

APES OBJECTIVES: CHAPTER 4a/15

FriRel: CHAPTER 4a Objectives - GLOBAL CLIMATES & BIOMES

KEY OBJECTIVES: The major objective of this chapter is to understand the characteristics of different terrestrial and aquatic biomes and the forces that drive the weather and climate in each biome.

9. The Unequal Heating of Earth

- Atmospheric Structure. Briefly describe the structure of the atmosphere being sure to include troposphere, stratosphere, mesosphere, and the boundaries between each set of layers.
- Discuss factors causing the unequal heating of the Earth.
- Describe how the Earth's tilt affects seasonal differences in temperature.
- Distinguish between weather and climate. Summarize how warm fronts, cold fronts, high-pressure air masses, and low-pressure air masses affect weather.

FriRel: CHAPTER 15 Objectives - AIR POLLUTION & STRATOSPHERIC OZONE DEPLETION

KEY OBJECTIVES: The main objective of this chapter is for students to understand the major air indoor and outdoor pollutants, smog and ozone depletion.

46. Major Air Pollutants & Their Sources

- Distinguish between primary pollutants and secondary pollutants; stationary source and mobile source.
- Identify & describe the major classes of primary outdoor air pollutants.
- Describe the sources of air pollution.
- Briefly describe how air pollution affects human health, plants, aquatic life, and materials.

47. Photochemical Smog & Acid Rain

Photochemical Smog

- Distinguish between photochemical smog and industrial smog.
- Explain how photochemical smog forms.
- Describe a thermal inversion and conditions under which it is most likely to occur.
- Describe why photochemical smog is still a problem in the US & worse in other parts of the world.

Acid Rain

- Define acid deposition. Describe how acid deposition forms.
- Identify the level of risk that acid deposition creates for ecological systems and for human health.
- Give one example of the complexities of interactions, which can be set in motion by acid deposition.
- Describe why acid deposition has improved in the US, but has become worse in other parts of the world. List strategies to prevent acid deposition.

48. Pollution Control Measures

- Explain strategies and techniques for controlling sulfur dioxide, nitrogen oxides, & particulate matter.
- Describe innovative control measures.
- Prevention vs. Clean-up. Discuss prevention strategies vs. cleanup strategies to reduce emissions from stationary sources of air pollution.
- Prevention vs. Clean-up. List prevention strategies vs. cleanup strategies to reduce emission from motor vehicles.

49. Stratospheric Ozone Depletion

- Explain the benefits of stratospheric ozone & how it forms. Describe the role ozone plays in protecting life on Earth.
- Explain the potential environmental and health consequences of ozone depletion.
- Describe the depletion of stratospheric ozone. Describe the scientific work on CFCs and their relationship to ozone. Describe and write the chemical formulas occurring that cause ozone depletion.
- Explain efforts to reduce ozone depletion. Describe the political response to the scientific information, Montreal Protocol.

50. Indoor Air Pollution

- Explain how indoor air pollution differs in developing vs. developed countries.
- Describe the major indoor air pollutants, the risks associated with them (potential health effects of each), & strategies for dealing with each.
- Prevention vs. Clean-up. List prevention strategies vs. cleanup strategies to reduce indoor air pollution.
- Laws & Air Pollution. Summarize the Clean Air Act. List six criticisms that environmentalists make about the Clean Air Act. Summarize the controversy over the stricter particle emission standards in the United States. Define *emissions trading policy* and tell which pollutants are being regulated by this policy.

VOCABULARY TERMS

<ul style="list-style-type: none">• air pollution	<ul style="list-style-type: none">• volatile organic compounds (VOCs)	<ul style="list-style-type: none">• secondary pollutants
<ul style="list-style-type: none">• particulate matter (PM), particulates, or particles	<ul style="list-style-type: none">• primary pollutants	<ul style="list-style-type: none">• thermal inversion
<ul style="list-style-type: none">• photochemical oxidants	<ul style="list-style-type: none">• Los Angeles-type smog (brown smog)	<ul style="list-style-type: none">• Inversion layer
<ul style="list-style-type: none">• smog	<ul style="list-style-type: none">• sulfurous smog	<ul style="list-style-type: none">• chlorofluorocarbons (CFCs)
<ul style="list-style-type: none">• photochemical smog	<ul style="list-style-type: none">• London-type smog (gray smog)	<ul style="list-style-type: none">• asbestos
<ul style="list-style-type: none">• sick building syndrome		