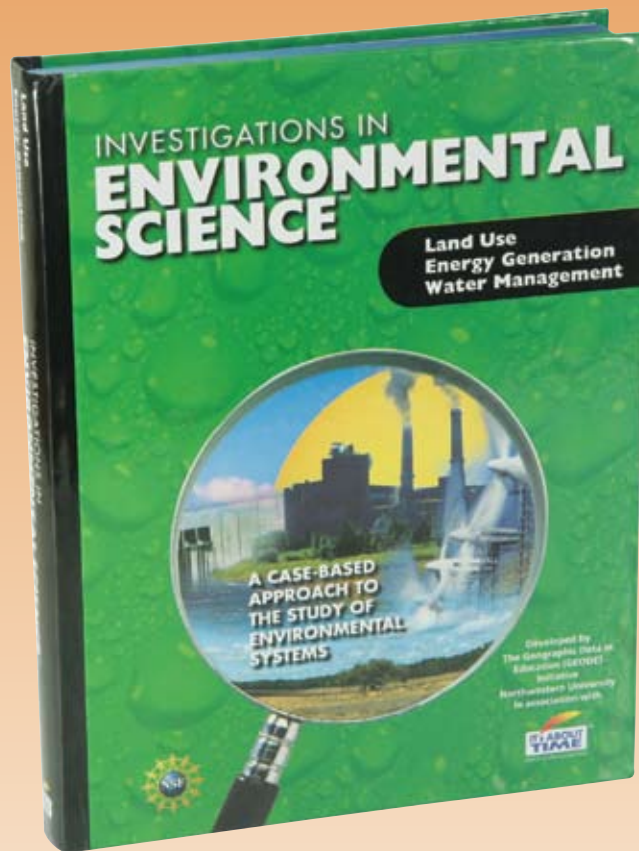


Investigations in Environmental Science

**CORRELATION
TO THE FLORIDA CONTENT STANDARDS**

Subject:	Science
Grade Level:	9–12
Course Title:	Environmental Science



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Investigations in Environmental Science Correlation to the Florida Content Standards Environmental Science, Grades 9-12

Benchmarks	Location/Page where Benchmark is found
HE.912.C.1.3 Evaluate how environment and personal health are interrelated.	
HE.912.C.1.4 Analyze how heredity and family history can impact personal health.	
LA.910.2.2.3 The student will organize information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing, contrasting, or outlining);	In each lesson students are asked to answer the essential question at the end of the lesson. The final projects are places where the students pull all the individual scientific concepts together.
LA.910.4.2.2 The student will record information and ideas from primary and/or secondary sources accurately and coherently, noting the validity and reliability of these sources and attributing sources of information.	U1 SE: 53-61, 120-134, 182-207 U2 SE: 12-14, 153-180, 253-294 U3 SE: 5-12, 102, 105-107, 113-115, 116-117, 178-183, 205-209, 266-299
MA.912.S.1.2 Determine appropriate and consistent standards of measurement for the data to be collected in a survey or experiment.	U1 SE: 12-13 U2 SE: 19-20, 38-39, 51-52, 53-54, 55, 93-94, 108-109, 119-120, 139-140, 226-229 U3 SE: 16-17, 18-19, 20-21, 22-24, 25-26, 28-30, 39-40, 41-42, 44-45, 52-54, 78-80, 99-102
MA.912.S.3.2 Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following: bar graphs, line graphs, stem and leaf plots, circle graphs, histograms, box and whisker plots, scatter plots, cumulative frequency (ogive) graphs	U1 SE: 6, 20-32, 34-35, 37, 39-42, 43-45, 46-47, 68-69, 71-74, 75-76, 128-134, 138-140, 145, 146-150, 158-160-162, 170-171, 182-207 U2 SE: 12-14, 21-28, 57-58, 66, 79-81, 100-104, 136-137, 146-147, 154-180, 196-201, 207-209, 211- 215, 216-217, 230-234, 240-241, 246, 254-294 U3 SE: 16-17, 19, 26, 28-30, 86-87, 103-104, 108-111, 118-119, 120-124, 136-140, 146-153, 155-158, 159-161, 162-163, 170, 173-175, 176-177, 188-189, 207-208, 225, 226-228, 231-232, 233, 238, 251-252, 253-254, 258-259, 267-299
SC.912.E.6.6 Analyze past, present, and potential future consequences to the environment resulting from various energy production technologies.	U2 SE: 181-248
SC.912.E.7.7 Identify, analyze, and relate the internal (Earth system) and external (astronomical) conditions that contribute to global climate change	U2 SE: 181-249
SC.912.E.7.8 Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively.	

Benchmarks	Location/Page where Benchmark is found
<p>SC.912.E.7.9 Cite evidence that the ocean has had a significant influence on climate change by absorbing, storing, and moving heat, carbon, and water.</p>	<p>U2 SE: 218-220</p>
<p>SC.912.L.14.6 Explain the significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.</p>	
<p>SC.912.L.15.3 Describe how biological diversity is increased by the origin of new species and how it is decreased by the natural process of extinction.</p>	
<p>SC.912.L.15.13 Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success.</p>	
<p>SC.912.L.16.10 Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues.</p>	
<p>SC.912.L.17.1 Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.</p>	<p>U1 SE: 3, 12-13, 14-15, 16-19, 21-24, 25-28, 29-30, 34-35, 36-37, 38-42, 43-45, 46-47, 49-51, 52, 54-61, 77-78, 141-143, 177, 195-196, 197-198</p> <p>U2 SE: 136-137</p> <p>U3 SE: 186-187, 190-191, 192, 193, 194-195, 196-198, 199-202, 203-204, 282</p>
<p>SC.912.L.17.4 Describe changes in ecosystems resulting from seasonal variations, climate change and succession.</p>	<p>U1 SE: 103-105, 172-173</p>
<p>SC.912.L.17.5 Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity.</p>	<p>U1 SE: 3, 12-13, 14-15, 16-19, 21-24, 25-28, 29-30, 34-35, 36-37, 38-42, 43-45, 46-47, 49-51, 52, 54-61, 77-78, 141-143, 177, 195-196, 197-198</p> <p>U2 SE: 136-137</p> <p>U3 SE: 186-187, 190-191, 192, 193, 194-195, 196-198, 199-202, 203-204, 282</p>
<p>SC.912.L.17.6 Compare and contrast the relationships among organisms, including predation, parasitism, competition, commensalism, and mutualism.</p>	<p>U1 SE: 163-172</p>
<p>SC.912.L.17.7 Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.</p>	<p>U1 SE: 141-143, 144-145, 147-150, 151-152, 153-154</p> <p>U3 SE: 72-73, 74-77, 78-80</p>
<p>SC.912.L.17.8 Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, non-native species.</p>	<p>U1 SE: 103-105</p>

Benchmarks	Location/Page where Benchmark is found
<p>SC.912.L.17.9 Use a food web to identify and distinguish producers, consumers, and decomposers. Explain the pathway of energy transfer through trophic levels and the reduction of available energy at successive trophic levels.</p>	<p>U1 SE: 141-143, 144-145, 147-150, 151-152, 153-154 U3 SE: 72-73, 74-77, 78-80</p>
<p>SC.912.L.17.10 Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.</p>	<p>U1 SE: 96-97 U2 SE: 62, 240-241 U3 SE: 27, 28-30, 31-33, 34-35, 36-37, 69-70, 71, 72-73, 74-77, 78-80, 81-82, 83, 268, 269</p>
<p>SC.912.L.17.11 Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.</p>	<p>U1 SE: 53-61, 120-134, 182-207 U2 SE: 12-14, 153-180, 253-294 U3 SE: 5-12, 102, 105-107, 113-115, 116-117, 178-183, 205-209, 266-299</p>
<p>SC.912.L.17.12 Discuss the political, social, and environmental consequences of sustainable use of land.</p>	<p>U1 SE: 2-4, 5-7, 64, 65-67, 68-70, 71-74, 75-76, 77-78, 120-127, 181-207 U2 SE: 40-42, 43-46, 47-49, 165-166, 275-288 U3 SE: 4-9, 10-12, 13, 31-33, 48-50, 64, 65-66, 67-68, 69-70, 86-87, 113-115, 116-117, 118-119, 120-121, 122-123, 124-125, 166-168, 237-239, 240-241, 242-243, 244, 245-246, 260, 288-289</p>
<p>SC.912.L.17.13 Discuss the need for adequate monitoring of environmental parameters when making policy decisions.</p>	<p>U1 SE: 20-32, 81-92, 98-105, 182-207 U2 SE: 153-180, 186-189, 190-194, 205-209, 211-215, 253-294, U3 SE: 97-125, 135-139, 205-209, 112-124, 266-299</p>
<p>SC.912.L.17.14 Assess the need for adequate waste management strategies.</p>	
<p>SC.912.L.17.15 Discuss the effects of technology on environmental quality.</p>	<p>U1 SE: 77-78, 179-180 U2 SE: 43-46, 70-77 U3 SE: 63-70, 97-111</p>
<p>SC.912.L.17.16 Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.</p>	<p>Each of the units focuses on the tensions between human population and a large-scale environmental problem. Students use the environmental problem as the context to learn about science concepts and then at the end of the unit apply those concepts to their decision statement.</p>
<p>SC.912.L.17.18 Describe how human population size and resource use relate to environmental quality.</p>	<p>Each of the units focuses on the tensions between human population and a large-scale environmental problem.</p>

Benchmarks	Location/Page where Benchmark is found
<p>SC.912.L.17.19 Describe how different natural resources are produced and how their rates of use and renewal limit availability.</p>	
<p>SC.912.L.17.20 Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.</p>	<p>U1 SE: 53-61, 120-134, 182-207 U2 SE: 12-14, 153-180, 253-294 U3 SE: 5-12, 102, 105-107, 113-115, 116-117, 178-183, 205-209, 266-299</p>
<p>SC.912.N.1.1 Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:</p> <ol style="list-style-type: none"> 1. pose questions about the natural world, 2. conduct systematic observations, 3. examine books and other sources of information to see what is already known, 4. review what is known in light of empirical evidence, 5. plan investigations, 6. use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs), 7. pose answers, explanations, or descriptions of events, 8. generate explanations that explicate or describe natural phenomena (inferences), 9. use appropriate evidence and reasoning to justify these explanations to others, 10. communicate results of scientific investigations, and evaluate the merits of the explanations produced by others. 	<p>U1 SE: 3-4, 5-8, 20-32, 34-36, 37, 39-42, 43-45, 46-47, 49-51, 53-61 66-67, 68-69, 71-74, 75-76, 80, 96-97, 120-134, 138-140, 145, 146-150, 158-160-162, 170-171, 182-207</p> <p>U2 SE: 4-11, 12-14, 19-20, 21-28, 38-39, 51-52, 57-58, 64-66, 67-69, 79-81, 100-104, 119-120, 136-137, 146-147, 153-180, 184, 196-201, 205-206, 207-209, 21-215, 216-217, 222-225, 230-234, 238-239, 240-241, 246, 253-294</p> <p>U3 SE: 5-12, 13, 16-17, 19, 20-21, 22-24, 26, 28-30, 39-40, 41-42, 44-45, 52-54, 64, 86-87, 89-91, 92-94, 95-96, 99, 102, 103-104, 105-107, 108-111, 113-115, 116-117, 118-119, 120-124, 124-125, 136-140, 146-153, 152-153, 155-158, 159-161, 162-163, 170, 173-175, 176-177, 178-183, 188-189, 205-209, 212-213, 225, 226-228, 231-232, 233, 238, 251-252, 253-254, 258-259, 260, 266-299</p>
<p>SC.912.N.1.2 Describe and explain what characterizes science and its methods.</p>	
<p>SC.912.N.1.3 Recognize that the strength or usefulness of a scientific claim is evaluated through scientific argumentation, which depends on critical and logical thinking, and the active consideration of alternative scientific explanations to explain the data presented.</p>	<p>U1 SE: 6, 20-32, 34-35, 37, 39-42, 43-45, 46-47, 68-69, 71-74, 75-76, 128-134, 138-140, 145, 146-150, 158-160, 162-162, 170-171, 182-207</p> <p>U2 SE: 12-14, 21-28, 57-58, 66, 79-81, 100-104, 136-137, 146-147, 154-180, 196-201, 207-209, 211- 215, 216-217, 230-234, 240-241, 246, 254-294</p> <p>U3 SE: 16-17, 19, 26, 28-30, 86-87, 103-104, 108-111, 118-119, 120-124, 136-140, 146-153, 155-158, 159-161, 162-163, 170, 173-175, 176-177, 188-189, 207-208, 225, 226-228, 231-232, 233, 238, 251-252, 253-254, 258-259, 267-299</p>

Benchmarks	Location/Page where Benchmark is found
<p>SC.912.N.1.4 Identify sources of information and assess their reliability according to the strict standards of scientific investigation.</p>	
<p>SC.912.N.1.5 Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.</p>	
<p>SC.912.N.1.6 Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.</p>	
<p>SC.912.N.1.7 Recognize the role of creativity in constructing scientific questions, methods and explanations.</p>	Throughout the Curriculum
<p>SC.912.N.2.1 Identify what is science, what clearly is not science, and what superficially resembles science (but fails to meet the criteria for science).</p>	
<p>SC.912.N.2.2 Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.</p>	
<p>SC.912.N.2.4 Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scientific knowledge becomes stronger, leading to its durability.</p>	<p>U1 SE: 182-207 U2 SE: 153-180, 186-189, 190-194, 253-294, U3 SE: 112-124, 205-209, 266-299</p>
<p>SC.912.N.2.5 Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations) of scientists are a strength of science as they are a source of new, testable ideas that have the potential to add new evidence to support one or another of the explanations.</p>	
<p>SC.912.N.3.1 Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have to offer.</p>	
<p>SC.912.N.3.5 Describe the function of models in science, and identify the wide range of models used in science.</p>	<p>U1 SE: 20-32, 81-92, 98-105</p> <p>U2 SE: 57-58, 63-69, 79-81, 85-86, 100-104, 153-180, 211-205-209, 215, 230-234, 240-241, 211-215</p> <p>U3 SE: 81-83, 88-91, 92-94, 95-96, 98, 105-107, 118-119, 120-121, 122-123, 128-130, 145-147, 170-172, 192, 199-208, 222-223, 224, 97-125, 135-139</p>

Benchmarks	Location/Page where Benchmark is found
<p>SC.912.N.4.1 Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.</p>	<p>U1 SE: 6, 20-32, 34-35, 37, 39-42, 43-45, 46-47, 68-69, 71-74, 75-76, 128-134, 138-140, 145, 146-150, 158-160-162, 170-171, 182-207</p> <p>U2 SE: 12-14, 21-28, 57-58, 66, 79-81, 100-104, 136-137, 146-147, 154-180, 196-201, 207-209, 211- 215, 216-217, 230-234, 240-241, 246, 254-294</p> <p>U3 SE: 16-17, 19, 26, 28-30, 86-87, 103-104, 108-111, 118-119, 120-124, 136-140, 146-153, 155-158, 159-161, 162-163, 170, 173-175, 176-177, 188-189, 207-208, 225, 226-228, 231-232, 233, 238, 251-252, 253-254, 258-259, 267-299</p>
<p>SC.912.N.4.2 Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.</p>	<p>U1 SE: 53-61, 120-134, 182-207 U2 SE: 12-14, 153-180, 253-294 U3 SE: 5-12, 102, 105-107, 113-115, 116-117, 178-183, 205-209, 266-299</p>
<p>SC.912.P.10.1 Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.</p>	<p>U2 SE: 1-34</p>
<p>SC.912.P.10.2 Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.</p>	

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