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A Correlation of

Environment The Science Behind the Stories 7th Edition, AP[®] Edition © 2021



To the

AP[®] Environmental Science Curriculum Framework (Fall 2019)

Upon publication, this text was correlated to the College Board's AP® Environmental Science Curriculum Framework dated Fall 2019. We continually monitor the College Board's AP® Course and Exam Descriptions for updates.

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The units above reflect the College Board's AP® Environmental Science Curriculum Framework.

Big Ideas in Environmental Science

Big Idea 1: Interactions Between Earth Systems (ERT)

Big Idea 2: Energy Transfer (ENG)

Big Idea 3: Interactions Between Different Species and the Environment (EIN)

Big Idea 4: Sustainability (STB)

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Enduring Understanding	Big Idea	Environment: The Science behind the Stories Chapter / Page Citations
Unit 1: The Living World–Ecosy	stems	
ERT-1: Ecosystems are the	Interactions	Introduction to Ecosystems, 61, 111–121
result of biotic and abiotic	Between Earth	(Ch 3: Evolution and Population Ecology)
interactions.	Systems (ERT)	Terrestrial and Aquatic biomes 94–101
		(Ch 4: Species Interactions and Community
		Ecology)
		Biogeochemical Cycles (C,N,P, water) 121–129
		(Ch 5: Environmental Systems and Ecosystem
		Ecology)
ENG-1:	Energy Transfer	Trophic levels, 81–82, 373–374
Energy can be converted	(ENG)	Food Chains and Food Webs, 81–82
from one form to another.		(Ch 4 Species Interactions and Community
		Ecology)
		Primary Productivity, GPP, NPP, 111, 114
		Energy Flow and 10% Rule, 111–112
		(Ch 5: Environmental Systems and
		Ecosystem Ecology)

Unit 2: The Living World–Biodiversity			
ERT-2: Ecosystems have	Interaction	Introduction to Biodiversity, 54, 69–71, 272–305	
structure and diversity that change over time.	Between Earth	Ecosystem Services, 120–121, 311–312	
	Systems (ERT)	Natural Disruptions to Ecosystems, 283-285	
		(Ch 11: Biodiversity and Its Conservation	
		Biology);	
		(Ch 3: Evolution and Population Ecology)	
		Adaptation, 51–58	
		Ecological Tolerance, 67–68	
		(Ch 3: Evolution and Population Ecology)	
		Island Biogeography, 329–333	
		(Ch 12: Forests, Forest Management, and	
		Protected Areas)	
		Ecological Succession, 87–91	
		(Ch 4: Species Interactions and Community	
		Ecology)	

Enduring Understanding	Big Idea	Environment: The Science behind the Stories Chapter / Page Citations
Unit 3: Population		
ERT-3: Populations change over time in reaction to a variety of factors.	Interactions Between Earth Systems (ERT)	Generalist and specialist species, 62 K and r-selected species, 68 Survivorship Curves, 68 Carrying Capacity, 67–68 Population Growth and Resource Availability, 66 (Ch 3: Evolution and Population Ecology)
ENG-1: Human populations change in reaction to a variety of factors, including social and cultural factors.	Interactions Between Different Species and the Environment (EIN)	Age Structure Diagrams, 195–196, 63 Total Fertility Rate, 198–199 Human Population Dynamics, 189–199 Demographic Transition, 199–201 (Ch 8, Human Populations)

Unit 4: Earth Systems and Resources		
ERT-4: Earth's systems interact, resulting in a state of balance over time.	Interactions Between Earth Systems (ERT)	Plate Tectonics, 35–41 (Ch 2: Earth's Physical Systems) Soil Formation and Erosion, 217–219, 229–237 Soil Composition and Properties, 217–219 (Ch 9: The Underpinnings of Agriculture) Earth's Atmosphere, 452–456, 107 Global Wind Patterns, 455–456, 605 (Ch 17: The Atmosphere, Air Quality, and Pollution Control) Watersheds, 397, 105 (Ch 15: Freshwater Systems and Resources)
ENG-2: Most of the Earth's atmospheric processes are driven by input of energy from the sun.	Energy Transfer (ENG)	Solar Radiation and the Earth's Seasons, 448,600 Earth's Geography and Climate, 455 (Ch 17: The Atmosphere, Air Quality, and Pollution Control) El Nino and La Nina, 427–429 (Ch 16: Marine and Coastal Systems and Resources)

Enduring Understanding	Big Idea	Environment: The Science behind the Stories Chapter / Page Citations
Unit 5: Land and Water Use		
EIN-2: When humans use natural resources, they alter natural systems.	Interactions Between Different Species and the Environment (EIN)	Ecological Footprints, 5–6, 16, 208 (Ch 1: Science and Sustainability) (Ch 8: Human Population) Tragedy of the Commons, 164–165 (Ch 7: Environmental Policy: Making Decisions and Solving Problems) Impacts of Modern Agricultural Practices, 219–223, 229–237 Irrigation Methods, 219–221 237 (Ch 9: The Underpinnings of Agriculture) Green Revolution, 245–247, 190, 215 Pest Control Methods, 251–254 Meat Production Methods, 247–250 (Ch 10: Making Agriculture Sustainable) Impacts of Urbanization, 336–357 (Ch 13: The Urban Environment) Impacts of Overfishing, 438–446 (Ch 16: Marine and Coastal Systems and Resources) Impacts of Mining, 649–658 (Ch 23: Minerals and Mining)
STB-1: Humans can mitigate their impact on land and water resources through sustainable use.	Sustainability (STB)	Introduction to Sustainability, 16–9, 153–155 (Ch 1: Science and Sustainability) (Ch 6: Ethics, Economics, and Sustainable Development) Integrated Pest Management, 254 Sustainable Agriculture, 266–269, 215 Aquaculture, 250, 444 (Ch 10: Making Agriculture Sustainable) (Ch 9: The Underpinnings of Agriculture) Sustainable Forestry, 324–325, 316–319 Clearcutting, 320, 312–316 (Ch 12: Forests, Forest Management, and Protected Areas) Methods to Reduce Urban Runoff, 109–110, 222, 397 (Ch 13: The Urban Environment) (Ch 15: Freshwater Systems and Resources)

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Unit 6: Energy Resources and	Consumption	
ENG-3: Humans use energy from a variety of sources, resulting in positive and negative consequences.	Energy Transfer (ENG)	Nonrenewable and Renewable Resources, 525–526 Global Energy Consumption, 526, 551–552 Fuel Types and Uses (wood, peat, coal, natural gas, and crude oil), 526–541 Distribution of Natural Energy Reserves, 526, 529–533 Fossil Fuels, 529–552, 525, 526 Nuclear Power, 564–575 (Ch 19: Fossil Fuels and Energy Efficiency) Energy from Biomass, 575–582 Hydroelectric power, 582–585 (Ch 20, Conventional Energy Alternatives) Solar energy, 597–602 Geothermal energy, 597–602 Hydrogen Fuel Cell, 613–614 Wind Energy, 602–607 (Ch 21: New Renewable Energy Alternatives)

Unit 7: Atmospheric Pollution			
STB-2: Human activities have phys-ical, chemical, and hislogical consequences for	Sustainability (STB)	Introduction to Air Pollution, 456–459, 566–567	
		Photochemical Smog, 468, 467–470	
the atmosphere.		Thermal Inversion, 454–455	
		Atmospheric CO ₂ and Particulates, 459, 470	
		Indoor Air Pollutants, 477–480	
		Reduction of Air Pollutants, 458–462	
		Acid Rain, 474–477	
		(Ch 17: The Atmosphere, Air Quality, and	
		Pollution Control)	
		Noise pollution, 352	
		(Ch 13: The Urban Environment)	

Enduring Understanding	Big Idea	Environment: The Science behind the Stories Chapter / Page Citations
Unit 8: Aquatic and Terrestrial	Pollution	
STB-3: Human activities, including the use of re-sources, have physical, chemical, and biological consequences for ecosys-tems.	Sustainability (STB)	Sources of Pollution, 408–414 Human Impacts on Ecosystems, 399–408 Environmental effects of excessive fertilizers and detergents on aquatic ecosystems, 406–407 Human Impacts on Wetlands and Mangroves, 398–399, 430 Thermal Pollution, 413 (Ch 15: Freshwater Systems and Resources) (Ch 16: Marine and Coastal Systems and Resources) Eutrophication, 110–111, 115, 221–222, 410–411 Sewage Treatment, 415–417 (Ch 5: Environmental Systems and Ecosystem Ecology) (Ch 9: The Underpinnings of Agriculture) Endocrine Disruptors, 362–363, 371, 377, 409–410, 412–413 Persistent Organic Pollutants (POPs), 422 Bioaccumulation and Biomagnification, 373–374 (Ch 14: Environmental Health and Toxicology) (Ch 15: Freshwater Systems and Resources) Solid Waste Disposal, 620–621, 630–637 Waste Reduction Methods, 623–627, 620, 621 (Ch 22: Managing Our Waste)
EIN-3: Pollutants can have both direct and indirect impacts on the health of organisms, including humans.	Interaction Between Different Species and their Environment (EIN)	Lethal Dose 50% (LD50), 376–377 Dose Response Curve, 376 Pollution and Human Health, 368–372, 365–368 Pathogens and Infectious Diseases, 364–365 (Ch 14: Environmental Health and Toxicology)

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Unit 9: Global Change		
SB-4: Local and regional human activities can have impacts at the global level.	Sustainability (STB)	 Stratospheric ozone depletion, 470–473 Reducing ozone depletion, 471–474 (Ch 17: The Atmosphere, Air Quality, and Pollution Control) The Greenhouse Effect, 488 Increases in Greenhouse Gases, 488–489, 491–494 Global Climate Change, 484–521 Ocean Warming, 425–427, 489–491 Ocean Acidification, 437–438, 504, 438 (Ch 18: Global Climate Change) (Ch 16: Marine and Coastal Systems and Resources)
EIN-4: The health of a species is closely tied to its ecosystem, and minor environmental changes can have a large impact.	Interactions Between Different Species and the Environment (EIN)	Invasive species issues, 75–76, 84–85, 291–294 (Ch 4: Species Interactions and Community Ecology) (Ch 11: Biodiversity and Its Conservation) Human Impacts on Biodiversity, 282, 288–294 Endangered Species, 296–297, 282–284, 288 (Ch 11: Biodiversity and Its Conservation)

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