects trash through a skirt that extends roughly 10-12 feet down. The device relies on currents and wind to move the U-shaped device to areas of the patch with the greatest amount of trash. A boat collects the trash periodically and recycles it back on land.

Activity #1.1 The Ocean Cleanup Videos (5 minutes)

Students will begin by watching the video titled "The Ocean Cleanup, System 001, Technology Explained." This video gives a verbal and animated explanation of the U-Shaped Ocean Clean-up Technology and how it works. The students then watch the video "Ocean Cleanup: Plastic-harvesting device 'successful,'" which shows actual images of how the device works and how it picks up the trash.

Video #1: The Ocean Cleanup, System 001, Technology Explained (two minutes, 2 seconds)

- Link to the video: https://www.youtube.com/watch?v=O1EAeNdTFHU

Video #2: Ocean Cleanup: Plastic-harvesting device 'successful' (two minutes, six seconds)

- Link to the video: https://www.youtube.com/watch?v=e-fI4ahyHNg

Activity #1.2 The Ocean Cleanup Discussion (5 minutes)

After watching the videos, the students will participate in a short class discussion talking about the videos. The PowerPoint contains a few slides with photos from the Ocean Cleanup, which can be shown to students while the discussion is taking place.

Potential questions to ask during the discussion:

- What did you learn from the video?
- Why is it important to pick up the ocean trash?
- The device is run off of solar power. Does anyone know what that means?

ACTIVITY #2 LEARNING ABOUT THE SOLUTIONS (12 MINUTES)

Activity #2.1 – Refuse, Reduce, Reuse, Repair, and Recycle – PowerPoint slides (6 minutes)

Students start by learning about the five R's, which are refuse, reduce, reuse, repair, and recycle. Learning about this can allow the students to properly manage their trash, which is one solution to reducing the amount of trash generated in general, and the amount of trash that ends up in our oceans. Refer to the PowerPoint to teach this part of the lesson.

Activity #2.2 – "Composting for Kids" video (6 minutes)

Students will watch the video titled "Composting for Kids." This video goes over why composting is important, shows what can be composted, and explains a school composting system. This information will be used during activity #3.

Industrial composting can take any type of edible food scraps, which is where most school compost is sent to. Please note that what can go in the compost bin at school is different than what can go into a backyard compost pile. Backyard compost piles should not have any meat, dairy, or bread products. This is because it attracts unwanted animals to the bin. Additionally, commercial composting facilitates get warm enough to break down these meat and dairy products much quicker and more efficiently than a backyard system.

Video: 'Composting for Kids" video (5 minutes, 56 seconds)

- Click here to watch the video
- Link to the video: https://www.youtube.com/watch?v=dRXNo7Ieky8

ACTIVITY #3 – SORTING ACTIVITY AND FIVE 5 R'S WORKSHEET (23 MINUTES)

Directions: The teacher will work with small groups of students and have them participate in a hands-on sorting activity. The rest of the class will be working independently on the worksheet titled "The 5 R's to Waste – I can Refuse, Reduce, Reuse, Repair, and Recycle." The teacher will pass out and explain the worksheet. Then, the teacher will work with small groups on the sorting activity.

Activity #3.1 – Sorting Activity

While students work independently on the worksheet, the teacher will work with small groups of students on the sorting activity. Here, students will need to sort different items into either the recycling, composting, or trash buckets. Photos for this activity can be found in the document titled "Objects to print for the sorting activity" along with an answer sheet. The activity will take roughly 4-5 minutes per group.

Activity #3.2 – Refuse, Reduce, Reuse, Repair, and Recycle Worksheet

Students will work independently on the worksheet titled "Refuse, Reduce, Reuse, Repair, and Recycle." In this worksheet, students will have to give two examples for each of the 5 R's by writing a short sentence for each of the examples.

LESSON #5: SOLUTIONS, PRESENTATIONS, AND CLASS PLEDGE

LESSON TIME: 45 MINUTES

ACTIVITY #1: FILLING OUT THE SOLUTIONS WORKSHEET (25 MINUTES)

Students will fill out the second page of the worksheet titled, "Ocean Plastic – The Problem and the Solution." The second page is where the students will draw a photo of the two solutions that they have come up with and then write two to three sentences describing the solution. The solutions can be anything that the student has learned in class or can be something they invent. One of the solutions should be something that the student could implement into their own lives.

Example of possible solutions:

- Picking up trash on the streets
- Picking up trash on the playground
- Not littering
- Recycling
- Composting
- Making a poster encouraging other students to properly dispose of their own trash
- Having a river or beach clean-up day (depending on the school's location)
- Any "invention" that the student comes up with

ACTIVITY #2: PRESENTATION TIME (10 MINUTES)

Students will be given 10 minutes to share and talk about their solutions. This could be done by:

1. Asking for a few volunteers to share their solution with the class.
2. Having students get into small groups and each student share their solutions to the group.

ACTIVITY #3 (10 MINUTES): CALL TO ACTION: PLEDGE

Now that the students know about the problem of plastics in our ocean and rivers, and have come up with several solutions, the students can create a class pledge and commit to taking action at their school. The teacher will ask students to volunteer some solutions that they could implement at their school. The teacher can write a few of the most practical ideas on the white board. The teacher can lead the students to decide on one practical solution that the students can pledge to do at their school to stop pollution from entering waterways, rivers, and the oceans.

ACTIVITY #3 (10 MINUTES): CALL TO ACTION: PLEDGE

Once the solution is created, the teacher can write the solution on the printout titled, “We pledge to.” Then, all of the students can sign their names on the paper. This paper could be hung up on the classroom door, in order for the students to see the pledge on a daily basis.

Examples of practical solutions that students can pledge to do at school:

1. Pick up a piece of trash on the playground everyday.
2. Make sure that you properly throw away, compost (if available), and recycle your trash after lunch.
3. Tell other students about the importance of picking up trash.
4. On a certain day of the week, every student spends the first two minutes of their recess picking up trash on the playground.

TEACHER RESOURCES

This section contains resources for teachers to learn more about the environmental and sustainability topics presented within this unit plan, including information about ocean plastics, composting, scientific articles about climate change, and extra resources for students. If you need more information regarding why climate change, sustainability, and environmental literacy should be taught within Elementary Schools, please email the content creator of this unit plan for more information.

INFORMATION ON OCEAN PLASTIC:

The Ocean Cleanup: Website

- The Ocean Clean-up is an organization that has created a technology to clean up all of the five ocean garbage patches that accumulate in the five large gyres around in our oceans. This website gives a detailed overview of the technologies used to reach the goal of collecting 90% of all ocean plastic by 2040.
- The Ocean Clean-up is the technology discussed in Lesson #4, Activity #1.

INFORMATION ON GLOABL WARMING

Article by NASA: The Causes of Climate Change

- This article explains the root causes of climate change, explains the greenhouse effect, and discusses the various gasses which most contributes to climate change.
- “In its Fifth Assessment Report, the Intergovernmental Panel on Climate Change, a group of 1,300 independent scientific experts from countries all over the world under the auspices of the United Nations, concluded there's a more than 95 percent probability that human activities over the past 50 years have warmed our planet.”

Video and Article by The Royal Society: The Basis of Climate Change

- This article contains a short one-minute video titled “Climate Change in 60 Seconds.” The article covers the scientific claims that the Earth has been heating at a much faster pace since the start of the Industrial Revolution, where humans began to burn fossil fuels.
- “Many other impacts associated with the warming trend have become evident in recent years. Arctic summer sea ice cover has shrunk dramatically. The heat content of the ocean has increased. Global average sea level has risen by approximately 20 cm (8 inches) since 1901, due both to the expansion of warmer ocean water and to the addition of melt waters from glaciers and ice sheets on land.”

Article on Oxford Academic: World Scientist’s Warning of a Climate Emergency

- This article provided two figures, which are titled “Change in global human activities from 1979 to the present” and the “Climatic response time series from 1979 to the present.” The article provided six important actions that need to happen in order for our climate to stabilize. Those include energy, short-lived pollutants, nature, food, the economy, and population.

INFORMATION ON COMPOSTING

Video: How Composting Helps to Save the Environment

- This 3-minute video goes over why composting is a helpful tool to help save the environment. Key findings include that more than 50% of the waste that we throw away can be composted. When food and yard scraps end up in the landfill, the food scraps naturally release liquids, which mixes with other harmful chemicals inside the landfill, which creates a liquid called leachate. This leachate is very harmful if exposed to groundwater, which could lead to water contamination.

EXTRA RESOURCES FOR STUDENTS

Video: Kids Take Action Against Ocean Plastic (4 minutes, 12 seconds)

- This video is placed in Hawaii and talks about kids taking action against ocean plastic. The video shows students identifying plastic pollution that is ending up on their beaches and talks about the plastics issue in the ocean.
- This video can be shown to the students, if there is extra time during one of the lessons.

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? _____

_____

_____

_____

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?

_____

_____

_____

_____

_____

_____

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. _____

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:

_____

_____

_____

_____

_____

_____

_____

_____

_____

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:

_____

_____

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WE PLEDGE TO

_____

_____

Pledge - Sign your name here:

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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.

A team of scientists were curious about the garbage patch. They wanted to measure how big it was. They were in for a surprise. The patch was much larger than they expected. Worse, it is still growing!

Laurent Lebreton led the group. He called the garbage "frightening."

Plastic Can Hurt Animals

Plastic is very useful. Plastic bags help us with our groceries. They can hurt our oceans, though. Animals can eat plastic bags. They can be hurt if they try to. Shellfish and other animals can stick to the plastic. Fish and birds then eat these animals. Soon, the plastic has hurt the whole food chain!

Mr. Lebreton's team wanted a bird's-eye view of the trash. They studied what it looked like from above. They also sent boats to take pieces of trash. The scientists looked at these pieces very closely. Most of the garbage patch is made of tiny bits of plastic. This time, the scientists got to see bigger pieces, too.

41 Years Ago!

Where did all that trash come from? Fishing nets are part of the problem. They made up a big part of the garbage patch. Fishing boats leave them behind. Then they drift through the ocean. Animals can get stuck in the nets.

Fifty plastic items had dates printed on them. Most were from the 1990s and 2000s. One was from 1977. That is 41 years ago! There were 386 items with words from different languages. Many were in Japanese.

Giant Wave

Why might that be? The scientists have a guess. In 2011, Japan was hit by a tsunami. The giant wave washed tons of trash into the sea. That trash could have floated across the ocean. Then it could have made its way to the garbage patch.

This study just looked at floating plastic. There might be much more on the ocean floor.

OBJECTS TO PRINT

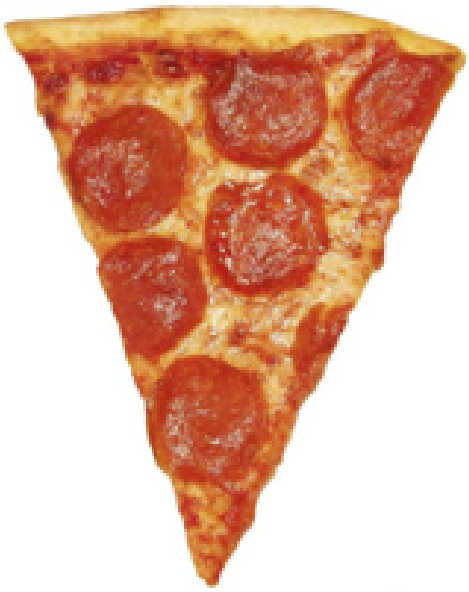
Objects to print for the composting activity.

Key for composting activity

Compost	**Recycling**
Blueberries	Plastic water bottles
Banana Peel	Plastic applesauce container
Applesauce	
Hamburger	
Chicken Tenders	**Trash**
Carrots	Fruit Rollup Package
Half eaten PB&J	Starburst package
Pizza	Plastic sandwich bags
Bread	Milk cartons
Orange peels	Spork
Apple juice	Fruit squeeze packs (packaging)
Apple core	Styrofoam tray
Salmon and Pasta	Plastic wrap
Cookies	
Pretzels	

OBJECTS TO PRINT

OBJECTS TO PRINT



OBJECTS TO PRINT

OBJECTS TO PRINT