Principle 5: Grades 6-8

Principle 5:
The ocean supports a great diversity of life and ecosystems.

The ocean provides vast living space and unique ecosystems from the surface through the water column to the sea floor.

Diversity of Life

B..
The diversity of ocean ecosystems allows for many unique lifeforms with many unique adaptations.

B.1.
The diversity of phyla is greater in the ocean than on land.

B.2.
Many major groups (phyla and classes) of organisms, such as echinoderms, cephalopods, comb jellies and many types of worms are found exclusively in the ocean.

B.3.
The ocean supports a range of animals from the smallest living thing to the largest animal on Earth.

B.4.
Most of the biomass in the ocean is made up of microscopic microbes.

B5..
Organisms in the ocean exhibit an amazing variety of adaptations to sound, density, pressure, patchy food distribution & other environmental factors.

B.6.
Different ocean organisms have different life history strategies. Some drift with the currents (plankton), some swim (nekton), and some live on the bottom (benthos).

B.7.
In the tropical ocean where there are fewer nutrients, diversity of life is higher and abundance of life is lower. In the polar regions where there are comparatively more nutrients, there is less diversity of life and more abundance of life.

B.8.
Some ocean organisms, such as phytoplankton, have adaptations (e.g., oil droplets, spines and a large surface area), which allow them to stay near the sunlit surface where photosynthesize can occur.

B.9.
Many marine animals, from shrimp to whales, rely on sound to communicate, find prey and mates, and sense their environments. Sound travels through the ocean much better than light does.

B.10.
Some ocean organisms have adaptations for living in or diving to the deep ocean. For example, elephant seals spend most of their life diving in the deep ocean to depths at which most mammals could not survive. Other organisms have bioluminescent lures to capture prey, or huge mouths and stomachs to take advantage of the scarce prey in the deep.

B.11.
Organisms in the ocean exhibit an amazing variety of life cycles. Some have planktonic stages that help colonize new areas, some undergo long seasonal migrations to mate and have young, and others change sex as they mature or as the dominance hierarchy in the community changes.

B.12.
Some of these life cycles are unique to ocean organisms, such as those of seahorses, corals, many fish and kelp.

See Principle 7: C

See Principle 1: C8