

CCMI
REEFS GO LIVE

Lesson Plan - Superheroes of the Caribbean Reef

Module Summary

This module introduces students to the “superheroes” of the Caribbean coral reef and the important roles they play in keeping the ecosystem healthy. Students will explore how corals, fish, and top predators each contribute to reef balance through their unique “superpowers,” and how these roles are interconnected within a food web.


Participants will learn what happens when one of these key species disappears due to threats such as overfishing, habitat damage, or disease. A focus is placed on Stony Coral Tissue Loss Disease (SCTLD), including what it is, why it is harmful, and how it spreads.

The lesson also highlights CCMI’s coral restoration work and how scientists are helping reefs recover and build resilience for the future.

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.

 **Tuesday, 21st April 2026; 10 am EST (UTC -5)**

 **Duration: 40-minute broadcast, 1 hour lesson**

 **Years: 2, 4, and 6**

Learning Objectives

- Understand that coral reefs are made up of many species with different ecological roles
- Understand what a keystone species is and why it is important
- Explain how different reef organisms (e.g. corals, fish, sharks) help maintain reef health
- Describe what happens when key species are removed from an ecosystem
- Understand the impact of coral diseases such as Stony Coral Tissue Loss Disease (SCTLD)

The Cayman Islands and United Kingdom National Science Curriculum

- Describe how living things are classified into broad groups according to common observable characteristics (Year 6)
- Construct and interpret simple food chains, identifying producers, predators and prey (Year 4)
- Identify that most living things live in habitats to which they are suited and describe how they depend on each other (Year 2)
- Recognise that environments can change and that this can sometimes pose dangers to living things (Years 4 & 6)
- Identify how animals and plants are adapted to suit their environment in different ways (Year 6)

Ocean Literacy Principles

- Ocean Literacy Principle #1: Earth has one big ocean with many features
- Ocean Literacy Principle #3: The ocean is a major influence on weather and climate
- 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
- Ocean Literacy Principle #7: The ocean is largely unexplored

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 the roles of different reef species. A topside host will communicate in real time with students who join as our remote audience/virtual dive buddies, alongside an underwater educator.

Through the broadcast, participants will explore the concept of ecological roles and keystone species, learning how different organisms contribute to reef health. Underwater footage will highlight coral polyps, grazing parrotfish, algae-cleaning sea urchins, and predators such as groupers and sharks.

Students will learn how energy flows through the reef food web, from corals and algae to top predators, and how removing one part of this system can cause major changes to the ecosystem. The lesson will also introduce coral disease, with a focus on SCTL, explaining its impacts and why it is a major threat to Caribbean reefs.

Finally, students will discover how CCMI scientists are working to restore coral reefs and protect biodiversity through restoration and research programmes.

By the end of the broadcast, students will understand how interconnected reef ecosystems are and recognise the importance of protecting these underwater “superheroes.”

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 are encouraged to ask questions throughout the broadcast. Pre-recorded footage may be used to demonstrate key concepts if they are not observed live.

Live broadcast outline (40 mins)

- 00:00 - 04:00 Welcome back to Reefs Go Live, CCMI team introductions
- 00:04 - 08:00 Introduction to reef “superheroes” and ecological roles
- 00:08 - 12:00 Corals as keystone species and reef foundation
- 00:12 - 16:00 Coral disease: Stony Coral Tissue Loss Disease (SCTLD)
- 00:16 - 22:00 Herbivores and maintaining reef health
- 00:22 - 26:00 Coral feeding and nutrient recycling
- 00:26 - 30:00 Food webs and interconnectivity
- 00:30 - 34:00 Predators and ecosystem balance
- 00:34 - 37:00 Biodiversity, resilience, and real-world examples
- 00:37 - 40:00 Coral restoration, summary, and goodbye

Necessary Materials

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

Useful additional resources

- www.reefresearch.org
- www.reefresearch.org/what-we-do/education/teacher-resources/
- www.reefresearch.org/what-we-do/education/reefs-go-live/
- <https://reefresearch.org/wp-content/uploads/2025/05/Healthy-Reefs-Report-Card-2024-FINAL.pdf>
- [Coral reef facts for kids! - National Geographic Kids \(natgeokids.com\)](http://natgeokids.com)

“Superheroes of the Caribbean Reef” Key Terms

The CCMI educators may refer to the following key terms throughout the live lesson. Listen carefully to the broadcast to learn new vocabulary about coral reefs and ecosystems!

Apex predator - animal at the top of a food chain that is typically not preyed upon by other animals

Biodiversity - all the different living organisms within a given area

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

Ecosystem - a community of living things (such as plants and animals) and the non-living parts (such as water, sunlight, and soil) all interacting in one place

Food chain - simple representation to show how energy moves from producers to consumers in an ecosystem

Food web - representation to show how energy moves from producers to consumers in an ecosystem while also showing how these interactions between organisms in an ecosystem can be multi-faceted

Habitat - part of the environment occupied by an animal or plant

Keystone species - a species that has a big impact on its ecosystem because if it were to disappear, it would cause major changes and problems for the rest of the system

Overfishing - when people catch fish faster than they can reproduce so there aren't enough left in the ocean

Polyp - mostly stationary body form of the group of animals that include jellyfishes, corals, and sea anemones; has tentacles and a mouth

Primary producer - an organism that makes its own food using sunlight, water, and carbon dioxide through the process of photosynthesis

Resilience - ability of an ecosystem or species to bounce back from negative environmental influence

Restoration - renewal of a damaged, degraded, or destroyed ecosystem by active human intervention