

## UNIT 8 Study Guide

### AP Environmental Science

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Hr: \_\_\_\_\_

*Composed of Chapter 18 (Air & Air Pollution) and Chapter 19 (Climate Change/Ozone Loss)*

**You will be tested on how well you have read and followed our discussions of:**

#### 18-1 Basic Atmospheric Science

- ID the chemical composition of our atmosphere and its layered structure.
- Examples of weather vs. climate (and why people get them confused)
- How Coriolis influences shifts in wind direction
- Two main northern hemisphere wind belts and their characteristics
- Characteristics that drive ocean currents
- Observed effects along E and W sides of Pacific Ocean during normal conditions
- Observed effects along E and W sides of Pacific Ocean during El Nino (winter '09-'10)
- Observed effects along E and W sides of Pacific Ocean during La Nina (winter '10-'11)

#### 19-4 Stratospheric Ozone Depletion

- Contrast the characteristics of “good” vs. “bad” ozone
- Describe trends in stratospheric ozone concentration between 1950-90 and currently.
- Describe the characteristics that make chlorine harmful to ozone.
- Describe the consequence of less ozone on Earth’s surface and its biosphere.
- Legislation and agreements successful at curbing ozone depletion.

#### 18-2 Outdoor Air Pollution

- Describe main sources of natural and man-made air pollutants.
- Differentiate between the characteristics of primary vs. secondary air pollutants.
- Describe the chemical composition and sources of CO, NO<sub>x</sub>, SO<sub>x</sub>, SPM, O<sub>3</sub> and VOCs.
- List adverse health effects associated with air pollution.
- Identify the sources of lead and its adverse health effects on humans.
- Explain how lichens are good indicator species for air quality.
- Describe how photochemical smog forms.
- Describe how industrial smog forms.
- Describe factors that either reduce or increase air pollution concentration.
- Explain how temperature inversions form and their connection to air pollution.

#### 18-3 Acid Deposition

- Describe the formation of acid deposition.
- List 5 negative effects of acid deposition on humans, building materials, and economics.
- Describe the advantages and disadvantages of using tall stacks to emit air pollution.
- Identify rock types that are least and most affected by acid deposition.
- Describe 8 negative effects of acid deposition on aquatic ecosystems.

#### 18-4 Indoor Air Pollution

- Compare the relative risks of indoor air pollution to outdoor pollution + reasons why.
- Describe the source and adverse health effects of the 4 most common indoor air pollutants.

## UNIT 7 Study Guide

AP Environmental Science

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Hr: \_\_\_\_\_

### 18-5 Effects of air pollution on organisms

- Describe 4 mechanisms the body possesses to protect you from air pollution.
  - Describe a non-traditional source of air pollution and recent EPA air standard changes.
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### 19-1 Past Climate Change & Natural Greenhouse

- Differentiate between natural and anthropogenic greenhouse effect.
- Compare characteristics of the major greenhouse gases.
- Describe the composition of the IPCC and major outcomes of the 4th IPCC report.
- Explain how climate scientists are able to make predictions of future climate. (p. 502-3)

### 19-2 Life under a warmer atmosphere

- Describe specific (projected) effects resulting from a warmer atmosphere
- Explain why there is so much debate/confusion on modern climate change.

### 19-3 Facing Impending Climate Change

- Describe the challenges we face with the difficult task of correcting climate.
- Differentiate between mitigating and remediating climate change.
- Describe specific strategies considered as climate stabilization wedges.
- Describe how "C" sequestration (capture and storage) could help mitigate climate change, but the limitations inherent in this strategy.
- Outline the main points of the Kyoto protocol (1997) and Copenhagen (2009).
- Describe a carbon footprint and strategies used to reduce it.