Jasper City Schools Curriculum Map

ENVIRONMENTAL SCIENCE

Course Name:	**Environmental Science**
Unit Name:	**Science and the Environment**
Time Frame:	7 days
Unit Standards	Alabama Course of Study: Scientific Process and Application Skills (p. 10)
Unit Essential Questions	Why is lab safety important? In what ways do scientists use the scientific method as an organized system to solve a problem?
Unit Essential Vocabulary	1. environmental science 2. ecology 3. natural selection 4. biodiversity 5. law of supply and demand 6. ecological footprint 7. observation 8. conclusion 9. classify 10. measure 11. predict 12. infer 13. variable 14. hypothesis 15. experiment 16. data 17. control 18. independent variable 19. dependent variable 20. peer review 21. scientific theory 22. scientific law 23. model 24. inductive reasoning 25. deductive reasoning 26. accuracy 27. precision
Resources	Environmental Science (2006) Holt, Rinehart and Winston and supplemental materials iPad Assorted Supplemental materials Internet access
Assessment(s)	Unit Test Classroom Discussion Quizzes Daily Assignments Projects Lab Activities

Jasper City Schools Curriculum Map

ENVIRONMENTAL SCIENCE

Course Name: Environmental Science

Unit Name: Ecology & Biodiversity

Time Frame:	15 days
Unit Standards	Alabama Course of Study 1. Identify the influence of human population, technology, and cultural and industrial changes on the environment. • Describing the relationship between carrying capacity and population size 7. Identify reasons coastal waters serve as an important resource. Examples: economic stability, biodiversity, recreation • Classifying biota of estuaries, marshes, tidal pools, wetlands, beaches, and inlets • Comparing components of marine water to components of inland bodies of water 12. Identify positive and negative effects of human activities on biodiversity. • Identifying endangered and extinct species locally, regionally, and worldwide • Identifying causes for species extinction locally, regionally, and worldwide
Unit Essential Questions	In what ways do human population, technology, and cultural and industrial changes influence the environment? What are positive and negative effects of human activities on biodiversity?
Unit Essential Vocabulary	1. ecology 2. natural selection 3. biodiversity 4. ecosystem 5. biotic factors 6. abiotic factors 7. organisms 8. species 9. population 10. community 11. littoral zone 12. benthic zone 13. eutrophication 14. estuary 15. salt marsh 16. habitat 17. evolution 18. adaptation 19. resistance 20. bacteria 21. fungi 22. protest 23. angiosperm 24. gymnosperm 25. biome 26. mangrove swamp 27. barrier island 28. coral reef 29. niche 30. competition 31. climate 32. latitude 33. altitude 34. tropical rain forest 35. emergent layer 36. canopy epiphyte 37. understory 38. temperate rain forest 39. temperate deciduous forest 40. taiga 41. predation 42. parasitism 43. mutualism 44. symbiosis 45. benthos 46. savanna 47. temperate grasslands 48. chaparral 49. desert 50. tundra 51. permafrost 52. wetlands 53. plankton 54. nekton
Resources	Environmental Science (2006) Holt, Rinehart and Winston and supplemental materials iPad Assorted Supplemental materials Internet access
Assessment(s)	Unit Test Classroom Discussion Quizzes Daily Assignments Projects Lab Activities

Jasper City Schools Curriculum Map

ENVIRONMENTAL SCIENCE

Course Name:	**Environmental Science**
Unit Name:	**Water**
Time Frame:	**15 days**
Unit Standards	Alabama Course of Study 12. Identify positive and negative effects of human activities on biodiversity. • Identifying endangered and extinct species locally, regionally, and worldwide • Identifying causes for species extinction locally, regionally, and worldwide 7. Identify reasons coastal waters serve as an important resource Examples: economic stability, biodiversity, recreation • Classifying biota of estuaries, marshes, tidal pools, wetlands, beaches, and inlets • Comparing components of marine water to components of inland bodies of water 8. Identify major contaminants in water resulting from natural phenomena, homes, industry, and agriculture. • Describing the eutrophication of water by industrial effluents and agricultural runoffs • Classifying sources of water pollution as point and nonpoint 5. Describe properties of water that make it a universal solvent. 6. Identify sources of local drinking water. • Determining the quality of fresh water using chemical testing and bioassessment • Describing the use of chemicals and microorganisms in water treatment • Describing water conservation methods • Describing the process of underground water accumulation, including the formation of aquifers • Identifying major residential, industrial, and agricultural water consumers • Identifying principal uses of water
Unit Essential Questions	How can natural resources be sustainably managed for the benefit of all living things? How do we use and manage water?
Unit Essential Vocabulary	1. surface water 2. river system 3. watershed 4. groundwater 5. aquifer 6. porosity 7. permeability 8. recharge zone 9. potable 10. pathogen 11. desalination 12. water pollution 13. point pollution 14. non-point pollution 15. wastewater 16. thermal pollution
Resources	Environmental Science (2006) Holt, Rinehart and Winston iPad Assorted Supplemental Materials Internet Access
Assessment(s)	Unit Test Daily Assignments Classroom Discussion Quizzes Projects Lab Activities

Jasper City Schools Curriculum Map

ENVIRONMENTAL SCIENCE

Course Name:	**Environmental Science**
Unit Name:	**The Atmosphere**
Time Frame:	**10 days**
Unit Standards	Alabama Course of Study: 4.) Identify the impact of pollutants on the atmosphere. • Identifying layers of the atmosphere and the composition of air • Describing the formation of primary, secondary, and indoor air pollutants • Relating pollutants to smog and thermal inversions • Investigating the impact of air quality on the environment • Interpreting social, political, and economic influences on air quality
Unit Essential Questions	What parts of the atmosphere interact to make weather? How do greenhouse gases cause the greenhouse effect? What are the major causes of air pollution?
Unit Essential Vocabulary	1. climate 2. latitude 3. El Niño 4. La Niña 5. ozone layer 6. chlorofluorocarbons (CFCs) 7. ozone hole 8. polar stratospheric clouds 9. global warming 10. greenhouse gases 11. Kyoto Protocol 12. greenhouse effect 13. atmosphere 14. troposphere 15. stratosphere 16. ozone 17. conduction 18. convection
Resources	Environmental Science (2006) Holt, Rinehart and Winston and supplemental materials iPad Assorted Supplemental materials Internet access
Assessment(s)	Unit Test Daily Assignments Classroom Discussion Quizzes Projects Lab Activities

Jasper City Schools Curriculum Map

ENVIRONMENTAL SCIENCE

Course Name:	**Environmental Science**
Unit Name:	**Human Population**
Time Frame:	**8 days**
Unit Standards	Alabama Course of Study 2. Identify the influence of human population, technology, and cultural and industrial changes on the environment. • Describing the relationship between carrying capacity and population size
Unit Essential Questions	In what ways do human population, technology, and cultural and industrial changes influence the environment? What are positive and negative effects of human activities on biodiversity?
Unit Essential Vocabulary	1. age structure 2. survivorship 3. fertility rate 4. migration 5. life expectancy 6. infrastructure 7. arable land 8. urbanization 9. organisms 10. species 11. population 12. community 13. carrying capacity 14. density 15. dispersion 16. growth rate 17. reproductive potential 18. exponential growth 19. niche 20. habitat
Resources	Environmental Science (2006) Holt, Rinehart and Winston iPad Assorted Supplemental Materials Internet access
Assessment(s)	Unit Test Classroom Discussions Daily Assignments Quizzes Lab Activities

Jasper City Schools Curriculum Map

ENVIRONMENTAL SCIENCE

Course Name:	**Environmental Science**
Unit Name:	**Land**
Time Frame:	10 days
Unit Standards	Alabama Course of Study 9.) Describe land-use practices that promote sustainability and economic growth. • Examples: no-till planting, crop rotation • Defining various types and sources of waste and their impact on the soil • Examples: o types-biodegradeable, nonbiodegradeable, organic, radioactive, nonradioactive; o sources-pesticides, herbicides • Identifying ways to manage waste, including composting, recycling, reusing, and reclaiming 10.) Describe the composition of soil profiles and soil samples of varying climates. • Identifying various processes and activities that promote soil formation o Examples: weathering, decomposition, deposition o Relating particle size to soil texture and type of sand, silt, or clay 11.) Describe agents of erosion, including moving water, gravity, glaciers, and wind. • Describing methods for preventing soil erosion Examples: planting vegetation, constructing terraces, providing barriers
Unit Essential Questions	How is soil eroded by wind and water? Why is providing adequate food for all of the world's people so difficult?
Unit Essential Vocabulary	1. mineral 2. land-use planning 3. compost 4. reclamation 5. deforestation 6. overgrazing 7. overharvesting 8. subsidence 9 pesticides 10. geographic information system 11. genetic engineering 12. reforestation 13. wilderness 14. famine 15. malnutrition 16. topsoil 17. erosion 18. desertification 19.
Resources	Environmental Science (2006) Holt, Rinehart and Winston and supplemental materials iPad Assorted Supplemental materials Internet access
Assessment(s)	Unit Test Classroom Discussions Daily Assignments Quizzes Lab Activities

Jasper City Schools Curriculum Map

ENVIRONMENTAL SCIENCE

Course Name: Environmental Science

Unit Name: Energy—Past, Present, and Future

Time Frame:	**10 days**
Unit Standards	Alabama Course of Study: 2.) Evaluate various fossil fuels for their effectiveness as energy resources. • Describing the formation and use of nonrenewable fossil fuels • Identifying by-products of the combustion of fossil fuels, including particulates, mercury, sulfur dioxide, nitrogen dioxide, and carbon dioxide • Identifying chemical equations associated with the combustion of fossil fuels • Describing benefits of abundant, affordable energy to mankind • Identifying effects of fossil fuel by-products on the environment, including ozone depletion; formation of acid rain, brown haze, and greenhouse gases; and concentration of particulates and heavy metals 3.) Evaluate other sources of energy for their effectiveness as alternatives to fossil fuels. • Comparing nuclear fission and nuclear fusion reactions in the production of energy • Comparing energy production and waste output in generating nuclear energy • Differentiating between renewable and nonrenewable energy resources • Identifying local energy sources o Examples: landfill gas, wind, water, sun • Identifying ways the law of conservation of energy relates to fuel consumption o Examples: development of hybrid cars, construction of energy-efficient homes 4.) Identify the impact of pollutants on the atmosphere. • Identifying layers of the atmosphere and the composition of air • Describing the formation of primary, secondary, and indoor air pollutants • Relating pollutants to smog and thermal inversions • Investigating the impact of air quality on the environment • Interpreting social, political, and economic influences on air quality
Unit Essential Questions	Why is it important that we seek alternatives to fossil fuels? What environmental problems are associated with each energy source?
Unit Essential Vocabulary	1. reclamation 2. fossil fuel 3. petroleum 4. oil reserve 5. nuclear energy 6. nuclear fusion 7. nuclear fission 8. renewable energy 9. nonrenewable energy 10. passive solar heating 11. active solar heating 12. biomass fuel 13. hydroelectric energy 14. geothermal energy 15. alternative energy 16. ocean thermal energy conversion 17. fuel cell 18. energy conservation 19. solid waste 20. biodegradable 21. municipal solid waste 22. landfill 23. leachate 24. recycling 25. compost 26. deep well injection 27. surface impoundment
Resources	Environmental Science (2006) Holt, Rinehart and Winston and supplemental materials iPad Assorted Supplemental Materials Internet Access
Assessment(s)	Unit Test Classroom Discussions Daily Assignments Quizzes Lab Activities