



Live Dive: Fifth Grade Lesson Plan

Overview Students explore the kelp forest with a park ranger-diver through an interactive distance learning program. The role of kelp as a producer and, therefore, its ability to produce oxygen through photosynthesis are emphasized. Affects of human activities on kelp forests are also explored.

Grade level Fifth grade

Objectives addressed

- Explain the role of photosynthesis in the functioning of marine ecosystems.
- Explain why photosynthesis is essential to the survival of humans and human communities.
- Provide examples of how humans and human communities can influence photosynthesis and thus the flow of matter and energy within the kelp forest.

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; variable amount of time for using accompanying materials

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

Setting Classroom or other suitable broadcast location

National/state standards

NS 5–8, C/Life Sciences: Structure and function in living systems; F/Science in Personal and Social Perspectives: Populations, resources, and environments
California/science—Grade 5.2.f

Vocabulary Food chain, producers, consumers, decomposer, algae vs. true plants, photosynthesis, kelp forest

Background Story 4 in the *From Shore to Sea* curriculum unit 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/dive5.htm

Live Dive data sheet (PDF)

Pencils

Pre-program activity (PDF)

Copies of pre-program activity sheet (PDF)

Scissors, stapler

Post-program activity (PDF)

Plain white paper

Colored markers

Spray bottles filled with water (one for each table group)

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 also available online: www.nps.gov/chis/forteachers/classrooms/from-shore-to-sea-curriculum.htm

After reviewing the process of photosynthesis, 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 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 ranger cannot hear a student's question, please be ready to repeat the name of the student and the question. The ranger 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 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 in Story 6 of *From Shore to Sea* (Marine Reserves—Where Do You Fit In?) 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

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

Programs for classes and other organized groups are also 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.