



## Sea Turtle Stomach Dissection

Created by the NC Aquarium at Fort Fisher Education Section

### Essential Question:

What do sea turtles eat?

### Lesson Overview:

Students will learn about sea turtle eating habits by investigating the contents of a “sea turtle stomach”. Students will discuss items that sea turtles eat that are good for them and items that are bad for them (such as plastic), and how we can prevent sea turtles from having access to trash items.

### Learning Objectives:

By the end of this program students will be able to:

- List the different food sources available for sea turtles.
- Understand that certain habitats yield different foods for the animals that live in that area.
- Understand that sea turtles often ingest items that are not part of their natural diet, such as plastic bags and fishing line, which can be extremely detrimental to an animal’s health.

### North Carolina Standards:

#### First Grade:

##### *Science:*

- 1.L.1 Understand characteristics of various environments and behaviors of humans that enable plants and animals to survive
  - 1.L.1.3 Summarize ways that humans protect their environment and/or improve conditions for the growth of the plants and animals that live there (e.g., reuse or recycle products to avoid littering)

##### *Social Studies:*

- 1.G.2 Understand how humans and the environment interact within the local community.
  - 1.G.2.1 Explain ways people change the environment (planting trees, recycling, cutting down trees, building homes, building streets, etc.).

#### Second Grade:

##### *Social Studies:*

- 2.G.2 Understand the effects of humans interacting with their environment.
  - 2.G.2.2 Explain how people positively and negatively affect the environment.



### Fourth Grade:

#### *Science:*

- **4.L.2** Understand food and the benefits of vitamins, minerals and exercise.
  - **4.L.2.1** Classify substances as food or non-food items based on their ability to provide energy and materials for survival, growth and repair of the body

### Fifth Grade:

#### *Science:*

- **5.L.1** Understand how structures and systems of organisms (to include the human body) perform functions necessary for life.
  - **5.L.1.2** Compare the major systems of the human body (digestive, respiratory, circulatory, muscular, skeletal, and cardiovascular) in terms of their functions necessary for life.

#### *Social Studies:*

- **5.G.1** Understand how human activity has and continues to shape the United States.
  - **5.G.1.2** Explain the positive and negative effects of human activity on the physical environment of the United States, past and present.

### **Time Frame:**

Preparation: 25 minutes

Activity: 10 minutes

Discussion: 10 minutes

### **Materials (per stomach):**

- Aluminum pan
- 1½ cups plus 1⅓ cups very warm water
- 2 cups Elmer's glue
- Food coloring (optional as may stain clothing or skin)
- 2 level teaspoons Borax
- Food image photos
- Lamination
- Disposable gloves (optional)
- Safety goggles (optional)
- Magnifying glass (optional)

### **Supplemental Background Information for Teachers:**

Sea turtles are marine reptiles that eat a variety of items. Sea turtles do not have teeth but rather have beaks similar to a bird. Each species of sea turtle has a slightly different diet.



- Loggerhead turtles eat a lot of hard-shelled animals such as conchs, lobsters, and crabs. They have large jaw muscles to help them crush these items.
- As adults, green sea turtles eat a lot of sea grass. This diet led to their name because it turns their fat greenish. A green turtle's beak is serrated to help them cut the sea grass.
- Leatherbacks mainly eat jellyfish. Because of this, they have a thick leathery shell that allows them to dive deeper in search of jellies.
- Hawksbill turtles eat tough coral, anemones and sea sponges. To help them, they have a hawk-like beak.
- Kemp's Ridley turtles also eat many of the same items such as crabs, fish, jellyfish, and mollusks.

Although the diet of each species varies, most of them do eat jellyfish. To protect themselves from being stung by the jellies, sea turtles have [papillae](#) covering their esophagus. These ridges of toughened skin help protect the turtle but also prevent the jellies from washing out if the turtle expels the excess water swallowed with the jelly.

Sea turtles are facing many threats in the wild, including marine debris. Sea turtles have small brains, so they have a difficult time telling the difference between food and trash. Often, sea turtles ingest plastic bags or balloons after mistaking them for jellyfish. Sea turtles sometimes eat pieces of brightly colored [plastics](#) after mistaking them for shellfish.

Plastic does not biodegrade, but rather photodegrades into smaller and smaller pieces of plastic. This makes it more difficult for animals to avoid ingesting it. It is important that we decrease our plastic consumption so we can keep it out of the ocean.

### Preparation:

Print the food image photos. Cut them out and laminate them. Cut them out and set aside. Make the flubber material (recipe below) a day in advance. Put the flubber in the aluminum pans and be sure to keep the lids on the pans overnight. If the pans are left uncovered, the flubber material will dry out. The flubber will store for several weeks, but may begin to erode the containers. Once the flubber is in the pan, hide the different food items in the flubber.

#### Flubber Recipe

Mix all of the following ingredients thoroughly:

- 1½ cups very warm water
- 2 cups Elmer's glue
- Food coloring

In a separate bowl, mix the following items thoroughly:

- 1⅓ cups very warm water
- 2 level teaspoons Borax



Mix the contents of the two bowls together, kneading until it is fully combined.  
Discard any remaining liquid.

You can make as many stomach sets as is appropriate for your classroom.

### Activity:

1. Ask the class to describe a scientist. Create a list (or a drawing) of their scientist on the board.
2. Next ask the students what kind of person can be a scientist. Have a discussion about the fact that anyone can be a scientist. The important thing scientists do is ask questions. How do scientists answer those questions? They can use their five senses (you can review if necessary) to answer many questions.
3. For this lesson, the students will be sea turtle scientists. They will be asking questions about sea turtles. The question we will be focusing on today is “what do sea turtles eat?”
4. Ask the students if they know what a sea turtle eats. As a class, brainstorm ways to determine what a sea turtle eats. Suggested answers would include observing sea turtles in the wild, looking at their waste, and examining stomach contents of dead turtles.
5. Tell the students that they will be conducting an important investigation today. A sea turtle washed up on the beach and we have to find out what the turtle ate.
6. Explain that the class will be looking through the stomach of a sea turtle to find out what it ate before it died.
7. Uncover all of the aluminum pans and line them up.
8. If using the gloves, goggles, and magnifying glasses, have the students put them on.
9. Explain that the students are to dig through the stomach of a turtle and find out what it had to eat.
10. As the students pull out each item, have them identify whether it was a good food choice or a bad one.
11. Based on what was found in the stomach, why do the students think this turtle washed up on the beach? Discuss which items are normal for a sea turtle to eat (jellyfish, fish, crabs). What items would be bad for a sea turtle (balloons and plastic bags)?
12. Ask the students why they think the turtles would eat things like plastic bags or balloons? Sea turtles have small brains and these items look like jellyfish.
13. Have a class discussion on how they can help protect sea turtles from eating plastic bags and balloons (use less plastic, avoid plastic bags, do not release balloons, beach clean-ups, etc).
14. Have the students help you clean up the stomachs.



### Summary:

Sea turtles eat a variety of food, including jellyfish, fish, and shellfish. Unfortunately, sea turtles have very small brains and are easily confused by marine debris. This can lead to sea turtles getting sick or dying. It is important that we reduce our plastic use to help keep plastics out of the ocean.

### Extensions:

1. Add a variety of items to each stomach. Have the students determine what species of turtle they have based on the food items.
2. Create a list of other questions they would like to know about sea turtles. How can your class find the answers to these questions? You can research them online or ask the question on our [blog \(http://seaturtleexploration.com/masonry-blog/\)](http://seaturtleexploration.com/masonry-blog/).
3. Read [“Womble’s Tale” \(http://seaturtleexploration.com/explore-and-learn/wombles-tale/\)](http://seaturtleexploration.com/explore-and-learn/wombles-tale/) to learn more about a turtle that ate a balloon and find out what happened.
4. Follow up with our lesson [“Womble’s Tale” \(http://seaturtleexploration.com/wp-content/uploads/2014/06/Wombles-Tale.pdf\)](http://seaturtleexploration.com/wp-content/uploads/2014/06/Wombles-Tale.pdf) that discusses plastic bags and balloons.
5. As a class, host a beach cleanup to pick up plastics and other items that could hurt sea turtles.
6. To learn more about how scientists care for injured or sick turtles, please contact our Outreach Coordinator to schedule “Sea Turtle 911”. To request an outreach program, use our online request form [here](#) or call (910) 458-8257, ext. 236.



Food Items



Blue Crab



Spiny Lobster



Moon Jelly



Sea Sponge



Plastic Bag



Balloon



Blue Crab



Spiny Lobster



Moon Jelly



Sea Sponge



Plastic Bag



Balloon



Blue Crab



Spiny Lobster



Moon Jelly



Sea Sponge



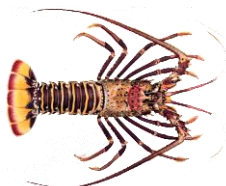
Plastic Bag



Balloon



Blue Crab



Spiny Lobster



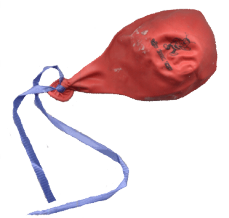
Moon Jelly



Sea Sponge



Plastic Bag



Balloon



Blue Crab



Spiny Lobster



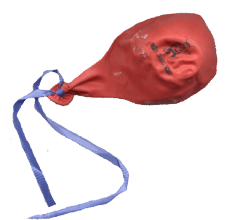
Moon Jelly



Sea Sponge



Plastic Bag



Balloon