**APES Chapter 21: Solid and Hazardous Waste**

**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: E-Waste - An Exploding Problem**

1. What types of materials could be recycled from e-waste?

2. Why is much of the e-waste from the U.S. shipped overseas?

3. How is the European Union dealing with e-waste?

**Section 21-1**

*Our Waste is Wasteful*

1. What are the two types of solid waste, and what is included in each type?

2. What happens to MSW in developed countries? Less-developed countries?

3. What makes something a hazardous or toxic waste?

4. What are the 2 largest classes of hazardous waste? Give some examples of each.

*Case Study: Solid Waste in the U.S.*

5. List the percentages of the various types of waste generated here in the U.S. according to the EPA.

6. From 2010, list the categories and percentages of MSW thrown away.

**Section 21-2**

*Dealing with Solid Waste*

1. What is the difference between waste management and waste reduction?

2. What is meant by integrated waste management?

3. Using Figure 21-7, how should we be dealing with solid waste? How does that compare to what we do?

4. In what ways are the 4 R’s a positive for the environment?

5. List the 6 strategies that industries and communities have used to reduce resource use, waste & pollution.

**Section 21-3**

*Recycling*

1. Explain and give an example of primary (closed loop) recycling and secondary recycling.

2. What is the difference between preconsumer and postconsumer waste?

3. What is composting, and how can the byproducts be used?

4. What are the disadvantage to a materials-recovery facility?

5. What makes plastics difficult to recycle?

6. Read the Science Focus on p. 287. What are bioplastics, and how do they compare to oil based plastics?

7. Use figure 21-14 to list the advantages and disadvantages of recycling.

**Section 21-4**

*Incineration*

1. What is a waste-to-energy incinerator?

2. Use figure 21-16 to list the advantages and disadvantages of incineration.

*Burying Solid Wastes*

3. Describe how sanitary landfills are set up.

4. Use figure 21-18 to list the advantages and disadvantages of sanitary landfills.

5. What is an open dump, and what are some of the problems associated with them?

 **(over)**

**Section 21-5**

*Dealing With Hazardous Waste*

1. What are the 3 priority levels of dealing with hazardous wastes?

2. What do industries do when they try to prevent pollution or reduce the waste?

3. Case Study: Recycling E-waste. Where are many e-wastes recycled? What conditions do the workers work under? What happens to the environment in those areas?

*Detoxifying Hazardous Wastes*

4. Describe the physical methods of detoxifying hazardous wastes. Describe the chemical methods. Describe the biological methods. What is phytoremediation?

*Storing Hazardous Wastes*

5. Describe deep-well disposal. What are some problems associated with it?

6. Describe surface impoundments. What are some problems associated with them?

7. Describe secure hazardous waste landfills.

8. Case Study: Hazardous Waste Regulation in the U.S. Describe the 3 laws mentioned in this section and what each regulates. Describe how the Superfund Act was and is now funded. What is a brownfield?

**Section 21-6**

*Making the Transition to a More Sustainable Low-Waste Society*

1. How have grassroots citizen movements let to better solid & hazardous waste management?

2. What is environmental justice, and how has environmental discrimination taken place here in the U.S.?

3. What 3 factors hinder reuse and recycling?

4. Describe some of the ways to encourage reuse and recycling.

5. What is upcycling? Give a few examples.

6. International Treaties: Describe the international treaties mentioned in this section: what would they regulate? Where does the U.S. stand with these treaties?

7. List the 4 key principles that would help us to become a low waste society if we were to follow them.

8. Case Study: Industrial Ecosystems: Copying Nature

 - What is biomimicry?

 - How can industries mimic nature?

 - What are ecoindustrial parks?

 - What are the economic benefits to industries who practice biomimicry?