

## Live Broadcast: Incredible Invertebrates

 4<sup>th</sup> March 2020

 1:45pm UTC-5

 Age 7-11

### Module Summary

This module is an immersive dive on a pristine coral reef, where students will learn about numerous invertebrate species. The CCMI team will guide students through an interactive identification lesson by looking at how the external features of an invertebrate can help us classify them. CCMI's underwater educator will explain why invertebrates are essential for a healthy coral reef ecosystem and describe how local invertebrate populations can be managed and protected. Students will be able to participate in a live lesson by engaging with an underwater educator as they explore the reefs of Little Cayman in search of these fascinating creatures.

### Learning Objectives

- Define 'invertebrate'
- Describe how to identify common invertebrate species on the reef
- Discover the different habitats in which marine invertebrates live
- Explain why invertebrates are important for a healthy reef ecosystem
- Discuss how humans can manage and protect local invertebrate populations

### Cayman Islands Science National Curriculum Alignment: Key Stage 2

- Recognise that environments can change and that this can sometimes pose dangers to living things (Year 4)
- Recognise that living things can be grouped in a variety of ways (Year 4)
- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals (Year 6)

### Materials

#### Pre

- Broadcast link
- CCMI pre-questionnaire (one per student)
- CCMI broadcast lesson plan
- CCMI fun facts sheet

#### During

- Internet connection
- Laptop
- Projector
- Speakers
- CCMI activity sheet (one per student)
- Pencils/pens

#### Post

- CCMI post-questionnaire (one per student)

\*Please send your questionnaires to [education@reefresearch.org](mailto:education@reefresearch.org)



### Live broadcast outline (40 mins)

00:00 - 03:00	CCMI host welcomes students and outlines the lesson
03:00 - 10:00	CCMI educator defines 'invertebrate'
10:00 - 15:00	CCMI educator describes common invertebrate species on the reef
15:00 - 20:00	Questions
20:00 - 25:00	CCMI educator explains why invertebrates are important for a healthy reef ecosystem
25:00 - 30:00	Questions
30:00 - 35:00	CCMI educator describes how local invertebrate populations can be managed and protected
35:00 - 38:00	Questions
38:00 - 40:00	CCMI host recaps the live dive learning objectives and concludes the lesson

### Vocabulary List

<b>Invertebrate</b>	Any animal without a backbone
<b>Vertebrate</b>	Any animal with a backbone
<b>Ecosystem</b>	Naturally occurring system made up of organisms and their environment
<b>Food Chain</b>	Simple representation to show how energy moves from producers to consumers in an ecosystem
<b>Keystone Species</b>	Type of organism that plays a critical role within an ecosystem, often with a disproportionate effect on other organisms in that system
<b>Pollution</b>	introduction of contaminants into the environment which have negative effects
<b>Climate Change</b>	change in global weather patterns over time. Much can be attributed to the effects of increased carbon dioxide in the atmosphere from human activities
<b>Carbon Footprint</b>	the amount of greenhouse gases, especially carbon dioxide, produced by an individual, event, organization, or product, that results from the burning of fossil fuels

### Further Information on Learning Objectives

#### 1) Define 'invertebrate'

An invertebrate is an animal that neither possesses nor develops a backbone. The backbone runs from the base of the skull to the pelvis. It supports the body and protects the thick bundle of nerves known as the spinal cord. This thick bundle of nerves that make up the spinal cord carry messages from the brain to the body allowing for communication between different parts of the body. Invertebrates lack the vertebral column consisting of the spinal cord and backbone.

#### 2) Describe how to identify common invertebrate species on the reef

The CCMI underwater educator will move around the reef and identify invertebrate species in the surrounding area.



3) **Discover the different habitats in which marine invertebrates live**

Invertebrates can be found all over the reef. Some are sessile and make their home sitting stationary on the reef. Examples include corals, sponges, anemones, zoanthids and boring worms. Other invertebrates are able to move around the reef. Examples include snails, octopus, sea stars, crabs, and shrimp. Marine invertebrates can be found in almost all marine habitats- on the sand, hiding in the reef and floating in the open water.

4) **Explain why invertebrates are important for a healthy reef ecosystem**

All creatures are important for a healthy reef ecosystem because they form part of the food chain. Every organism plays a crucial role within the natural system that allows the entire ecosystem to stay in balance. There are certain species of marine invertebrates that have a larger impact on the ecosystem than others. These are known as keystone species. These keystone species dramatically affect the ecosystem and without them the ecosystem could be drastically different or cease to exist all together.

5) **Discuss how humans can manage and protect local invertebrate populations**

Invertebrates currently face threats including overfishing, pollution and climate change. Humans can manage and protect local invertebrate populations by implementing and following sustainable fishing laws, reducing pollution and reducing use of products that could lead to further pollution, and reducing our carbon footprint.

### Useful resources

- [www.reefresearch.org/reefs-go-live](http://www.reefresearch.org/reefs-go-live)
- [www.doe.ky](http://www.doe.ky)
- [www.education.gov.ky/education/curriculum](http://www.education.gov.ky/education/curriculum)
- [www.oceanservice.noaa.gov/kids/](http://www.oceanservice.noaa.gov/kids/)
- [www.reefresilience.org/coral-reefs](http://www.reefresilience.org/coral-reefs)
- [www.projectaware.org](http://www.projectaware.org)