



MARINE DEBRIS

LESSON PLAN

Overview

This lesson will provide students with an introduction to marine debris which includes what it is, where it comes from, what impacts it has, and what can be done to address this issue. Students will participate in a beach cleanup activity to better understand marine debris.

Objective

Students will be able to identify common marine debris items.

NGSS Standards

ESS3.C: Human Impacts on Earth Systems

Ocean Literacy Standards

6. The ocean and humans are inextricably interconnected.

Background – What is marine debris?



Marine debris is defined as any **solid, man-made, persistent** material that is either disposed of or abandoned intentionally or unintentionally in the marine environment. Key take-aways from that definition include:

- Marine debris does not include liquids
- Materials that are considered marine debris are not organic

I. What does marine debris consist of?



Using the definition of marine debris provided before, we know that marine debris includes items that are solid, persistent, and man-made. Usual marine debris items can be categorized as plastic, paper/cardboard, glass, and metal. A majority of collected marine debris from coastlines is plastic waste. When plastics are exposed to sunlight for prolonged periods of time, the plastic becomes brittle and can easily break into smaller plastic pieces called **microplastics**. These microplastics will only continue to break into smaller fragments.

2. Where does marine debris come from?



Almost 90% of marine debris in the U.S. Virgin Islands comes from land-based sources. Essentially, our actions on land are the leading contributor to this issue. This can include the improper disposal of trash; however, other factors such as weather and animals can also aid in the transport of marine debris.

3. What are the impacts of marine debris?



Marine debris can have impacts on wildlife, human health, and the vitality of an economy. Animals may mistake marine debris items for food or could become entangled in debris. Unable to free themselves, these animals will likely starve. Economies like those of the USVI that depend heavily on tourism can be negatively affected by marine debris thus limiting the recreational use of beaches and coastlines for example.

4. What can be done to address marine debris?



Marine debris may be a daunting issue but there are things everyone can do to reduce its impacts.

- 1) Properly dispose of trash into appropriate waste receptacles.
- 2) Limit your use and dependence on single-use plastic items.
- 3) Recycle when possible; for example, glass beverage bottles can be recycled back into sand with the right equipment.
- 4) Help to raise awareness within your household and community.

Overview of the Beach Cleanup Activity

Equipment

During the beach cleanup activity, the following equipment will be used/needed:

- Trash bags / 5-gallon buckets
- Gloves
- Cleanup data cards and pencils
- Luggage scale
- Drinking water

Attire

Students should have the following:

- Comfortable clothing
- Closed-toe shoes
- Hat

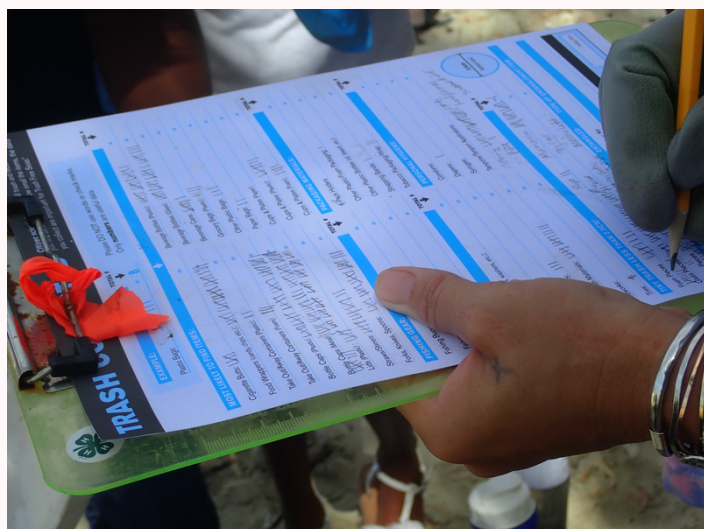
Safety

The following precautions will be taken during the shoreline walk to ensure safety of all participants:

- **Safety briefing administered prior to the start of activity.**
- **Gloves will be worn while collecting debris.**
- **Students will be accompanied by a team lead to assist with the removing entangled debris.**

Explore

Examples of students participating in a cleanup are pictured below.



Overview

- Organize into small groups and receive their equipment.
- Receive the safety briefing and introduction to marine debris.
- Students will safely collect and remove debris whilst also recording what was found and quantities.
- Collected debris will be weighed using luggage scales.
- Glass beverage bottles can be saved for recycling purposes.

Duration

Approximately 1-2 hours

Critical Thinking

While on the beach cleanup, use these prompts to encourage further discussion:

- What are the defining characteristics of marine debris?
- Which of the debris items collected could be recycled?

EVALUATION:

Evaluation Rubric:

Can identify all marine debris from non-marine debris items (like egg shells)

1

2

3

Can explain where most marine debris comes from in the U.S Virgin Islands.

1

2

3

Needs work

Great

Excellent

1

2

3