



DEPARTMENT OF
ENVIRONMENT
CAYMAN ISLANDS GOVERNMENT

REEF ENVIRONMENTAL EDUCATION FOUNDATION

Grouper Moon Project Curriculum

Year 4



Educator's Guide
Grouper Moon Project

GROUPEL EDUCATION PROGRAM

AN INTEGRATED MARINE SCIENCES CURRICULUM

Scope and Sequence

Note: While the following is the suggested sequence for presenting these lessons to students, you are encouraged to make any adjustments necessitated by your specific teaching environment and time constraints.

GUIDING QUESTIONS:

- *What is a Nassau Grouper?*
- *What makes a healthy coral reef?*
- *What is the role of the Nassau Grouper in maintaining a healthy reef ecosystem?*
- *What is a keystone species?*
- *What is a spawning aggregation?*
- *What is the role of the Nassau Grouper in the Cayman fishing community?*
- *How do we protect the survival of the Nassau Grouper and the health of the reef while meeting the needs of the fishing community?*

National Science Curriculum Alignment: Year 4

- *Recognize that living things can be grouped in a number of ways.*
- *Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.*
- *Observe similarities and differences among animals and among plants.*
- *Find out about other animals, including how they grow, feed, move, and use their senses.*
- *Investigate a local habitat, including the relationship between the animals and plants found there, and develop skills in classifying animals and plants by observing external features.*



ACTIVITY 1, Part 1: Extreme Coral Reef: READ ALOUD AND COMPREHENSION QUESTIONS. Part 1. 50 min.

DESCRIPTION: Your student's learning will be greatly enhanced if they have some basic background knowledge about coral reef ecosystems before jumping into their study of the Nassau grouper. To accomplish this, we recommend reading the picture book, "Extreme Coral Reef!" with your students. This text, produced by the Smithsonian, covers a range of important ecological concepts about coral reef ecosystems in a way that is understandable for young people.

We have broken the book up into two read-aloud sessions, each with its own set of comprehension questions for your students to answer afterward.

ACTIVITY 1, Part 2: Extreme Coral Reef: READ ALOUD AND COMPREHENSION QUESTIONS. Part 2. 50 min.

DESCRIPTION: Read Aloud the second section of Extreme Coral Reef. This is followed by a whole group discussion of the reading and then students will work independently or with partners to answer the comprehension questions.

ACTIVITY 2: Grouper Moon: Changing Seas (PBS Documentary) Running Time: 26 min.

DESCRIPTION: "Join researchers from the Reef Environmental Education Foundation and the Cayman Islands Department of Environment as they study one of the last great reproductive populations of Nassau Grouper. Normally a solitary species, during the winter full moons, Nassau Grouper travel, sometimes over great distances, to "group" together and spawn. While most of the known spawning sites in the Caribbean have been fished out over the years, the west end of Little Cayman in the Cayman Islands is home to the largest known reproductive spawning aggregation of this endangered species."

ACTIVITY 3: Grouper Moon: Read Aloud.

DESCRIPTION: Grouper Moon, by Cindy Shaw, is a story filled with excitement and wonder and has captured the imaginations of countless young readers. Interwoven into the story are a number of important marine sciences concepts. The story of Renny and Cooper the Grouper provides an excellent literary entry point into the world of the Caribbean coral reef. While students become wrapped up in the fanciful story and interesting characters, they will also be learning critically important science concepts, including tropical reef ecology and conservation, the interdependence and interconnections between all species, the life cycle, spawning, and much more.

ACTIVITY 4: Human Food Web and Keystone Species Activity. 50 min.

DESCRIPTION: Students will use a set of laminated marine species cards to learn about the variety of life that exists in the Caribbean coral reef. Students will also explore how each species is connected through the food web. This activity provides a concrete, hands-on opportunity for students to see the interconnectedness of all living things in the coral reef ecosystem and the vital role played by the Nassau Grouper.



ACTIVITY 5: Coral Reef "Guess Who?": A Classification Activity.

DESCRIPTION: In this activity, students will be developing their understanding of how and why scientists organize living things into different categories. This hands-on activity is essentially a mash-up of the game "Guess Who?," a two-person board game where players try and guess the identity of the other's chosen character, and the game "20 Questions." For this activity, students will ask questions to determine the hidden identity of a marine life card. Players will ask "yes or no" questions related to the physical characteristics of the unknown organism, providing a systematic method for eliminating possible animals until only one is left. This game can be played as a whole class activity, in small groups, or in pairs.

ACTIVITY 6: Grouper Moon-O.

DESCRIPTION: The life of a Nassau Grouper is an incredible rollercoaster ride of a story filled with a variety of challenges each fish must overcome before they make it to the aggregation site to spawn. Nassau are a long-lived fish that can live upwards of 20 years or more in the wild. Their lives begin as gametes floating around in the open ocean for 30 days, after which they must travel back to the shores of their home reef to seek shelter among the turtle grass. Navigating predators, climate change, fishers, and invasive species are just a few of the many challenges the Nassau faces on its multi-year journey towards adulthood.

In this fun, cooperative card game, students will work to maintain a healthy Nassau Grouper population while overcoming the variety of biological and environmental challenges every Nassau must face.

