Extension: Tried and True Lesson Extensions

During the development of this curriculum, eight teachers from Saipan and Rota pilot-tested it. After using it in their classrooms, the teachers gathered together to give their feedback on the lessons, which included their own personal extensions they used in the classroom. These extensions are briefly described below so that you can develop your own extensions that fit your class and their needs.

Lesson 1

- **DIY Debris Gyres:** Using the debris you collected for the beach box activity, build your own gyre using a container, bucket, or other vessel. Add water and small pieces of debris that will move around the container. Use a stick, pencil, or other object to stir the water within the container along the edges (do not stir in the middle). This should eventually create a small whirlpool in the center, and the small pieces of debris should move around, some drifting and conglomerating in the center. This activity can be used to explain Garbage Patches and Gyre movements.



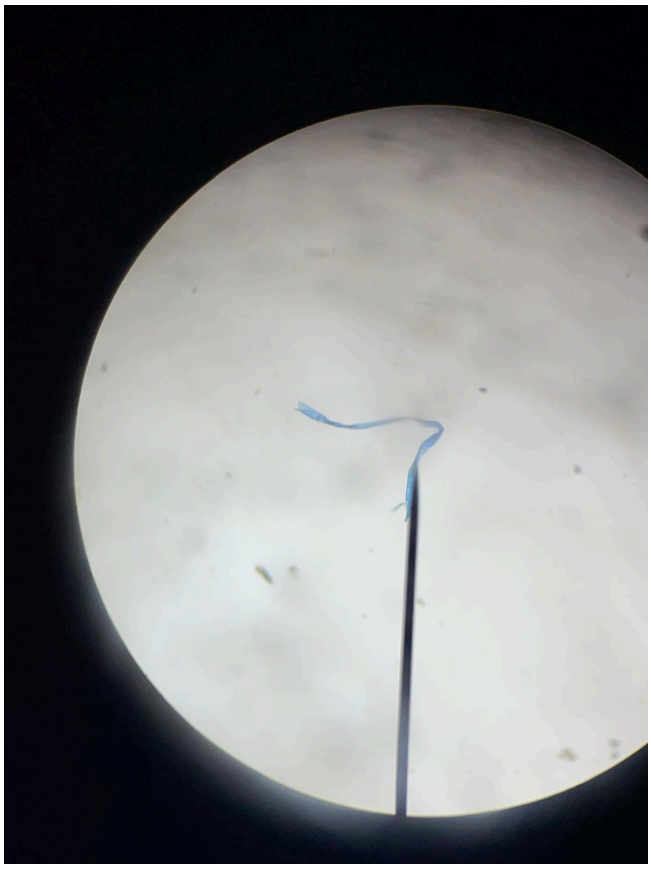
Students creating their debris gyre in their classroom.

- **Collecting Marine Debris Data:** If you are on the beach or collecting trash from around campus, you can collect data on the debris that students find. There are many different ways to collect this data, but a few are listed below. Each system requires different levels of effort; be sure to find the one that works best for you and your students.
    - Marine Debris Monitoring and Assessment Project (Guide for Educators)
    - Marine Debris Tracker App
    - CleanSwell App
    - General Data Sheet

- **Is It Marine Debris:** If the slides provided are too simple for your students, use this activity instead. Have students break into two groups; give them each 4 minutes to think of everything they can find on the beach, both natural and manmade. This works best when both groups have a section on the board (or two different boards) to use, they should split their section into manmade and natural items so that they are kept separate. Once time is up, go through and compare each group's list. Items that are unique to one group will earn them a point, but items that both teams thought of will be crossed out. Whichever group has the most unique items wins! This is a good review of what is marine debris while also showing the breadth of the problem.

Lesson 2

- **Microplastics under the Microscope:** If you have a microscope, this is a very eye-opening and engaging activity to do with your students. At some point, use a small container to collect a small seawater sample. This could be while you and your family is at the beach on the weekend, on your way home from school, on a field trip, or whenever is most convenient for you. The water does not need to be collected on the day or week/month you will do this activity. When you are ready to do the activity, create a slide with a few drops of water or use a petri dish with a thin layer of water on the bottom. Use the microscope (projected on a screen if possible) to look for microplastics and microfibers, or have your students do it depending on the number of microscopes you have. When/If you find debris, discuss with students the impacts of this debris to the environment, does its size negate any potential threats? Or are there still impacts that these small pieces can have on the ecosystem?



Student photo submission of microscope activity.