Prentice Hall

Grades 11-12

Environmental Science: Your World, Your Turn (Withgott) © 2011

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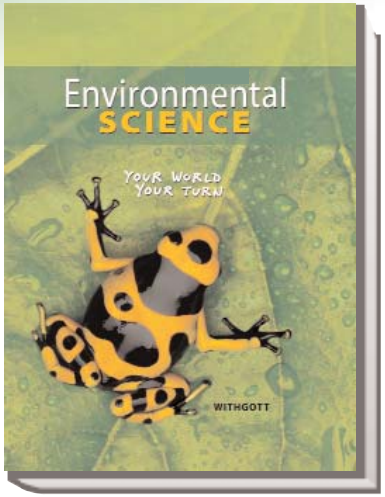

LOUISIANA SCIENCE

CORRELATED TO

Louisiana GLE's for Environmental Science - course 150310

Grades 11-12

SAVVAS

TEACH & LEARN • ASSESS & INFORM • DEVELOP & LEAD

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Publisher: Savvas Learning Company **Subject/Course:** Environmental Science - 150310

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GRADE LEVEL EXPECTATIONS	**CORRELATION NOTATIONS**	✓ **if the content of the text material is sufficient to allow students to adequately meet the GLE..**
Science as Inquiry - *The Grade-Level Expectations (GLEs) from this strand should be interwoven with all content not just taught as a separate unit.*		
1. Write a testable question or hypothesis when given a topic (SI-H-A1)	**SE: 3, 99, 419** **TECH: DVD ch.1, 4, 14**	
2. Describe how investigations can be observation, description, literature survey, classification, or experimentation (SI-H-A2)	**SE: 14-22** **TECH: DVD ch.1**	
3. Plan and record step-by-step procedures for a valid investigation, select equipment and materials, and identify variables and controls (SI-H-A2)	**SE: 14-20** **TECH: DVD ch.1**	
4. Conduct an investigation that includes multiple trials and record, organize, and display data appropriately (SI-H-A2)	**SE: 14-20, 24-25** **TECH: DVD ch.1**	
5. Utilize mathematics, organizational tools, and graphing skills to solve problems (SI-H-A3)	**SE: 51, 122, 179, 220, 237, 251, 253, 289, 319, 346, 385, 411, 444, 473, 507** **TECH: DVD ch. 2, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16**	
6. Use technology when appropriate to enhance laboratory investigations and presentations of findings (SI-H-A3)	**SE: 14-20, 263** **TECH: DVD ch. 1, 9**	
7. Choose appropriate models to explain scientific knowledge or experimental results (e.g., objects, mathematical relationships, plans, schemes, examples, role-playing, computer simulations) (SI-H-A4)	**SE: 16-9, 209, 238-239, 437** **TECH: DVD ch.5, 12, 16**	
8. Give an example of how new scientific data can cause an existing scientific explanation to be supported, revised, or rejected (SI-H-A5)	**SE: 14-20, 23-25** **TECH: DVD ch.1**	

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9. Write and defend a conclusion based on logical analysis of experimental data (SI-H-A6) (SI-H-A2)	**SE: 14-20, 51, 122, 179, 220, 237, 251, 253, 289, 319 TECH: DVD ch. 1, 2, 4, 6, 8, 10, 11, 12, 13, 14, 15, 16**	
10. Given a description of an experiment, identify appropriate safety measures (SI-H-A7)	**SE: 263, 573 TECH: DVD ch.9, 18**	
11. Evaluate selected theories based on supporting scientific evidence (SI-H-B1)	**SE: 14-20 TECH: DVD ch.1**	
12. Cite evidence that scientific investigations are conducted for many different reasons (SI-H-B2)	**SE: 14-20 TECH: DVD ch.1**	
13. Identify scientific evidence that has caused modifications in previously accepted theories (SI-H-B2)	**SE: 14-20, 23 TECH: DVD ch.1**	
14. Cite examples of scientific advances and emerging technologies and how they affect society (e.g., MRI, DNA in forensics) (SI-H-B3)	**SE: 215, 375-377 TECH: DVD ch.7, 12**	
15. Analyze the conclusion from an investigation by using data to determine its validity (SI-H-B4)	**SE: 20, 122, 220, 251, 346, 385, 411, 444, 473, 507 TECH: DVD ch.1, 4, 7, 8, 11, 12, 13, 14, 15, 16**	

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16. Use the following rules of evidence to examine experimental results: a. Can an expert's technique or theory be tested, has it been tested, or is it simply a subjective, conclusive approach that cannot be reasonably assessed for reliability? b. Has the technique or theory been subjected to peer review and publication? c. What is the known or potential rate of error of the technique or theory when applied? d. Were standards and controls applied and maintained? e. Has the technique or theory been generally accepted in the scientific community? (SI-H-B5) (SI-H-B1) (SI-H-B4)	**SE: 14-22** **TECH: DVD ch.1**	

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Science and the Environment		
Ecological Systems and Interactions		
1. Describe the abiotic and biotic factors that distinguish Earth's major ecological systems (SE-H-A1)	**SE: 102-103, 164-166** **TECH: DVD ch.4, 6**	
2. Describe the characteristics of major biomes on Earth (SE-H-A1)	**SE: 165-181** **TECH: DVD ch.6**	
3. Use the 10% rule and data analysis to measure the flow of energy as represented by biomass in a system (SE-H-A2)	**SE: 144-145** **TECH: DVD ch.5**	
4. Determine the effects of limiting factors on a population and describe the concept of carrying capacity (SE-H-A3)	**SE: 115-117** **TECH: DVD ch.4**	
5. Examine and discuss the major stages of succession, describing the generalized sequential order of the types of plant species (SE-H-A4)	**SE: 149-153** **TECH: DVD ch.5**	
6. Analyze the consequences of changes in selected divisions of the biosphere (e.g., ozone depletion, global warming, acid rain) (SE-H-A5) (SE--H-A7)	**SE: 369-370, 435-443, 462-469, 472-474, 491-501** **TECH: DVD ch.12, 14, 15, 16**	
7. Illustrate the flow of carbon, water, oxygen, nitrogen, and phosphorus through an ecosystem (SE-H-A6) (LS-H-D1)	**SE: 81-89** **TECH: DVD ch.3**	
8. Explain how species in an ecosystem interact and link in a complex web (SE-H-A7) (SE-H-A10)	**SE: 141-148** **TECH: DVD ch.5**	

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9. Cite and explain examples of organisms' adaptations to environmental pressures over time (SE-H-A8)	**SE: 128-130** **TECH: DVD ch.5**	
10. Analyze the effect of an invasive species on the biodiversity within ecosystems (SE-H-A9)	**SE: 153-155, 210** **TECH: DVD ch.5, 7**	
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11. Explain why biodiversity is essential to the survival of organisms (SE-H-A9)	**SE: 200-206** **TECH: DVD ch.7**	
12. Give examples and describe the effect of pollutants on selected populations (SE-H-A11)	**SE: 210, 267-276** **TECH: DVD ch.7, 9**	
Resources and Resource Management		
13. Evaluate whether a resource is renewable by analyzing its relative regeneration time (SE-H-B1)	**SE: 7, 324, 420, 520-521** **TECH: DVD ch.1, 11, 14, 17**	
14. Analyze data to determine the effect of preservation practices compared to conservation practices for a sample species (SE-H-B2)	**SE: 214-215** **TECH: DVD ch.7**	
15. Identify the factors that cause the inequitable distribution of Earth's resources (e.g., politics, economics, climate) (SE-H-B3)	**SE: 6-11, 242-244** **TECH: DVD ch.1, 8, Web p242**	
16. Evaluate the effectiveness of natural resource management in Louisiana (SE-H-B4)(SE-H-B5)		
17. Analyze data to determine when reuse, recycling, and recovery are applicable (SE-H-B5)	**SE: 247, 313, 411-412, 583, 589-595, 599-600, 604-605** **TECH: DVD ch.8, 10, 13, 18, 19**	

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18. Identify the factors that affect sustainable development (SE-H-B6)	**SE: 6-7, 39-41, 53-55, 215-217, 313, 325-330, 342-343, 362-363** **TECH: DVD ch.1, 2, 7, 10, 11, 12**	
Environmental Awareness and Protection		
19. Determine the interrelationships of clean water, land, and air to the success of organisms in a given population (SE-H-C1)	**SE: 38, 47, 125, 268-269, 325-326, 448-453** **TECH: DVD ch.2, 5, 9, 11, 14**	
20. Relate environmental quality to quality of life (SE-H-C2)	**SE: 24-27, 246, 255** **TECH: DVD ch. 1, 8, 9**	
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21. Analyze the effect of common social, economic, technological, and political considerations on environmental policy (SE-H-C3)	**SE: 19-20, 53-55, 245-246, 469-474** **TECH: DVD ch.1, 2, 8, 15, Web p54**	
22. Analyze the risk benefit ratio for selected environmental situations (SE-H-C4)	**SE: 19-20, 37-41, 53-55, 469-474** **TECH: DVD ch.1, 2, 15**	
23. Describe the relationship between public support and the enforcement of environmental policies (SE-H-C5)	**SE: 35, 42-55, 323** **TECH: DVD ch.2, 11**	
Personal Choices and Responsible Actions		
24. Identify the advantages and disadvantages of using disposable items versus reusable items (SE-H-D1)	**SE: 583, 589-590, 607-608** **TECH: DVD ch.19**	
25. Discuss how education and collaboration can affect the prevention and control of a selected pollutant (SE-H-D2) (SE-H-D3)	**SE: 47-50, 53, 271, 276, 479, 530** **TECH: DVD ch.2, 9, 15, 17**	

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26. Determine local actions that can affect the global environment (SE-H-D4)	**SE: 35, 43, 53, 63, 245-246, 313** **TECH: DVD ch.2, 3, 8, 10**	
27. Describe how accountability toward the environment affects sustainability (SE-H-D5)	**SE: 24-27, 39-41** **TECH: DVD ch.1, 2**	
28. Discuss the reduction of combustible engines needed to significantly decrease CO_2 in the troposphere (SE-H-D6)	**SE: 504, 552, 574-575** **TECH: DVD ch.16, 18**	

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GLEs from other Strands that are integrated into the Environmental Science Course in the *Louisiana Comprehensive Curriculum* are found below. *Inclusion of the GLEs below is not essential to selection or adoption of the instructional materials.*		
Earth and Space Science		
1. Describe what happens to the solar energy received by Earth. (ESS-H-A1)	**SE: 141-143, 485-486, 562-563** **TECH: DVD ch.5, 16, 18**	
2. Trace the flow of heat energy through the processes in the water cycle (ESS-H-A1)	**SE: 80-82, 487** **TECH: DVD ch.3, 16**	
8. Explain why weather only occurs in the tropospheric layer of Earth's atmosphere (ESS-H-A5)	**SE: 455-460, 465-466** **TECH: DVD ch.15**	
9. Compare the structure, composition, and function of the layers of Earth's atmosphere (ESS-H-A6)	**SE: 455-460** **TECH: DVD ch.15**	
10. Analyze the mechanisms that drive weather and climate patterns and relate them to the three methods of heat transfer. (ESS-H-A6)	**SE: 458-460** **TECH: DVD ch.15**	
12. Relate lithospheric plate movements to the occurrences of earthquakes, volcanoes, mid-ocean ridge systems, and off-shore trenches found on Earth (ESS-H-A7)	**SE: 74-79** **TECH: DVD ch.3**	
13. Explain how stable elements and atoms are recycled during natural geologic processes (ESS-H-B1)	**SE: 72-74, 392-397** **TECH: DVD ch.3, 13**	
15. Identify the sun-driven processes that move substances at or near Earth's surface (ESS-H-B2)	**SE: 77, 81-82, 83-89, 487, 490** **TECH: DVD ch.3, 16**	

19. Interpret geological maps of Louisiana to describe the state geologic history (ESS-H-C3)		
20. Determine the chronological order of the five most recent major lobes of the Mississippi River delta in Louisiana (ESS-H-C3)		
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21. Use fossil records to explain changes in the concentration of atmospheric oxygen over time (ESS-H-C4)	**SE: 84-85, 452-453** **TECH: DVD ch.3, 15**	
22. Analyze data related to a variety of natural processes to determine the time frame of the changes involved (e.g., formation of sedimentary rock layers, deposition of ash layers, fossilization of plant or animal species) (ESS-H-C5)	**SE: 77-80, 353-355** **TECH: DVD ch.3, 12**	
Life Science		
18. Classify organisms from different kingdoms at several taxonomic levels, using a dichotomous key (LS-H-C4)	**SE: 64, 201, 203** **TECH: DVD ch.3, 7**	
19. Compare characteristics of the major kingdoms (LS-H-C5)	**SE: 202** **TECH: DVD ch.7**	
27. Analyze positive and negative effects of human actions on ecosystems (LS-H-D4)	**SE: 153-155, 184, 187, 199, 210-219, 240-247, 274-276, 295-298, 328-329, 335-336, 339-340, 360, 370** **TECH: DVD ch.5, 6, 7, 8, 9, 10, 11, 12**	