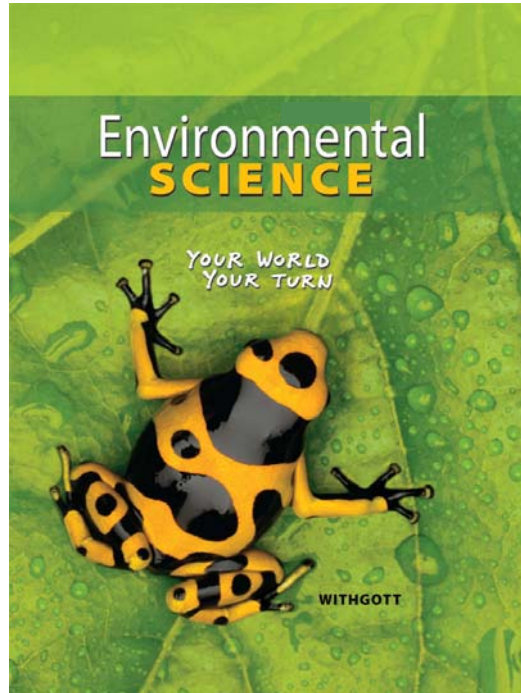


A Correlation of

Environmental Science Your World, Your Turn

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To the

Nebraska Science Standards

Adopted 10/06/2010

Grades 9-12

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Introduction

This document demonstrates how *Environmental Science: Your World, Your Turn Science ©2011* meets the objectives of the Nebraska Science Standards. Correlation page references are to the Student and Teacher's Editions and are cited at the page level.

Real Issues. Real Data. Real Choices.

Savvas' *Environmental Science: Your World, Your Turn* is based on real, current, and relevant content that brings the world of environmental science to life. All while making it personal and actionable for every student.

The Central Case *Central Case Studies* open each chapter and bring the most current environmental issues to life. Each lesson starts by asking the Big Question that helps students to connect to the central case to the concepts in each chapter.

Your World, Your Turn Students are empowered to make their own choices throughout the text with thought-provoking features that let them draw their own conclusions on a local and global level and relate content back to their own lives.

MyEnvironmentalScience.com Make key concepts from your text become interactive through the complete online *Student* and *Teacher eTexts*, a comprehensive teacher center with lesson planning and autograding, interactive animations, graphing and mapping features, videos, editable resources, and assessments in one place.

Understanding by Design Built on Grant Wiggins' *Understanding by Design*® framework- an exclusive to Savvas. This learning model connects curriculum, instruction, and assessment to the "Big Ideas" of environmental science so that your students develop deep understanding every day.

Environmental Science: Your World, Your Turn empowers students to draw their own conclusions and encourages them to think and act on both local and global levels. They will build the critical thinking skills that they will need long after the class ends.

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GRADES 9-12	
SC K-12.1 Comprehensive Science Standard – Inquiry, the Nature of Science, and Technology Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.	
1. Inquiry, the Nature of Science, and Technology	
1. Abilities to do Scientific Inquiry	
SC12.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.	
Scientific Questioning	
SC12.1.1.a Formulate a testable hypothesis supported by prior knowledge to guide an investigation	SE/TE: 15-16, 95, 183, 302, 319, 402, 564;
Scientific Investigations	
SC12.1.1.b Design and conduct logical and sequential scientific investigations with repeated trials and apply findings to new investigations	SE/TE: 123, 157, SH20 TE only: 83
Scientific Controls and Variables	
SC12.1.1.c Identify and manage variables and constraints	SE/TE: 17-18, 30-33, 564, SH20-SH21
Scientific Tools	
SC12.1.1.d Select and use lab equipment and technology appropriately and accurately	SE/TE: 80, 152, 263, 356, 437, 459, 467, 564, SH22-SH24
Scientific Observations	
SC12.1.1.e Use tools and technology to make detailed qualitative and quantitative observations	SE/TE: 80, 152, 437, 459, 467, 564
Scientific Data Collection	
SC12.1.1.f Represent and review collected data in a systematic, accurate, and objective manner	SE/TE: 17-20, 349, 467, SH9-SH13

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Scientific Interpretations, Reflections, and Applications	
SC12.1.1.g Analyze and interpret data, synthesize ideas, formulate and evaluate models, and clarify concepts and explanations	SE/TE: 16, 19-20, 27, 33, 51, 61, 88, 112, 123, 144, 161, 171, 179, 197, 214, 222, 230, 237, 253, 263, 289, 302, 319, 332, 348-349, 389, 394, 416, 431, 437, 449, 471, 479, 486, 493, 527, 530, 547, 552, 578, 601, 609, SH9-SH13, SH19, SH21 TE only: 178
SC12.1.1.h Use results to verify or refute a hypothesis	SE/TE: 19, 32, 416
SC12.1.1.i Propose and/or evaluate possible revisions and alternate explanations	SE/TE: 22, 96, 152, 206, 224, 320, 396, 480, 610 TE only: 72, 305, 484, 556
Scientific Communication	
SC12.1.1.j Share information, procedures, results, conclusions, and defend findings to a scientific community (peers, science fair audience, policy makers)	SE/TE: 22, 32, 96, 224, 396, 449, 467, 480 TE only: 207, 231, 234, 280, 311, 392, SH22
SC12.1.1.k Evaluate scientific investigations and offer revisions and new ideas as appropriate	SE/TE: 22, 152, SH22
Mathematics	
SC12.1.1.l Use appropriate mathematics in all aspects of scientific inquiry	SE/TE: 113-114, 117, 123, 144, 214, 230, 237, 332, 334, 431, 493, SH2-SH8
2. Nature of Science	
SC12.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.	
Scientific Knowledge	
SC12.1.2.a Recognize that scientific explanations must be open to questions, possible modifications, and must be based upon historical and current scientific knowledge	SE/TE: 13-16, 20, 21-23, 32-33, SH20
Science and Society	
SC12.1.2.b Describe how society influences the work of scientists and how science, technology, and current scientific discoveries influence and change society	SE/TE: 24-25, 27, 30, 32 TE only: 21

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Science as a Human Endeavor	
SC12.1.2.c Recognize that the work of science results in incremental advances, almost always building on prior knowledge, in our understanding of the world	SE/TE: 23, 32
SC12.1.2.d Research and describe the difficulties experienced by scientific innovators who had to overcome commonly held beliefs of their times to reach conclusions that we now take for granted	SE/TE: 9, 344-345; <i>Opportunities to address this standard may also be found on the following pages:</i> SE/TE: 3, 15, 23, 127
3. Technology	
SC12.1.3 Students will solve a complex design problem.	
Abilities to do Technical Design	
SC12.1.3.a Propose designs and choose between alternative solutions of a problem	<i>Opportunities to address this standard can be found on the following pages:</i> SE/TE: 319, 320 TE only: 305
SC12.1.3.b Assess the limits of a technological design	<i>Opportunities to address this standard can be found on the following pages:</i> SE/TE: 319, 320 TE only: 305
SC12.1.3.c Implement the selected solution	<i>Opportunities to address this standard can be found on the following pages:</i> SE/TE: 319, 320 TE only: 305
SC12.1.3.d Evaluate the solution and its consequences	<i>Opportunities to address this standard can be found on the following pages:</i> SE/TE: 319, 320 TE only: 305
SC12.1.3.e Communicate the problem, process, and solution	<i>Opportunities to address this standard can be found on the following pages:</i> SE/TE: 319, 320 TE only: 305
Understanding of Technical Design	
SC12.1.3.f Compare and contrast the reasons for the pursuit of science and the pursuit of technology	<i>Opportunities to address this standard can be found on the following page:</i> SE/TE: 12, 246-247

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SC12.1.3.g Explain how science advances with the introduction of new technology	SE/TE: 246-247
SC12.1.3.h Recognize creativity, imagination, and a good knowledge base are all needed to advance the work of science and engineering	SE/TE: 14 TE only: 13
SC K-12.3 Comprehensive Science Standard – Life Science Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Life Sciences to make connections with the natural and engineered world.	
3. Life Science	
1. Structure and Function of Living Systems	
SC12.3.1 Students will investigate and describe the chemical basis of the growth, development, and maintenance of cells.	
Characteristics of Life	
SC12.3.1.a Identify the complex molecules (carbohydrates, lipids, proteins, nucleic acids) that make up living organisms	SE/TE: 67-69, 71, 92-95
Cellular Composition of Organisms	
SC12.3.1.b Identify the form and function of sub-cellular structures that regulate cellular activities	<i>Opportunities to address this standard can be found on the following page:</i> SE/TE: 101
SC12.3.1.c Describe the cellular functions of photosynthesis, respiration, cell division, protein synthesis, transport of materials, and energy capture/release	SE/TE: 84-85, 89, 94, 142
Behavior	
SC12.3.1.d Describe how an organism senses changes in its internal or external environment and responds to ensure survival	SE/TE: 129; <i>Opportunities to address this standard may also be found on the following page:</i> SE/TE: 202, 210
2. Heredity	
SC12.3.2 Students will describe the molecular basis of reproduction and heredity.	
Inherited Traits	
SC12.3.2.a Identify that information passed from parents to offspring is coded in DNA molecules	SE/TE: 68

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SC12.3.2.b Describe the basic structure of DNA and its function in genetic inheritance	SE/TE: 68
SC12.3.2.c Recognize how mutations could help, harm, or have no effect on individual organisms	SE/TE: 127, 129
Reproduction	
SC12.3.2.d Describe that sexual reproduction results in a largely predictable, variety of possible gene combinations in the offspring of any two parents	<i>Opportunities to address this standard can be found on the following page:</i> SE/TE: 128-129
3. Flow of Matter and Energy in Ecosystems	
SC12.3.3 Students will describe, on a molecular level, the cycling of matter and the flow of energy between organisms and their environment.	
Flow of Energy	
SC12.3.3.a Explain how the stability of an ecosystem is increased by biological diversity	SE/TE: 204-205
Ecosystems	
SC12.3.3.b Recognize that atoms and molecules cycle among living and nonliving components of the biosphere	SE/TE: 83-89, 92-95 TE only: 83, 87
SC12.3.3.c Explain how distribution and abundance of different organisms in ecosystems are limited by the availability of matter and energy and the ability of the ecosystem to recycle materials	SE/TE: 115-117, 120, 123 TE only: 110
Impact on Ecosystems	
SC12.3.3.d Analyze factors which may influence environmental quality	SE/TE: 82, 85-86, 88-89, 95, 209-211, 223, 227, 233, 242-247, 250, 252, 273-276, 295-298, 318, 358, 405-407, 429-430, 435-441, 443, 446-449, 461-463, 467-468, 476-479 TE only: 207, 296, 426

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4. Biodiversity	
SC12.3.4 Students will describe the theory of biological evolution.	
Biological Adaptations	
SC12.3.4.a Identify different types of adaptations necessary for survival (morphological, physiological, behavioral)	<i>Opportunities to address this standard can be found on the following pages:</i> SE/TE: 129, 132
Biological Evolution	
SC12.3.4.b Recognize that the concept of biological evolution is a theory which explains the consequence of the interactions of: (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection by the environment of those offspring better able to survive and leave offspring	SE/TE: 126-129, 158-160
SC12.3.4.c Explain how natural selection provides a scientific explanation of the fossil record and the molecular similarities among the diverse species of living organisms	<i>Opportunities to address this standard can be found on the following pages:</i> SE/TE: 126-129
SC12.3.4.d Apply the theory of biological evolution to explain diversity of life over time	SE/TE: 126
SC K-12.4 Comprehensive Science Standard – Earth and Space Sciences Students will integrate and communicate the information, concepts, principles, processes, theories, and models of Earth and Space Sciences to make connections with the natural and engineered world.	
4. Earth and Space Sciences	
1. Earth in Space	
SC12.4.1 Students will investigate and describe the known universe.	
Objects in the Sky and Universe	
SC12.4.1.a Describe the formation of the universe using the Big Bang Theory	This standard may be taught in conjunction with Lesson 2, Earth's Spheres. See <i>Earth Science</i> by Tarbuck & Lutgens, ©2011, Lesson 25.3, the Universe- The Big Bang.
SC12.4.1.b Recognize that stars, like the Sun, transform matter into energy by nuclear reactions which leads to the formation of other elements	<i>Opportunities to address this standard can be found on the following page:</i> SE/TE: 458, 484

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SC12.4.1.c Describe stellar evolution	This standard may be taught in conjunction with Lesson 2, Earth's Spheres. See <i>Earth Science</i> by Tarbuck & Lutgens, ©2011, Lesson 25.2, Stellar Evolution.
2. Earth Structures and Processes	
SC12.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.	
Properties of Earth Materials	
SC12.4.2.a Recognize how Earth materials move through geochemical cycles (carbon, nitrogen, oxygen) resulting in chemical and physical changes in matter	SE/TE: 81-82, 83-89, 92-95, 420, 487 TE only: 81, 83, 87
Earth's Processes	
SC12.4.2.b Describe how heat convection in the mantle propels the plates comprising Earth's surface across the face of the globe (plate tectonics)	SE/TE: 76-77, 82, 94
Use of Earth Materials	
SC12.4.2.c Evaluate the impact of human activity and natural causes on Earth's resources (groundwater, rivers, land, fossil fuels)	SE/TE: 6-11, 324-329, 330-336, 337-343, 344-345, 346-349, 358-364, 386-389, 420-425, 426-434, 435-443, 444-445, 446-449, 461-468, 469-473, 474-475, 476-479, 522-528, 529-535, 544-547
3. Energy in Earth's Systems	
SC12.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.	
Energy Sources	
SC12.4.3.a Identify internal and external sources of heat energy in Earth's systems	SE/TE: 142, 159-160
SC12.4.3.b Describe how radiation, conduction, and convection transfer heat in Earth's systems	SE/TE: 458-459
SC12.4.3.c Compare and contrast benefits of renewable and nonrenewable energy sources	SE/TE: 520, 522-526, 536, 539, 541, 544, 546, 549, 550-551, 553, 551, 558, 560, 565, 568-569, 572, 574-575, 576-578 TE only: 561, 570

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Nebraska Science Standards	Environmental Science: Your World, Your Turn © 2011
Weather and Climate	
SC12.4.3.d Describe natural influences (Earth's rotation, mountain ranges, oceans, differential heating) on global climate	SE/TE: 485-490, 510, 512 TE only: 484
4. Earth's History	
SC12.4.4 Students will explain the history and evolution of Earth.	
Past/Present Earth	
SC12.4.4.a Recognize that in any sequence of sediments or rocks that has not been overturned, the youngest sediments or rocks are at the top of the sequence and the oldest are at the bottom (law of superposition)	<i>Opportunities to address this standard can be found on the following page:</i> SE/TE: 395-397
SC12.4.4.b Interpret Earth's history by observing rock sequences, using fossils to correlate the sequences at various locations, and using data from radioactive dating methods	<i>Opportunities to address this standard can be found on the following page:</i> SE/TE: 395-397
SC12.4.4.c Compare and contrast the physical and biological differences of the early Earth with the planet we live on today	SE/TE: 453