The Swim
Lesson Packet: Plastics
http://benlecomte.com/

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Lesson Plan

The Swim
Educational Resources

SUBJECT:	Ben Lecomte's The Swim		
LESSON Plastics			
TITLE:	Plastics and the Ocean		
LESSON LEVEL:	Beginner/Intermediate	DURATION:	20-30 mins
OBJECTIVE:	• Students will understand and identify the differences in the many types of plastics in the ocean: big debris, plastics, microplastics, micro fibers. • Students will understand the decomposition cycle of plastics in the ocean and how plastics break down and interact with the environment, and eventually how plastics return to us through the food cycle. • They will be familiar with the plastics protocols The Longest Swim is conducting and understand why these protocols are important.		
SUMMARY OF TASKS/ACTIONS:	1. (5min) Introduction of teacher, lesson, and watch Ben's introduction of the roll of plastics in The Swim. 2. (10min) Students will work together to identify what kind of plastics are which. The crew will provide selected photographs and measurements of plastics they come across over the voyage and mark where they are. Students will identify the appropriate vocabulary term for the plastic presented. 3. (10min) Students will receive a handout from the teacher on the life cycle of plastics in the ocean, and discuss the implication of plastics in the Ocean 4. (5min) The students will debrief about the activity with the teacher.		

Vocabulary Plastics

Microplastics	small pieces of plastic that are less than 5 mm long
Microfibers	synthetic fibers smaller than ten micrometres. (1/5 of a strand of hair)
Marine Debris	any artificial, solid material that enters waterways directly through littering or indirectly via rivers, streams and storm drains
Plastic	material consisting of any of a wide range of synthetic or semi-synthetic organic compounds that are malleable and so can be molded into solid objects.
Synthetic	made by chemicals combining "synthetic plastic"
Protocol	the official procedure or system of rules to be followed. "The Swim has many scientific protocols interested in how plastics pollute our oceans"
Plastisphere	ecosystems that have evolved to live in human-made plastic environments

Suggested talking Points on Plastics

Plastics are made from oil.

We can only recycle most plastics around 2 times, after it is recycled twice it is either thrown away or broken down and used in synthetic fibers.

Synthetic fibers take a long time to break down and are a big problem through polluting the oceans as many become micro-fibers.

There is a low estimate of 150 million metric tons of plastic that are currently in our ocean.

Every year, 8 million metric tons of plastics enter our ocean.

In the swim…

Debris Tagging
Ben and the crew are contributing to a visual survey of trash in the Pacific Ocean. Visually tagging marine debris is interested in identifying pieces of trash the eye can distinguish and logging it in a database of ocean trash.

Microfibers
Ben and the crew of the Swim are using the unique pace and length of the project to examine the state of microfiber pollution in the Pacific Ocean.

- Several pieces of cloth will be set out on the boat to watch how they deteriorate in the sun or in salt water.

DISCUSSION - How do you think microfibers will react to environmental exposure?

- The crew is collecting water samples daily to look for microfibers and keeping part of these samples to check the level of microfibers in the water with a microscope after the swim is finished.

Microplastics
The Swim is collecting samples and photo-logging the pollution of the Pacific Ocean plastisphere. The biggest of the microplastics found will be stored in a vial and kept for microbe analysis once back to land.

DISCUSSION- Why are they not collecting all the plastic they come across?
How is analyzing the microbes on microplastics useful?

Artifact Photos

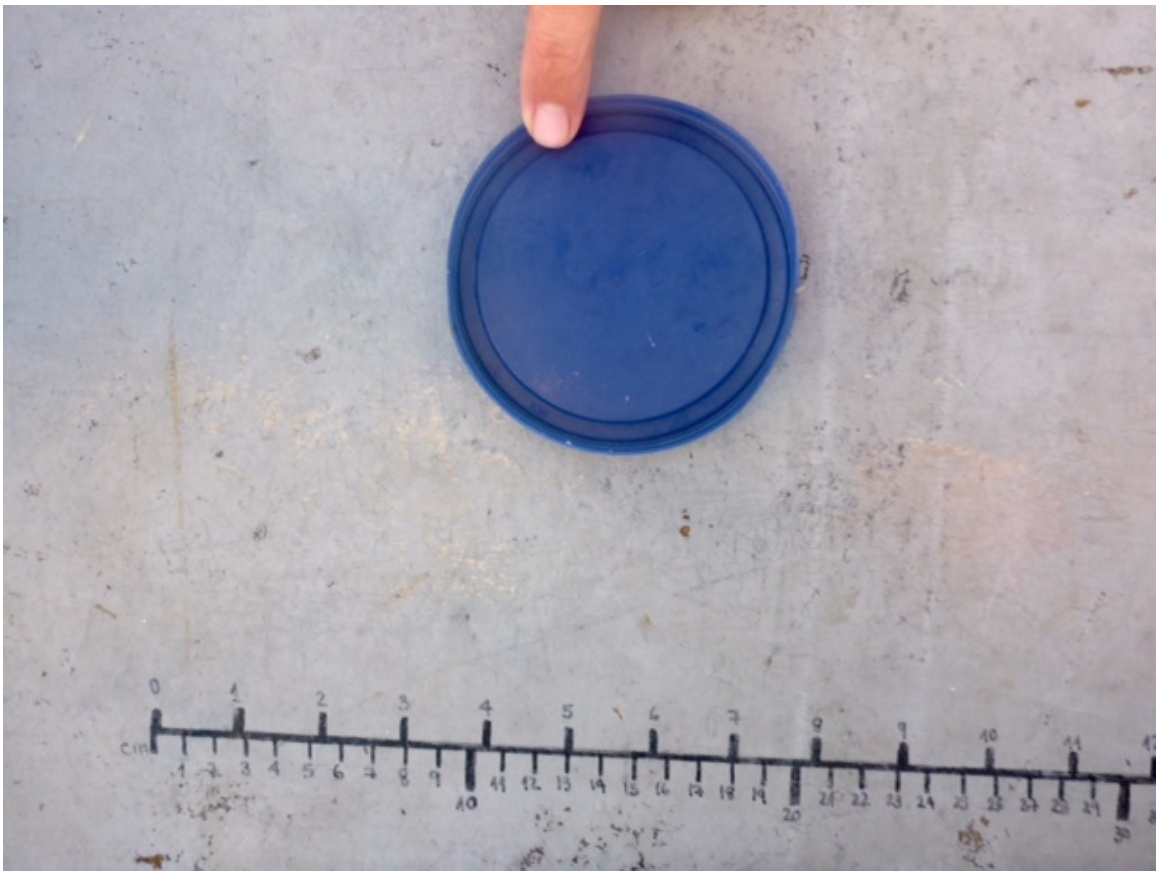
DISCUSSION- Questions to accompany photos:

What is it?
How big is the plastic approximately?
How is it categorized?
How can it be dangerous to ocean ecosystems?

More photos to be added

Balloon

PET bottle



Tupperware Lid

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Worksheet

Further Resources

http://benlecomte.com/science/

https://www.algalita.org/the-problem/

https://marinedebris.noaa.gov/info/plastic.html

https://marinedebris.noaa.gov/what-are-microplastics-microfibers

https://oceanservice.noaa.gov/facts/microplastics.html

https://kids.nationalgeographic.com/explore/science/plastic-pollution/#earth-day-pollution.jpg

https://kids.nationalgeographic.com/explore/nature/ocean-plastic/