

APES Final Vocabulary Matching Practice

Matching

Environmental Economics

- | | |
|-------------------------|-------------------------|
| a. External Cost | d. Cap and trade |
| b. Subsidy | e. Full cost |
| c. Ecotaxes/Green taxes | f. Debt for Nature Swap |

- _____ 1. provides a market for companies to buy and sell allowances that permit them to emit only a certain amount; gives companies a strong incentive to save money by cutting emissions
- _____ 2. a portion of a developing nation's foreign debt is forgiven in exchange for local investments in environmental conservation measures
- _____ 3. includes all of the environmental costs to society, such as climate change, loss of biodiversity, and air/water pollution, that are not traditionally reflected in the cost of the good or service
- _____ 4. the economic concept of uncompensated environmental effects
- _____ 5. companies get taxed for harming the environment
- _____ 6. government gives cash to industry, generally with the aim of promoting some economic or social policy

Environmental History

- | | |
|--------------------------------|-------------------------------|
| a. The Industrial Revolution | d. The Early Conservation Era |
| b. The Agricultural Revolution | e. The Environmental Era |
| c. The Green Revolution | |

- _____ 7. movement from hunting and gathering to settled agricultural communities
- _____ 8. the renovation of agricultural practices; relied on heavy inputs, but significantly increased the amount of calories produced per acre
- _____ 9. shift from dependence on renewable wood and flowing water to dependence on machines running on non-renewable fossil fuels
- _____ 10. the modern environmental movement (began in the 1960's)
- _____ 11. US started to get crowded; concern for resource use, public health initiatives, and preserving public lands grew

Current Events (Possible FRQs)

- | | |
|---|---|
| a. Animus River | d. Flint Michigan water crisis |
| b. Fires in Indonesia/ Indonesia Haze | e. Syrian refugees/link to climate change |
| c. Drought and wildfires in Western US and Canada | |

- _____ 12. Drastically reducing the amount of carbon put into the atmosphere will lessen the effect, but it won't be enough to bring the risk down to levels that won't require big decisions regarding water usage.

- ___ 13. After deciding to switch water sources in an effort to save money, supply pipes with major corrosion and lead leached into the water, which led to a man-made public health crisis.
- ___ 14. A drought caused migration that exacerbated the socio-economic issues that were already facing a country. It has been argued that by exacerbating the socio-economic issues, it could have contributed to the spiral of issues that lead to the civil war.
- ___ 15. The government is trying to get this under control by arresting members of the businesses responsible, as it is causing major health issues and releasing massive amounts of carbon into the atmosphere. However, there is a link between the private sector and the government which is allowing businesses to continue to get away with these unsustainable practices.
- ___ 16. At the Gold King Mine near Colorado, EPA workers caused the release of toxic waste water while attempting to drain ponded water near the entrance of the mine. The waste included including heavy metals such as cadmium and lead, and other toxic elements, such as arsenic, beryllium, zinc, iron and copper into Cement Creek, a tributary of this major river in Colorado.

Environmental Laws

- | | |
|---|--|
| a. Comprehensive Environmental Response, Compensation Liability Act (Superfund) | g. Marine Mammal Protection Act |
| b. Clean Water Act | h. Lacey Act |
| c. National Environmental Policy Act (NEPA) | i. Convention on International Trade in Endangered Species (CITES) |
| d. Resource Conservation and Recovery Act (RCRA) | j. Wilderness Act |
| e. The Paris Agreement (COP 21) | k. Corporate Average Fuel Economy (CAFE) Standards |
| f. Endangered Species Act (ESA) | |
-
- ___ 17. Set maximum permissible amounts of water pollutants that can be discharged into waterways. Aim: to make surface waters swimmable and fishable.
 - ___ 18. Management of non-hazardous and hazardous solid waste including landfills and storage tanks. Set minimum standards for all waste disposal facilities and for hazardous wastes.
 - ___ 19. An agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gases emissions mitigation, adaptation and finance starting in the year 2020. Ratified November 4, 2016, and negotiated by representatives of 195 countries. The US is the now only country in the world not a part of this treaty, after recently withdrawing.
 - ___ 20. This law was created to protect people, families, communities and others from heavily contaminated toxic waste sites that have been abandoned. . The The law funds toxic waste cleanups at sites where no other responsible parties could pay for a cleanup by assessing a tax on petroleum and chemical industries. The chemical and petroleum fees provide incentives to use less toxic substances.
 - ___ 21. Its requirements are invoked when airports, buildings, military complexes, highways, parkland purchases, and other federal activities are proposed. Environmental Assessments (EAs) and Environmental Impact Statements (EISs), which are assessments of the likelihood of environmental impacts from these government projects; are required from all Federal agencies.

- ___ 22. Controls the exploitation of endangered species through international legislation. Lists species that cannot be commercially traded as live specimens or wildlife products. Bans hunting, capturing and selling of threatened species and bans the import of ivory.
- ___ 23. Prohibits taking marine mammals in U.S. waters and by U.S. citizens, and the importing marine mammals and marine mammal products into the U.S.
- ___ 24. Allowed congress to set aside federally owned land for preservation.
- ___ 25. Prohibits the transportation of illegally captured or prohibited animals across state lines. In more recent years, the law is primarily used to prevent the importation or spread of potentially dangerous non-native species.
- ___ 26. Forbids any government agency, corporation, or citizen from taking (i.e., harming, harassing, or killing) endangered animals without a permit. Once a species is listed, it also requires that "critical habitat" be designated.
- ___ 27. regulations in the United States intended to improve the average fuel economy of cars and light trucks (trucks, vans and sport utility vehicles) sold in the United States; If the average fuel economy of a manufacturer's annual fleet of vehicle production falls below the defined standard, the manufacturer must pay a penalty

Formulas

Which formula is most closely related to each of the following processes?

- a. acid rain
- b. photochemical smog
- c. burning natural gas
- d. heating of limestone to make cement
- e. nitrogen fixation

- ___ 28. $N_2 + H_2 \rightarrow NH_3$ or NH_4^+
- ___ 29. $NO_2 \rightarrow NO + O$
- ___ 30. $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$
- ___ 31. $SO_2 + H_2O \rightarrow H_2SO_3$
- ___ 32. $CaCO_3 \rightarrow CaO + CO_2$

Nonrenewable Energy (Fuel Types)

- a. Petroleum/crude oil
- b. Gasohol
- c. Tar sand
- d. Oil Shale
- e. Biodiesel

- ___ 33. a mixture of gasoline and ethyl alcohol used as fuel in internal combustion engines
- ___ 34. an alternative fuel; can be produced from straight vegetable oil, animal oil/fats, and waste cooking oil
- ___ 35. combination of clay, sand, water, and bitumen, a heavy black viscous oil; a substitute for conventional crude oil; however, extracting is more costly both financially and in terms of its environmental impact
- ___ 36. an organic-rich fine-grained sedimentary rock containing kerogen, from which liquid hydrocarbons can be produced; a substitute for conventional crude oil; however, extracting is more costly both financially and in terms of its environmental impact

___ 37. a liquid mixture of hydrocarbons that can be extracted from under the ground and refined to produce fuels including gasoline, kerosene, and diesel oil

Freshwater

- a. Leaching
- b. Permeability
- c. Infiltration
- d. Recharge
- e. Zone of aeration
- f. Zone of saturation
- g. Water table

___ 38. area of ground below the water table; voids filled with water

___ 39. the level below which the ground is saturated with water

___ 40. permeation of a liquid into something

___ 41. when a chemical or mineral drains away from soil, or similar material by the action of a percolating liquid, especially rainwater

___ 42. the ability of material to allow liquids or gases to pass through it

___ 43. refill (a container, lake, or aquifer) with water

Nitrogen Cycle

- a. Assimilation
- b. Nitrification
- c. Nitrogen fixation
- d. Ammonification
- e. Denitrification

___ 44. NH_3 (ammonia) is converted to NO_2^- (nitrite), then NO_3^- (nitrate).

___ 45. NO_3^- ions and NO_2^- (nitrite) ions are converted into N_2O (nitrous oxide gas) and N_2 (nitrogen gas).

___ 46. Carried out by certain kinds of bacteria; free nitrogen becomes NH_3 (ammonia).

___ 47. Plant roots absorb NH_4^+ (ammonium ions) and NO_3^- (nitrate) ions for use in making molecules such as DNA, amino acids, and proteins.

___ 48. Organic nitrogen (the nitrogen in DNA, amino acids, proteins) is broken down to NH_3 (ammonia), then NH_4^+ (ammonium).

Scientific Laws

- a. Negative Feedback
- b. First Law of Thermodynamics
- c. Second Law of Thermodynamics
- d. The Law of Conservation of Matter
- e. Positive Feedback

___ 49. Matter is not destroyed, it only changes form. There is no "throw away."

___ 50. Energy is neither created nor destroyed, but it only changes form; Energy in=Energy out

___ 51. Causes system to change direction i.e. recycling aluminum cans

___ 52. Further change in same direction i.e. melting ice and atmospheric temperature

___ 53. In every transformation, some energy is converted to heat; You cannot break even in terms of energy quality

Succession

- a. Mature (or climax) community
- b. Disturbance
- c. Resilience
- d. Primary Succession
- e. Secondary Succession

- ___ 54. Fire, drought, mining, plowing, climate change, etc.; Can set back succession to an earlier stage; small ones increase biodiversity
- ___ 55. the gradual establishment of biotic communities on lifeless ground (rock)
- ___ 56. A system that is able to repair damage after a moderate external disturbance
- ___ 57. the final stage of succession, remaining relatively unchanged until destroyed by an event such as fire or human interference
- ___ 58. A series of communities with different species developing in places with soil or bottom sediment

Ecology

- a. Interspecific competition
- b. Intraspecific competition
- c. Ecological niche
- d. Range of tolerance
- e. Resource partitioning
- f. Convergent evolution
- g. Coevolution
- h. Competitive exclusion
- i. NPP
- j. GPP
- k. Respiration
- l. Species richness
- m. Species evenness

- ___ 59. similar species commonly use limiting resources in different ways
- ___ 60. an interaction, whereby members of the same species compete for limited resources. This leads to a reduction in fitness for both individuals
- ___ 61. the levels of temperature/pH/salinity/oxygen level/etc... in which an organism can survive
- ___ 62. refers to the evolution of at least two species, which occurs in a mutually dependent manner
- ___ 63. the role and position a species has in its environment; how it meets its needs for food and shelter, how it survives, and how it reproduces
- ___ 64. The amount of CO₂ that is lost from an organism or system from metabolic activity.
- ___ 65. The total amount of primary production after the costs of plant respiration are included.
- ___ 66. The number of species in a given area.
- ___ 67. Whether a particular ecosystem is dominated by one species or whether all species have similar abundance.
- ___ 68. The total amount of CO₂ that is fixed by the plant in photosynthesis.

Ocean and Lake Zones

- a. Benthic zone
- b. Limnetic zone
- c. Littoral zone
- d. Abyssal Zone

c. Euphotic Zone

- ___ 69. The top layer of the ocean where photosynthesis occurs; high oxygen; low nutrients
- ___ 70. The bottom layer of the ocean; very cold; very little oxygen
- ___ 71. Zone at bottom of lake, nourished by dead matter, cool temperature, low oxygen
- ___ 72. Lake zone near shore, shallow, with rooted plants
- ___ 73. Lake zone that is open, offshore area, sunlit (photosynthesis occurs here), high oxygen

Public Lands

- a. National Monuments
 - b. National Wildlife Refuges
 - c. National Wilderness Areas
 - d. National Forests
 - e. National Parks
- ___ 74. Moderately Restricted-use Lands (hunting, fishing, oil and gas development, mining, logging, farming, military, etc...) Managed by the U.S. Fish and Wildlife Service
 - ___ 75. Restricted-use Lands (only camping, hiking, fishing, boating) Managed by the National Park Service
 - ___ 76. areas set aside to protect unique sites of special natural or cultural interest; can be created from any land owned or controlled by the federal government by proclamation of the president of the US
 - ___ 77. In national parks or other federal lands, but have added protection (no logging, commercial vehicles, or human structures; some regulated hunting may be allowed) Managed by the Wilderness Preservation System, which was created by the Wilderness Act
 - ___ 78. Multiple-Use Lands (may be used for multiple purposes such as recreation, grazing, timber harvesting, and mineral extraction, wildlife preservation, or scientific research) Managed by the U.S. Forest Service

Water Pollution

- a. dead zone
 - b. biochemical oxygen demand
 - c. eutrophication
 - d. oxygen demanding waste
 - e. cultural eutrophication
- ___ 79. process by which a body of water becomes too rich in dissolved nutrients, leading to plant growth that depletes oxygen
 - ___ 80. organic matter that enters a body of water and feeds the growth of the microbes that are decomposers
 - ___ 81. when a body of water experiences an increase in fertility due to anthropogenic inputs of nutrients
 - ___ 82. the amount of oxygen a quantity of water uses over a period of time at a specific temperature; a low amount means less wastewater pollution, while a high amounts mean more pollution
 - ___ 83. an area with little oxygen and thus, little life

Pesticides

- a. bioaccumulation
- b. biomagnification
- d. broad spectrum agents
- e. narrow spectrum agents

c. persistence

- ___ 84. toxic to a narrowly defined group of organisms
- ___ 85. the accumulation of a substance, such as a toxic chemical, in various tissues of a living organism.
- ___ 86. toxic to many species
- ___ 87. accumulation of pollutants at successive levels of the food chain
- ___ 88. length of time toxins remain deadly in the environment

Soil Horizons

- a. o horizon
- b. a horizon
- c. b horizon
- d. c horizon
- e. r horizon

- ___ 89. This is the layer that we call "topsoil." This layer is made up of minerals and decomposed organic matter and it is also very dark in color. This is the layer that many plants roots grow in.
- ___ 90. This is the layer, also called the "regolith," that is made up of slightly unbroken rock and only a little bit of organic material. Plant roots are not found in this layer.
- ___ 91. This is the top layer of soil that is made up of living and decomposed materials like leaves, plants, and bugs. This layer is very thin and is usually pretty dark.
- ___ 92. The bedrock, which lies below all of the other layers of soil.
- ___ 93. This is the layer that we call "subsoil." This layer has clay and mineral deposits and less organic materials than the layers above it. This layer is also lighter in color than the layers above it.

Plate Tectonics, Layers of Earth, and Types of Mining

- a. Divergent
- b. Convergent
- c. Transform
- d. Asthenosphere
- e. Lithosphere
- f. Mantle
- g. Core
- h. Continental crust
- i. Oceanic crust
- j. Mountaintop removal mining
- k. Open pit mining
- l. Dredging
- m. Contour strip mining
- n. overburden
- o. tailings

- ___ 94. Mostly made of basalt
- ___ 95. trenches, volcanoes, earthquakes; destroys crust
- ___ 96. used on hilly or mountainous terrain; power shovel cuts a series of terraces into the side of a hill; an earthmover removes the overburden, and a power shovel extracts the coal, with the overburden from each new terrace dumped onto the one below
- ___ 97. rock or soil overlying a mineral deposit
- ___ 98. ridges, rises, rift valleys, volcanoes, earthquakes; creates crust

___ 99. earthquakes, neither creates nor destroys crust

Food and Nutrition

- a. Malnutrition
- b. Undernutrition
- c. Marasmus
- d. Scurvy
- e. Vitamin A Deficiency

___ 100. the inadequate intake of calories/ nutrients potentially leading to health consequences such as growth and development impairment and

___ 101. a form of severe malnutrition characterized by protein deficiency; usually occurs in children

___ 102. a lack of vitamin C, or ascorbic acid; bad teeth/gums, black and blue skin spots

___ 103. the physical condition that is the result of an imbalanced diet lacking key nutrients

___ 104. Leads to blindness or night blindness; dry, scaly skin, immune suppression; golden rice was genetically engineered to try and improve this in some developing countries

Weather and Climate

- a. adiabatic cooling
- b. adiabatic heating
- c. latent heat release
- d. Hadley cell
- e. intertropical convergence zone (ITCZ)
- f. The Coriolis effect
- g. Doldrums
- h. Polar easterlies
- i. El Nino
- j. La Nina
- k. Rain
- l. Clear skies

___ 105. The heating effect of increased pressure on air as it sinks toward the surface of Earth and decreases in volume.

___ 106. A convection current in the atmosphere that cycles between the equator and 30 degrees N and 30 degrees S.

___ 107. The release of energy when water vapor in the atmosphere condenses into liquid water.

___ 108. An area of Earth that receives the most intense sunlight; where the ascending branches of the two Hadley cells converge. The weather is warm and rainy.

___ 109. The cooling effect of reduced pressure on air as it rises higher in the atmosphere and expands.

___ 110. Trade winds weaken & warm surface water moves toward South America. Diminished fisheries off South America, drought in western Pacific, increased precipitation in southwestern North America, fewer Atlantic hurricanes

___ 111. calm, windless part of the ocean near the equator in the ITCZ, where the northeast and southeast trade winds meet

___ 112. a result of Earth's rotation; causes moving objects to follow curved paths:
In Northern Hemisphere, curvature is to right and In Southern Hemisphere, curvature is to left; Changes with latitude: No effect at Equator and Maximum effect at poles

___ 113. easterly trade winds and ocean currents pool warm water in the western Pacific, allowing upwelling of nutrient rich water off the West coast of South America

___ 114. Low pressure zones are usually associated with

Population Ecology

- | | |
|-----------------------------|-----------------------|
| a. carrying capacity | h. exponential growth |
| b. limiting factors | i. logistic growth |
| c. environmental resistance | j. uniform |
| d. density independent | k. random |
| e. density dependent | l. clumped |
| f. k selected | m. overshoot |
| g. r selected | n. dieback |

- ___ 115. takes place when a population's per capita growth rate decreases as population size approaches a maximum imposed by limited resources, the carrying capacity (K); s shaped
- ___ 116. factors that influence an individual's probability of survival and reproduction in a manner that depends on the size of the population (biotic factors)
- ___ 117. when a population becomes larger than the environment's maximum carrying capacity
- ___ 118. a species that has a high intrinsic growth rate, which often leads to population overshoots and die-offs; have low probability of surviving to adulthood
- ___ 119. the limit of how many individuals in a population can be supported in an area
- ___ 120. the most common population distribution
- ___ 121. the sum of the limiting factors (such as drought, mineral deficiencies, competition, etc) that tend to restrict the biotic potential of a population and impose a limit on numerical increase

Land Ethic

- | | |
|-----------------|----------------|
| a. Conservation | d. Restoration |
| b. Preservation | e. Reclamation |
| c. Mitigation | |

- ___ 122. Repairing/Rehabilitating a damaged ecosystem or compensation for damage, Most often by providing a substitute or replacement area, frequently involves wetland ecosystem
- ___ 123. "Controlled Use", "Scientific Management" of natural resources. "Greatest good for the greatest number of people
- ___ 124. To bring back to former condition
- ___ 125. Typically used to describe chemical or physical manipulations carried out in severely degraded sites, such as open-pit mines or large-scale construction
- ___ 126. Remaining wilderness areas on public lands should be left untouched

Air Pollutants

- | | |
|---------------------|--------------------------------------|
| a. Lead | f. Ozone (tropospheric) |
| b. Carbon Monoxide | g. Radon |
| c. Nitrogen Dioxide | h. Mercury |
| d. Sulfur Dioxide | i. Volatile Organic Compounds (VOCs) |

e. Particulate Matter

j. Peroxyacyl nitrates (PANs)

- ___ 127. Highly reactive gas with an unpleasant odor, commonly known as smog Sources: chemical reaction with VOCs and NO_x from cars and sunlight
Impacts: breathing problems, eyes, nose, mouth irritation, lung disease, crop damage, visibility
- ___ 128. Colorless gas, major source of acid deposition
Sources: coal burning power plants
Impacts: acid deposition, breathing problems, property damage, soil, damage to aquatic life
- ___ 129. Particles in the air, range from small to large
Sources: burning fossil fuels (diesel), agriculture, fires, unpaved roads
Impacts: lung damage, asthma, reduced life
- ___ 130. Formed from the reaction NO₂ + hydrocarbons (“HC”)
Source: Transportation (cars, trucks, trains, boats and planes)
Impact: A strong respiratory and eye irritant. Potentially mutagenic. Can damage vegetation.
- ___ 131. A heavy metal; capable of bioaccumulation and biomagnification
Sources: combustion of coal
Impact: toxic to nerve cells
- ___ 132. Solid metal and compounds emitted as PM
Sources: paint, smelters, battery storage, leaded gas
Impacts: neurological problems, carcinogen
- ___ 133. Colorless, odorless, deadly gas
Sources: incomplete combustion (motor vehicles, cigarettes)
Impacts: reduces ability of blood to carry oxygen
- ___ 134. Colorless, odorless, radioactive gas
Sources: forms naturally from the decay of radioactive elements, such as uranium, underneath the ground
Impacts: lung cancer
- ___ 135. Compounds that easily become vapors or gases; contribute to climate change & ground level O₃
Sources: Automobile exhaust, solvents, industrial processes, household chemicals.
Impact: Some are carcinogenic, some harm respiratory system
- ___ 136. Reddish-brown chemical found in smog
Sources: burning fossil fuels and industrial processes
Impacts: lung irritation, aggravates asthma, reduces visibility

Metric Prefixes

- | | |
|---------|----------|
| a. mega | d. centi |
| b. kilo | e. milli |
| c. deci | f. micro |

- ___ 137. 10⁻⁶
- ___ 138. 10⁻¹
- ___ 139. 10⁶

___ 140. 10^{-3}

___ 141. 10^{-2}

___ 142. 10^3

Addition, Subtraction, Multiplication, and Division in Scientific Notation

a. $(3 \times 10^3)(4 \times 10^5)$

c. $(3000 \times 10^6) + (14 \times 10^5)$

b. $(5.2 \times 10^4) / (2.6 \times 10^2)$

d. $(2000 \times 10^3) - (1000 \times 10^2)$

___ 143. 1.9×10^6

___ 144. 1.2×10^9

___ 145. 3.0×10^9

___ 146. 2×10^2

Important People in Conservation

a. Theodore Roosevelt

d. Jane Goodall

b. John Muir

e. Wangari Maathai

c. Garrett Hardin

f. Rachel Carson

___ 147. He was the founder of the Sierra Club and is known as the “father of the national parks.”

___ 148. She worked on conservation and animal welfare issues (particularly apes and chimpanzees), and she created an Institute to analyze human impacts on conservation.

___ 149. Founded the Green Belt Movement, which focuses on the planting of trees, environmental conservation, and women’s rights.

___ 150. Warned about dangers of human overpopulation on Earth’s natural resources and the welfare state through his essay “The Tragedy of the Commons”

___ 151. Created the United States Forest Service and established many national forests, federal bird reserves, national game preserves, and national parks.

___ 152. Defended natural world against pollution and is most known for her book Silent Spring which concerned the use of pesticides (DDT) and its effects on the natural world.

Important Events

a. Bhopal, India

e. Keystone XL

b. Dead Zones (Gulf of Mexico / Chesapeake Bay)

f. Love Canal Housing Development

c. Deep Water Horizon

g. Three Gorges

d. Flint Water Crisis

h. Minamata Bay

___ 153. An offshore drilling rig that erupted and exploded in 2010 when the blowout preventer failed. The resulting oil spill that BP was ultimately charged for harmed wildlife.

___ 154. hypoxic (low-oxygen) areas in the world’s oceans and large lakes, caused by excessive nutrients entering waters, resulting in blooms of

algae; threaten commercial and recreational fisheries in the area

- ___ 155. After deciding to switch water sources in an effort to save money, supply pipes with major corrosion and lead leached into the water, which led to a manmade public health crisis. The water was not properly treated when the city tapped into the river as a water source leading to lead from pipes also entering the supply. Exposure has led to impaired cognition, behavioral disorders, hearing problems, delayed puberty, reduced fetal growth, and impact to the hearts, kidneys and nerves of the citizens.
- ___ 156. Considered the world's worst industrial disaster, involves the gas leakage of a pesticides and other toxic chemicals in the city affecting those living nearby in the shanty towns.
- ___ 157. This pipeline would transport unrefined oil from tar sands in Canada to refineries in SE United States; the bitumen oil from tar sands (oil deposits mixed with soil and rock) require much more energy, water, and CO₂ to refine; the pipeline also threatens the Ogallala Aquifer and many sensitive ecosystems
- ___ 158. The world's largest hydroelectric dam provides power to nearby areas but displaced millions of people, flooded cities, and has been plagued by corruption, high costs, environmental impacts, human rights violations, and resettlement difficulties.
- ___ 159. A neurological disorder caused by severe methylmercury poisoning was first described in the inhabitants of this area; resulted from their eating of fish contaminated with mercury from industrial waste; some symptoms of the disorder are numbness in the hands and feet, general muscle weakness, and damage to hearing and speech
- ___ 160. was a neighborhood in Niagara Falls, NY whose residents began experiencing health effects in the 1970s from an abandoned canal site that polluted groundwater. It led to the creation of CERCLA, which governs the management of hazardous waste.

Toxicology

- a. Median lethal dose (LD₅₀)
 - b. Median effective dose (ED₅₀)
 - c. Teratogen
 - d. Mutagen
 - e. Carcinogen
 - f. Neurotoxins
 - g. Endocrine disruptors
 - h. Pathogens
 - i. Threshold
 - j. Synergistic Interaction
- ___ 161. chemical, ionizing radiation, or virus that causes birth defects
 - ___ 162. chemicals that can interfere with hormone systems; can cause cancerous tumors, birth defects, and other developmental disorders; ex: PCB's, BPA, DDT
 - ___ 163. lethal to 50 percent of a test population
 - ___ 164. level below which harmful effects are insignificant or not observable
 - ___ 165. causes 50 percent of the individuals in a dose-response study to display a harmful, but non lethal, effect

Solid Waste

- a. Material recovery facilities
- b. Sanitary landfills
- c. deep-well injection
- d. baghouse
- f. Industrial solid waste
- g. E-waste
- h. Hazardous waste
- i. Leachate

e. Municipal solid waste

j. Incineration

- ___ 166. any waste that poses a danger to human health; it must be dealt with in a different way from other types of waste
- ___ 167. polluted liquid produced by water passing through buried wastes in a landfill
- ___ 168. can reduce volume of waste by 90% and waste heat can be used for cogeneration; however it may have toxic emissions (polyvinyl chloride, dioxin), scrubbers and electrostatic precipitators needed, ash must be disposed
- ___ 169. the fastest growing type of solid waste; includes TV's, cell phones, computers, etc
- ___ 170. the waste materials produced in homes, businesses, schools, and other places in a community
- ___ 171. a recycling facility where items are sorted, cleaned, shredded, and prepared for reprocessing into new items
- ___ 172. waste is stored underground below the water table to prevent contamination

Human Population

a. Preindustrial stage

e. broad base

b. Transitional stage

f. narrow base

c. Industrial stage

g. uniform

d. Post Industrial stage

- ___ 173. decline in birth rate, population growth slows
- ___ 174. low birth & death rates
- ___ 175. birth & death rates high, population stable or grows very slowly, infant mortality high
- ___ 176. age structure diagram with this shape represents negative growth
- ___ 177. death rate (and infant mortality) drops, birth rates remain high, better health care, population grows rapidly

Renewable Energy

a. Active solar

h. Biomass fuels

b. Passive solar

i. Geothermal power

c. Photovoltaic (PV) cells

j. Tidal power

d. Internal combustion engine (ICE) vehicle

k. Wave power

e. Hybrid vehicle

l. Wind power

f. Electric vehicle

m. Hydroelectric power

g. Fuel Cell vehicle

n. OTEC

- ___ 178. convert sunlight directly into electricity by converting light (photons) to electricity (voltage); uses a semiconductor (silicon)
- ___ 179. powered by an electrochemical cell that converts the chemical energy from a fuel into electricity through an electrochemical reaction of hydrogen fuel with oxygen; emission is water vapor
- ___ 180. organic matter used as a fuel; releases CO₂ when burned, but can be "no net CO₂ emissions" if replanted sustainably; also has potential to reduce habitats and cause soil erosion and water pollution

- ___ 181. building design; windows, walls, and floors are made to collect, store, reflect, and distribute solar energy in the form of heat in the winter and reject solar heat in the summer; south facing windows are preferable
- ___ 182. uses either the heat from inside the Earth or from under the ground for heat or for electricity
- ___ 183. the fast growing source of electricity in the world
- ___ 184. a collector positioned on the roofs of buildings heats the fluid and then pumps it through a system of pipes to heat the whole building
- ___ 185. uses a traditional internal-combustion engine and a fuel tank, as well as one or more electric motors and a battery pack