

Team OCEAN Tours Lesson Plan- Adaptations

- Ask the students if they know of or have ever heard of Marine Protected Areas (MPAs).
- Let the students know that today we are in or near a MPA. MPAs are areas in the ocean where fish are protected. You can still fish in an MPA but not for all types of fish. Check the fishing rules if you are fishing at the ocean or in an MPA.

What is an adaptation? Anything that helps an organism (plant or animal) to survive.

Adaptations can be:

Structural: A physical characteristic (body part) that aids in survival. For example: protective camouflage, tooth shape, scales, fins, flippers, and feathers.

Behavioral: An innate or learned action that aids survival (hibernation, migration, teaming up, being part of a big flock or school, using tools)

Student engagement:

- Ask the students about the structural adaptations a commonly familiar species has, for example dogs, cats, birds, fish, humans.
- Ask the students about the structural and/or behavioral adaptations for animals and plants observed through the Team OCEAN webcams

On the water:

Use the lenses to focus on found species and discuss their structural and behavioral adaptations.

Species	Structural	Behavioral
Eel grass	Flexibility	Patchiness of beds
	Photosynthesis	
	Chlorophyll	
Cormorants	Stiff feathers	Drying feathers
	Diving for fish	Groups on land
	Hooked bill	
Sea otter	Dense fur	Rafts
	Strong jaws and teeth	Use tools
	Grasping front paws	Grooms fur constantly
	Flippers for back paws	
Jellyfish	Clear bodies	Pulsing then floating
	Nematocysts	Moving tentacles outward

To learn more about **Marine Protected Areas** check out: Californiampas.org/explore/fun-activities
Team OCEAN Tours is a project funded by the **Ocean Protection Council** and **Coastal Quest**.

Staff should be prepared to use a focus on behavioral and structural adaptations when interpreting species commonly observed in Elkhorn Slough or kelp forests, or plants/animals the students ask about.

Species commonly seen:

Birds	Plants	Mammals	Invertebrates	Fish
Cormorants	Eel grass	Sea otters	Jellyfish	Sharks
Gulls	Kelp	Sea lions	Crabs and shrimp	Rays
Great Blue Herons	Pickleweed	Harbor seals	Sea hares and slugs	Baitfish- sardines and anchovies
Pelicans	Eucalyptus	Whales	Mussels	Mola molas
Egrets		Dolphins	Anemones	

NGSS

Use these disciplinary core ideas to help guide your habitat discussion with students. For example,

1-LS1-1	All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.
1-LS1-2	Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.
3-LS2-1	Being part of a group helps animals obtain food, defend themselves and cope with changes.
3-LS3-2	Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. The environment also affects the traits that an organism develops.
3-LS4-2	Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.
3-LS4-3	For any particular environment, some kinds of organisms survive well, some survive less well, and others cannot survive.
4-LS1-1	Plants and animals have internal & external structures that serve functions in growth, survival, behavior and reproduction.
4-LS1-2	Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions.

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