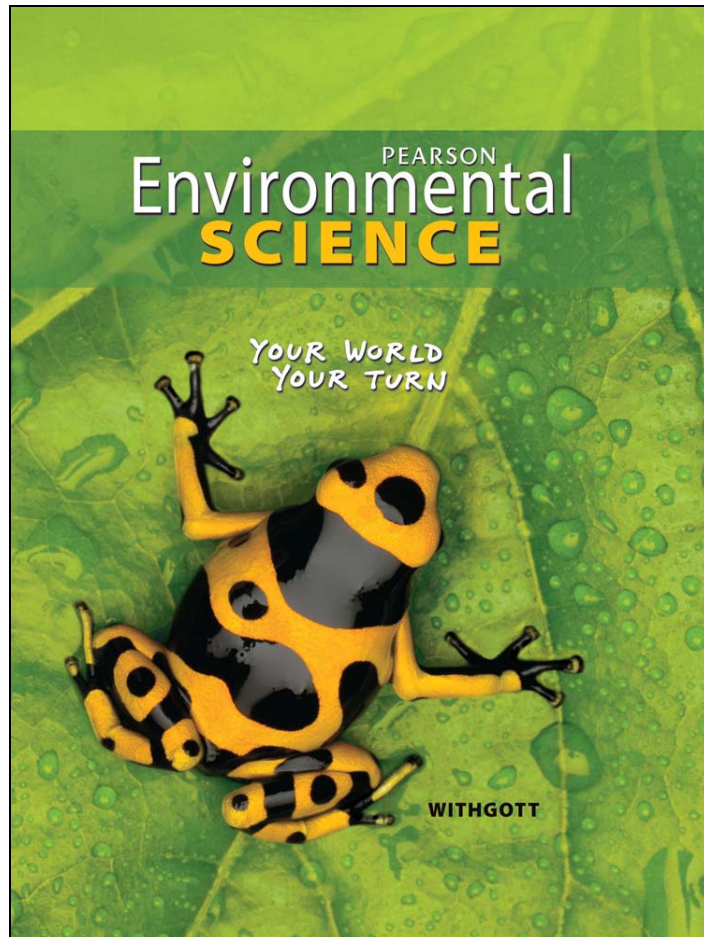


A Correlation of

# Environmental Science

Your World, Your Turn



To the

## Indiana

# Academic Science Standards

## Earth and Space Science I

# **A Correlation of Environmental Science: Your World, Your Turn to the Indiana Academic Science Standards - Earth and Space Science I**

## **Introduction**

The following document demonstrates how *Environmental Science: Your World, Your Turn*, supports the Indiana Academic Science Standards for Earth and Space Science I, Grades 9-12. Correlation references are to the Student and Teacher Editions.

### **Real Issues. Real Data. Real Choices.**

Pearson's *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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Indiana Academic Science Standards Earth and Space Science I	Environmental Science Your World, Your Turn
<b>Content Standards</b>	
<b>Standard 1: The Universe</b>	
<b>Core Standard</b> Describe the age, origin and evolution of the universe. (ES.1.1)	
<b>Core Standard</b> Describe the size and organization of stars and galaxies found within the universe. (ES.1.2, ES.1.3, ES.1.4)	
ES.1.1 Describe the Big Bang Theory and understand that evidence to support the formation of the universe and its age is found in Hubble's law and the cosmic background microwave radiation. Describe the role of gravitational attraction in formation of stars and galaxies.	The focus of this program is to show students how they can use science to change their world, therefore Universe standards fall outside the scope of the program.
ES.1.2 Differentiate between the different types of stars, including our sun, found on the Hertzsprung - Russell diagram. Compare and contrast the evolution of stars of different masses.	
ES.1.3 Understand and discuss the basics of the fusion processes, which are the source of energy of stars and the formation of the elements.	
ES.1.4 Understand and explain the hierarchical relationship and scales of planetary systems, stars, multiple-star systems, star clusters, galaxies and galactic groups in the universe.	

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<b>Standard 2: The Solar System</b>	
<b>Core Standard</b> Describe the age, origin and evolution of our solar system and describe the characteristics of objects in the solar system. (ES.2.1, ES.2.2, ES.2.3)	
<b>Core Standard</b> Recognize the role of gravity and other forces in determining the motion of bodies in the solar system. (ES.2.4)	
ES.2.1 Understand and discuss the nebular theory concerning the formation of solar systems. Include in the discussion the roles of planetesimals and protoplanets.	The focus of this program is to show students how they can use science to change their world, therefore Solar System standards fall outside the scope of the program.
ES.2.2 Describe the characteristics of the various kinds of objects in the solar system (e.g., planets, satellites, comets and asteroids). Recognize that planets have been identified orbiting stars other than the sun.	
ES 2.3 Recognize that the sun is the main source of external energy for the Earth. Describe the cycles of solar energy and some of their impacts on the Earth.	<b>SE/TE:</b> 142, 247, 458-459, 484-486, 562-566
ES.2.4 Describe the motions of the various kinds of objects in our solar system (e.g., planets, satellites, comets and asteroids). Explain that Kepler's laws determine the orbits of those objects and know that Kepler's laws are a direct consequence of Newton's Law of Universal Gravitation together with his laws of motion.	

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<b>Standard 3: The Earth</b>	
<b>Core Standard</b> Recognize and describe that earth sciences address planet-wide interacting systems (e.g., the oceans, the air, solid ground, and life on Earth) and interactions with the solar system. (ES.3.1, ES.3.2, ES. 3.3)	
<b>Core Standard</b> Examine the interrelationships between society and the planet-wide interacting systems and understand the basic physical and chemical laws that control these interactions. (ES.3.4)	
ES.3.1 Understand that the Earth system contains fixed amounts of each stable chemical element and that each element moves among reservoirs in the solid earth, oceans, atmosphere and living organisms as part of biogeochemical cycles (i.e., nitrogen, water, carbon, oxygen and phosphorus cycles), which are driven by energy from within the earth and from the sun.	<b>SE/TE:</b> 7, 79, 80-82, 83-86, 87-89, 277-278, 279
ES.3.2 Demonstrate the possible effects of atmospheric changes brought about by natural and human-made processes.	<b>SE/TE:</b> 63, 79, 80-82, 85, 88, 452-457, 591
ES.3.3 Identify and differentiate between renewable and nonrenewable resources present within Earth's systems. Describe the possible long-term consequences that increased human consumption has placed on natural processes that renew some resources.	<b>SE/TE:</b> 6-11, 39-41, 63, 324-327, 420-421, 515, 522-528, 529-535, 536-541, 550-555, 556-560, 561-569, 570-573, 581, 582-588, 589-590, 592-595, 604-605
ES.3.4 Recognize that fundamental physical and chemical laws control past, present and future dynamic interactions between and within Earth systems.	<b>SE/TE:</b> 72-75, 76-82, 83-89, 90-91, 484-490, 493-496, 497-501, 508-509, 601-603

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<b>Standard 4: The Atmosphere and Hydrosphere</b>	
<b>Core Standard</b> Understand the structure and circulation of Earth's atmosphere and hydrosphere and explain how natural and human factors may interact with these processes. (ES.4.1, ES.4.2)	
<b>Core Standard</b> Understand that both weather and climate involve the transfer of matter and energy throughout the atmosphere and hydrosphere, driven by solar energy and gravity. (ES.4.3, ES.4.4, ES.4.5, ES.4.6)	
ES.4.1 Examine the origins, structure, composition, and function of Earth's atmosphere. Include the role of living organisms in the production and cycling of atmospheric gases.	<b>SE/TE:</b> 76-82, 83-89, 93-95, 451, 452-460, 461-468, 474-475
ES.4.2 Describe the relationships among evaporation, precipitation, ground water, surface water, and glacial systems in the water cycle. Discuss the effect of human interactions with the water cycle.	<b>SE/TE:</b> 80-82, 420-425, 426-434, 435-443, 458-459, 492
ES.4.3 Explain the importance of heat transfer between and within the atmosphere, land masses, and bodies of water.	<b>SE/TE:</b> 456-460, 484-487, 488-490
ES.4.4 Understand and describe the origin, life cycle, and behavior of weather systems and methods of predicting them. Investigate the causes of severe weather and propose appropriate safety measures that can be taken in the event of severe weather.	<b>SE/TE:</b> 280-283, 458-460, 493
ES.4.5 Explain the role of Milankovitch cycles (rotation, revolution, and procession of axis) on differential heating of Earth, leading to climate changes such as the cycles of glaciation.	<b>SE/TE:</b> 454, 483, 485-486, 491-496
ES.4.6 Understand the origin, effects and uses of tides.	<b>SE/TE:</b> 189, 559-560

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<b>Standard 5: The Solid Earth</b>	
<b>Core Standard</b> Understand the structural and compositional layers of the earth, its magnetic field, and how this knowledge is based on data from direct and indirect observation. (ES.5.1, ES.5.2, ES.5.3, ES.5.4, ES.5.5)	
<b>Core Standard</b> Understand how the processes of rock formation, weathering, sedimentation, and reformation continually shape the surface of the Earth. (ES.5.6, ES.5.7)	
ES 5.1 Describe the large-scale, compositional layers of the Earth.	<b>SE/TE:</b> 74-75, 393
ES.5.2 Understand the origin and effects of Earth's magnetic field.	For related content, please see: <b>SE/TE:</b> 457
ES.5.3 Compare and contrast the properties of rocks and minerals. Explain the uses of rocks and minerals, particularly those found in Indiana, in daily life.	<b>SE/TE:</b> 392-397, 403-404, 411, 415-417
ES.5.4 Illustrate the various processes involved in the rock cycle and discuss the conservation of matter during formation, weathering, sedimentation and reformation.	<b>SE/TE:</b> 83, 85, 94, 392-397, 417
ES 5.5 Understand the concepts of relative and absolute geologic time and their measurement by means of evidence from fossils and radioactive dating.	For related content, please see: <b>SE/TE:</b> 493-494, 511
ES 5.6 Understand the role of changing sea level and climate in the formation of the sedimentary rocks of Indiana.	<b>SE/TE:</b> 396, 492, 494, 501, 511
ES.5.7 Explain how sea level changes over time have exposed continental shelves, created and destroyed inland seas, and shaped the surface of the land.	<b>SE/TE:</b> 483, 492, 497-499, 501, 511

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<b>Standard 6: Earth Processes</b>	
<b>Core Standard</b> Understand the cyclical nature of processes that modify the Earth and how humans interact with these cycles. (ES.6.1, ES.6.2, ES.6.3)	
<b>Core Standard</b> Understand the role of plate tectonics in controlling the large scale structure of Earth's surface. Understand how the dynamic Earth impacts human society. (ES.6.4, ES.6.5)	
ES.6.1 Investigate and discuss how humans affect and are affected by geological systems and processes.	<b>SE/TE:</b> 82, 233, 242-247, 251-253, 358, 439-440, 461-464, 500-501, 523-524, 527, 532, 553, 555, 558, 560
ES.6.2 Differentiate among the processes of weathering, erosion, transportation of materials, deposition and soil formation.	<b>SE/TE:</b> 74, 352-354, 358-362, 405-407, 462
ES.6.3 Explain the origin of geologic features and processes that result from plate tectonics (e.g., earthquakes, volcanoes, trenches and mountain ranges).	<b>SE/TE:</b> 77-78, 277-278, 279
ES.6.4 Understand and discuss the development of plate tectonic theory, which is derived from the combination of two theories: continental drift and seafloor spreading.	<b>SE/TE:</b> 77-78, 277-278, 279
ES.6.5 Explain that the source of Earth's energy, which drives the process of tectonics, is derived from the decay of radioactive isotopes and gravitational energy from Earth's original formation.	<b>SE/TE:</b> 277, 553-555