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Goodheart-Willcox Publisher Correlation of
***Natural Resources Systems* ©2021**
to Alabama Course of Study: CTE Agriculture, Food, and Natural Resources
Course: Environmental Management, Grades 9-12

STANDARD	CORRELATING PAGES
Ecology	
1. Construct an explanation describing the interactions of the major systems or spheres of earth including geosphere, atmosphere, hydrosphere, and biosphere.	80-107, 145, 148
2. Use models to illustrate the role of photosynthesis and cellular respiration as carbon cycles through the major spheres of Earth.	83-87, 568-569
3. Use models to trace the flow of water, nitrogen, and phosphorous through Earth's systems.	83-87, 306-324
4. Obtain, evaluate, and communicate information regarding major biomes, including the organisms that exist within each.	88-98, 145,148
5. Engage in an evidence-based argument to show how biological and physical changes can alter an ecosystem and impact its existing biodiversity and populations.	12, 78, 268, 296-297, 304, 436, 460, 474, 487
6. Obtain and evaluate information on regional climate change and predict how such change may affect Earth's systems and human activity.	296-297, 639-640, 662,
7. Engage in an argument to prove that human activity affects biodiversity and can lead to species becoming threatened or endangered.	12, 296-297, 435, 474
8. Analyze and interpret agricultural data to determine the impact of agricultural activity on the ecosystems of Alabama.	82, 83138-139
9. Compare and contrast various animal behaviors including flocking, hunting, migrating, and swarming to determine the effects of each on survival and reproduction rates.	512–514 Freshwater Finfish Species, 515–519 Commercial Marine Finfish Species 520–524 Commercial Crustaceans and Mollusks 534–546 Game Species
10. Obtain, evaluate, and share information on ways that Earth's systems, human activities, and other factors positively and/or negatively affect Alabama's agriculture, environment, and biodiversity.	54 US National Park Service 55 The Soil Conservation Service 56 The Civilian Conservation Corp 67–69 Legislation and Natural Resources 70–72 Government Agencies

	73–74 Advocacy Organizations 464–465 International Union for Conservation of Nature 466–467 The US Federal Lists of Endangered Species 497 National Oceanic and Atmospheric Administration (NOAA) 497 US Fish and Wildlife Service CH 23 Forest Succession and Management CH 24 Managing Diseases and Insect Pests CH 27 National Protected Area
11. Use topographic and relief maps to illustrate the biodiversity of regions within the state of Alabama.	200–206 Soil Components 206–210 Soil Formation 210–211 Soil Profiles and Horizons
Natural Resources	
12. Obtain, evaluate, and communicate information describing key natural resources, including water, soil, minerals, and fossil fuels.	2–19 CH 1 Introduction to Natural Resources 18 (ST 1) 4–9 Renewable or Nonrenewable 9–11 Nonrenewable Natural Resources 11–12 Biotic and Abiotic Natural Resources
13. Investigate and analyze the best practices for managing mineral resources, including coal and natural gas.	9 108–135 CH 5 Sustainability in the Environment 78 (TC 7) 487 (TC 3) 528 (ST 3)
14. Design a solution for conserving and preserving natural water resources against pollutants, including eutrophication, agricultural run-off, and point and nonpoint source pollution.	13 Environmental Stewardship 13–14 Conservation and Preservation 19 (ST 5) 117 Social Responsibility (sustainability) 264–268 Conservation Buffers 269–274 Structural Conservation Practices
15. Develop and use models to demonstrate the value of renewable and nonrenewable resources and their impact on agriculture and the environment.	4–9 Renewable or Nonrenewable 9–11 Nonrenewable Natural Resources 11–12 Biotic and Abiotic Natural Resources 18 (ST 1, 3)
16. Formulate an evidence-based explanation of how natural and artificial hazards impact water sources and agricultural production.	161-166, 170, 336-350
Water Quality	
17. Plan an investigation to determine the uses of water, including consumption, irrigation, cleaning, heating and cooling, and transporting agricultural products.	7 Aquifers 98–102 Aquatic Biomes, Ecoregions, and Ecosystems 247 Groundwater Contamination 266–267 Riparian Buffers

	268 Grassed Waterways 269–271 Surface and Subsurface Drainage 272 Water and Sediment Control Basins 273 Terraces 274 Streambank Protection Structures 297–299 Contamination of Water, Air, and Soil(mining) 310–322 Locations of Water 338 Water Supply Systems (domestic use) 339 Water Supply Systems (agricultural use) 340 Water Supply Systems (industrial use) 356–381 CH 15 Wetland
18. Map freshwater sources and determine their roles in providing water to the local community.	310-322
19. Analyze and interpret data to determine major residential, industrial, and agricultural water consumers and the effects of their consumption on water resources.	7 Aquifers 98–102 Aquatic Biomes, Ecoregions, and Ecosystems 247 Groundwater Contamination 266–267 Riparian Buffers 268 Grassed Waterways 269–271 Surface and Subsurface Drainage 272 Water and Sediment Control Basins 273 Terraces 274 Streambank Protection Structures 297–299 Contamination of Water, Air, and Soil (mining) 310–322 Locations of Water 338 Water Supply Systems (domestic use) 339 Water Supply Systems (agricultural use) 340 Water Supply Systems (industrial use) 356–381 CH 15 Wetland
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21. Compare and contrast coastal waters, marshes, bays, and estuaries to determine their importance as water resources in Alabama.	356-376
22. Obtain and interpret data to be considered in preparing a water management plan.	306-324, 336-342
Soil Science	
23. Plan and carry out investigations to determine soil profiles and the composition of soil samples of various soil regions.	198 (What is Soil?) 200–206 Soil Components 206–210 Soil Formation 210–211 Soil Profiles and Horizons 231
24. Obtain, evaluate, and communicate information to explain land use practices that promote sustainability.	116-117
Air Quality	
25. Develop and use models to illustrate the layers of the atmosphere and the composition of air.	384–388 Earth's Atmosphere, 419, 420, 422, 423
26. Design a real-world solution to combat the formation of air pollutants.	386 The Ozone Layer 386 The Montreal Protocol 390–391 The Greenhouse Effect 406–418 Types of Air Pollution 639
27. Investigate the impact of air quality on plants and animals, human health, and agricultural production.	404, 407 Indoor Air Pollution 410 Carbon Monoxide (CO) 412 Health and Environmental Concerns (sulfur oxides) 413 Particulate Matter (PM) 414 Health and Environmental Concerns (lead) 415 Health and Environmental Concerns (ground-level ozone) 430 (TC 3) 431 (ST 1)
Waste Management	
28. Construct an explanation of ways that managing various types of agricultural waste can impact the environment.	123-128 (Waste Management) 124 (Landfills) 125-126 (Wastewater) 125-127 (Type of Waste) 127-129 (Recycling and Upcycling 130 (Zero Waste)

29. Obtain and interpret data to be considered in preparing a waste management plan, including recycling options, disposal of electronic waste products, and landfill management.	123-128 (Waste Management) 124 (Landfills) 125-126 (Wastewater) 125-127 (Type of Waste) 127-129 (Recycling and Upcycling 130 (Zero Waste)
Chemical Use and Management	
30. Construct an explanation based on evidence to determine the environmental effects of various agricultural pesticides and fertilizers.	249 (Agricultural pesticides and fertilizers).