

Unit 6 big ideas in science seminar

Science



**ASSIGN
BUSTER**

Big Ideas in Science Seminar Water forms the basis of life and is present in lakes, rivers, oceans, as well as plant and soil surfaces. Evaporation from water bodies takes water to the atmosphere, which then condenses into clouds. The clouds precipitate when cooled into rain, snow or sleet that goes back to the land and water bodies. Plants also lose water through evapotranspiration.

Carbon is present in both the biotic and abiotic ecosystems. In the air, carbon is found as carbon dioxide, which is available for plants during the process of photosynthesis. When animals consume plants, carbon is available into their tissues, some back into the atmosphere through respiration.

Atmospheric Carbon also comes from decomposition of dead animals.

Sedimentary rocks like limestone, as well as seashells also contain carbon.

Nitrogen, on the other hand, exists in the atmosphere as nitrogen gas. This nitrogen gas is converted to ammonia gas through the process of nitrogen fixation, and the ammonia is converted to nitrites then oxidized to nitrates through the process of nitrification. Nitrogen fixation is accomplished by nitrogen fixing bacteria as well as lightning. The resultant nitrites and nitrates are converted back to nitrogen gas by denitrifying bacteria through denitrification process. Nitrogen present in organic matter is converted into ammonia gas via ammonification process.

Human activities affect the natural processes of water, carbon, and nitrogen cycles. Activities like burning of fossil fuels and coal releases nitrogen compounds, sulfur, and carbon compounds to the atmosphere, which, in addition to causing air pollution, leads to the formation of acid rain. Acid rain causes great damage to plants and animals. Increase of nitrogen in the atmosphere causes imbalance of nutrients available for plants, affecting

their health and biodiversity. Other problems like leaching of nitrogen into the soil and resultant pollution and eutrophication results from increasing nitrogen in the air. Furthermore, the use of chlorofluorocarbons, CFCS, causes the breakdown of the ozone layer leading to the formation of Ozone hole. The result is an increase in occurrence of skin cancer due to penetration of ultraviolet light into the earth.

References

Trefil J. & Hazen R. (2012) The sciences: An Integrated Approach. Wiley Global Education, 7th edition Print