

APES Final Vocabulary Matching Practice

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

- _____ 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	d.	Oil Shale
b.	Gasohol	e.	Biodiesel
c.	Tar sand		

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

- _____ 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	d.	Ammonification
b.	Nitrification	e.	Denitrification
c.	Nitrogen fixation		

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

- _____ 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	d.	Primary Succession
b.	Disturbance	e.	Secondary Succession
c.	Resilience		

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

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	d.	Littoral zone
b.	Limnetic zone	e.	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	d.	National Forests
b.	National Wildlife Refuges	e.	National Parks
c.	National Wilderness Areas		

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	d.	oxygen demanding waste
b.	biochemical oxygen demand	e.	cultural eutrophication
c.	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	d.	broad spectrum agents
b.	biomagnification	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	d.	c horizon
b.	a horizon	e.	r horizon
c.	b 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	i.	Oceanic crust
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b.	Convergent	j.	Mountaintop removal mining
c.	Transform	k.	Open pit mining
d.	Asthenosphere	l.	Dredging
e.	Lithosphere	m.	Contour strip mining
f.	Mantle	n.	overburden
g.	Core	o.	tailings
h.	Continental crust		

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	d.	Scurvy
b.	Undernutrition	e.	Vitamin A Deficiency
c.	Marasmus		

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	g.	Doldrums
b.	adiabatic heating	h.	Polar easterlies
c.	latent heat release	i.	El Nino
d.	Hadley cell	j.	La Nina
e.	intertropical convergence zone (ITCZ)	k.	Rain
f.	The Coriolis effect	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 NOx 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. 10^6

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)	f.	Neurotoxins
b.	Median effective dose (ED50)	g.	Endocrine disruptors
c.	Teratogen	h.	Pathogens
d.	Mutagen	i.	Threshold
e.	Carcinogen	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	f.	Industrial solid waste
b.	Sanitary landfills	g.	E-waste
c.	deep-well injection	h.	Hazardous waste
d.	baghouse	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

APES Final Vocabulary Test

Answer Section

MATCHING

- ANS: D PTS: 1
- ANS: F PTS: 1
- ANS: E PTS: 1
- ANS: A PTS: 1
- ANS: C PTS: 1
- ANS: B PTS: 1
- ANS: B PTS: 1
- ANS: C PTS: 1
- ANS: A PTS: 1
- ANS: E PTS: 1
- ANS: D PTS: 1
- ANS: C PTS: 1
- ANS: D PTS: 1

14.	ANS:	E	PTS:	1
15.	ANS:	B	PTS:	1
16.	ANS:	A	PTS:	1
17.	ANS:	B	PTS:	1
18.	ANS:	D	PTS:	1
19.	ANS:	E	PTS:	1
20.	ANS:	A	PTS:	1
21.	ANS:	C	PTS:	1
22.	ANS:	I	PTS:	1
23.	ANS:	G	PTS:	1
24.	ANS:	J	PTS:	1
25.	ANS:	H	PTS:	1
26.	ANS:	F	PTS:	1
27.	ANS:	K	PTS:	1
28.	ANS:	E	PTS:	1
29.	ANS:	B	PTS:	1
30.	ANS:	C	PTS:	1
31.	ANS:	A	PTS:	1
32.	ANS:	D	PTS:	1
33.	ANS:	B	PTS:	1
34.	ANS:	E	PTS:	1
35.	ANS:	C	PTS:	1
36.	ANS:	D	PTS:	1
37.	ANS:	A	PTS:	1
38.	ANS:	F	PTS:	1
39.	ANS:	G	PTS:	1
40.	ANS:	C	PTS:	1
41.	ANS:	A	PTS:	1
42.	ANS:	B	PTS:	1
43.	ANS:	D	PTS:	1
44.	ANS:	B	PTS:	1
45.	ANS:	E	PTS:	1
46.	ANS:	C	PTS:	1
47.	ANS:	A	PTS:	1
48.	ANS:	D	PTS:	1
49.	ANS:	D	PTS:	1
50.	ANS:	B	PTS:	1
51.	ANS:	A	PTS:	1
52.	ANS:	E	PTS:	1
53.	ANS:	C	PTS:	1
54.	ANS:	B	PTS:	1
55.	ANS:	D	PTS:	1
56.	ANS:	C	PTS:	1
57.	ANS:	A	PTS:	1
58.	ANS:	E	PTS:	1
59.	ANS:	E	PTS:	1
60.	ANS:	B	PTS:	1
61.	ANS:	D	PTS:	1
62.	ANS:	G	PTS:	1
63.	ANS:	C	PTS:	1
64.	ANS:	K	PTS:	1
65.	ANS:	I	PTS:	1
66.	ANS:	L	PTS:	1
67.	ANS:	M	PTS:	1

68. ANS: J PTS: 1
69. ANS: C PTS: 1
70. ANS: E PTS: 1
71. ANS: A PTS: 1
72. ANS: D PTS: 1
73. ANS: B PTS: 1
74. ANS: B PTS: 1
75. ANS: E PTS: 1
76. ANS: A PTS: 1
77. ANS: C PTS: 1
78. ANS: D PTS: 1
79. ANS: C PTS: 1
80. ANS: D PTS: 1
81. ANS: E PTS: 1
82. ANS: B PTS: 1
83. ANS: A PTS: 1
84. ANS: E PTS: 1
85. ANS: A PTS: 1
86. ANS: D PTS: 1
87. ANS: B PTS: 1
88. ANS: C PTS: 1
89. ANS: B PTS: 1
90. ANS: D PTS: 1
91. ANS: A PTS: 1
92. ANS: E PTS: 1
93. ANS: C PTS: 1
94. ANS: I PTS: 1
95. ANS: B PTS: 1
96. ANS: M PTS: 1
97. ANS: N PTS: 1
98. ANS: A PTS: 1
99. ANS: C PTS: 1
100. ANS: B PTS: 1
101. ANS: C PTS: 1
102. ANS: D PTS: 1
103. ANS: A PTS: 1
104. ANS: E PTS: 1
105. ANS: B PTS: 1
106. ANS: D PTS: 1
107. ANS: C PTS: 1
108. ANS: E PTS: 1
109. ANS: A PTS: 1
110. ANS: I PTS: 1
111. ANS: G PTS: 1
112. ANS: F PTS: 1
113. ANS: J PTS: 1
114. ANS: K PTS: 1
115. ANS: I PTS: 1
116. ANS: E PTS: 1
117. ANS: M PTS: 1
118. ANS: G PTS: 1
119. ANS: A PTS: 1
120. ANS: L PTS: 1
121. ANS: C PTS: 1

122.	ANS:	C	PTS:	1
123.	ANS:	A	PTS:	1
124.	ANS:	D	PTS:	1
125.	ANS:	E	PTS:	1
126.	ANS:	B	PTS:	1
127.	ANS:	F	PTS:	1
128.	ANS:	D	PTS:	1
129.	ANS:	E	PTS:	1
130.	ANS:	J	PTS:	1
131.	ANS:	H	PTS:	1
132.	ANS:	A	PTS:	1
133.	ANS:	B	PTS:	1
134.	ANS:	G	PTS:	1
135.	ANS:	I	PTS:	1
136.	ANS:	C	PTS:	1
137.	ANS:	F	PTS:	1
138.	ANS:	C	PTS:	1
139.	ANS:	A	PTS:	1
140.	ANS:	E	PTS:	1
141.	ANS:	D	PTS:	1
142.	ANS:	B	PTS:	1
143.	ANS:	D	PTS:	1
144.	ANS:	A	PTS:	1
145.	ANS:	C	PTS:	1
146.	ANS:	B	PTS:	1
147.	ANS:	B	PTS:	1
148.	ANS:	D	PTS:	1
149.	ANS:	E	PTS:	1
150.	ANS:	C	PTS:	1
151.	ANS:	A	PTS:	1
152.	ANS:	F	PTS:	1
153.	ANS:	C	PTS:	1
154.	ANS:	B	PTS:	1
155.	ANS:	D	PTS:	1
156.	ANS:	A	PTS:	1
157.	ANS:	E	PTS:	1
158.	ANS:	G	PTS:	1
159.	ANS:	H	PTS:	1
160.	ANS:	F	PTS:	1
161.	ANS:	C	PTS:	1
162.	ANS:	G	PTS:	1
163.	ANS:	A	PTS:	1
164.	ANS:	I	PTS:	1
165.	ANS:	B	PTS:	1
166.	ANS:	H	PTS:	1
167.	ANS:	I	PTS:	1
168.	ANS:	J	PTS:	1
169.	ANS:	G	PTS:	1
170.	ANS:	E	PTS:	1
171.	ANS:	A	PTS:	1
172.	ANS:	C	PTS:	1
173.	ANS:	C	PTS:	1
174.	ANS:	D	PTS:	1
175.	ANS:	A	PTS:	1

176.	ANS:	F	PTS:	1
177.	ANS:	B	PTS:	1
178.	ANS:	C	PTS:	1
179.	ANS:	G	PTS:	1
180.	ANS:	H	PTS:	1
181.	ANS:	B	PTS:	1
182.	ANS:	I	PTS:	1
183.	ANS:	L	PTS:	1
184.	ANS:	A	PTS:	1
185.	ANS:	E	PTS:	1