



# YALE NATIONAL INITIATIVE

*to strengthen teaching in public schools®*

Curriculum Units by Fellows of the National Initiative  
2015 Volume VI: Physiological Determinants of Global Health

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## **Every Breath You Take - Air Pollution's Effects on Respiratory Health**

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by Vanessa Vitug

Have you ever tried to breath in air that is polluted? How much small particulate matter like dust, soot, smoke, and fumes can be inhaled before your lungs are permanently damaged? Global air pollution is an ongoing health problem faced by billions of people each year. Understanding and controlling air pollution can potentially prevent human respiratory disease.

The objective of this unit is for students to understand how the respiratory system is affected by chronic obstructive respiratory disorders like asthma, restrictive lung diseases like silicosis, and second hand smoke exposure. Students will understand the relation between pressure, flow, resistance, and volume in the mechanism of breathing and gas exchange. This background of respiratory anatomy and physiology will allow for students to connect the global problem of air pollution to the respiratory health of individuals.

Varied Common Core based classroom activities will connect real world historical and current issues to help anatomy and physiology students apply the content beyond the classroom. Through these connections, and the freedom for students to explore and innovate solutions to today's world problems, we will help students and teachers become advocates for clean air and meet the demands of the Next Generation Science Standards.

(Developed for Physiology, grades 11-12; recommended for Biology, grades 9-10)

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