



Live Dive: Fourth Grade Lesson Plan

Overview Students explore the kelp forest with a park ranger-diver through an interactive distance learning program. As kelp forest inhabitants are encountered, students identify their roles as producers or consumers. Food chains are constructed. What if one organism in a food chain disappears? What if some condition in the kelp forest changes?

Grade level Fourth grade

Objectives addressed

- Classify organisms from a marine ecosystem as producers and consumers and explain their roles in that system.
- Explain potential consequences when a component of an ecosystem is changed or eliminated.
- Describe factors that can adversely affect the health of an ecosystem.

Essential questions

- How does change in an ecosystem affect the entire ecosystem?
- What affect do humans have on ecosystems?

Subjects Biology: animals, biology: plants, conservation, ecology, environment, marine biology, oceanography

Duration 30 minutes for Live Dive; 30 minutes for pre-program activity; 20 minutes for post-program activity

Group size Suggest not more than two classes for ideal viewing and interactivity

Setting Classroom or other suitable broadcast location

National/state standards

NS K–4, C/Life Sciences: Organisms and environments; F/Science in Personal and Social Perspectives: Changes in environments

California/science—Grade 4: 2.a, 2.b, 2.c; 3.a

Vocabulary Adaptation, camouflage, carnivore, community, consumer, decomposer, ecosystem, energy, environment, food chain, food web, herbivore, organism, oxygen, photosynthesis, producer, scavenger

Background Story 4 in the *From Shore to Sea* curriculum available online:
www.nps.gov/chis/forteachers/classrooms/from-shore-to-sea-curriculum.htm

Materials For How to Participate and the PDFs listed below:
www.nps.gov/chis/forteachers/learning/dive4.htm

Live Dive data sheet (PDF)

Pencils

Pre-program activity (PDF)

Park brochures

Copies of pre-program activity sheet (PDF)

Copies of species ID key (PDF)

Post-program activity (PDF)

Open playing area, about 30 x 60 feet

Poker chips, math manipulatives, or any similarly sized items

Procedure Follow steps in How to Participate to reserve a Live Dive for your students.
Archived programs are also available: www.nps.gov/chis/planyourvisit/archived-programs.htm

Before the Live Dive

From Shore to Sea, Story 4 provides background information and activities about the kelp forest ecosystem. A short video clip on Story 4 focus question What is Kelp? is available online: www.nps.gov/chis/forteachers/classrooms/from-shore-to-sea-curriculum.htm

For California schools in Ventura and southern Santa Barbara counties, contact the park about ranger-led classroom programs on kelp forests: www.nps.gov/chis/forteachers/classrooms/ranger-led-programs-in-your-classroom.htm

After introducing the terms *producer* and *consumer* have students complete the pre-program activity. Before watching the Live Dive provide each student with a data sheet.

During the Live Dive

The Live Dive lasts 20 to 30 minutes. If you are participating in an interactive Live Dive event, your students will be able to ask the ranger-diver questions. Students must speak loudly and clearly. In order to hear them, the diver needs to hold her/his breath, so questions need to be asked quickly. If the diver cannot hear a student's question, please be ready to repeat the name of the student and the question. The diver will also ask questions of the students. Many times they can answer loudly in unison.

If you are watching an archived program, you can pause the broadcast when the diver asks a question, allowing your students to answer before hearing the response of the recorded audience.

Students can use the Live Dive data sheet throughout the program to record the species they observe. During Live Dive programs for students, a park researcher will be shown recording observations on the same data sheet being used by the students.

After the Live Dive

Complete the post-program activity. Exercise 6.2 (Marine Reserves—Where Do You Fit In?) in *From Shore to Sea*, Story 6 is also an excellent follow-up to the Live Dive. This digital lab is accessible online: www.nps.gov/chis/forteachers/classrooms/from-shore-to-sea-curriculum.htm

Additional resources

4.2.b *The Flow of Energy through Ecosystems*, California Education and the Environment Initiative (EEI): www.californiaeei.org/Curriculum/

Programs for classes and other organized groups are available at the park visitor center. Floating Classroom programs to the islands are available through Island Packers, a boat concessioner. www.nps.gov/chis/forteachers/classrooms/fieldtrips.htm

The visitor center bookstore carries many excellent educational materials relating to the park. Educators receive a 20 percent discount upon request.