

# KEEPING OUR COASTLINES CLEAN

A U.S. Virgin Islands  
Marine Debris Curriculum







# SOLUTIONS



# Links to the Next Generation Science Standards, Quick Reference Guide

Curricula by Sub-Section		Middle School						High School					Sci & Engineering Practices
		ESS 3-1	ESS 3-2	ESS 3-3	ESS 3-4	ETS 1-1	ETS 1-2	ESS 3-1	ESS 3-3	ESS 3-4	ETS 1-1	ETS 1-2	
Composition & Abundance	Beach Box Exploration			✓									✓
	Investigating Oceanic Garbage Patches			✓					✓				✓
	A Degrading Experience			✓					✓				✓
Sources & Transportation	Watershed Walk	✓		✓				✓					✓
	Sources of Microplastics: Microbeads			✓									✓
Impacts	Entanglement Problems			✓	✓				✓	✓			✓
	Natural Disasters and Marine Debris		✓	✓	✓			✓					✓
Solutions	Linked Beach-Ghut Clean Ups	✓		✓					✓				✓
	Mitigating Microplastics			✓					✓				✓
	Upcycling Plastic Bags					✓	✓				✓	✓	
	Making Connections Through Art			✓					✓				✓

# LESSON: Making Connections Through Art

This activity was modified with permission from Oregon Sea Grant's "Making Connections Through Art" Activity from the Marine Debris STEAMSS (Science, Technology, Engineering, Art, Math, and Social Studies) curriculum (<https://oregoncoaststem.oregonstate.edu/marine-debris-steamss/md-grades-6-8/solutions>).

**Grade Levels:** 5-12

**Subject Areas:** Marine Biology: Debris Sources, Ecology

**NGSS Connections:**

- MS-ESS3-3:
  - Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
  - ESS3.C: Human Impacts on Earth Systems - Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things.
  - ESS3.C: Human Impacts on Earth Systems - Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.
- HS-ESS3-3:
  - ESS3.C: Human Impacts on Earth Systems - The sustainability of human societies and the biodiversity that supports them requires responsible management of natural resources.
- Appendix F: Science & Engineering Practices

**Time:** Variable – depending on the projects explored.

**Description & Objectives:** This lesson is best done after completion of one lesson in each of the sections Composition & Abundance, Sources & Transportation, and Impacts. Students will take everything they have learned about marine debris to create, develop, and complete a project to share their knowledge.

**Key Ideas & Concepts:**

- Marine debris is any persistent solid material manufactured or processed and then disposed of or abandoned in the marine environment.
- Marine debris is mostly plastic.
- There are multiple ways to share/communicate information about marine debris prevention.

**Pre-Requisite Skills:** Ability to share thoughts and ideas in a coherent manner.

**Teacher Preparation:** The preparation will be different depending on the types of art projects you do with your students. It may be a good idea to divide your students into four groups and have each group tackle one aspect of marine debris (Composition & Abundance, Sources &

Transport, Impacts, or Solutions) and make an art project explaining that aspect and how people in the U.S. Virgin Islands can be part of the marine debris solution.

**Materials Needed:** Will vary based on the projects selected, but optimally some materials could be those collected during marine debris cleanup events.

**Teacher Instructions:** Have students think about the different activities you have done learning about marine debris. Think about the following:

- What is marine debris?
- How do you track and/or measure it?
- Where does it come from?
- How does it get from one area to another?
- What is the effect of marine debris on marine organisms and the people who use the marine environment?

Next, have students investigate the different ways you can communicate information to help people learn new topics. Guide students to learn the differences between sharing information through formal settings (e.g., classrooms, seminars, workshops) and informal settings (e.g., 'trashion' shows, large murals, hands-on activities at community events, short videos).

After students have thought about what information they want to share and how they want to share it, have students create marine debris educational materials for the community. Have students share their information as a public education effort linked with a local event (e.g., Carnival, Reef Fest, Agriculture and Food Fair).

- Consider connecting to previous lessons, like "Upcycling: Plastic Bags," or using objects collected from the "Linked Beach-Ghut Cleanups" for these projects.

Remind them to keep in mind the following:

- Be sure that your product is professional (i.e., neat, uses correct spelling and/or grammar, etc.) and make sure to include:
  - An attention to grammar
  - A specific action that you are asking your audience to do
  - Scientific reasons for taking action
  - Scientific data to support your idea

If the timing of these lessons align with the timing of the Annual NOAA Marine Debris Art Contest (October-November each year), and the art project selected fits the eligibility criteria, consider having your students submit to this contest. All students in grades K-8 from all U.S. states and territories are eligible to apply. This could be a fun activity and may result in national recognition for their creative work!

For more information about the Annual NOAA Marine Debris Art Contest, please visit: <https://marinedebris.noaa.gov/outreach/artcontest.html>

**Teacher Notes:**

- To find out more about local efforts to link marine debris and art, read the Spotlight: Turning Trash Into Treasure.
- For more creative art ideas, like how to make artistic masks from marine debris, please visit: <https://washedashore.org/iamdc/>.
- For inspiring stories of local solutions to marine debris read the Spotlight: Community Transfer Projects: Turning New Knowledge into Action at the Local Level in the U.S. Virgin Islands, and the five associated spotlights.

