



Lesson Plan - Cryptic Creatures of the Reef

Module Summary

This module explores the coral reefs of the Cayman Islands under a fine magnifying glass. CCMI scientists will take students beyond the well-known charismatic creatures of coral reefs to learn about some of the smaller animals that are harder to find, their adaptations to life on the reef, and the roles they play in keeping the reef healthy. Students will also learn how CCMI conducts Atlantic and Gulf Rapid Reef Assessment (AGRRA) surveys on the reefs. Participants engage through the interactive platform by asking questions, taking part in live polls, chatting with the CCMI team, and completing an in-class worksheet (provided). All educational material aligns with Cayman Islands and United Kingdom Science National Curriculums and Ocean Literacy Principles.



Friday 11th April 2025; 10 am EST (UTC-5)



Duration: 40-minute broadcast, 1 hour lesson



Years 4,5 & 6

Learning Objectives

- Understand how plants and animals are adapted to the reef environment
- Understand the importance of lesser-known creatures in maintaining the health of the reef
- Explain the importance of CCMI's Healthy Reefs campaign and research

The Cayman Islands and United Kingdom National Science Curriculum

- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate (Year 5 and 6)
- Identify and name a variety of living things in their local and wider environment (Year 4)
- Give reasons for classifying plants and animals based on specific characteristics (Year 6)
- Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution (Year 6)



Ocean Literacy Principles

- Ocean Literacy Principle #1: Earth has one big ocean with many features
- Ocean Literacy Principle #5: The ocean supports a great diversity of life and ecosystems
- Ocean Literacy Principle #6: The ocean and humans are inextricably interconnected

Description of Live Lesson

This module will take place on a coral reef ecosystem along the coast of Little Cayman in the Cayman Islands, where the CCMI team will guide students through a series of learning objectives. A topside host will communicate in real time with the students who join in as remote audience/virtual dive buddies and the underwater educator.

Throughout the broadcast, participants will develop an understanding of different species that live on the reef and how they are adapted to their environment. Differences in feeding strategies will be explained and related to both well-known animals and animals that are not as well-known. The hosts will explain how these animals play an important role in the recycling of nutrients and water on the reef, contribute to biodiversity, and are part of the food web. Additionally, students will gain insight into CCMI's ongoing research initiatives, such as the Healthy Reefs campaign, to discover more about the ocean around the Cayman Islands.

By the end of the broadcast, students will better understand research techniques and understand actions they can each take to protect the ocean, preserving marine biodiversity for future generations.

This lesson is in alignment with the Science National Curriculum of the Cayman Islands and the United Kingdom and the Ocean Literacy Principles. Students can complete the worksheet during the live lesson, and they are encouraged to ask questions about the materials to the host or educator at any time during the broadcast. Pre-recorded footage may be used to show key concepts should these observations not be seen naturally during the live lesson.



Live broadcast outline (40 mins)

00:00 - 03:00	Welcome back to Reefs Go Live, CCMI team introductions
03:00 - 05:00	Introduction to cryptic creatures
05:00 - 10:00	Adaptations to the environment
10:00 - 14:00	Examples of cryptic species
14:00 - 16:00	Interactive quiz
16:00 - 20:00	Sponge demonstration
20:00 - 22:00	Intro to Healthy Reefs project
22:00 - 30:00	AGRRA surveys
30:00 - 35:00	Questions
35:00 - 37:00	Conclusion
37:00 - 40:00	Summary and goodbye

Necessary Materials

- Internet connection
- Computer/phone
- Projector (optional)
- Speakers/headphones
- Scissors
- Notebook paper
- Pencils/pens
- CCMI worksheets and/or booklet (one copy per student)

Useful additional resources

- www.reefresearch.org/what-we-do/education/teacher-resources/
- www.reefresearch.org/what-we-do/education/reefs-go-live/
- [Healthy Reefs research](#)
- [Healthy Reef Report Card \(2023\)](#)
- [Coral reef facts for kids! - National Geographic Kids \(natgeokids.com\)](http://natgeokids.com)



“Cryptic Creatures of the Reef” Key Terms

The CCMI educators may refer to the following key terms throughout the live lesson. Listen carefully to the broadcast to learn some new vocabulary about seamounts and ecological terms in the ocean!

Adaptation - changes in a living being's shape or behaviour that improves its ability to survive; these changes are passed on to future generations via evolution

AGRRA - Atlantic and Gulf Rapid Reef Assessment protocol

Biodiversity - all the different living organisms within a given area

Camouflage - colour and/or patterns of an organism that help it to blend in with the surrounding environment

Carnivore - animal that gets its energy by only consuming other animals

Chromatophore - skin cells that can expand or contract to create the appearance of colour or patterns through pigment and light manipulation

Detritus - microscopic organic waste or debris

Ecosystem - community of living organisms interacting with their physical environment within a specific area, forming a complex network

Herbivore - animal that gets its energy from only eating primary producers (such as algae and plants)

Photosynthesis - process by which green plants convert carbon dioxide and water into organic chemicals using the energy of light, with oxygen released as a by-product

Species - taxonomic group containing individuals that resemble one another, can interbreed, and their offspring are also able to reproduce