

LESSON OVERVIEW

After viewing the film, *A Plastic Ocean*, students will combine information provided in the film with a simple food web diagram to describe the impact of plastics on marine food webs.

STUDENT LEARNING OBJECTIVES

The student will be able to:

- Explain what happens to plastic in the ocean.
- Explain how plastic impacts different types of marine life.
- Describe how plastic travels through a food web.
- Describe at least one solution to prevent plastic from entering marine food webs.

MATERIALS

- Plastics in the Ocean Student Instruction Sheet (one copy per student or online access)

ADVANCE PREPARATION

- If you plan to provide each student with a copy of the student instruction sheet, these copies must be made in advance.
- If you plan to provide each student with online access to the student instruction sheet, it will need to be scanned and uploaded to an area the students can access in advance.

TEACHER NOTES

This lesson should be used immediately after students view the film; they will need to apply what they learned from the film to what is provided to complete the assignment. *You may wish to have the students record some notes while watching the film.*

EXTENSIONS

1. Have students illustrate their own marine food web and write a narrative to describe the impacts plastic would have on their food web. *You can set specific requirements for students regarding how many different species/types of animals must be included and what should be included in the accompanying narrative.*

RELEVANT STANDARDS

SCIENCE (NEXT GENERATION SCIENCE STANDARDS)

MS-LS2-3 – Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem

MS-LS2-4 – Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

HS-LS2-6 – Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

HS-ETS1-1 – Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

LANGUAGE ARTS (COMMON CORE STANDARDS)

6.RI.7 – Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

6.SL.2 – Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

6-8.WHST.4 – Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

6-8.WHST.10 – Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

9-10.W.4/9-10.WHST.4 – Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

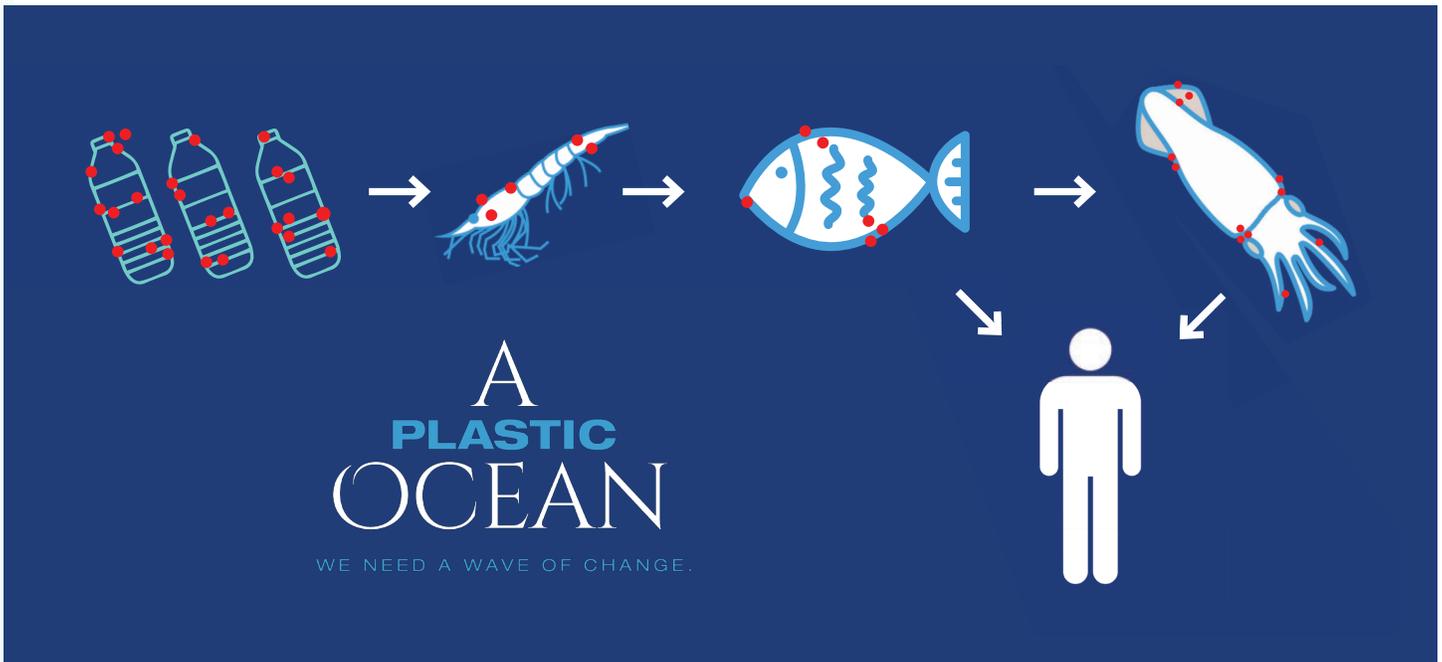
9-10.W.10/9-10.WHST.10 – Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

11-12.RI.7 – Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

11-12.W.4/11-12.WHST.4 – Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

11-12.W.10/11-12.WHST.10 – Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.

In the film, *A Plastic Ocean*, some impacts of plastic on specific types of marine life are detailed. This includes plankton, shellfish, seabirds, and marine mammals. All types of marine life are interconnected through complex food webs, and therefore impacted by plastic in the ocean.



Use the diagram above – and what you learned from the film – to explain the impact of plastics on marine life and how plastic travels through a food chain or food web. Include the following in your explanation:

- What happens to plastic in the ocean?
- What happens when different types of marine life ingest plastic?
- How is plastic transferred from organism to organism in a food chain or food web? Include specifics, for example: is the plastic itself being transferred?
- How does plastic impact humans in a marine food chain (like the one pictured above)?
- Which organisms in a food chain are impacted the most by plastics: those at the bottom of the food chain or those at the top of the food chain? Explain your reasoning.
- What can we do to prevent plastics from entering marine food webs? *Provide at least one specific solution.*