

Protecting an Ecosystem:
**The Great
Barrier Reef**

by Margit E. McGuire, Ph.D.
Professor of Teacher Education, Seattle University

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–Margit E. McGuire

Storypath Advisory Panel

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Mark Basehart Sweet Home Central School District Amherst, New York	Ron Eydenberg Revere Public Schools Revere, Massachusetts	Marilyn Lindquist Bloomington Public Schools Bloomington, Minnesota
Maria Cabrera Region II School District Chicago, Illinois	Ginny Gollnick Oneida Nation Elementary School Oneida, Wisconsin	Paul J. Sanborn Haverford Township School District Havertown, Pennsylvania
Ann L. Coyne Bay Village City School District Westlake, Ohio	Su Hickenbottom Snohomish School District Snohomish, Washington	Jacqueline Shulik Howard County Public School District Ellicott, Maryland
Renko Dempster Seattle School District Seattle, Washington	Jane Humphreys Cypress-Fairbanks School District Houston, Texas	Karen Wylor Fayette County School District Peach Tree City, Georgia

Program Consultants: Katherine L. Schlick Noe, Ph.D., Professor and Director of Literacy, Seattle University; H. “Sonny” Carreno, B.A. Education, Licensed Instructor, English as a Second/ New Language (Texas, Wisconsin, Indiana)

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ABOUT STORYPATH

THE STORYPATH STRATEGY

Storypath offers both a structure for organizing the social studies curriculum and an instructional strategy for teaching. The structure is a familiar one: the story. The strategy is grounded in a belief that students learn best when they are active participants in their own learning, and places students' own efforts to understand at the center of the educational enterprise. Together, the structure and the teaching strategy ensure that students feel strongly motivated and have meaningful and memorable learning experiences.

Originally developed in Scotland during the 1960s, Storypath draws support from decades of experience with teachers and students. The approach has its roots in these beliefs about students and learning:

- The world is complex and presents many layers of information. Students know a good deal about how the world works and have a reservoir of knowledge that is often untapped in the classroom.
- When students build on that knowledge through activities such as questioning and researching, new understandings are acquired. Because students construct their own knowledge and understanding of their world, their learning is more meaningful and memorable.
- Problem-solving is a natural and powerful human endeavor. When students are engaged in problem-solving, they take ownership for their learning.
- The story form integrates content and skills from many disciplines and provides a context for students to gain a deeper, more complex understanding of major concepts.

AN INQUIRY APPROACH

Questioning, by both teacher and students, is a key component of Storypath. Through the story structure and the discourse it creates, the teacher guides students in their search for meaning and understanding as they acquire new knowledge and skills. Your questions, and the discussions they engender, cause students to:

- ask their own questions and think critically about what they know;
- use their prior knowledge to make sense of new information;
- connect personally to important social studies concepts.

The story structure and inquiry guided by unit goals provide the framework for students to integrate skills and complex content through problems they encounter. As they do so, their understanding of important concepts is extended and key connections are made.

THE STORY STRUCTURE

For thousands of years, stories have helped us create order and make connections between events. Storypath's narrative structure helps students understand concepts that they often find difficult to comprehend in the traditional social studies curriculum.

Each Storypath unit centers on a unique and engaging story that provides a concrete context for understanding the social science content. This story may be based on actual historical events, as developed in *Struggle for Independence*. Or the story might instead be based on typical community or business structures, as developed in *Families in Their Neighborhoods* or in *Understanding the Marketplace*. From all of these structures, students develop a meaningful context for developing understanding of the topic.

Typical structure of a Storypath unit

CREATING THE SETTING

Students create the setting by completing a frieze or mural of the place.

CREATING THE CHARACTERS

Students create characters for the story whose roles they will play during subsequent episodes.

BUILDING CONTEXT

Students are involved in activities such as reading and writing to stimulate them to think more deeply about the people and the place they have created.

CRITICAL INCIDENTS

Characters confront problems typical of those faced by people of that time and place.

CONCLUDING EVENT

Students plan and participate in an activity that brings closure to the story.

PLANNING THE UNIT

PROTECTING AN ECOSYSTEM

MAKE KEY DECISIONS

Make Classroom Space for the Storypath. You will need ample wall space—or windows—for creating a frieze of the Great Barrier Reef, as well as space to display the sea lab, models of sea animals, and other materials that students create during the unit. Sometimes teachers are tempted to put the frieze and characters in the hallway outside of the classroom. It is important, however, to display these items inside the classroom where students can easily refer to them throughout the Storypath. In effect, your room becomes the Great Barrier Reef.

Plan a Field Trip. An ideal setting for Episode 7, An International Conference, is a local aquarium. Set a date and arrange with the aquarium for a room for the “conference.” Generally plan six to eight weeks to progress from Episode 1 to Episode 7.

Use the Student Portfolio to Gather Evidence of Student Learning. The Student Portfolio provides evidence of student understanding of the Great Barrier Reef ecosystem. In the Portfolio, students apply reading and writing skills to demonstrate learning. While much of the students’ work is displayed to enrich the learning environment, you will want to save it when the Storypath concludes. You can save students’ work in a pocket folder together with the Portfolio. The reproduction of the sea animal most likely will be too large for the Portfolio, so a photo of it would be an appropriate alternative.

CUSTOMIZE THE UNIT

Adapt the Unit. There will likely be many times in this unit when you will want to modify the curriculum to suit your own needs and follow the logical progression of the story. Alternative activities or special arrangements are suggested at various points during the unit to assist you in adapting the lessons to meet your unique needs.

Studying the marine world offers a wide range of options. This unit focuses on the Great Barrier Reef because of the wide variety of sea life found there. The unit can easily be adapted to another ocean and place—the Storypath provides the structure, allowing you to add your own specifics.

Frequently, students will provide an unanticipated twist to the Storypath, or important learning opportunities will arise. The Storypath allows for the accommodation of those special circumstances.

Use Current Events. Students role-play the scientists and reflect on events from their own perspective. These are opportune times to help students connect their own experiences to current events. Environmental issues involving the ocean and its inhabitants are frequently in the news, and making these connections can serve as powerful learning experiences because students understand firsthand the transferability of their classroom experiences to the real world. Don’t be surprised if students

make current event connections on their own. Teachers report that once students become immersed in this Storypath, they begin to pay more attention to television shows about marine life and news reports about the pollution of our oceans. Students with Internet access often use computers to discover valuable information, which they're eager to include in their marine world projects.

Connect to Other Storypaths. This unit naturally lends itself to the study of ecosystems as students learn about and create the underwater sea lab and Great Barrier Reef. You can extend and deepen students' understanding of these subject areas by connecting to other Storypath units. *Safari to Kenya* focuses on the Maasai Mara Game Reserve and the Maasai people. *The Wampanoags and the First Thanksgiving* provides opportunities to explore and understand another culture and time and how these people used the land to meet their needs. Check out www.teachstorypath.com for other Storypaths suitable for your classroom.

INVOLVE OTHERS

Involve Families. Parents and other family members can serve as excellent resources for you and your students. Some family members may have special knowledge about marine life or may have visited the Great Barrier Reef—invite them to your classroom.

In Episode 7, students share what they have learned by taking part in an international conference on the world's oceans. This is an ideal time to invite families. Students can write invitations and families can participate in the event.

Involve the Community. Guest speakers, field trips to aquariums, and visits to the seashore are all suitable activities for this Storypath. These activities should be carefully timed, however, and should only happen when students are truly interested in learning from the field trip or are ready for the information a guest speaker will contribute. For example, it would be unwise to visit an exhibit of the Great Barrier Reef at an aquarium before students create their own Great Barrier Reef frieze because students would simply replicate what they saw. A visit at the conclusion of the unit allows students to knowledgeably compare and contrast the two settings and makes the visit a more powerful learning experience.

Create a Learning Community. An open and supportive atmosphere is essential for students to engage in the discourse that is basic to the learning process of the Storypath approach. Students should understand the value of reflective discussions and the importance of collaborative work to deepen their understanding of complex ideas. Consequently, students should be expected to listen carefully and respond thoughtfully and respectfully to one another's ideas.

EPISODE

CREATING THE SETTING THE GREAT BARRIER REEF

INTRODUCING THE GREAT BARRIER REEF

page 15

Students listen to and discuss a description of the Great Barrier Reef.

Materials Teaching Master 1, *Description of the Great Barrier Reef*, TH* p. 45
Content Slide Set 1
World map or globe

Grouping Whole class

Schedule Approximately 30 minutes

CREATING THE GREAT BARRIER REEF

page 15

Students create the Great Barrier Reef and surrounding ocean.

Materials Portfolio 1, *Working Together*, p. 4
Content Slide Sets 2–8
For the frieze:

- one bulletin board or wall space approximately 6' by 6', covered with blue butcher paper
- various colors of construction and tissue paper
- colored markers, crayons, glue, scissors, masking tape
- paper doilies, foil, pipe cleaners, yarn, straws, cotton balls
- Optional: tempera paints mixed with liquid detergent for painting on windows (instead of butcher paper)

Grouping Six groups of approximately equal size, each group working on a section of the frieze

Schedule 2 hours

CONCLUDING EPISODE 1

page 16

Students make a word bank and write or draw about the setting.

Materials Portfolio 1, *Working Together*, p. 4
Portfolio 2, *Word Bank: The Great Barrier Reef*, p. 5
Portfolio 3, *Drawing: The Great Barrier Reef*, p. 6
Portfolio 4, *Writing: The Great Barrier Reef*, p. 7
Pocket folders or sturdy paper to make folders (one per student)

Grouping Whole class for word banks, individuals for drawing or writing

Schedule Approximately 45 minutes, plus time for students to share their writing

EPISODE OBJECTIVES



- **Social Skills** *Organize, plan, and make decisions while creating a frieze with group members.*
- **Social Skills** *Determine an appropriate course of action to complete the frieze within a group.*
- **Critical Thinking** *Organize ideas from class discussion in new ways and apply those ideas to the frieze.*
- **Literacy** *Listen to a description of the Great Barrier Reef.*
- **Literacy** *Visualize the Great Barrier Reef based on text.*
- **Literacy** *Create a word bank describing the Great Barrier Reef.*
- **Literacy** *Write sentences describing the Great Barrier Reef.*

*TH = Teacher's Handbook

Name _____ Date _____

DESCRIPTION OF THE GREAT BARRIER REEF



Ladies and gentlemen, this is your pilot, Captain _____
(use your name)
speaking. If you look out your window, you will see in the distance a jagged line just under the surface of the water. This is the Great Barrier Reef.

The Great Barrier Reef is the largest reef in the world. It rises up like a wall from the ocean floor and stretches for miles and miles. Notice that in some places the jagged line of the reef is above the water and small islands appear to sit on top of the reef.

Oh, look, I see a pod of dolphins swimming near the reef! Every few feet they jump out of the water. If you were underwater, you would see brightly-colored fish and sea creatures of all shapes and sizes.

The reef is actually made of coral. Coral is formed from the skeletons of billions of tiny sea animals. Living coral covers the outer surface of the reef in beautiful shades of tan, orange, yellow, purple, blue, red, and green. The coral has many different shapes: It can look like a bush growing under water, like a fan, like fingers stretching out from a hand, like a round ball, like a bunch of lace, or like the branches of a dead tree.

The water is a brilliant shade of blue today. The deeper you go in the ocean, the darker the water becomes. This is because the sunlight cannot reach into the ocean's depths.

Well, ladies and gentlemen, I must sign off for now as we will soon be landing in Cairns. Please fasten your seat belts and put your seatbacks in an upright position in preparation for landing.

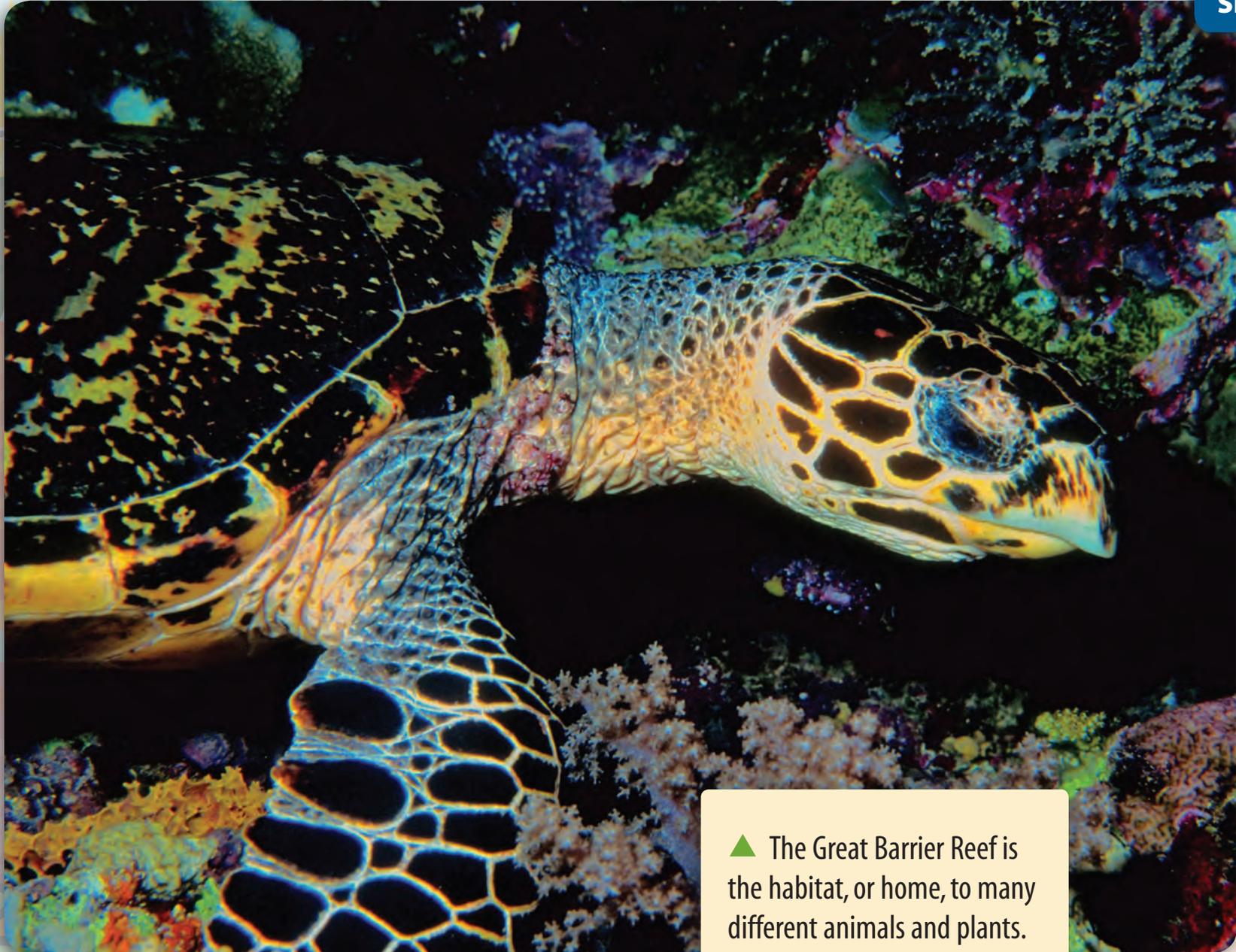


What is the Great Barrier Reef?

The Great Barrier Reef is the largest reef in the world. The reef is made of coral. Coral is formed from the skeletons of tiny sea animals. The Great Barrier Reef is an ecosystem, a community where plants and animals depend upon each other to live and grow.

What is coral?

(main idea/supporting details)



▲ The Great Barrier Reef is the habitat, or home, to many different animals and plants.



Coral reefs are located in a band along the equator. This band is 3,000 miles wide. The reefs grow in this area for several reasons, but most importantly because the water temperatures do not fall below 70°F (21°C). ▼



Where is the Great Barrier Reef located? (*understanding visuals*)

WORKING TOGETHER

1. Talk with your group about how you will work together.

- We will listen to each other's ideas.
- We will share the work.
- We will help each other.
- We will do careful work.
- We will work together to solve problems.

2. Who will make the coral reef? _____

3. Who will make the sea creatures? _____

SELF-ASSESSMENT: WORKING TOGETHER

Not often/
Never Sometimes Always

1. We listened to each other's ideas.

2. We shared the work.

3. We helped each other.

4. We did careful work.

5. We worked together to solve problems.



WORD BANK: THE GREAT BARRIER REEF

In the column on the left make a list of things that live in the Great Barrier Reef. Look at the setting you made to get ideas. In the other column add words that describe the things in the Great Barrier Reef.

Things in the Great Barrier Reef	Describing words
eels	gray

Assessment: Words relate to the Great Barrier Reef; describing words appropriately reflect the reef.



DATE _____

DRAWING: THE GREAT BARRIER REEF

Create a drawing about the Great Barrier Reef. Label your drawing with words from your word bank.

A large, empty rectangular box with a thin black border, intended for the student to draw and label the Great Barrier Reef.



DATE _____

WRITING: THE GREAT BARRIER REEF

Write about the Great Barrier Reef. Use your word bank to help you. Remember to use describing words.

Assessment: The student was able to use the word bank as a resource for writing sentences and create simple sentences that relate to the setting.