

## Preparation


Order video *Synthetic Seas: Plastics in the Ocean* two to three weeks in advance. Photocopy worksheet, chart, cards, and table, one per student.

## Outline

### Before class

1. Order video *Synthetic Seas: Plastics in the Ocean* two to three weeks in advance of lesson from California Coastal Commission education web site, [www.coastforyou.org](http://www.coastforyou.org).
2. Photocopy "You Are What You Eat" worksheet and "Marine Animal Feeding Habits and Plastic Risk" table, one for each student or group.
3. Photocopy and cut out "Marine Animal Cards," one set per student.
4. Photocopy "Plastics and Their Uses," one per student.

### During class

1. Lead whole class discussion on characteristics of plastics in the oceans.
2. If working in groups, divide students into groups of 3-4.
3. Hand out worksheets, chart, and cards: students will arrange cards at their own tables.
4. Table groups or individuals present rationales and results to class. 

## Conclusions

Marine organisms are besieged with plastics in their aquatic home. They can mistake plastic pieces as food and ingest them, or become accidentally trapped by plastic marine debris.

## Extensions and applications

1. Have students bring from home different types of plastic trash, or use the trash from their lunches. Conduct buoyancy experiments to see which pieces float and which sink, and which are neutrally buoyant. Group like objects together based on buoyancy. Now check their recycle number on the bottom—the number in the triangle. Do all types of plastic with the same number have the same buoyancy? What might affect the buoyancy besides the type of plastic (e.g. the shape of the object).
2. Get a list from your local refuse agency that indicates what plastics they accept for recycling, and sort your plastic trash from #1 above accordingly. Are the recyclable plastics primarily floaters or sinkers? Do you think that the plastic that is more easily recyclable ends up in the ocean less often than those that are not recyclable in your area? Which ocean animals might recycling plastic help most?

## Adapted from

Animals' Feeding Ranges and Plastics, *Plastics Eliminators: Protecting California Shorelines*. California Aquatic Science Education Consortium. CASEC c/o 4-H series, Loran Hoffman, Department of Human and Community Development, UC Davis, 1 Shields Ave., Davis, CA 95616. [www.rain.org/casec](http://www.rain.org/casec)

Further references on ocean pollution:

[www.mi.mun.ca/mi-net/enviro/pollut.htm](http://www.mi.mun.ca/mi-net/enviro/pollut.htm)

[http://seawifs.gsfc.nasa.gov/OCEAN\\_PLANET/HTML/peril\\_pollution1.html](http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/peril_pollution1.html)

<http://educate.si.edu/lessons/currkits/ocean/pollution/essay.html>

[www.ocdsb.on.ca/~sel/newswave/ocean1.htm](http://www.ocdsb.on.ca/~sel/newswave/ocean1.htm)

[www.ocean.com/conservation/oceanpollution.asp](http://www.ocean.com/conservation/oceanpollution.asp)

[www.umassd.edu/public/people/kamaral/thesis/plasticsarticle.html](http://www.umassd.edu/public/people/kamaral/thesis/plasticsarticle.html)

[www.coastal.ca.gov/publiced/marinedebris.html](http://www.coastal.ca.gov/publiced/marinedebris.html)

## Answer Key: Marine Animal Feeding Habits and Plastic Risk\*

	One dimensional	Two dimensional	Reticulated	Hollow	Small	Angular
Surface Feeders	6	6	9	7	3,7,9	
Pelagic Feeders	4,5	6,8	4, 8	1,2,4,5	10	2
Benthic Feeders	4	6	2	2	10	2

\*Note: These are some possible answers. Your students may have additional answers with plausible rationales. This is an area of active scientific investigation; we have yet to learn the extent of devastation caused by plastic marine debris.