**APES Chapter 18: Air Pollution**

**Note Taking Focus Questions**

**Directions:** Use the Cornell Method of note taking as you answer the questions below. Your notes must be **hand written** to receive credit for them. Within your notes, use the title for each subsection of notes which is *in italics and underlined.*

**Core Case Study: South Asia’s Massive Brown Clouds**

1. How large is the South Asian Brown Cloud?

2. What types of pollutants are found the brown clouds?

3. Why should these brown clouds be a concern here in the United States?

**Section 18-1**

*The Atmosphere Consists of Several Layers*

1. What are the layers of the Earth’s atmosphere?

2. What are the main gases of the troposphere? How does this layer play a role in weather & climate?

3. What is found with the stratosphere? Why is it part of the Earth’s natural capital?

**Section 18-2**

*Sources of Air Pollution*

1. Define air pollution.

2. List some natural sources and man-made sources of air pollution.

3. What is the difference between a primary and a secondary air pollutant?

*Major Air Pollutants*

\*For each of the pollutants listed in this section, list: Where do they come from? What impacts do they have on humans and the environment?

4. Carbon Oxides: 7. Particulates:

5. Nitrogen Oxides & Nitric Acid: 8. Ozone:

6. Sulfur Oxides & Sulfuric Acid: 9. Volatile Organic Compounds: (VOCs)

10. Lead: (Case Study)

*Industrial Smog*

11. List the components of industrial smog.

12. Why does it tend not to be a problem in MDCs but remains a problem in LDCs?

*Photochemical Smog*

13. List the component of photochemical smog. What type of climate is it more often found in?

*Factors that Impact Air Pollution*

14. Describe the five natural factors that help reduce outdoor pollution.

15. Describe the six factors that increase outdoor air pollution.

**Section 18-3**

*Acid Deposition is a Serious Regional Air Pollution Problem*

1. How do smokestacks reduce local air pollution but increase regional air pollution?

2. Define acid deposition. Describe the difference between wet and dry deposition.

3. What are some natural things that can buffer acid deposition?

4. Describe the harmful effects that acid deposition has on human, aquatic ecosystems, crops, forests.

5. Use figure 18-15 to list some of the solution for acid deposition.

6. Why is implementing some of these solution politically difficult?

**Section 18-4**

*Indoor Air Pollution*

1. Why is indoor air pollution a more serious air pollution problem for people in LDCs? MDCs?

2. Use figure 18-17 and the information on p.490 to list some indoor air pollutants and their problems.

3. What is sick building syndrome?

4. What are the 4 most dangerous indoor air pollutants in MDCs according to the EPA?

5. Radon Gas Case Study: Where the radon come from? Why is it dangerous? How can it be remedied?

**Section 18-5**

*Health Effects of Air Pollution*

1. Describe the various ways that your respiratory system helps protect you from air pollution.

2. What does prolonged exposure due to these natural defenses?

3. How many people do they estimate die prematurely due to air pollution both worldwide and in the U.S.?

**Section 18-6**

*Laws and Regulations Can Reduce Outdoor Air Pollution*

1. What laws help the EPA to regulate air pollution? What standards do they set? (Include primary standards, secondary standards, HAPs, TRI)

2. What 2 factors have allowed the U.S. to experience success with air pollution reduction?

3. How do environmental scientists feel that the U.S. could strengthen air pollution laws?

4. Explain how the emissions trading or the cap-and-trade program work. What is necessary for these types of programs to work?

*Reducing Air Pollution*

5. Use figures 18-25, 18-26, and 18-27 to summarize how to reduce the various types of air pollution.

6. When talking about preventing air pollution, what should the main question be? What will be necessary for this to happen?

**Section 18-7**

*Threats to the Ozone Layer*

1. Describe where and when the thinning of the ozone layer takes place. What does a thinner ozone layer allow to happen?

2. What chemicals are responsible for the thinning of the ozone layer? What are the sources of these chemicals?

3. Discuss why we should be concerned about the ozone depletion. (Include the information in fig 18-31.)

*Reversing Stratospheric Ozone Depletion*

4. How can the damage be reversed, and how long would it take?

5. Discuss what the Montreal Protocol and the Copenhagen Amendment said. Why were they important?

6. Describe the 3 reasons why this approach worked.

7. What could set back the progress that has been made in reducing ozone depletion? How would it set the progress back?