



GLOSSARY

ADAPTATION	Modification of an organism in order to survive within its habitat.
ALGAE	Primitive aquatic plants that lack true stems, roots and leaves. They are in their own kingdom.
BIVALVE	A Mollusk having two shell hinged together. e.g. clam, oyster and mussel.
BLADE	The leaf-like part of a seaweed.
CAMOUFLAGE	Method of hiding in which organisms blend in with their surroundings.
CANOPY	The top layer of the kelp forest where fronds float on the surface.
CARNIVORE	An animal that consumes other living animals.
COMMUNITY	A group of plants or animals living in the same area and depending on one another for survival.
CONSUMER	An organism that gets its nutrients by eating other organisms.
CRUSTACEAN	An animal with a hard outside shell, antennae, mandibles and compound eyes. e.g. crabs, shrimps and barnacles.
DECOMPOSER	An organism that breaks down organic material and releases simple substances usable by other living things. Examples of decomposers are bacteria and fungi.
DEPOSIT FEEDER	An animal that feeds by ingesting substrate and filtering out the small organic particles on the substrate.
DETRITIVORE	An animal that eats detritus.
DETRITUS	Dead plant and animal material.
DIATOM	A type of microscopic, one-celled photosynthetic organism. All diatoms are surrounded by a silica shell and most are a golden brown in color.
ECOLOGY	The study of relationships between organisms and their environment.
EDGE COMMUNITY	A productive area where land and sea interface. This community, because of its proximity to land, receives huge inputs of sediment, nutrients and freshwater, which in turn supports a diversity of plants and animals.
ENVIRONMENT	The sum of all physical and biological factors that affect an organism.
ESTUARY	A semi-enclosed body of water where salt water and fresh water meet and mix.

FILTER FEEDER	An animal which extracts food particles by straining the water. Examples of filter feeders are clams, oysters, sponges and some fish.
FOOD CHAIN	A sequence of living organisms in an ecosystem in which members of one level feed on those in the level below and in turn are eaten by those in the level above them.
FOOD WEB	An assemblage of organisms in an ecosystem, including plants, herbivores and carnivores, which shows the relationship of "who eats whom."
HABITAT	The particular area in which an organism normally lives.
HERBIVORE	An animal that eats plants.
INVERTEBRATE	An animal without a backbone.
MOLLUSK	The second largest Phylum of animals. Mollusks have soft bodies, a foot, visceral mass, and a mantle. Most also have a shell made of calcium carbonate. Snails, clams, slugs, squid and octopus are examples of mollusks.
NEKTON	Swimming animals of open water, the adjectival form of nekton is nektonic.
OMNIVORE	An organism that eats both plant and animal material.
PELAGIC	Living or occurring in the open ocean.
PHOTIC ZONE	Upper sunlight portion of the water column. The depth of the photic zone in the ocean ranges from 30 to 200 meters.
PHOTOSYNTHESIS	The process used by plants to make food; in this process light energy is used to combine carbon dioxide and water to make carbohydrates (sugar and starch); oxygen gas is given off as a by-product.
PHYTOPLANKTON	Algae, usually microscopic, which freely drift in the sunlit portions of the water column.
PLANKTON	Drifting aquatic plants and animals; the adjectival form of plankton is planktonic, and a planktonic organism is called a plankter.
POLLUTION	Harmful impact on the environment resulting from human activities.
PREDATOR	An animal that captures other animals for food.
PREY	An animal caught for food.
PRODUCER	An organism that makes its own food; an example of a producer is a green plant.
SALT MARSH	Salt-water wetland between terrestrial and marine ecosystems; salt marshes can also be seasonal or tidal wetlands.
SCAVENGER	An organism that is an opportunistic feeder; scavengers usually include dead and decaying animal flesh in their diets.

SPECIES	A population of plants or animals that are able to produce viable of with each other and not with other species.
VERTEBRATE	An animal with a backbone. The back bone can be made of bone or of cartilage like in some fish (sharks and rays).
WETLANDS	Areas that periodically have waterlogged soils, support plants adapted to wet soil, and are covered or occasionally submerged by water.
ZOOPLANKTON	Animal plankton.

PRE-VISIT ACTIVITIES

You may want to ask your librarian to set aside ecology or marine science books for your class, or ask students to bring books and magazines from home to share.

ANIMAL ADAPTATIONS

Have your class research and discuss how marine animals protect themselves from their predators or what adaptations they have to become better predators. Have the class team up in small groups and be responsible for researching one phylum. Within each group, each student can choose one animal from this phylum. They can use books or any other resources to put together a report.

PYRAMID OF LIFE (From Joseph Cornell's *Sharing Nature with Children*)

Give each student a slip of paper and have them secretly write on it the name of a plant or animal that lives in your area. Collect all slips of paper and begin to construct a "human pyramid" (performed in a flat position, rather than one child on top of another, if safety is a concern or the group is large).

Begin by asking, "From what source does the earth get its energy?"(Sun) "What form of life is the first to make use of that energy?" (Plants) Next, divide students into groups (from their secret slips) depending on whether they are plants, plant-eaters (herbivores), meat-eaters (carnivores), or omnivores (let the omnivores choose which group they'd like to be in). Try to construct a food pyramid beginning with all the plants on the bottom. Who is next? And next? Is it too top heavy to work? What will happen to all the animals on top with nothing to support them underneath? What needs to be done to correct it? Conclude by pretending to yank out a plant; what happens to the pyramid?

Activities/Curriculum links:

<http://aswc.seagrant.uaf.edu/kindergarten/investigation-1.html>

<https://coast.noaa.gov/estuaries/curriculum/>

POST-VISIT ACTIVITIES

WEB OF LIFE

Have the students stand in a circle. Ask the students about the habitat they just saw (this will work for any habitat). Ask them where in that habitat all energy begins, (sun).

- Hand the student who answered correctly a ball of yarn.
- Ask what uses the sun's energy to create food (plants). Have them name a plant they saw.
- Have the student with the ball of yarn (still hanging on to the end of the string) toss the ball itself over to the "plant" student.
- Ask, "Who uses plants for energy?" And continue this discussion using herbivores, carnivores, decomposers, and of course, humans,
- With each completed step, students continue to toss the yarn to each other around the circle, creating a complex and interrelated food web.
- Now pick a random student. Because of hunters, or pollution, or loss of habitat (several reasons apply), the component he or she represents has died and must sit down. As he does so, he inadvertently creates a tug on the yarn, thus affecting other aspects of the web of life. Every student, then, who feels a tug on the yarn they are holding is affected in some way by the death of that one individual, and must sit down and tug on their own yarn.

Eventually, all students will be seated and you can discuss the results

MOBILES

Let the kids make mobiles of the fish they saw. Take a hanger, some string, some cut-out drawings or pictures of fish and have fun! Attach the fish to the string. Then attach the string at varying lengths to the hanger. Be creative, use pictures of plankton and benthic critters. Possibly take two copies of the fish, glue the edges together, and stuff with some already used paper (recycle it!) and have a 3-D mobile. Older groups can make mobiles in the form of a food chain.

WRITING THANK YOU LETTERS

Write letters to the instructors and/or your class sponsor to tell them about the trip. When we receive letters and pictures back from the kids our instructors remember what a thrill it is to be teachers. The sponsors also enjoy getting direct feedback from the class and teacher to reinforce that they are making a difference for kids learning science. Please include the day, date and time of your trip so we can try to remember your group a little better.

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