



Aquarium Webcam Resource Kit
Lesson Outline *Kelp Forest Habitat*
6th- 8th Grade

Next Generation Science Standards:

- **MS-LS2-1** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- **MS-LS2-2** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- **MS-PS1-3** Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
- **MS-LS1-5** Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
- **MS-LS1-6** Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.

Key Words:

- **Adaptation:** a change or the process of change by which an organism or species becomes better suited to its environment.
- **Emulsifier:** food additive used to stabilize processed foods
- **Organism:** an individual animal, plant, or single-celled life form.
- **pH:** a figure expressing the acidity or alkalinity of a solution on a scale on which 7 is neutral, lower values are more acid and higher values more alkaline or basic
- **Ppt (Parts Per Thousand):** The amount of part X for every thousand Y.
- **Predator:** the preying of one animal on others.
- **Salinity:** the quality or degree of being saline (salty).
- **Secchi Disk:** an opaque disk, typically white, used to gauge the transparency of water by measuring the depth (Secchi depth) at which the disk ceases to be visible from the surface.
- **Transparency:** allowing light to pass through so that objects behind can be distinctly seen.
- **Water Quality:** the chemical, physical, and biological characteristics of water based on the standards of its usage.

Supplies:

- *Kelp Forest Habitat* Video
- Ocean Ranger Worksheet: *Kelp Forest Habitat*
- Computer & projector to show Blue Cavern Webcam:
<http://www.aquariumofpacific.org/exhibits/webcams>

Lesson Activities:

Step 1: Watch the *Kelp Forest Habitat* Video

Pre-video Prompts

- What is kelp? What is a kelp forest?
- Where can you find it in the world's oceans?

Post-video Prompts

- How do animals use a kelp forest?
- How do people use kelp?
 - *Kelp is used as an emulsifier, meaning it helps bind ingredients together.*
 - *Kelp is sustainably harvested and used in hundreds of products such as medicine, make-up products, food such as ice cream, and personal care products like toothpaste.*
- What types of organisms live in the kelp forest?
- How could you study an animal using the webcam?

Step 2: Blue Cavern Webcam & Ocean Ranger Worksheet: *Kelp Forest Habitat* (Page 1)

Ocean Ranger Kelp Forest Worksheet (Page 1)

- Students will have an opportunity to use an ethogram to collect more information about a specific animal's behaviors.
 1. Choose an animal to observe and draw.
 2. Use observations to fill out an ethogram.
 3. Look for any special characteristics of the animal.

Step 3: Ocean Ranger Worksheet: *Kelp Forest Habitat* (Page 2)

- As a class or individually, design a fish. Use the fish parts for inspiration.
- Decide what the fish eats, where it lives in the kelp forest (bottom, mid-water, or canopy), and who eats it. Based on this information think about adaptations to help them live in their habitat.
- Think-pair-share about the fish they observed in the webcam and some observations about its adaptations. Have students make predictions about what it eats, who might prey on it, and where it lives in the kelp forest.

Step 4: Ocean Ranger Worksheet: *Kelp Forest Habitat* (Page 3)

- Have students investigate the data in the kelp growth chart
 - As a class, discuss each water quality measurement and determine how it might impact the growth of the kelp.
 - Fun fact! Kelp can grow up to two feet per day in good conditions.

- What do you think impacts “good conditions”?
 - *Nutrient-rich water, clear water (so sunlight can reach the kelp for photosynthesis), and temperature.*