APES Study Guide 11

**Human Health and Air Pollution**

This unit will begin with the study of how environmental hazards affect human health. You will then learn the various mechanisms that result in the formation of outdoor and indoor air pollutants and the resulting consequences of those pollutants on human health.

**Textbook Reference**

Miller, *Living in the Environment,* 16th edition: Chapters 17-18, Supplements 22-23 (S65-68) (p418-462) (47 pages)

**Outside Reading**

TBA

**Other Materials**

*Super Size Me*

**Vocabulary (52)**

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| toxicologytoxicitymutagenteratogencarcinogenpathogenendocrine disruptormalariaPCBs World Health Organization (WHO)Centers for Disease Control (CDC)heavy metalbody burdenhazardous chemicaldose risksocietal riskdose-response curve | LD-50ED-50threshold concentrationdioxinepidemiologynoise pollutionendocrine systemimmune systemionizing radiationprimary pollutantsecondary pollutantoxides of sulfur (SOx)oxides of nitrogen (NOx)volatile organic compounds (VOCs)peroxyacyl nitrates (PANs)aldehydesparticulate matter (PM-10)ozone | radonphotochemical smogtemperature inversionacid depositionacid rainbufferrespiratory systembronchiolealveoliciliaClean Air Actcatalytic converterelectrostatic precipitatorscrubbercyclone collector (separator)baghouse filterindoor air pollution |

**Study Guide Questions (SGQs)**

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| 1. Describe ten risks you take in your everyday life. Differentiate between risks over which you have control and risks over which you have no control. Considering the area in which you live, include three risks you are you exposed to from your natural environment.2. Distinguish between transmissible and non-transmissible diseases. List three deadly infectious diseases and identify the most disease vector for each infectious transmissible disease.3. The use of the pesticide DDT is an example of the conflict between benefit to humans and environmental damage. List two benefits and two costs that result from the use of DDT. Write an argument in favor of, and an argument opposed to a worldwide ban of DDT.4. During the time of Emperor Augustus of Rome, the plumbing pipes, which carried drinking water to the aristocracy, were made of lead, while the drinking water pipes of poor people were made of cheaper ceramic. Speculate on how this fact may have contributed to the fall of Rome. Identify and describe a modern analogy for this illustration.5. Describe how modern transportation contributes to the spread of transmissible diseases in the world today. Provide three examples of emerging diseases that have been amplified by the actions you described. | 6. Distinguish between primary and secondary pollutants and list and describe two examples of each. 7. Explain how acid deposition occurs, and the effects it has on the environment. Describe two strategies for moderating the damage done by acid deposition.8. Compare urban air pollution problems in developed countries with those in developing countries. Differentiate between the challenges of solving air pollution problems in both the developed and in the developing world.9. Radon gas is nontoxic and nonreactive, however, once radon gas enters homes, it poses a threat to human health. Discuss how radon enters homes and explain the process that makes radon a health threat even though it is a weak radiation emitter.10. Other than radon, list three indoor air pollutants. For each, identify its source, the effect it has on human health, and a method for reducing or eliminating its presence in indoor air. |