

Faces™

Exploring Our Oceans

Humans have been fascinated by oceans since time immemorial, as evidenced by historic texts and traditional folklore. The articles in this month's FACES magazine examine advancements in deep sea exploration, educate readers about the tons of microplastics threatening ocean ecosystems, and introduce a Brazilian goddess of the ocean.

CONVERSATION QUESTION

What are scientists learning about oceans?

TEACHING OBJECTIVES

- Students will learn how deep sea exploration has evolved over time.
- Students will learn how microplastics are causing great harm to ocean ecosystems.
- Students will learn about the celebration of the ocean goddess Iemanjá.
- Students will compare time periods.
- Students will study the impact of innovation.
- Students will learn how cultural characteristics influence populations.
- Students will study and share additional information about the Mariana Trench.
- Students will create posters that encourage others to be mindful of plastic waste.
- Students will conduct short research projects.



In addition to supplemental materials focused on core Social Studies skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

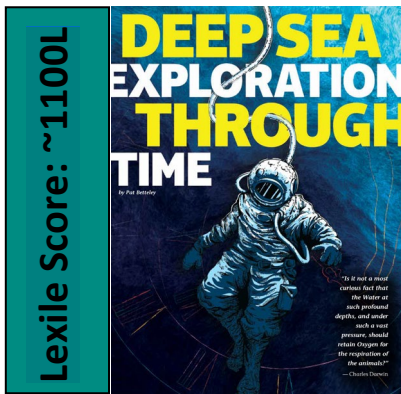
SELECTIONS

- **Deep Sea Exploration Through Time**
Expository Nonfiction, ~1100L
- **Danger in Our Oceans**
Expository Nonfiction, ~960L
- **Gifts for Iemanjá: The Ocean Goddess**
Expository Nonfiction, ~960L

Deep Sea Exploration Through Time

pp. 8–11, Expository Nonfiction

It is a fact that we know less about the great depths of our oceans than we do about some of the planets in our solar system. Readers will discover the progress sea explorers have made despite many challenges.



RESOURCES

- Comparing Time Periods: Sea Strides

OBJECTIVES

- Students will learn how deep sea exploration has evolved over time.
- Students will compare time periods.
- Students will study and share additional information about the Mariana Trench.

KEY VOCABULARY

- **thermocline** (p. 9) the transition layer between warmer mixed water at the ocean's surface and cooler deep water below
- **aquanaut** (p. 10) an undersea explorer who lives and works for an extended period of time in a submerged dwelling
- **hydrothermal** (p. 10) used to describe something related to or produced by hot water in the earth's crust

ENGAGE

Conversation Question: What are scientists learning about our oceans?

Display a world map and be sure that students can identify the five oceans. (Atlantic, Pacific, Indian, Arctic, Southern) Challenge students to list them in order from smallest to largest. (Arctic, Southern, Indian, Atlantic, Pacific) Which ocean do you live closest to?

INTRODUCE VOCABULARY

Post the key vocabulary words and definitions. Explain that many scientific terms contain Greek and Latin word roots. Guide students to notice the word roots *therm*, *aqua*, and *hydr*. Ask students which two roots mean “water” (*aqua*, *hydr*). Have students brainstorm other words with these roots. Then point out that *thermocline* and *hydrothermal* both include the root *therm*. Have students infer the meaning of the root *therm* (heat) based on the definitions of *thermocline* and *hydrothermal* and their own knowledge. Finally, remind students to look for the vocabulary words as they read.

READ & DISCUSS

Reinforce comprehension of the concepts presented in the article by using the following questions to direct discussion.

1. Why is 90 to 95% of the deep ocean unexplored?
2. What kind of information are ocean explorers trying to attain?
3. Why did scientists believe there was no life in the deep sea?
4. What were the accomplishments of oceanographer Sylvia Earle?
5. What is the role of the Census of Marine Life?

CONCEPT/SKILL FOCUS: Comparing Time Periods

INSTRUCT: The article presents information about the history of deep sea exploration. Distribute the *Comparing Time Periods: Sea Strides* graphic organizer. Tell students they will be recording how technology continues to advance underwater exploration by building on existing knowledge and information.

ASSESS: Have students complete the worksheet. Remind them to refer to the article to help them explain the contributions of individual explorers.

EXTEND

Science Remind students that the article tells about the Mariana Trench—the deepest location on Earth. If possible, have students watch David Attenborough’s “Descent into the Mariana Trench.” This underwater research documentary takes viewers on an unforgettable excursion to explore the creatures and conditions in the trench.

Sea Strides

Comparing Time Periods Use information from the article to compare early and contemporary sea exploration.

Time Period	Sea Explorers	Missions and Discoveries
Early Exploration (1770s–1800s)		
Contemporary Exploration (1990s–2000s)		

Think Tank: What aspects of sea exploration have changed most dramatically over time? Discuss with a partner.

Danger in Our Oceans

pp. 18–21, Expository Nonfiction

Dangerous particles called microplastics are lurking in the world's oceans.

Readers will learn how humans have created one of the biggest threats to ocean ecosystems through our mishandling of plastic waste.



RESOURCES

- Impact of Innovation: Save Our Oceans!

OBJECTIVES

- Students will learn that microplastics are causing great harm to ocean ecosystems.
- Students will study the impact of innovation.
- Students will create posters that encourage others to be mindful of plastic waste.

KEY VOCABULARY

- **microplastics** (p. 19) plastic fragments that are less than 5 mm in length and that pollute water
- **polymers** (p. 20) natural or synthetic materials consisting of very large molecules.

ENGAGE

Conversation Question: What are scientists learning about our oceans?

Give students five minutes to list every plastic item they have used or interacted with in the last 24 hours. Share lists. Then discuss the advantages and disadvantages of plastic compared with other materials.

INTRODUCE VOCABULARY

Post the key terms and discuss the definitions. Instruct students that they will be creating a word search puzzle using those two words, in addition to another 18 theme-related words. Suggest they highlight topical words as they read for use in the word search. Share the puzzles with another class for use as a prereading exercise for this article.

READ & DISCUSS

Have students read the article in small groups to answer the questions below. Discuss responses.

1. Explain how microplastics enter your body.
2. What is unique about the chemical bonds in plastic that prevent it from breaking down?
3. Are photodegradable plastics a solution? Explain.
4. What is the Great Pacific Garbage Patch and where is it located?

CONCEPT/SKILL FOCUS: Impact of Innovation

INSTRUCT: Remind students that the article describes the advantages and disadvantages of plastic use. Distribute the *Impact of Innovation: Save Our Oceans!* graphic organizer and tell students they will be analyzing how the invention of this innovative material has affected the world in both positive and negative ways.

ASSESS: Circulate as students are working and have content-related mini-conversations. Remind students to give specific details in their answers.

EXTEND

Art Show students a short video about the Great Pacific Garbage Patch (available on the internet). Then have students work in small groups to create plastic awareness posters that encourage people to reduce plastic waste at home, at work, and at school in order to help keep plastic out of the oceans. Instruct students to include eye-catching illustrations and bold wording. Display these posters throughout the school to be viewed throughout the month of April. (Earth Day: April 22, 2022)

Save Our Oceans!

Impact of Innovation Gather evidence from the article to support each claim.

Claim: There are many positive aspects to plastic. (p. 20)

1.

2.

3.

Claim: Plastics are a huge problem for our oceans. (p. 21)

1.

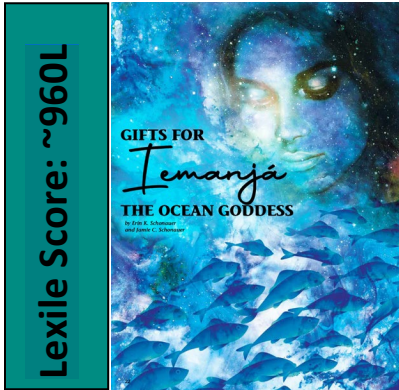
2.

3.

Gifts for Iemanjá: The Ocean Goddess

pp. 22–25, Expository Nonfiction

Through text and dramatic photos, this article takes readers on a journey to the Iemanjá Festival in Salvador, Brazil.



RESOURCES

- Cultural Influence: Spirit of the Sea

OBJECTIVES

- Students will learn about the celebration of the ocean goddess Iemanjá.
- Students will learn how cultural characteristics influence populations.
- Students will conduct short research projects.

KEY VOCABULARY

- **deity** (p. 23) a god or goddess
- **diaspora** (p. 23) people settled far from the area in which they had lived for a long time or in which their ancestors lived
- **shrine** (p. 25) a place connected with a holy person or event where people go to worship

ENGAGE

Conversation Question: What are scientists learning about oceans?

Most students enjoy books and movies about gods and goddesses and will have some experience with the myth genre. Discuss well-known gods in Greek and Roman mythology (and the Marvel universe!). Explain to the class that myths are more than fantastical stories. They serve a profound purpose in ancient and modern cultures. Encourage students to discuss the purpose(s) with a partner and then share their answers with the class.

INTRODUCE VOCABULARY

Post and discuss the key terms and the title of the article. Be sure students understand the definitions before reading. As a prereading activity, have the class predict the content of the article using the three words. As a post-reading activity, have them revisit their prediction and use the vocabulary words to summarize the article in paragraph form.

READ & DISCUSS

Preview the questions below. Then read the article aloud, pausing for discussion when answers to the questions are revealed.

1. How is Iemanjá depicted throughout history?
2. Why has the Brazilian religion of Candomblé absorbed many Catholic practices?
3. Why does the spelling of Iemanjá's name change?
4. How do people know if their gifts to Iemanjá have been accepted?
5. Why do both practitioners and non-practitioners respect and celebrate Iemanjá?

CONCEPT/SKILL FOCUS: Cultural Influence

INSTRUCT: The article presents the reader with detailed information regarding the sanctity and celebrations of the ocean goddess Iemanjá. This beautiful deity is the object of much celebration as worshippers give thanks and ask for protection. Distribute the *Cultural Influence: Spirit of the Sea* graphic organizer and tell students they will be recording how Iemanjá influences many groups of people.

ASSESS: Review students' charts as a class.

EXTEND

Social Studies Have students conduct research to learn more about a topic introduced in the article. Topics include the food, music, costumes, dancing, and other customs associated with Iemanjá festivals; Candomblé; African Diaspora; and Yoruba culture. Have students work in pairs to choose a topic and create a short presentation on it to share with the class.

Spirit of the Sea

Cultural Influence Consult the article to answer the questions and note how Iemanjá is part of Brazilian culture.

Who is Iemanjá?

Where is Iemanjá celebrated?

When is the Iemanjá Festival?

How are offerings to Iemanjá made?

What is offered to Iemanjá?

Why does each group of people below worship Iemanjá?

1. Fisherman/sailors:

2. Children:

3. Women:

4. Coastal townspeople: