

## APES Chapter 24 Study Guide

1. What state is the Love Canal located?
2. Name the company that was responsible for dumping toxic and cancer-causing wastes into an old canal excavation called the Love Canal.
3. After Love Canal was abandoned, what was it sold and used for?
4. The Love Canal illustrates which of the following?
  - that preventing pollution is safer and cheaper than cleaning it up
  - that political officials are alert and sympathetic to their constituents
  - that pollutants can be stored safely underground for a long time
  - that polluting companies can escape from the costs and responsibility of their actions
5. The U.S. is about 5% of the world's population and produces about what % of the world's solid waste?
6. Garbage produced directly by households and businesses accounts for what % of the solid waste produced in the U.S.?
7. What is the single largest category of U.S. solid waste?
8. The amount of solid waste produced in the U.S. in 1996 could fill a convoy of garbage trucks that would stretch around the world how many times?
9. Over  $\frac{1}{2}$  of the municipal solid waste in the U.S. comes from  
\_\_\_\_\_.

10. What is the % of the recycling/composting rate of U. S. municipal solid waste?
11. What % of the solid waste produced in the U.S. is buried in landfills?
12. What % of solid waste produced in landfills is burned?
13. Consumers throw away enough aluminum to rebuild the entire U.S. commercial airline fleet about every \_\_\_\_\_.
14. Which is not one of the four properties that make waste hazardous?
- corrosive
  - soluble
  - unstable
  - flammable
  - carcinogenic, mutagenic, or teratogenic
15. The EPA does not consider a material hazardous if a small business produces how many pounds of waste per month?
16. Which of the following substances have been “linguistically detoxified”?
- gasoline
  - materials of any type discarded from households
  - mining wastes
  - radioactive material
17. How many tons of hazardous waste are produced for each person in the U.S. per year (according to EPA)?
18. What % of U.S. hazardous waste is not regulated by hazardous waste laws?
19. Hazardous waste that is legally designated and in a controlled form makes up about what % of the total hazardous waste produced?

20. Which of the following strategies should be given top priority in a low waste approach?

- incinerate
- recycle
- bury
- reduce
- reuse

21. Which of the following strategies would be given lowest priority in a low waste approach?

- incinerate
- recycle
- bury
- reduce
- reuse

22. Scientists estimate that in a low waste society what % of solid and hazardous waste could be eliminated through reduction, reuse and recycling?

23. Company plans to reduce waste and pollution

- lower worker health and safety.
- are usually more costly on a lifecycle basis than waste management strategies.
- can require more energy and virgin resources.
- reduce environmental impacts of extracting, processing, and using resources.

24. List the sustainability six.

25. Which is the most advanced approach?

- reuse of materials
- reduction in the amount of materials used
- creation of more durable products
- use of biodegradable materials
- recycling of materials

26. Lois Mare Gibbs feels we should analyze tough issues by

- cost benefit analysis
- asking if the economy will grow
- asking if more jobs will be created
- reducing the amount of materials used
- reusing materials

27. Industrial ecology tries to

- maximize the input of energy per unit of output.
- maximize the input of matter resources per unit of output.
- make resource use an open system.
- adjust inputs and outputs to the carrying capacity of the environment.

28. What program is the Minnesota Mining and Manufacturing Company (3M) famous for?

29. The Xerox Corporation is an example of a shift towards what type of economy?

30. Coca-Cola and Pepsi conducted studies that showed their soft drink bottles (16 oz.) cost \_\_\_\_\_ than throwaway bottles.

31. An environmentalist would say that the best way to handle soft drink and beer containers would be to use \_\_\_\_\_.

32. Which country has a beverage container deposit fee that is 50% higher than the cost of the drink to encourage using refillable bottles.

33. What is the most energy-efficient beverage container on the market?

34. If an environmentalist was at the checkout counter which of the following would he/she most likely say or do?

- plastic please
- paper please
- I brought my own bag
- walk out of store
- either plastic or paper

35. From the following list which would be the least desirable place for a used tire?

- in an incinerator to produce electricity
- asphalt pavement
- in the foundation of a low-cost passive solar home
- in the landfill

36. True/False: Compost is most completely described as soil conditioner and organic fertilizer. If false, make true.

37. List some ways in which compost is used for restoration.

38. What is the most desirable type of recycling?

39. True/False:

- It is more economical to have consumers separate trash before pickup than to use high-technology recovery plants.
- Glass, iron, and aluminum can be recovered from solid wastes.
- Low-tech resource recovery involves consumers separating trash into categories like glass, paper, plastics, and metal.
- High-technology recycling provides many more jobs than low-technology recycling.
- Materials-recovery facilities need a large input of garbage to be financially successful.

40. How does source separation differ from high-technology recycling plants?

41. Which of the following substances can be recovered from solid waste?

- paper
- plastic
- metals

42. Which of the following would critics of recycling be *most* likely to claim?

- there is abundant landfill space in all areas
- it is not worth the effort
- there is no solid waste problem
- incineration is the safest and most efficient way to dispose of solid wastes
- it does not make sense to recycle if it costs more than landfilling or incinerating

43. An environmentalist would say the primary benefits of recycling are?

44. List some obstacles to recycling.

45. List some ways in which recycling can be overcome.

46. As Germany's reduced packaging initiative progressed, higher fees were charged for \_\_\_\_\_.

47. In 1999, the U.S. recycled what % of all its wastepaper.

48. Recycling paper

- decreases production costs
- conserves water and landfill space
- creates jobs and saves money
- saves energy.

49. Consumers of recycled products will be most effective when *pre* or *post* consumer waste is maximized.

50. Plastics account for % of the debris found on U.S. beaches?

51. Biodegradable plastics take a long time to decompose because conditions in the landfills lack \_\_\_\_\_ and \_\_\_\_\_.

52. One of the following is not a problem with plastic materials. Which is it?

- they are unnecessarily and excessively used as single-use and throw away packaging
- they are made of many different types of resins
- they can harm animals that swallow them or become entangled in them
- toxic lead and cadmium can leach out of plastics
- they decompose readily in landfills

53. Which of the following would be most difficult to recycle?

- cardboard
- aluminum
- paper
- plastic
- glass

54. List some reasons why plastic is desirable.

55. From the following list an environmentalist would probably object to plastics being used in

- cars
- refrigerator storage containers
- single-use packaging
- shampoo bottles
- lunch boxes

56. Which of the following methods would be the most desirable in reducing hazardous waste?

- recycling and reusing hazardous wastes
- deposit in ocean trenches
- perpetual storage
- conversion to less hazardous materials
- incineration

57. From this list which of the following methods would be the most desirable in reducing hazardous waste?

- perpetual storage
- incineration
- conversion into less hazardous and non hazardous materials
- substitution of safer products that do not produce hazardous wastes
- recycling and reusing hazardous wastes

58. Name the country with the most comprehensive and effective hazardous waste detoxification program.

59. The country named in the above question has a hazardous waste detoxification program that includes

- a carefully designed and monitored landfill as a last resort.
- a facility in each municipality to accept household hazardous waste.
- 21 transfer stations located throughout the country.

60. True/False: Bioremediation may be used at considerably less expense than landfills and incineration if toxin degrading bacteria can be found. If false, make true.

61. Bioremediation is most effective for toxic chemicals or specific organic wastes.



62. What does phytoremediation use to remove contaminants?

63. True/False:

- Incinerators create many low paying jobs.
- Incinerators are inexpensive to build
- Incinerators are inexpensive to operate and maintain.
- Incinerators release toxic substances in fly ash and bottom ash.

64. Name the two states that banned the method of incineration.

65. List the components of a modern state-of-the-art landfill.

66. What do sanitary landfills generally have problems with?

67. Paper is biodegradable when in the presence of water and oxygen. However, still-readable newsprint has been dug up from some landfills after how many years?

68. What does underground anaerobic decomposition in landfills produce?

69. True/False:

- Older, unlined landfills may have particularly bad water pollution problems.
- Contaminated groundwater is never a problem with landfills.
- Contaminated leachate can seep from the bottom of landfills.
- Rain filtering through landfills leaches toxic materials.

70. Deep well disposal of liquid hazardous wastes is

- a complex process
- more carefully regulated than other waste disposal methods
- the most expensive waste disposal method
- less visible than other waste disposal methods

71. How could deep well injection of hazardous wastes result in the contamination of groundwater?

72. Who bears the real cost of dumping hazardous waste – the producer of the waste or the taxpayers who pay to clean up disposal messes?

73. True/False:

- Waste disposal firms in the U.S. and other industrialized nations have shipped hazardous waste to other countries.
- Most legal U.S. exports of hazardous waste go to Mexico and Panama.
- Hazardous wastes have been labeled “exports for recycling” even though they are often dumped in importing countries.
- In 1994, the U.S. did not sign a ban on exporting hazardous wastes from developed countries to developing countries.
- Waste disposal firms can charge high prices for picking up hazardous wastes.

74. Name the serious pollutant that has been found to accumulate in human bones because it is not excreted.

75. The pollutant listed in #74 can cause severe problems. List these problems.

76. In the U.S. what is the maximum legal level of lead in the blood?

77. Which of the following sources of lead in the U.S. would probably cause the *least* problems?

- lead glazing in ceramicware used to serve food
- lead solder from seamed food cans
- paints used in older buildings
- atmospheric lead that settles on the ground
- chewing on pencils

78. From the following list which would *least* protect children from lead poisoning?

- remove lead from piping
- switch from wooden to mechanical pencils
- testing all community sources of drinking water for lead contamination
- test for lead glazing in ceramics
- eliminate lead paint and contaminated dust in housing

79. Mercury acts as a carcinogen or neurotoxin.

80. Which would be an example of a source of environmental mercury?

- discard dish washers
- discard smoke detectors
- discard plastic packaging
- discard fluorescent bulbs
- discard refrigerators

81. How are the majority of dioxins in the U.S. released into the atmosphere?

82. Name some ways in which chlorine is used.

83. Name some ways in which chlorinated organic solvents can be replaced.

84. Which of the following could replace chlorine bleaching of wood pulp and paper?

- carbon dioxide
- dihydrogen oxide
- titanium dioxide
- hydrogen peroxide
- nitrogen

85. The Resource Conservation and Recovery Act of 1976

- requires the EPA to set standards for hazardous-waste management.
- requires all firms that handle more than 100 kg of hazardous waste per month to have a permit stating how such wastes are to be managed.
- provides guidelines and financial aid to establish state waste management programs.

86. The Superfund program pays

- the doctors' bills and lawyers' fees for pollution events.
- for testing for lead in paint, water, and air samples.
- to monitor hazardous wastes.
- to clean up inactive or abandoned hazardous-waste dump sites.

87. True/False:

- Cleaning up contaminated Dept. of Energy sites used to make nuclear weapons will run between \$100 billion and \$400 billion over 30-50 years.
- Pollution prevention is cheaper than cleanup strategies.
- The Dept. of Interior will need to spend more than any other agency for cleanup.
- Cleaning up toxic military dumps is estimated to cost \$ 100-200 billion over 30 years.

88. Why has enforcement of the Superfund program failed?

89. It is generally accepted that enforcement of Superfund could be improved by

- setting up an Environmental Insurance Resolution Fund.
- involving people and local governments where sites are located in the decision-making process.
- creating a form of triage in which hazardous-waste sites are classified by severity and the worst ones get treated first.

90. What does the term toxic racism mean?

91. Environmental justice movement attempts to dismantle

- discriminatory land-use practices.
- disparate citing of risky technologies.
- differential enforcement of environmental regulations.
- exclusionary zoning ordinances

92. All of the following are called for by the grassroots movement for environmental justice except

- NIMBY (Not in my backyard)
- holding polluters and elected officials who support them personally accountable.
- opposing hazardous-waste landfills, deep-disposal wells, and incinerators.
- getting serious about pollution prevention.
- demanding wider distribution of unwanted industries and waste facilities.

93. List the principles that would contribute to a low-waste society.

94. Individuals can reduce inputs of hazardous waste by all of the following except

- using rechargeable batteries.
- using biodegradable cleaning products.
- changing automobile oil and dumping it carefully in marked storm drains.
- consulting local environmental agencies for safe disposal methods for hazardous chemicals.

Please note:

There will be 4 true and false questions using Figure 24-18 on page 551.