**Vocabulary: Coral Reefs 1 – Abiotic Factors**

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**Vocabulary**

* Consumer – an organism that obtains energy by feeding on organic materials.
  + Organic materials are carbon-based compounds produced by living things.
  + All animals, all fungi, and even some plants are consumers.
  + *Coral reef* consumers include fishes, sponges, and other animals.
* Coral – a class of marine animals in the phylum Cnidaria that are important reef builders in tropical oceans.
  + A coral colony consists of many tiny polyps. Each polyp contains a set of tentacles surrounding a central mouth.
  + Polyps of stony corals excrete exoskeletons of calcium carbonate. Over time, coral colonies can grow to large size.
  + Corals thrive in warm, shallow, clear, and nutrient-poor oceans.
* Coral bleaching – a process in which corals lose their *zooxanthellae*, usually as a result of abnormally high water temperatures.
  + Bleaching often results in the death of the host coral.
* Coral reef – a complex and diverse marine ecosystem formed on the exoskeletons secreted by stony corals.
  + Coral reefs are found in shallow, clear waters in tropical regions of the world.
  + Coral reefs occupy less than 1% of the world’s ocean floor but contain over 25% of all marine species.
* Filter feeder – an organism that eats by straining food, such as plankton, from water.
  + Examples of filter feeders include sponges, manta rays, whale sharks, baleen whales, barnacles, clams, flamingos, and many others.
* Food chain – a sequence of organisms in which each organism feeds on the one below.
  + Example: Algae 🡪 Parrotfish 🡪 Grouper 🡪 Shark.

In this food chain, parrotfish eat algae, groupers eat parrotfish, and sharks eat groupers.

* Food web – a diagram that shows feeding relationships for a group of organisms.
* Grazer – an organism that feeds by eating plants, algae, and other immobile organisms.
  + Important reef grazers include parrotfish and long-spined sea urchins.
* Nutrients – substances used by an organism for energy, growth, or other processes essential to life.
  + Important nutrients in seawater include nitrates and phosphates.
  + Algae and plankton thrive in high-nutrient waters. Corals favor low-nutrient water.
* Ocean acidification – a decrease in the pH of the ocean, caused by increased absorption of carbon dioxide from Earth’s atmosphere.
  + In the past two centuries, average ocean pH has dropped from about 8.25 to 8.14. Many scientists predict ocean will become more acidic if atmospheric carbon dioxide concentrations continue to rise.
  + Many marine organisms, including corals, must spend more energy to excrete calcium carbonate when ocean pH is lower.
* pH – a measure of how many hydrogen ions there are in a solution. The greater the number of hydrogen ions is, the more acidic the solution and the lower the pH.
  + A solution with a pH of 7 is neutral. A solution with a pH below 7 is acidic, and a solution with a pH greater than 7 is basic.
  + Ocean water is slightly basic, with an average pH of 8.1.
* Plankton – small organisms that live suspended in ocean water.
  + *Photoplankton* are algae that produce energy from photosynthesis.
  + *Zooplankton* are small animals that that feed on other plankton.
* Predator – an animal that kills and eats other animals.
* Producer – an organism that converts simple inorganic matter (such as water and carbon dioxide) into organic matter (such as sugar and protein).
  + Most plants use the energy in sunlight to create organic matter from carbon dioxide and water. This process is called *photosynthesis*.
  + Important coral reef producers include phytoplankton, algae, and the zooxanthellae that live inside corals.
* Sediment – rock fragments that have been transported to a different location.
  + Examples of sediments include clay, silt, sand, and pebbles.
  + Smaller sediments (such as clay and silt) can remain suspended in the water for a long period of time, reducing the sunlight that reaches the ocean floor.
* Zooxanthellae – photosynthetic algae that live inside corals.
  + Zooxanthellae and corals have a mutualistic relationship that benefits both organisms.
    - Coral provide zooxanthellae with shelter and compounds needed for photosynthesis.
    - Zooxanthellae provide corals with oxygen and food.