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**Chemical Composition of Ocean Water**

**What does the word composition mean? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Label the diagram below using the power point.**

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**Salinity**:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the total amount of solid material dissolved in water. Because the proportion of dissolved substances in seawater is such a small number, oceanographers typically express \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in parts per \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Most of the salt in seawater is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, common \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**From precipitation to the land to the rivers to the sea…**

The \_\_\_\_\_\_\_\_\_\_ that falls on the land contains some dissolved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the surrounding air. This causes the rainwater to be slightly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The rain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ breaks down the rock and the acids \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ break down the rocks. Rain then carries the dissolved salts and minerals along as it flows. The \_\_\_\_\_\_\_\_\_\_ in the runoff are carried to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and then to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Many of the dissolved salts are used by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the ocean and are removed from the water. Others are not used up and are left for long periods of time where their concentrations \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over time.

**Salt from below…**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_vents are recently-discovered features on the ocean seafloor that contribute \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the oceans.

These \_\_\_\_\_\_\_\_\_\_\_\_ are the “exit points” on the ocean floor from which sea water that has seeped into the rocks of the oceanic crust has become hotter, has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ some of the minerals from the crust, and then flows back into the ocean.

**Eruption of Volcanoes Underwater…**

Similar to the previous process, during an underwater volcano \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, seawater reacts with hot rock and some minerals are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into the sea water.

**Processes affecting salinity….**

Processes that decrease salinity:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Processes that increase salinity:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Underwater Explorer**

Some parts of the ocean are too deep for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and so they must use special underwater equipment.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has been used to search for sunken ships, recover lost hydrogen bombs, and explore landforms on the ocean floor.

**Viewing the ocean floor with sonar….**

\_\_\_\_\_\_\_\_\_\_\_\_\_ (sound navigation and ranging) is a technology based on echo-ranging behavior of bats.

We are can measure the ocean’s depth with sonar by sending high frequency sound \_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the ocean floor.

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ off the ocean floor and back to the boat.



\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ A gradually sloping area that edges each continent. It can range from a few kilometers to 1,300 kilometers.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The gradual drop off from the continental shelf that leads to the deep ocean floor. It reminds me of the transition from the shallow end to the deep end in a pool.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The gently sloping base of the continental slope.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Relatively flat layer covered in a thick layer of sediment at the base of the continental rise.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cone shaped undersea mountains of volcanic origins. The Hawaiian islands began as seamounts.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Mountains of volcanic origins that have broken the surface of the water. An example are the Hawaiian Islands.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_The deep undersea valley at the mid-ocean ridge.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ These are deep canyons caused at subduction zones in the ocean.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The underwater mountain chain the winds through the ocean where divergent plate boundaries pull apart.