Ocean Acidification

- When CO2 dissolves in seawater, the water becomes more acidic
- Acidic = There is an increased concentration of hydrogen ions
- Sea organism need to adapt to new acidic environment
- Note: Acidity means having a pH level of over 7.
- Oceans absorb carbon dioxide from the atmosphere, creating carbonic acid in the waters.

Here is the formula:

$$CO_2 + H_2O => H_2CO_3$$

Ocean acidification is a process in which the pH (acidity) of the ocean decreases over time due to the absorption of excess carbon dioxide (CO2) from the atmosphere. When carbon dioxide is released into the air from human activities like burning fossil fuels, a significant portion of it is absorbed by the ocean's surface.

Once in the ocean, the carbon dioxide reacts with water to form carbonic acid, which leads to an increase in hydrogen ions, reducing the pH of the seawater. As the pH decreases, the ocean becomes more acidic. This shift towards acidity can have significant consequences for marine organisms, particularly those that rely on calcium carbonate to build their shells or skeletons, such as corals, mollusks, and certain types of plankton.

Ocean acidification can hinder the ability of these marine organisms to build and maintain their protective structures, making them more vulnerable to predators and other environmental stressors. Furthermore, the disruption of calcium carbonate formation can have cascading effects on entire marine ecosystems, potentially affecting food chains and biodiversity.