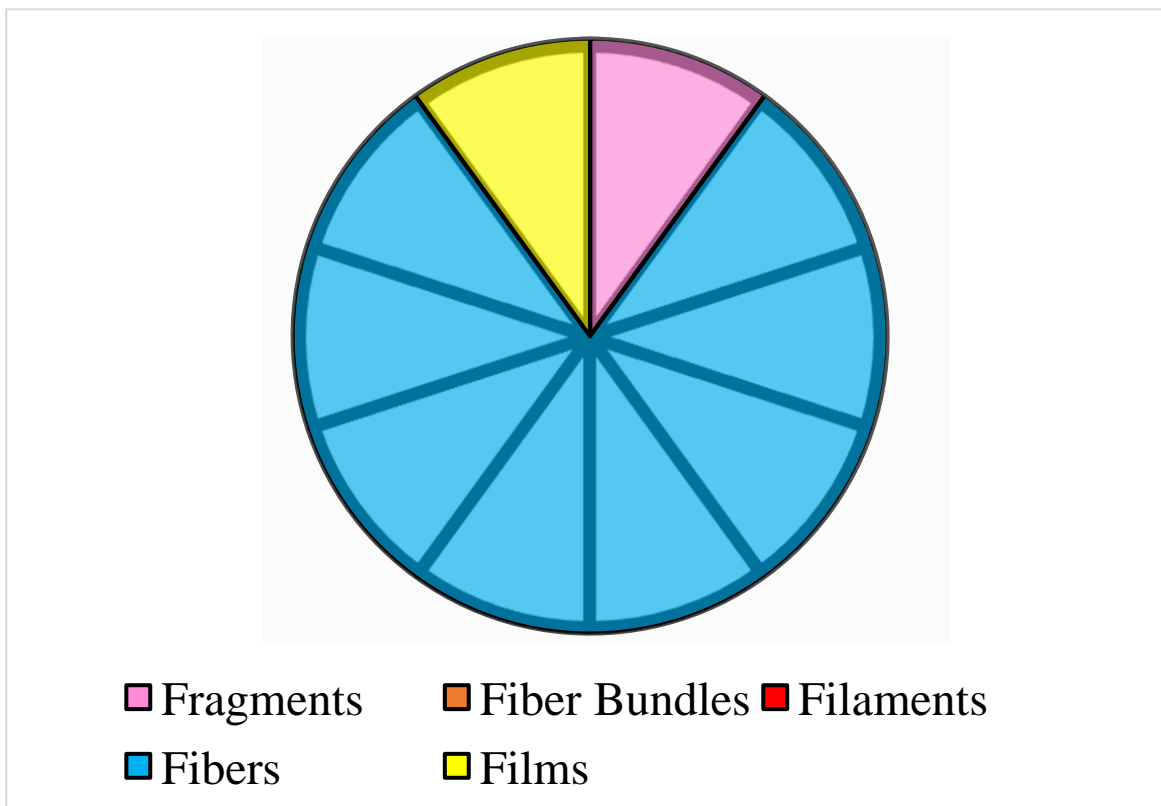


Supplementary File 2: Answer key

Part 1:

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	9%	10%	Pink
Fiber Bundles	8	3%	0%	Orange
Fibers	240	78%	80%	Blue
Filaments	5	2%	0%	Red
Films	28	8%	10%	Yellow



Part 2 is dependent on the number of pieces each student puts in the “MicroGlobe.” The completed page will have the student’s data entered into the table and pie chart.

Part 3:

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?

Answers will vary based on the types of microplastics chosen by each student. For example, if students picked 10 for fragments out of 15 total pieces then their answer (70%) would be higher than the value in the answer key (10%).

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?

Answers will vary based on the types of microplastics chosen by each student.

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.

Top – ribbon, cut plastic bottles

Bottom – puff balls, pom poms

Middle – sequins

These observations are because of the density differences in the plastic polymer type.

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

1st – sequins

2nd – puff balls or pom poms

3rd – ribbon and cut plastic bottle floats back to the top

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 values in your “MicroGlobe?”

The author obtained an abundance of 90% for fibers and fragments, which is similar to the value obtained in Lusher et al. (2014).

Part 4:

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

Harmful effects to wildlife include death, decreased growth, reduced feeding, entanglement, and a decline in energy storage.

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

Recycle, throw items away properly, use plastic-alternative items, support legislation, spread the word about plastic pollution to others

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?

Plastic straws – metal straws

Plastic party cups – glass cups

Plastic utensils – bamboo utensils

Plastic shopping bags – reusable shopping bags

Single-use water bottles – reusable water bottles

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?

Plastic bottles – Wash and reuse them

Glitter – make a card for a loved one

Ribbon – tie it on a gift or decorate a photo frame

Puff balls or pom poms – create a craft or apply makeup

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.

Reuse a milk jug to water flowers in a garden, reuse plastic shopping bags as trash bags, wash and reuse plastic utensils and water bottles

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?

We could collect water samples from the ocean and count the plastics within the sample. We can also count plastic on the beach. We can minimize the impact of plastics on organisms by recycling, participating in a beach clean-up, and reducing the amount of plastic that we buy.