The ocean supports a great diversity of life and ecosystems.

1. The ocean offers vast, interconnected living space & diverse, unique ecosystems from the surface through the water column to the seafloor.

A.1. The large range of physical, chemical, & geographical characteristics of the ocean support a wide variety of ecosystems.

A.2. Currents and tidal cycles contribute to a diversity of organisms that can withstand large variations in conditions.

A.3. Physical stratification (vertical & horizontal) contributes to a diversity of organisms that can withstand large variations in conditions.

A.4. Many organisms are adapted to daily fluctuations in their physical environment (e.g., tidepools).

A.5. Many organisms are adapted to dramatic changes in their physical environment throughout their life history (e.g., broadcast spawners, anadromous fish).

A.6. Physical characteristics (e.g., pressure, light, temperature) of the ocean change with depth, resulting in vertical strata within the water column.

A.7. Physical characteristics (e.g., pH, temperature, salinity) change across the expanses of the ocean, resulting in wide variations of conditions including horizontal strata.

A.8. Many species are adapted to conditions in specific strata.

A.9. Many species are adapted to move between strata.

B.1. Diversity of ocean ecosystems, phyla & species allows for greater resiliency of species to changes in environmental conditions.

B.2. Diversity of ocean ecosystems depends upon direct (e.g., symbiosis) & indirect (e.g., resource competition) interactions of species, communities, & ecosystems.

B.3. The ocean supports significantly greater phyletic diversity than land. Over half of all the phyla that exist on Earth only exist in the ocean. There is only one phylum that exists uniquely on land.

B.4. Humans influence diversity by changing the balance of biological & physical factors in the ocean.

B.5. Ocean ecosystems support a large range of niches (role of a given organism in its ecosystem), which are determined by many factors, e.g., space, time/seasonality, & other abiotic and biotic factors.

B.6. Microbes are the most important primary producers in the ocean & are the basis of support for most ocean food webs, enabling greater biodiversity. Most life in the ocean exists as microbes.

B.7. There is a variety of ways in which humans have impacted the ocean, including overfishing, habitat destruction, ocean acidification, pollution, eutrophication, & introduced species.

B.8. High levels of niche diversity in the ocean in conjunction with interactions between organisms results in intense selection pressure, leading to greater biodiversity in the ocean.