

SCIENCE FORUM: EXTINCTION THEN AND NOW

Students compare and contrast causes for extinction, past and present. In Activity 1, students gain background knowledge on the topic of extinction and related terms by creating a three-section illustrated brochure. In Activity 2, students conduct research on the extinction of prehistoric or modern marine animals and compile graphic organizers summarizing what they learned. In the Closing Activity, students compare research findings, synthesize information, and create and present their summaries in a science forum.

Vocabulary (see Glossary)

- biodiversity
- climate change
- conservation
- endangered species
- evolution
- extinction
- habitat
- sustainability

Try This First!

In 2004, there were an estimated 15,589 species on the “threatened list.” Ask students if they believe that species today could become extinct, like many, if not all, of the dinosaurs did. (Some paleontologists believe that birds are descendants of dinosaurs.) Discuss what people can do to protect species from extinction.

Source: World Conservation Union (IUCN) 2004 Red List of Threatened Species. A Global Species Assessment (iucnredlist.org/info/introduction)

Guiding Question:

What factors contribute to the extinction of a species? Have these factors changed over time?

Activity	Objectives	Instructional Strategy	Materials
ACTIVITY 1 Eco-Illustrations 90 min.	Students will: <ul style="list-style-type: none"> - Gain background knowledge on extinction and related terms; and - Create an illustrated brochure. 	<ul style="list-style-type: none"> - Discovery Learning 	<ul style="list-style-type: none"> - Internet or library resources
ACTIVITY 2 Extinction Then and Now 40 min.	Students will: <ul style="list-style-type: none"> - Research the extinction of prehistoric marine animals and threats to modern-day marine animals; and • Use a graphic organizer to structure research. 	<ul style="list-style-type: none"> - Cooperative Learning - Inquiry Research 	<ul style="list-style-type: none"> - Internet or library resources - “Creating a Graphic Organizer” (optional; online only)
CLOSING ACTIVITY Science Forum 90 min.	Students will: <ul style="list-style-type: none"> - Learn about the extinction of prehistoric marine animals and threats to contemporary marine animals; - Create a presentation; and - Participate in a science forum. 	<ul style="list-style-type: none"> - Discovery Learning - Hands-on Learning 	

Activity 1

Eco-Illustrations

Students do online or library research to gain background knowledge on extinction and related terms in order to create an illustrated brochure.



Directions:

1. Staging the activity. Divide the class into eight groups. Assign each group one of the following terms:

- Extinction
- Biodiversity
- Habitat
- Climate change
- Conservation
- Sustainability
- Evolution
- Endangered species

2. Instructions. Explain that each group will research its term and create a brochure. Each brochure should include:

- The word and its definition
- An original symbol that illustrates the meaning of the word
- A brief description of the symbol's meaning
- Excerpts of three news articles from the past year that include the term in context
- Research sources

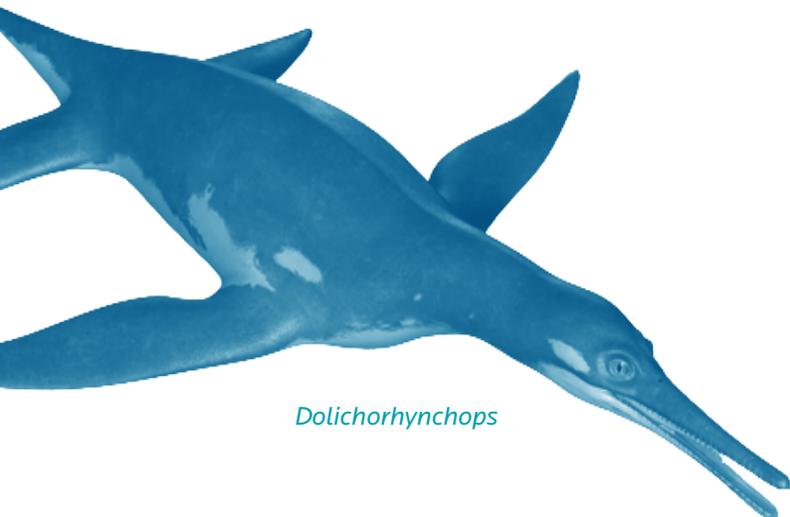
Note: Students may present their work as a Word document, PowerPoint slide presentation, a web page, or a short video clip.

3. Students' presentations. Have each group share its brochure with the entire class. Tell students that they will use their brochures in a science forum in the Closing Activity.

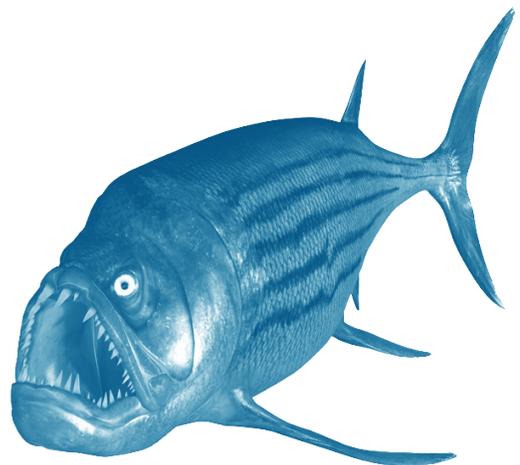
Students should view *Sea Monsters: A Prehistoric Adventure* prior to Activity 2.

ADAPTATIONS

If students have difficulty with these terms, you may wish to spend additional time reinforcing the meanings of the words. One way you can do this is by having the students write sentences using the vocabulary words in context to demonstrate that they understand the definitions.



Dolichorhynchops



Xiphactinus

Activity 2

Extinction Then and Now

Students research the extinction of prehistoric marine animals and threats to current-day marine animals and develop graphic organizers to structure their research.



“Creating a Graphic Organizer” (optional)

nationalgeographic.com/xpeditions/guides/graphicorg.pdf

Directions:

- 1. Instructions.** Explain that students will use online or library resources to research animal extinction—past or present—and that they will create a graphic organizer with their findings. Tell students that they will later use their research in a science forum in the Closing Activity.

Note: If helpful to students, distribute and review “Creating a Graphic Organizer,” an optional resource available online.

↳ nationalgeographic.com/xpeditions/guides/graphicorg.pdf

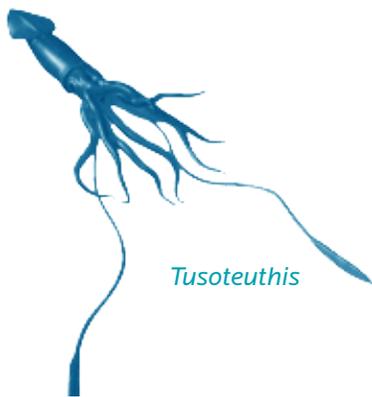
- 2. Divide the class into small groups.** If possible, divide class into an even number of small groups. Half of the groups will research the extinction of prehistoric marine animals; the other half will research current threats to modern marine animals. Each group should select one animal on which to focus their research.

Note: Remember to collect and save completed graphic organizers for the Closing Activity.

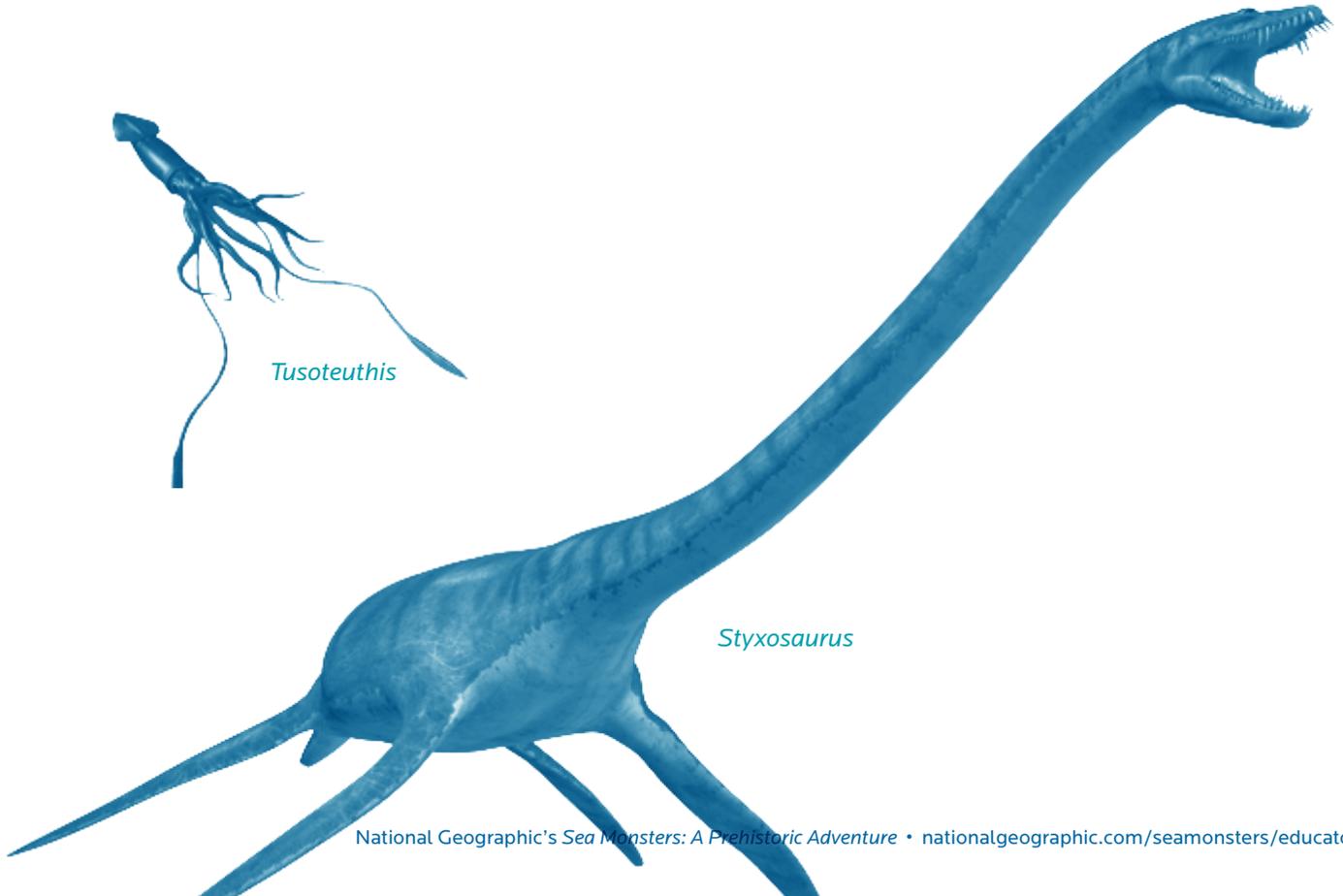
- 3. Allot time for students to prepare presentations.**

ADAPTATIONS

Some students may need additional time and support to complete their research and their graphic organizers. You can read information aloud, make predictions, ask students to restate what they read, and model note-taking strategies to enhance comprehension. Remember to clarify any difficult concepts, and encourage students to focus on the reasons for extinction and threats to species.



Tusoteuthis



Styxosaurus

Closing Activity

Science Forum



Students integrate the factual knowledge they have learned about the extinction of prehistoric marine animals and threats to contemporary marine animals through the creation and presentation of their research findings in a science forum.

Directions:

- 1. Divide the Class into Research Teams.** Each team should include students who researched prehistoric extinction and students who researched present-day conditions.
- 2. Instructions.** Tell students they are going to prepare presentations as part of a science forum. To complete this activity, each team should:
 - Prepare a seven- to ten-minute presentation comparing and contrasting the extinction of prehistoric marine animals and threats to today's endangered species.
 - Incorporate brochures and graphic organizers produced in Activities 1 and 2.
 - Include an action plan with at least three suggestions for what people can do to help species currently deemed to be under threat of extinction.

- 3. Presentations and Discussion.** Have students regroup to make presentations and participate in a science forum. After each group has finished its presentation, lead the class in a discussion reviewing key points on the threats to the current environment, the possible lessons we can learn from the past, and what people can do to protect threatened species today.

STUDENT ASSESSMENT

Rate the students on a scale of one to five based on the following components:

- Comparison of extinction of prehistoric marine animals and the threats to today's marine animals.
- Quality of information in brochure.
- Quality of synthesis in graphic organizer.
- Suggestions for what to do to help threatened species.
- Participation in forum discussion

Henodus

