

A Correlation of

# Environmental Science: Your World, Your Turn

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To the

## Milwaukee Public School Learning Targets for Science & Wisconsin Academic Model Content and Performance Standards

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**INTRODUCTION**

This document demonstrates how *Environmental Science: Your World, Your Turn Science* © 2011 meets the Milwaukee Public Schools Learning Targets for Science and Wisconsin Academic Model Content and Performance 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.

**Exploring Real Issues through an Integrated Case-Study Approach**

Opening every chapter, and integrated throughout the text and support materials both online and in print, the Central Case provides a consistent and engaging path for teaching core environmental science principles.

**Based on the Most Current Data Available**

A science program is only as good as the data. *Environmental Science: Your World, Your Turn* provides the most up-to-date data available from a wide-range of trusted sources. Maps...graphs...yesterday's news articles...and more.

**Motivates Students to Make Choices**

*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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<b>LEARNING TARGETS</b>	<b>WISCONSIN ACADEMIC MODEL CONTENT STANDARDS</b>	<b>Environmental Science: Your World, Your Turn © 2011</b>
<b>LIFE AND ENVIRONMENTAL SCIENCE</b>		
<b>1. Science Connections</b> Connect and integrate the themes of science with understandings about the natural and designed world	<b>A. Science Connections</b> Students in Wisconsin will understand that among the science disciplines, there are unifying themes: systems, order, organization, and interactions; evidence, models, and explanations; constancy, change, and measurement; evolution; equilibrium and energy; and form and function.	<b>SE/TE:</b> 4, 13, 16, 30, 32, 72-75, 76-82, 84, 104, 126-132, 136-139, 141-144, 149-150, 152, 156-157, 201, 207, 330, 354, 358, 467, 486, 491, 512, 516-521, SH19-SH21
<b>Performance Standards</b> By the end of grade twelve, students will:		
<ul style="list-style-type: none"> <li>• A.12.1 Apply the underlying themes of science to develop defensible visions of the future</li> </ul>		<b>SE/TE:</b> 27, 61, 253, 320, 483, 609, 610
<ul style="list-style-type: none"> <li>• A.12.2 Show how conflicting assumptions about science themes lead to different opinions and decisions about evolution, health, population, longevity, education, and use of resources, and show how these opinions and decisions have diverse effects on an individual, a community, and a country, both now and in the future</li> </ul>		<b>SE/TE:</b> 3, 35, 63, 163, 227, 255, 291, 323, 351, 391, 419, 451, 515, 549, 581
<ul style="list-style-type: none"> <li>• A.12.3 Give examples that show how partial systems, models, and explanations are used to give quick and reasonable solutions that are accurate enough for basic needs</li> </ul>		<b>SE/TE:</b> 4, 16, 30, 32, 104, 126, 207, 330, 358, 486, 491, 512, SH19
<ul style="list-style-type: none"> <li>• A.12.4 Construct arguments that show how conflicting models and explanations of events can start with similar evidence</li> </ul>		<b>SE/TE:</b> 57, 163, 192-193, 227, 255, 284-285, 323, 351, 412-413, 515, 574-575
<ul style="list-style-type: none"> <li>• A.12.5 Show how the ideas and themes of science can be used to make real-life decisions about careers, work places, life-styles, and use of resources</li> </ul>		<b>SE/TE:</b> 7, 50-55, 86, 96, 213, 224, 246, 272, 306, 320, 323-336, 337-343, 409, 427, 465, 480, 610
<ul style="list-style-type: none"> <li>• A.12.6 Identify and, using evidence learned or discovered, replace inaccurate personal models and explanations of science-related events</li> </ul>		<b>SE/TE:</b> 152, 467
<ul style="list-style-type: none"> <li>• A.12.7 Re-examine the evidence and reasoning that led to conclusions drawn from investigations, using the science themes</li> </ul>		<b>SE/TE:</b> 22, 152, 467

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<p><b>2. Nature of Science</b> Investigate examples of science as a human endeavor; research the contribution of science to society; explain the nature of scientific knowledge and research; analyze the important historical events of science</p>	<p><b>B. Nature of Science</b> Students in Wisconsin will understand that science is ongoing and inventive and that scientific understandings have changed over time as new evidence is found.</p>	<p><b>SE/TE:</b> 3, 13-20, 21, 23, 30, 32, 118, 127</p>
<p><b>Performance Standards</b> By the end of grade twelve, students will:</p>		
<ul style="list-style-type: none"> <li>• B.12.1 Show how cultures and individuals have contributed to the development of major ideas in the earth and space, life and environmental, and physical sciences</li> </ul>		<p><b>SE/TE:</b> 3, 9, 11, 14-20, 21, 32, 45, 99, 118, 127, 135, 139, 203, 229, 255, 332, 351, 472, 495,</p>
<ul style="list-style-type: none"> <li>• B.12.2 Identify the cultural conditions that are usually present during great periods of discovery, scientific development, and invention</li> </ul>		<p><i>Opportunities to address this standard can be found on the following pages:</i> <b>SE/TE:</b> 8-9, 27, 32</p>
<ul style="list-style-type: none"> <li>• B.12.3 Relate the major themes of science to human progress in understanding science and the world</li> </ul>		<p><b>SE/TE:</b> 12-20, 21-27, 72-75, 92, 94, 100-103, 120, 122-123, 164-167, 194, 234-241, 250</p>
<ul style="list-style-type: none"> <li>• B.12.4 Show how basic research and applied research contribute to new discoveries, inventions, and applications</li> </ul>		<p><b>SE/TE:</b> 3, 12-14, 19-20, 21-23, 265, 345, 385</p>
<ul style="list-style-type: none"> <li>• B.12.5 Explain how science is based on assumptions about the natural world and themes that describe the natural world</li> </ul>		<p><b>SE/TE:</b> 13, 20, 30, 33</p>

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<p><b>3. Science Inquiry</b> Design, conduct, and evaluate investigations using science language and the processes and understandings of scientific inquiry.</p>	<p><b>C. Science Inquiry</b> Students in Wisconsin will investigate questions using scientific methods and tools, revise their personal understanding to accommodate knowledge, and communicate these understandings to others.</p>	<p><b>SE/TE:</b> 14-20, 21-23, 37, 80, 102, 152, 183, 237, 263, 310, 334, 356, 396, 437, 459, 467, 486, 520, 564</p>
<p><b>Performance Standards</b> By the end of grade twelve, students will:</p>		
<ul style="list-style-type: none"> <li>• C.12.1 When studying science content, ask questions suggested by current social issues, scientific literature, and observations of phenomena, build hypotheses that might answer some of these questions, design possible investigations, and describe results that might emerge from such investigations</li> </ul>		<p><b>SE/TE:</b> 37, 95, 122-123, 183, 263, 302, 310, 319, 402, 437, 546, 564, 578</p>
<ul style="list-style-type: none"> <li>• C.12.2 Identify issues from an area of science study, write questions that could be investigated, review previous research on these questions, and design and conduct responsible and safe investigations to help answer the questions</li> </ul>		<p><b>SE/TE:</b> 96, 224, 320, 480, 610</p>
<ul style="list-style-type: none"> <li>• C.12.3 Evaluate the data collected during an investigation, critique the data-collection procedures and results, and suggest ways to make any needed improvements</li> </ul>		<p><b>SE/TE:</b> 22, 152, 467</p>
<ul style="list-style-type: none"> <li>• C.12.4 During investigations, choose the best data-collection procedures and materials available, use them competently, and calculate the degree of precision of the resulting data</li> </ul>		<p><i>Opportunities to address this standard can be found on the following pages:</i> <b>SE/TE:</b> 51, 112, 179, 214, 230, 302, 332, 431, 471, 493, 530, 552, 601</p>
<ul style="list-style-type: none"> <li>• C.12.5 Use the explanations and models found in the earth and space, life and environmental, and physical sciences to develop likely explanations for the results of their investigations</li> </ul>		<p><b>SE/TE:</b> 4, 16, 30, 32, 104, 126, 207, 330, 358, 486, 491, 512, SH19</p>
<ul style="list-style-type: none"> <li>• C.12.6 Present the results of investigations to groups concerned with the issues, explaining the meaning and implications of the results, and answering questions in terms the audience can understand</li> </ul>		<p><b>SE/TE:</b> 96, 224, 320, 480, 610</p>
<ul style="list-style-type: none"> <li>• C.12.7 Evaluate articles and reports in the popular press, in scientific journals, on television, and on the Internet, using criteria related to accuracy, degree of error, sampling, treatment of data, and other standards of experimental design</li> </ul>		<p><b>SE/TE:</b> 26, 47, 101, 137, 166, 370, 399, 456, 498, 587</p>

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<p><b>4. Life and Environmental Science</b></p> <p>Investigate the structures and functions in organisms; explain the molecular basis of heredity; define the concept of biological evolution; explain the interdependence of organisms; describe the flow of matter and energy in and organization of living systems; determine behaviors of organisms</p>	<p><b>F. Life and Environmental Science</b></p> <p>Students in Wisconsin will demonstrate an understanding of the characteristics and structures of living things, the process of life, and how living things interact with one another and their environment.</p>	<p><b>SE/TE:</b> 68, 84-85, 101, 126-132, 134-140, 141-148, 149-155, 156-157, 158-161, 170, 174, 182, 190-191, 195-197, 201, 204-205, 210, 221, 275-276, 288-289, 351, 375-377, 379-380, 383, 388-389, 497-501, 512-513, 517, 522</p>
<p><b>Performance Standards</b> By the end of grade twelve, students will:</p>		
<p><b>THE CELL</b></p>		
<ul style="list-style-type: none"> <li>• F.12.1 Evaluate the normal structures and the general and special functions of cells in single-celled and multiple-celled organisms</li> </ul>		<p><b>SE/TE:</b> 85, 143</p>
<ul style="list-style-type: none"> <li>• F.12.2 Understand how cells differentiate and how cells are regulated</li> </ul>		<p><i>Opportunities to address this standard can be found on the following page:</i></p> <p><b>SE/TE:</b> 85</p>
<p><b>THE MOLECULAR BASIS OF HEREDITY</b></p>		
<ul style="list-style-type: none"> <li>• F.12.3 Explain current scientific ideas and information about the molecular and genetic basis of heredity</li> </ul>		<p><b>SE/TE:</b> 68, 128-129, 375</p>
<ul style="list-style-type: none"> <li>• F.12.4 State the relationships between functions of the cell and functions of the organism as related to genetics and heredity</li> </ul>		<p><i>Opportunities to address this standard can be found on the following page:</i></p> <p><b>SE/TE:</b> 68</p>
<p><b>BIOLOGICAL EVOLUTION</b></p>		
<ul style="list-style-type: none"> <li>• F.12.5 Understand the theory of evolution, natural selection, and biological classification</li> </ul>		<p><b>SE/TE:</b> 101, 126-132, 137, 158-161, 197, 201, 221</p>
<ul style="list-style-type: none"> <li>• F.12.6. Using concepts of evolution and heredity, account for changes in species and the diversity of species, include the influence of these changes on science, e.g. breeding of plants or animals</li> </ul>		<p><b>SE/TE:</b> 126-132, 137, 158-161, 197, 351, 375-377, 379-380, 383, 388-389</p>
<p><b>THE INTERDEPENDENCE OF ORGANISMS</b></p>		
<ul style="list-style-type: none"> <li>• F.12.7 Investigate how organisms both cooperate and compete in ecosystems</li> </ul>		<p><b>SE/TE:</b> 134-140, 150, 156-157, 158-161</p>
<ul style="list-style-type: none"> <li>• F.12.8 Using the science themes, infer changes in ecosystems prompted by the introduction of new species, environmental conditions, chemicals, and air, water, or earth pollution</li> </ul>		<p><b>SE/TE:</b> 149-155, 160-161, 210, 275-276, 288-289, 497-501, 512-513</p>

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<b>MATTER, ENERGY AND ORGANIZATION IN LIVING SYSTEMS</b>		
<ul style="list-style-type: none"> <li>F.12.9 Using the science themes, investigate energy systems (related to food chains) to show how energy is stored in food (plants and animals) and how energy is released by digestion and metabolism</li> </ul>		<b>SE/TE:</b> 84, 141-148, 158-161, 191, 204-205
<ul style="list-style-type: none"> <li>F.12.10 Understand the impact of energy on organisms in living systems</li> </ul>		<b>SE/TE:</b> 84, 141-148, 158-161, 190-191, 204-205, 517
<ul style="list-style-type: none"> <li>F.12.11 Investigate how the complexity and organization of organisms accommodates the need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain an organism</li> </ul>		<b>SE/TE:</b> 84, 142-143, 170, 182, 190-191, 522
<b>THE BEHAVIOR OF ORGANISMS</b>		
<ul style="list-style-type: none"> <li>F.12.12 Trace how the sensory and nervous systems of various organisms react to the internal and external environment and transmit survival or learning stimuli to cause changes in behavior or responses</li> </ul>		<b>SE/TE:</b> 170, 174, 195-196

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<p><b>5. Science Applications</b> Research careers in science, technology, or engineering; demonstrate abilities of technological design/model building, explain the interdependence of science and technology; research, evaluate, and defend alternative solutions to scientific or technological issues or innovations</p>	<p><b>G. Science Applications</b> Students in Wisconsin will demonstrate an understanding of the relationship between science and technology and the ways in which that relationship influences human activities.</p>	<p><b>SE/TE:</b> 8, 11, 32, 163, 192-193, 228-229, 242, 246-247, 250-253, 284-285, 367-372, 376-380, 388-389, 412-413, 496, 574-575, 604-605</p>
<p><b>Performance Standards</b> By the end of grade twelve, students will:</p>		
<ul style="list-style-type: none"> <li>• G.12.1 Identify personal interests in science and technology, implications that these interests might have for future education, and decisions to be considered</li> </ul>		<p><b>SE/TE:</b> 3, 26, 35, 47, 63, 99, 101, 125, 137, 163, 166, 199, 227, 255, 291, 323, 351, 370, 391, 399, 419, 451, 456, 483, 498, 515, 549, 581, 587</p>
<ul style="list-style-type: none"> <li>• G.12.2 Design, build, evaluate, and revise models and explanations related to the earth and space, life and environmental, and physical sciences</li> </ul>		<p><b>SE/TE:</b> 4, 16, 30, 32, 104, 126, 207, 330, 358, 486, 491, 512, SH19</p>
<ul style="list-style-type: none"> <li>• G.12.3 Analyze the costs, benefits, or problems resulting from a scientific or technological innovation, including implications for the individual and the community</li> </ul>		<p><b>SE/TE:</b> 8, 11, 32, 57, 228-229, 242, 246-247, 250-253, 367-372, 376-380, 388-389, 444-445</p>
<ul style="list-style-type: none"> <li>• G.12.4 Show how a major scientific or technological change has had an impact on work, leisure, or the home</li> </ul>		<p><b>SE/TE:</b> 8, 11, 32, 57, 228-229, 242, 246-247, 252-253, 367, 444-445, 496, 604-605</p>
<ul style="list-style-type: none"> <li>• G.12.5 Choose a specific problem in our society, identify alternative scientific or technological solutions to that problem and argue it merits</li> </ul>		<p><b>SE/TE:</b> 57, 163, 192-193, 255, 284-285, 351, 393, 412-413, 515, 574-575</p>



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<p><b>6. Science in Social and Personal Perspectives</b> Practice safety; practice personal and community health; evaluate factors that influence the capacity of the environment to support populations; demonstrate resource management; evaluate factors affecting environmental quality; investigate the impact of natural and human-induced hazards; evaluate scientific/technological issues and challenges; apply scientific reasoning and decision making</p>	<p><b>H. Science in Social and Personal Perspectives</b> Students in Wisconsin will use scientific information and skills to make decisions about themselves, Wisconsin, and the world in which they live.</p>	<p><b>SE/TE:</b> 59, 61, 93, 159, 193, 195, 251, 285, 302, 341, 345, 349, 364, 387, 415, 431, 447, 471, 475, 511, 530, 552, 601</p>
<b>Performance Standards</b> By the end of grade twelve, students will:		
<ul style="list-style-type: none"> <li>• H.12.1 Using the science themes and knowledge of the earth and space, life and environmental, and physical sciences, analyze the costs, risks, benefits, and consequences of a proposal concerning resource management in the community and determine the potential impact of the proposal on life in the community and the region</li> </ul>		<p><b>SE/TE:</b> 324-329, 337-343, 344-345, 348-349, 362-364, 432-434, 448-449</p>
<ul style="list-style-type: none"> <li>• H.12.2 Evaluate proposed policy recommendations (local, state, and/or national) in science and technology for validity, evidence, reasoning, and implications, both short and long-term</li> </ul>		<p><b>SE/TE:</b> 44-47, 48-55, 56-57, 61, 474-475, 575</p>
<ul style="list-style-type: none"> <li>• H.12.3 Show how policy decisions in science depend on social values, ethics, beliefs, and time-frames as well as considerations of science and technology</li> </ul>		<p><b>SE/TE:</b> 42, 47, 48, 56-57, 58, 61, 474-475</p>
<ul style="list-style-type: none"> <li>• H.12.4 Advocate a solution or combination of solutions to a problem in science or technology</li> </ul>		<p><b>SE/TE:</b> 56-57, 59, 61, 93, 193, 195, 251, 285, 287, 345, 413, 431, 465, 474-475, 553, 575</p>
<ul style="list-style-type: none"> <li>• H.12.5 Investigate how current plans or proposals concerning resource management, scientific knowledge, or technological development will have an impact on the environment, ecology, and quality of life in a community or region</li> </ul>		<p><b>SE/TE:</b> 159, 195, 246-247, 252, 285, 339-340, 343, 465, 545, 577</p>
<ul style="list-style-type: none"> <li>• H.12.6 Evaluate data and sources of information when using scientific information to make decisions</li> </ul>		<p><b>SE/TE:</b> 193, 302, 349, 387, 471, 475, 530, 552, 601</p>
<ul style="list-style-type: none"> <li>• H.12.7 When making decisions, construct a plan that includes the use of current scientific knowledge and scientific reasoning</li> </ul>		<p><b>SE/TE:</b> 59, 61, 93, 159, 193, 195, 251, 285, 341, 345, 364, 415, 431, 447, 511</p>