

Applying Scientific Law in Display of Nature's Daily Phenomenon

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Abstract: Henry's law explains the solubility of gas in liquid. More precisely Henry's law states that the solubility of gas in a liquid at a given temperature is directly proportional to the partial pressure of the gas over the solution. In this paper the students will be able to understand the concept of Henry's law as experienced in nature. The concepts of high pressure and low pressure become clearer as the story happens in a stormy summer time. Also the concept of solubility of gas (oxygen) becomes clearer when the narrative explains the local folks catching big fishes with a small stick instead of bait and line or net. Students will also be able to understand the physiology of the life threatening condition of deep-sea divers also known as *bends*.

Introduction: General chemistry curriculum at high school and college level include interdisciplinary topics such as solubility of gases (1, 2). The concept of solubility of gases helps in understanding why we hear Fitz sound when opening a fresh can of soda (3). It also helps in understanding the change in skin color when going for a high altitude mountain hiking (4). Similarly it helps in understanding how the deep-sea diver's body adapts to the oxygen change in body due to change in pressure and oxygen level (4). Also in medical physiology, students learn about the supply of oxygenated blood to the fetus when there is change in the pressure and temperature of the body (4). It is imperative that having a better grasp of the Henry's law will help students in their college learning.

When I am teaching my class about Henry's law I tell my own observed story after teaching the basic text concept. The story is from India where I grew and got my basic education. The region where I grew up is a tropical area. There are a lot of ponds for fish culture. People live economically on fish trade. One early morning of June I woke up before the dawn due to lot of noise in my neighborhood. In the predawn darkness people were rushing towards pond and coming back with big fishes. I did not see anybody

carrying a net or fishing line they. Rather they had a small stick in their hand. It was a big feast for poor folks.

I explain the students that it was a cloudy and muggy stormy night. There was a storm imminent. Before the storm the barometric pressure drops. Due to drop in pressure there is less air-pressure on top of the pond water. When there is less pressure on the surface of the water the dissolved oxygen in the water start to leak out into the air. This causes deficiency of oxygen in the water. Fishes start to gasp on the surface. And folks use their stick to hit the fish and grab them. They do not use any bait or net.

After hearing the story the students become more interactive and began to share their own observations. One of my students told the class that her grandfather always preferred to go for fishing on cloudy days during summer.

Conclusion: Associating scientific law with nature's phenomenon boosts up students confidence in science. It also generates curiosity to understand the text book principles and apply them in natural world. The story also integrates multidisciplinary approach in teaching and learning.

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