YALE NATIONAL INITIATIVE
to strengthen teaching in public schools®

Curriculum Units by Fellows of the National Initiative
2019 Volume IV: Energy Sciences

Demystifying Radiation

Guide for Curriculum Unit 19.04.09, published September 2019
by Vanessa Vitug

Radiation is a word synonymous in people's minds with images of a mushroom cloud over Hiroshima, rubble over Chernobyl, and floods at Fukushima. This unit attempts to show that radiation is as unavoidable as the sun, and provides benefits beyond generating electrical power. High school Anatomy and Physiology as well Biology and Health Science students will develop a foundational knowledge regarding the electromagnetic spectrum (EMS), chemical bonds in DNA damaged by ultraviolet radiation, and how radiation is measured. As the unit develops, students will understand that a nuclear reactor producing nuclear energy is not the only use of high energy radioactive materials. Through hands-on-learning activities and a mock Environmental Protection Agency committee hearing, students will connect today's medical technology including X-rays, CT scans, and radiotherapy to the EMS and radioactive particles. Finally, students will articulate that the hazards of radiation exposure are outweighed by the benefits radioactive materials provide to society.

Keywords: radiation, electromagnetic spectrum, bond energy, ultraviolet, nuclear energy, X-rays, radiotherapy

(Developed for Physiology, grades 11-12; recommended for Biology and Health Science, grades 9-12)

https://teachers.yale.edu
©2023 by the Yale-New Haven Teachers Institute, Yale University, All Rights Reserved. Yale National Initiative®, Yale-New Haven Teachers Institute®, On Common Ground®, and League of Teachers Institutes® are registered trademarks of Yale University.
For terms of use visit https://teachers.yale.edu/terms_of_use