



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
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## **Indoor Air Pollution**

Guide for Curriculum Unit 18.02.08  
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In today's world, the most debated environmental issues are climate change, pollution, deforestation, acid rain, ozone layer depletion, waste management and genetically modified organisms (GMO's). However, there is an issue that most people don't even think about and yet has important effects on human health: the quality of indoor air. A poor indoor air quality (IAQ) has been found responsible for the death of 4.3 million people in 2012, according to the World Health Organization (WHO).

The purpose of this unit is to provide the middle and high school Science teachers with an overview of the main sources of indoor air pollution (breathing and carbon dioxide emissions in highly occupied classrooms, tobacco smoking, use of electronic cigarettes and emissions of organic compounds resulted from the use of cleaning agents, building materials). Students will explore and study the indoor air compounds that are harmful for human health, identify the sources of indoor air pollution and learn what they can do to reduce that pollution inside classrooms and homes. Teachers will use the concepts of indoor air pollution to expose students to organic and inorganic chemistry and introduce students to the basic nomenclature of organic compounds.

Students will also study and model the concentration of indoor pollutants and find out how much a classroom must be ventilated in order to keep the concentrations of some pollutants (for example carbon dioxide) at a low level.

The unit is intended to be taught in high school Chemistry, Physical and Environmental Science classes, but it can be used also by middle school 7th and 8th grade Science teachers to introduce students to concepts related to indoor air pollution.

The unit will last approximately two weeks.

(Developed for Engineering, grade 8; recommended for Chemistry, grade 10, Physical Science, grade 10, and Environmental Science, grade 11)

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