

## **Performance Task Item: Trash Talk – Ocean Garbage Patch**

Grade Level: 3<sup>rd</sup> Grade

**Focus Areas:** Reading Informational Texts; Main Idea; Writing; Science

**Essential Question:** How can small individual actions lead to big problems for the ocean environment?

### **Learning Targets:**

- Students will utilize text evidence to analyze and draw inferences.
- Students will understand complex text.
- Students will understand the structure of the text and how portions of the text relate to one another.
- Students will analyze research to establish an answer to a question.
- Students will synthesize information from multiple sources.
- Students will use domain specific vocabulary to inform.
- Students will utilize writing skills to tell a story from a selected point of view.
- Students will use information gained from informational text to generate a solution or creation.

## **STANDARDS**

### **Content Standards:**

- Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- Determine the main idea of a text; recount the key details and explain how they support the main idea.
- Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 3 topic or subject area*.
- Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.
- Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
- Read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2-3 text complexity band independently and proficiently.

### **Supporting Standards:**

- Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

- Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

## **Materials/Resources:**

- “Tiny Sea Creatures are Being Harmed by Plastic in the Ocean” [www.newsela.com](http://www.newsela.com)  
Lexile 580
- <https://marinedebris.noaa.gov/videos/trash-talk-what-great-pacific-garbage-patch-0>
- “Finding Nemo” clip of Crush riding the Eastern Australian Current explaining to Marlin <http://video.disney.com/watch/catching-the-eac-4bb39d25a179ea8833003b15>
- “Plastic is a Sinister Ocean Pollutant” Graphic from <http://www.rurbanlife.net/great-pacific-garbage-patch-environmental-disaster/>
- “A Lot of Plastic is Floating in the Ocean and Sea Turtles are Eating It” [www.newsela.com](http://www.newsela.com) Lexile 660
- KWL Chart modified
- Story Map
- Optional Science Activities
- Poster Rubric
- Narrative Rubric

## **Vocabulary:**

- Current
- Zooplankton
- Microplastics
- Food Chain
- Recycling
- Reuse
- Reduce



## Watch the video

<https://marinedebris.noaa.gov/videos/trash-talk-what-great-pacific-garbage-patch-0>

5. Remember Crush (the sea turtle) from Finding Nemo. The currents helped him go from place to place. Gyres are ocean currents that are like giant whirlpools. Think about how the water moves when the bathtub or sink drains, but in an ocean gyre, the water never drains. It is continually on the move. After watching the video, could trash from Japan, California and other places end up in the same gyre? Why does the gyre make trash in the ocean a global problem? (DOK 2)

***(Optional activity for science in teacher resources)***

6. After reading the article and watching the video, why is a garbage patch much different than a garbage island? Why is a garbage patch much more difficult to clean up from the oceans? List the reasons based on text evidence. (DOK 2)

***(Optional activity for science in teacher resources showing the difference in cleaning up large debris and microplastics)***

Analyze the graphic for “Plastic is a Sinister Ocean Pollutant” to answer questions 7 – 8.

Science Matters

## Plastic is a sinister ocean pollutant

*Plastic water bottles, foam cups, discarded plastic toys – many of them reach the oceans, where they take decades to break down.*

**Floating mass of plastic waste in central Pacific Ocean**



Plastic rope

Plastic ball

Plastic bottles

Fishing nets and floats



*Seal tangled in plastic fishing net, which can easily kill it; this seal was rescued and freed*

### How plastic chemicals move through food chain

Single-cell plankton
Shrimp, krill, small animals
Small fish
Predatory fish (such as tuna, mackerel)



Source: SEAPLEX expedition, Scripps Institution of Oceanography, Agalita Foundation  
Graphic: Belinda Long-Ivey, Sun Sentinel, Helen Lee McComas © 2009 MCT



9. The graphic below shows that 80% of the trash in the ocean comes from the land and 20% of it comes from ships. Why does knowing this make keeping our beaches clean so important? Can we reduce microplastics if we remove plastic debris from the beach and ocean? What trash might come from ships? Design a poster that encourages people to clean up plastic and other litter from the beaches to help reduce ocean trash. Try to come up with a catchy slogan or phrase but also give information on why it is important. Think about ways that you know how to reduce and recycle trash to create your poster. (DOK 2/3)



**Read “A Lot of Plastic is Floating in the Ocean and Sea Turtles are Eating It” and answer questions 10 - 11.**

10. Why do sea turtles eat plastic bags? What do the bags look like? What are the effects of eating it on the turtle? (DOK 1)

11. This article is about how all kind of plastics can cause harm in the ocean. There are plastics everywhere in our world that make our life easier and sometimes safer. A plastic water bottle may allow some people without safe drinking water to have it available. Find something plastic that you use and create something that can either be reused or recycled. You will write a paragraph that tells what materials you used, the original use for the item and the use for the new item you created. (DOK 4)
  
12. Write a story (narrative) from the point of a sea animal who is affected by plastic in the ocean. You may need to complete some research. Use the graphic organizer provided to help you get started. You will need to use all aspects of a story as well as include information you have learned from this task. (DOK 4)

## ARTICLES/STUDENT MATERIALS

### ***“Tiny Sea Creatures are Being Harmed by Plastic in the Ocean”***

By Adam Vaughan, The Guardian, adapted by Newsela staff



In this Wednesday, May 19, 2010, photo, a blue rectangular piece of microplastic is visible on the finger of Julie Masura, a researcher with the University of Washington-Tacoma environmental science program, as Masura examines debris from a collection filter that was pulled through the Thea Foss Waterway in Tacoma, Washington. AP Photo/Ted S. Warren

Scientists are worried about small pieces of plastics. These pieces are called microplastics. Scientists think microplastics are hurting the oceans' tiniest animals.

Zooplankton, very small ocean animals, are important for the sea's food chain. They feed fish who feed other fish. This leads up to the fish we eat. Without zooplankton, these fish would go hungry.

Madeleine Steer is a scientist at Plymouth University. The school is in the United Kingdom, in Europe. She said eating microplastics is bad for zooplankton. They are more likely to die after they eat microplastics.

### **Studying Zooplankton in the Wild**

Scientists are not sure how bad microplastics are in the wild. A group of scientists will travel around the Atlantic Ocean to study the problem. Steer will be one of them.

Steer will wake up at four in the morning. She will spend 12 hours putting down nets. The nets will catch as much zooplankton as possible. She has to start early because zooplankton come out at night. This is because they are less likely to be eaten after dark.

Currents flow through the Atlantic Ocean. They move things around. Plastic is picked up by these currents. It ends up getting stuck in circle-shaped currents in the center.

The Atlantic is already very polluted. The countries on both sides throw many things into the ocean.

### **Some Plastics Are Being Banned**

More and more people are worried about microplastics. The United Kingdom's government will not let people use microbeads anymore. Microbeads are a kind of microplastic. They are often found in soaps. The United States already does not let people use microbeads.

Steer said the new microbead ban is a good start. More and more people are thinking about plastic in the ocean. She said, though, that it will not fix the problem. She says tiny fibers from clothing are more common in the ocean. These tiny pieces of fabric cause problems, too.

## ***“A Lot of Plastic is Floating in the Ocean and Sea Turtles are Eating It”***

By Washington Post, adapted by Newsela staff



Norris, a 74-pound loggerhead sea turtle, has its shell cleaned while being treated on Aug. 13, 2015, at the sea turtle hospital at the South Carolina Aquarium in Charleston, South Carolina. AP Photo/Bruce Smith

Scientists say half of the sea turtles on Earth have swallowed some kind of plastic. Most seabirds have also eaten plastic. This is not safe for the animals.

Qamar Schuyler is a scientist in Australia. She says a lot of plastic is dumped in the ocean every year. The waters on the East Coast of North America have a lot of plastic garbage.

Schuyler wanted to see how much plastic was hurting sea turtles. She used math and science to find out. Math helped Schuyler find out how likely a turtle was to find plastic in the ocean. Then she used science. She looked at sea turtles that had died. She opened the turtles to see their stomachs and whether they ate any plastic.

### **Turtles Think Plastic Is Food**

Olive Ridley Turtles are one type of sea turtle. They eat jellyfish and other floating animals in the ocean. They had more plastic in their bodies than any other turtles. Jellyfish and plastic bags can look similar in the water. Olive Ridley Turtles are now in danger. Many of them are dying.

Turtles can die from eating plastic. Sometimes, turtles feel full after they have eaten plastic. This can make them forget to eat. They can starve from not eating enough proper food.

Schuyler says the world is making more and more plastic. We are not making new ways to get rid of the plastic. This causes the plastic to end up in places it should not be. It ends up in nature.

### **People Can Do More to Help**

Schuyler also worries about micro plastics. These are tiny bits of plastic. They can also get into the ocean.

Unless we do something, the problem will only get worse, Schuyler says.

Scientists say when there is less plastic in the water, less of it is eaten. Schuyler says this gives her hope.

Schuyler says people can do more to help. They can recycle more. People can stay away from plastic water bottles and plastic bags. These can be harmful to turtles and other sea creatures.

## K W L (Modified)

What is the concept?

Ocean Garbage Patch

What I know about:

- 1.
- 2.
- 3.
- 4.

What I WANT to know or  
WONDER about or  
think I WILL learn:

- ?
- ?
- ?
- ?

How I might FIND OUT about . . .

- ⇒
- ⇒

What have I learned?

- 
- 
-

Name \_\_\_\_\_ Date \_\_\_\_\_

## Story Map

Write notes in each section.

**Setting:**

**Where:**

**When:**



**Major Characters:**

**Minor Characters:**



**Plot/Problem:**



**Event 1:**



**Event 2:**



**Event 3:**



**Outcome:**

## **Optional Activities for Science Integration**

### **OCEAN GYRES**

**OBJECTIVE:** To understand that oceanic currents create gyres and to show how trash travels through those currents, accumulates within the gyre, and may be sent back to shore.

**MATERIALS:**

- A medium size circular container or bowl (pie tin, plastic food storage container, etc.)
- A lightweight breakfast cereal (Lucky Charms works well) or another collection of small items that float.
- A spoon
- Water

**INSTRUCTIONS:**

1. Fill the container  $\frac{3}{4}$  of the way full of water.
2. Explain to students that this bowl represents the Pacific Ocean and the sides of the bowl represent land masses, such as Asia and North America.
3. Add a small handful (no more than  $\frac{1}{4}$  cup) of the cereal to the water. The cereal represents marine debris.
4. Using a spoon, stir the water in a circular motion for about 10 seconds, keeping the spoon near the edges of the bowl.
5. Remove the spoon from the water and watch what happens—the cereal will follow the “currents” and then some will begin to accumulate and group together at the center of the currents while others will be shot out of the current and will stick to the sides of the bowl.
6. Explain to the students that this represents what happens to trash when it travels through ocean currents and into a gyre. The trash can accumulate at the center of the gyre (like the “Great Pacific Garbage Patch”), or it can be sent back to shore, where it collects on beaches far away from where it originated.
7. This can be done as a whole group activity or a small group activity with teacher guidance.

## OCEAN SOUP

**OBJECTIVE:** To understand the difficulty in removing microplastics from the ocean. To show students that ocean debris is more like a soup rather than an island.

### **MATERIALS:**

- Red Pepper Flakes (Ensure children do not touch eyes after touching them.)
- Lucky Charms cereal
- A spoon
- A Popsicle stick or small spoon if spoon is large for container
- Water
- A medium size circular container or bowl (pie tin, plastic food storage container, etc)

### **INSTRUCTIONS:**

1. Fill the container  $\frac{3}{4}$  of the way full of water.
2. Add a small handful (no more than  $\frac{1}{4}$  cup) of the red pepper flakes to the water. They will represent microplastics.
3. Using a spoon, stir the water in a circular motion for about 10 seconds, keeping the spoon near the edges of the bowl to simulate the current.
4. Have student try to use the spoon to get the red pepper flakes from the ocean. Have them do this with their eyes closed since the microplastics would not be visible to the naked eye.
5. Explain to students that this represents what the struggle is to get microplastics out of the ocean current.
6. Add a small handful (no more than  $\frac{1}{4}$  cup) of the cereal to the water. The cereal represents larger marine debris (the marshmallows) and marine life (the cereal pieces). The red pepper flakes will still be in the bowl to simulate the microplastics.
7. Using a spoon, stir the water in a circular motion for about 10 seconds, keeping the spoon near the edges of the bowl to simulate the current.
8. Now use the spoon or Popsicle stick to try and remove the debris from the bowl. They can do this with their eyes open.
9. Analyze what they have in their spoon. Were they able to just get the marshmallows (debris) or was cereal (marine life) disrupted as well? What about the red pepper flakes? Were any removed? Were any attached to the cereal?
10. Explain to students that the issue with just removing the debris is that it will upset the marine life while also not being able to remove the microplastics with much efficiency.
11. If you did the Ocean Gyre experiment, you can connect the importance of the currents on the debris and why it is hard to pinpoint location of ocean trash.
12. This can be done as a whole group activity or a small group activity with teacher guidance.

## POSTER RUBRIC

CATEGORY	5	4	3	2	1	Points Earned
<b>Creativity/Originality</b>	The poster shows a very original presentation of the materials which captures the viewer's attention and shows that the student went over and beyond the requirements, which were all met and exceeded. A great deal of time was spent on creativity.	The poster shows a lot of originality; good variety and blending of materials. The poster is very interesting to the viewer. The student spent a lot of time on the work and most of the requirements were met. A lot of time was spent on creativity.	The poster has some originality and variety of materials. Some but not all of the requirements were fulfilled. It shows some creativity and that a moderate amount of time was taken to create the poster. Viewers have some interest.	The poster has little originality or variety of materials. Few of the requirements are met. It shows little creativity and that a minimum amount of time was taken to create the poster. Viewers have little interest.	The poster has no originality. Insufficient use of materials. None of the requirements were met. It shows no creativity and that almost no time was taken to create the poster. Viewers have no interest.	
<b>Quality of Poster Presentation</b>	The poster is effective in relating all of the topics and requirements. Physical appearance of project shows attention to details in terms of lettering, organization, typing proofreading, neatness, picture & art labels, etc.	The poster is interesting and adequately addresses the requirements and topics. Good physical appearance. Minor flaws in details.	The poster is somewhat interesting and vaguely addresses the requirements and topics. Appearance is not very appealing. Moderate errors in details.	The poster is not interesting and barely addresses the requirements and topic. Some vital elements are missing. Physical appearance is not appealing. Major errors in details.	The poster is not interesting and badly done and does not meet the requirements or topic. Vital elements are incomplete or not appropriate. Unappealing with extreme errors in details.	

### RUBRIC FOR RECYCLING PROJECT

Grading Category	4	3	2	1
Constructs an object using recycled materials.				
Brings the project in on time.				
Writes at least 6 sentences about the project.				
Project has a “catchy” name.				
There is a capital letter at the beginning of each sentence and sentences contain proper punctuation.				
Letter formation is good—no stray capital letters in the middle of the sentences.				
At least one sentence describes what was made.				
At least one sentence describes the use of the sculpture.				
At least two sentence describes the materials used to make your sculpture and how it was made.				
Oral Presentation—student can read all sentences and speaks in a loud, clear voice.				
Overall neatness.				
Spells frequently used words correctly.				

### Third Grade Writing Narrative Rubric

	<b>FOCUS</b>	<b>CONTENT</b>	<b>ORGANIZATION</b>	<b>STYLE</b>	<b>CONVENTIONS</b>
<b>4</b>	Stays well focused on one single experience.	One complex, clear idea is well supported with many, varied details. Story elements are clearly included.	The beginning catches the reader's interest. The sequence of events is clear with an effective middle and end.	Uses a variety of sentence structures and lengths. Uses exact and descriptive words. Words and phrases express the writer's personality and voice.	All sentences are complete. There are few or no errors in grammar, usage, spelling and punctuation.
<b>3</b>	Mostly focused on one experience. One or two events and details may not relate to the experience.	One clear idea or experience is supported with many details. A few more details are needed. Some story elements are included.	A beginning, middle and end are clear but could be stronger. Most of the story events are in order.	Uses some variety of sentence structure and word choice. More exact words and greater sentence structure is needed to help create mental pictures of events. The writer's feelings sometimes do not come through clearly.	Most sentences are complete. There are a few errors in grammar, usage, spelling and punctuation, but they do not interfere with the meaning of the writing.
<b>2</b>	Many events and details do not relate to the experience.	Details do not support one idea or experience. More details are needed. Few story elements are included.	The beginning or ending may be missing. The order of events is confusing.	Many sentences may be short and choppy. Word choice is limited and repeated. The writer's feelings do not come through clearly.	Many sentences are incomplete. There are many errors in grammar, usage, spelling and punctuation which sometimes make the writing hard to read and understand.
<b>1</b>	Narrative has little or no focus on a single experience.	There are almost no details, and it is hard to understand what happened. No story elements are included.	There is no beginning or end. Events are told out of order, interfering with meaning.	Most of the sentences are short and choppy. Word choice is very limited and may be confusing. The writer sounds uninterested in the experience.	Most sentences are incomplete. Many errors in grammar, usage, spelling, and punctuation make the writing hard to read and understand.



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