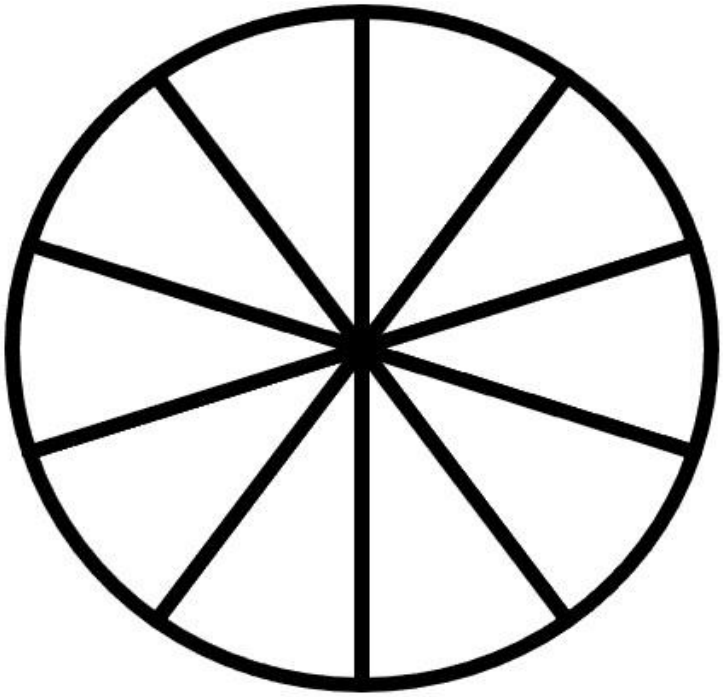
"MicroGlobe" Activity Packet (100 pts. total) **Student name:**

Part 1: Determining plastic types in coastal Georgia waterways

30 pts. Complete the table below by dividing the pieces of each type of microplastic by the total amount of microplastics found in coastal Georgia waters. Round to the nearest whole number. Once all % abundance data are calculated, make sure it adds up to 100%. Then, round each % abundance to the nearest 5% ensuring that the total rounded percent abundance adds up to 100%. Once all the math is complete, assign colors for each type of plastic as a class and then fill in the pie chart. Each pie slice represents 10% of the total amount, so it can be cut in half, if necessary.

Total amount of microplastics found in coastal Georgia waters: 309

Type of Plastic	# of Pieces	% Abundance	Rounded % Abundance	Assigned Color for Pie Chart
Fragments	28			
Fiber Bundles	8			
Fibers	240			
Filaments	5			
Films	28			



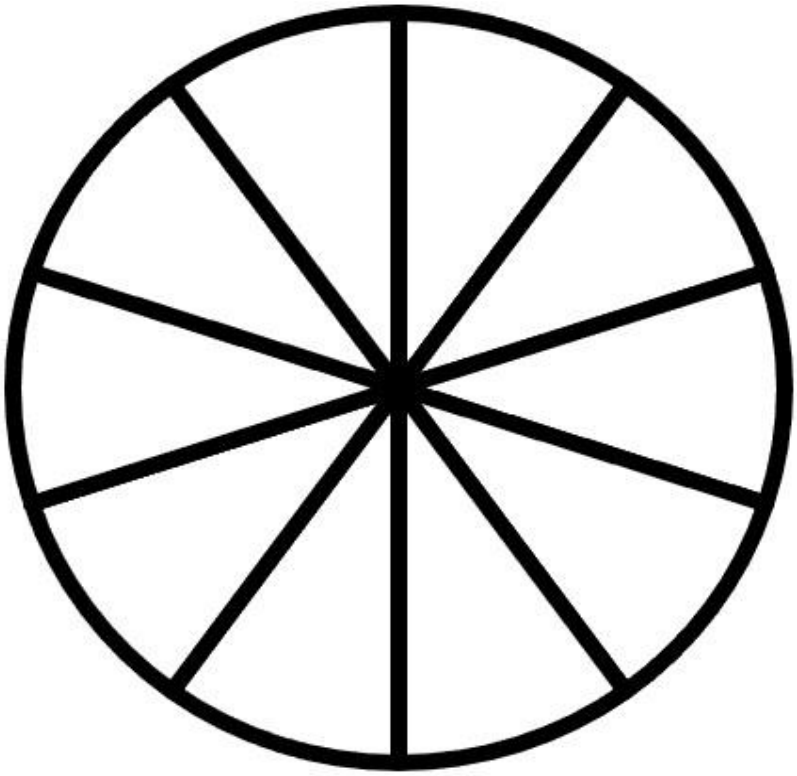
Part 2: Determining plastic types in your “MicroGlobe”

30 pts. Complete the table below by entering the number of plastic pieces you used, dividing the pieces of each type of microplastic by the total amount of microplastics found in your “MicroGlobe.” Round to the nearest whole number. Once all % abundance data are calculated, make sure it adds up to 100%. Then, round each % abundance to the nearest 5% ensuring that the total rounded percent abundance adds up to 100%. Once all the math is complete, use the same color used on page 1 for each type of plastic and then fill in the pie chart. Each pie slice represents 10% of the total amount, so it can be cut in half, if necessary.

Ribbon pieces = fibers; plastic bottle = fragments; and puff balls = fiber bundles.

Total amount of microplastics put in “MicroGlobe:” _____

Type of Plastic	# of Pieces	% Abundance	Rounded % Abundance	Assigned Color for Pie Chart
Fragments (plastic bottle pieces)				
Fiber bundles (puff balls)				
Fibers (ribbon pieces)				



Part 3: Comparing plastic types in coastal Georgia waters and your "MicroGlobe" (20 pts. total)

1. 4 pts. Think about what similarities and differences you see in your "MicroGlobe" pie chart and the coastal Georgia pie chart. For which type of plastic did you obtain a higher percent than for the data provided?

2. 4 pts. Which slice/s are smaller when the data sets are compared? Which slices are similar? For which slices did you obtain a smaller percent?

3. 4 pts. What plastic types in your "MicroGlobe" are settling towards the bottom? What types are floating near the top? Are any types suspended in the middle? Why do you think that you are observing this? Be sure to use the word "density" in your response.

4. 4 pts. Now pretend there is a storm by shaking the "MicroGlobe" for 3 seconds. Record what type of particle tended to settle to the bottom first, second, and third.

5. 4 pts. The most common types of plastic are fibers and fragments comprising 91% of plastic in the ocean (Lusher et al., 2014). How does this compare to the author's value (sum of fibers plus fragments)? How does it compare to the value in your "MicroGlobe?"

Part 4: Discussion questions (Students can work together in groups of 3-4) (20 pts. total)

1. 2 pts. How do you think plastic affects marine organisms and/or the environment?

2. 2 pts. What are some things that you can do to reduce plastic pollution in the ocean?

3. 3 pts. List 3 items that you use daily that are plastic (ex. pens or trash bags). What alternative products could you use that would be more eco-friendly?

4. 3 pts. You reused some common household products in this activity. Can you think of some other uses for them instead of throwing them away?

5. 5 pts. Some humans lived their lives before plastic was mass-produced. Think about ways food was prepared before the invention of plastic. What are 2 things that we could do to reduce single-use plastic waste? An example of a single-use plastic is a plastic bag of snacks for lunch that is thrown away after one use.

6. 5 pts. What are some ways we could monitor for plastics in the environment? What are some ways we can minimize the impact of plastics on organisms or the environment?