REEF RELIEF®

a nonprofit membership organization dedicated to improving and protecting our coral reef ecosystem
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Virtual Marine Science Classroom

Unit 3: Charismatic Marine Megafauna

Reef Relief Education Email: education@reefrelief.org

Reef Relief Phone Number: 305-294-3100

Course Description: This unit was designed to supplement existing science coursework. Students will learn about some of our more famous ocean residents with many popular animal groups such as sea turtles, whales, manatees and more. This unit will cover who these animals are, the threats they face, their importance, how we help them and how we study them.

Course Objective:

1. Students will be able to understand the importance of marine megafauna.
2. Students will be able to understand the different threats megafauna face.
3. Students will gain a better understanding of the natural world.

Attendance:

Students are able to complete this at their own pace. There are no deadlines for materials, and it is up to the student and parent/teacher to keep said student on their desired pace.

Internet Etiquette:

Reef Relief staff has enabled commenting on the materials. The comment sections shall be used to ask legitimate questions or voice formatting/technological issues. Should there be any concern about this please contact us.

Materials:

All course materials and worksheets are provided in an online PDF format. If your student does not have access to a printer, feel free to write down your answers on a separate piece of paper.

Technical Difficulties:

Please contact us via email or phone to let us know about any technical difficulties, we will be more than happy to assist!

Course Work:

Reef Relief has provided many different videos and activities for the students. Students are not required to complete all of the materials in this unit, it is ultimately up to the student, parent or teacher.

Skill Level:

Many activities are labeled Beginner, Medium, or Advanced and it is up to the adult to decide what they would like their student to complete. We recommend the following to evaluate:

- Beginner: Someone new to marine science or is between the ages of 5-8.

- Medium: Someone who has received a moderate amount of science education or between the ages of 9-11.
- Advanced: Someone who is comfortable with more in depth science topics or between the ages of 12-17.

Grading:

Reef Relief will not be implementing any grading. Parents and teachers may make the personal decision to grade their student's work. There will be a section labeled answer keys that can be used to check your student's work.

Sharing of Material:

Please do not share classroom materials with others. This includes but is not limited to the class password, the class link, worksheets, video, etc.

Office Hours:

Reef Relief is open Monday- Friday from 10:00 AM until 4:00PM EST. Outside events may change these hours however we will do our best to respond as promptly as possible.

Feedback:

We appreciate your feedback! Please let us know if you have any questions, comments, or concerns by emailing us or posting in the classroom. There is also a survey within the unit you may submit your feedback in.

<u>Unit 3 Syllabus</u>

Pre-Quiz: We encourage every student to take the pre-quiz at the beginning of the course to evaluate their basic knowledge. The information compiled from this quiz will be used for Reef Relief's general knowledge and grant purposes.

Sea Turtles:

- Lesson 1: Sea Turtles
  - Learn facts about sea turtles, their life cycle, the various species, threats they face, and how we can help them.
- Lesson Notes: Sea Turtles
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Lesson 1.5: Beginner Sea Turtles
  - Lower level version of sea turtle lesson.
- Lesson Notes: Beginner Sea Turtle
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Worksheet: Sea Turtle Coloring (Beginner)
- Worksheet: Species Identification (Medium)
  - Use the hints to guess which sea turtle species applies.
- Worksheet: Sea Turtle Scutes (Advanced)
  - Practice your identification with the sea turtle scute count.
- Activity: Paper Plate Sea Turtle Craft (All Levels)
  - Pick your favorite sea turtle you learned about and recreated it as a craft.
- Interview with a Scientist: Ian Silver- Gorges
  - Video: Ph.D. candidate from Florida State University discusses his research on the Loggerhead Sea Turtle (*Caretta caretta*).
  - Epiboints Article: National Geographic article about the epibionts found on the turtle carapace.

- Movie: Sea Turtles- The Lost Years
  - Watch this episode of Changing Seas to learn about sea turtles' mysterious lives.
- Presenter Notes: Sea Turtles
  - A copy of the PowerPoint slides to assist with activities.
- Presenter Notes: Beginner Sea Turtles
  - A copy of the PowerPoint slides to assist with activities.

Sirenians- Manatees & Dugongs:

- Lesson 2: Manatees & Dugongs (Sirenians)
- Lesson Notes: Manatees & Dugongs (Sirenians)
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Worksheet: License Plate Coloring (Beginner)
  - Brought to you by the state of Florida and their manatee conservation efforts.
- Worksheet: Manatees vs Dugongs (Medium)
  - Identify which is the manatee and which is the dugong, and write down information you learned about each from the lesson.
- Activity: Propeller Scar Identification (Medium to Advanced)
  - Be a scientist and practice identifying individual manatees based on their prop scar markings.

- Bonus Video: Manatee Vocalizations
- Bonus Video: Manatee Tagging
- Movie: Manatees- Conserving a Marine Mammal
  - Watch this episode of Changing Seas to learn about the population of manatees.
- Presenter Notes: Manatees & Dugongs (Sirenians)
  - A copy of the PowerPoint slides to assist with activities.

Cetaceans: Whales & Dolphins:

- Lesson 3: Cetaceans
  - We will learn about all types of whales including toothed and baleen whales.
- Lesson Notes: Whales & Dolphins
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Worksheet: Dolphin or Porpoise? (Beginner)
  - Write which you think each animal is in the line above them, and color them in.
- Worksheet: Dolphin or Porpoise? (Medium)
  - Under each animal, circle the characteristics that belong to it. Then write on the line above each animal if you think it is the dolphin or porpoise, and color them in.
- Worksheet: Toothed vs Baleen Whales (Medium)
  - Compare and contrast toothed vs baleen whales in the Venn diagram.
- Worksheet: Whale Identification (Advanced)
  - Name the whale species and its corresponding features.
- Movie: Mystery of the Humpback Whale Song
- Movie: Dolphins
- Movie: Sentinels of the Sea
- Presenter Notes: Cetaceans
  - A copy of the PowerPoint slides to assist with activities.

Seabirds:

- Lesson 4: Seabirds
  - Time to learn about flight, wing shape, feathers, and the marine bird species.
- Lesson Notes: Seabirds
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Lesson 4.5: Seabirds (Beginner level)
  - Time to learn about flight, wing shape, feathers, and the marine bird species. Lower level lesson, suitable for ~2nd-3rd grade.
- Lesson Notes: Seabirds (Beginner level)
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Bonus Video: Seabird Flying & Foraging Styles
  - Watch this mini lesson to learn about the different types of flight and hunting styles seabirds can use.

- Worksheet: Create Your Own Marine Bird (Beginner)
  - Decide what your marine bird is going to look like and draw it.
- Worksheet: Match the Marine Bird (Medium)
  - Draw a line from the marine bird to their wing type.
- Worksheet: Seabirds Fill in the Blanks and Critical Thinking (Advanced)
  - Fill in the spaces with terms learned throughout the lesson, and make a plan to help conserve marine birds.
- Additional Resource: Birding
  - eBird Website: Create an account with eBird to contribute to citizen and keep track of the birds you see. Go outside, look, and listen and you'll find birds to add to your bird list!

  - Worksheet: "How to Birding" worksheet to write about the birds you find.
- Interview with a Scientist: Dr. Pamela Rasmussen
  - Dr. Rasmussen talks about seabirds and shorebirds and some of her associated projects. We also learn that marine birds are threatened, but we can help.
- Movie: Peru's Desert Penguins
- Presenter Notes: Seabirds
  - A copy of the PowerPoint slides to assist with activities.
- Presenter Notes: Beginner Seabirds
  - A copy of the PowerPoint slides to assist with activities.

Pinnipeds- Seals, Sea Lions & Fur Seals, Walruses:

- Lesson 5: Pinnipeds
- Lesson Notes: Pinnipeds
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Worksheet: Pinniped Coloring and Questions (Beginner)
  - Color in the types of pinnipeds and answer the questions about them.
- Worksheet: Is it a Seal, Sea Lion/Fur Seal, or Walrus? (Medium)
  - Label each pinniped and organize the characteristics under the pinniped they belong to.
- Worksheet: Pinniped Venn Diagram (Advanced)
  - Organize the characteristics of each pinniped to match the category they belong to. The areas where the circles overlap are characteristics those two types of pinnipeds share.
- Expert Interview: Hannah Zwalue, New Zealand Sea Lion Trust
  - Join us in talking to Hannah to learn about the common pinniped species found in New Zealand, the issues they face, and the New Zealand Sea Lion Trust's work to help them.
- Presenter Notes: Pinnipeds
  - A copy of the PowerPoint slides to assist with activities.

Marine Animal Rescue, Rehabilitation, and Release:

- Lesson 6: Rescue, Rehab, Release
- Lesson Notes: Rescue, Rehab, Release
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Activity: Wildlife Interactions (Beginner)
  - Take a look at each wildlife encounter scenario. For each, come up with a couple dos and

don'ts on how you could react. In the answer key section, there will be some information on what the correct steps are and why you should take them.

- Worksheet: Rescue, Rehab, Release Word Search (Medium)
  - Complete this word search for terms discussed in this lesson.
- Worksheet: Rescue, Rehab, Release Crossword (Advanced)
  - Complete this crossword puzzle for terms discussed in this lesson.
- Interview with a Scientist: Lindsey Reisz
  - Listen in as we talk to Lindsey Reisz about her career in marine mammal and sea turtle rescue and rehabilitation at MOTE Marine Laboratory.
- Presenter Notes: Rescue, Rehab, Release
  - A copy of the PowerPoint slides to assist with activities.

Tracking (Medium to Advanced) (Seen in Unit 2):

- Lesson 7: Tracking
- Lesson Notes: Tracking
  - Follow along worksheet you may complete during or after the lesson for review and retention.

- Worksheet: Crossword Puzzle (Medium)
  - Complete this crossword to review tracking vocabulary.
- Interview With a Scientist: Sarah Burnsed
  - An interview with researcher Sarah Burnsed who works with active and passive tracking in Fort Meyers, FL.
- Additional Resource: OCEARCH
  - Track animals in real time!
- Bonus Video: How Does the Argos Doppler and Satellite Tracking Systems Actually Work?
  - A short video that gives you a visual example of how satellite tracking technology works.
- Bonus Video: Deploying Camera Tags on Sharks
  - This video is an example of using camera tags on sharks in the Indian Ocean.
- Movie: Tagging
  - Watch this to learn about tagging animals in order to track their behaviors.
- Presenter Notes: Tracking
  - A copy of the PowerPoint slides to assist with activities.

Post Quiz: We encourage every student to take the post-quiz at the beginning of the course to evaluate their basic knowledge. The information compiled from this quiz will be used for Reef Relief's general knowledge and grant purposes.

Answer Key: We have provided answers to most worksheet activities and have combined them into this folder for parents and teachers to check their student's work.