

**Comparative Anatomy Lesson Plan: West Indian Manatee *Trichechus manatus* &
Bottlenose Dolphin *Tursiops truncatus* Classroom Necropsy**

Grade Level: 5-12

ALCOS Objectives:

5th

10) Construct and interpret models (e.g., diagrams, flow charts) to explain that energy in animals' food is used for body repair, growth, motion, and maintenance of body warmth and was once energy from the sun.

7th

4) Construct models and representations of organ systems (e.g., circulatory, digestive, respiratory, muscular, skeletal, nervous) to demonstrate how multiple interacting organs and systems work together to accomplish specific functions.

15) Analyze and interpret data for patterns of change in anatomical structures of organisms

Biology

8) Develop and use models to describe the cycling of matter

13) Obtain, evaluate, and communicate information to explain how organisms are classified by physical characteristics, organized into levels of taxonomy, and identified by binomial nomenclature (e.g., taxonomic classification, dichotomous keys).

Ocean Literacy Principles:

5d Ocean biology provides many unique examples of life cycles, adaptations, and important relationships among organisms (symbiosis, predator-prey dynamics, and energy transfer) that do not occur on land.

Description of 5E Lesson:

Engagement: The teacher will show several clips from a variety of marine mammal orders to help introduce and demonstrate the diversity within the group.

Exploration: Student groups (depending on class size) will complete research and a compare/contrast Presi/PowerPoint/Canva presentation marine mammal Orders. that focuses on comparative anatomy.

Explain: Student groups will present their presentations to the class. The teacher will then focus on bottlenose dolphins and manatees.

Extend: The student groups will then “look inside” and conduct the animal necropsies of the dolphin and the manatee to see how different these marine mammals truly are, while taking note of distinct differences within the internal structures. This brings in comparative anatomy and

looking at adaptations for different animal groups they appear similar due to both being marine mammals. The students will rotate to the other animal and conduct the same.

Evaluate: The presentations of marine mammal orders will be graded to evaluate the lesson.

Description of necropsy activity provided by the Marine Mammal Research Program at DISL.

Instructions for Dolphin and Manatee Classroom Necropsy Activity for Teachers/Classrooms

Things you will need:

1. Printed copies of dolphin and manatee body outlines (recommend laminated or glossy paper)
2. Printed copies of body organs (recommend laminated or glossy paper)
3. Tape or velcro to stick organs within body outline

Students will learn about anatomy of bottlenose dolphins and West Indian manatees. Both animals are marine mammals, so their internal anatomy is similar to humans with a few exceptions. Researchers at the Alabama Marine Mammal Stranding Network perform necropsies, or non-human autopsies, on dolphins and manatees to determine the cause of death. They also document each body organ, including noting how the organs look and photographing them.

Important: Scientists who perform necropsies on marine mammals are authorized to work on marine mammals under the NOAA National Marine Fisheries Service (NOAA NMFS). All photographs of marine mammal internal organs were collected and photographed under a Stranding Agreement between Dauphin Island Sea Lab and NOAA NMFS under authority of the MMPA.

This activity includes two “empty” dolphin and manatee body outlines and individual organs with the goal to put the organ in the correct spot in the bodies. This game also is a great way to talk about the physiology of each of the organs.