

# IES Correlations to Louisiana

## Grades 5 - 8 Earth Science Standards

**Correlation Key:**

"XX" **In-depth Coverage** = In-depth coverage of concept in student edition.  
 "X" **Coverage** = Coverage in student edition and/or teacher edition supports the development of the concept.

Climate and Weather	Dynamic Planet	Energy Resources	Fossils	Materials and Minerals	Oceans	Rocks and Landforms	Soil	Water as a Resource
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**SCIENTIFIC INQUIRY: The students will do science by engaging in partial and full inquiries that are within their developmental capabilities.**

As students in Grades 5-8 extend their knowledge, what they know and are able to do includes:

**A. THE ABILITIES NECESSARY TO DO SCIENTIFIC INQUIRY**

SI-M-A1 identifying questions that can be used to design a scientific investigation	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-A2 designing and conducting a scientific investigation	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-A3 using mathematics and appropriate tools and techniques to gather, analyze, and interpret data	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-A4 developing descriptions, explanations, and graphs using data	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-A5 developing models and predictions using the relationships between data and explanations	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-A6 comparing alternative explanations and predictions	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-A7 communicating scientific procedures, information, and explanations	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-A8 utilizing safety procedures during scientific investigations	XX	XX	XX	XX	XX	XX	XX	XX	XX

**B. UNDERSTANDING SCIENTIFIC INQUIRY**

SI-M-B1 recognizing that different kinds of questions guide different kinds of scientific investigations	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-B2 communicating that current scientific knowledge guides scientific investigations	X	X	X	X	X	X	X	X	X
SI-M-B3 understanding that mathematics, technology, and scientific techniques used in an experiment can limit or enhance the accuracy of scientific knowledge	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-B4 using data and logical arguments to propose, modify, or elaborate on principles and models	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-B6 communicating that scientific investigations can result in new ideas, new methods or procedures, and new technologies	XX	XX	XX	XX	XX	XX	XX	XX	XX
SI-M-B7 understanding that scientific development/technology is driven by societal needs and funding	X	X	X	X	X	X	X	X	X

**PHYSICAL SCIENCE: Students will develop an understanding of the characteristics and interrelationships of matter and energy in the physical world.**

**C. TRANSFORMATIONS OF ENERGY**

PS-M-C1 identifying and comparing the characteristics of different types of energy;			XX						
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PS-M-C2 understanding the different kinds of energy transformations and the fact that energy can be neither destroyed nor created;	X	X	XX			X			
PS-M-C3 understanding that the sun is a major source of energy and that energy arrives at the Earth's surface as light with a range of wavelengths;	X		XX						X
PS-M-C4 observing and describing the interactions of light and matter (reflection, refraction, absorption, transmission, scattering);			X						
PS-M-C5 investigating and describing the movement of heat and the effects of heat in objects and systems;	X		X		X				
PS-M-C6 describing the types of energy that can be involved, converted, or released in electrical circuits;			X						
PS-M-C7 understanding that energy is involved in chemical reactions;			XX		X				
PS-M-C8 comparing the uses of different energy resources and their effects upon the environment.			XX						
<b>LIFE SCIENCE: The students will become aware of the characteristics and life cycles of organisms and understand their relationships to each other and to their environment.</b>									
<b>C. POPULATIONS AND ECOSYSTEMS</b>									
LS-M-C1 constructing and using classification systems based on the structure of organisms;				X					
LS-M-C2 modeling and interpreting food chains and food webs;				X		XX			
LS-M-C3 investigating major ecosystems and recognizing physical properties and organisms within each;	X			X		X			
LS-M-C4 explaining the interaction and interdependence of nonliving and living components within ecosystems.				X		XX			
<b>D. ADAPTATIONS OF ORGANISMS</b>									
LS-M-D1 describing the importance of plant and animal adaptation, including local examples;				XX		XX			
LS-M-D2 explaining how some members of a species survive under changed environmental conditions.				XX		XX			
<b>EARTH AND SPACE SCIENCE: The students will develop an understanding of the properties of earth materials, the structure of the Earth system, the Earth's history, and the Earth's place in the universe.</b>									
<b>A. STRUCTURE OF THE EARTH</b>									
ESS-M-A1 understanding that the Earth is layered by density with an inner and outer core, a mantle, and a thin outer crust		XX				X			
ESS-M-A2 understanding that the Earth's crust and solid upper mantle are dividing plates that move in response to convection currents (energy transfers) in the mantle		XX				XX			

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ESS-M-A3 investigating the characteristics of earthquakes and volcanos and identifying zones where they may occur		XX				X			
ESS-M-A4 investigating how soils are formed from weathered rock and decomposed organic material							X	XX	
ESS-M-A5 identifying the characteristics and uses of minerals and rocks and recognizing that rocks are mixtures of minerals					XX		XX		
ESS-M-A6 explaining the processes involved in the rock cycle		X		X			XX		
ESS-M-A7 modeling how landforms result from the interaction of constructive and destructive forces		XX					XX		
ESS-M-A8 identifying the man-made and natural causes of coastal erosion and the steps taken to combat it						X	XX		
ESS-M-A9 compare and contrast topographic features of the ocean floor to those formed above sea level		X				XX	X		
ESS-M-A10 explaining (illustrating) how water circulates -- on and through the crust, in the oceans, and in the atmosphere -- in the water cycle	XX					X			XX
ESS-M-A11 understanding that the atmosphere interacts with the hydrosphere to affect weather and climate conditions	XX					X			X
ESS-M-A12 predicting weather patterns through use of a weather map	XX								
<b>B. EARTH HISTORY</b>									
ESS-M-B1 investigating how fossils show the development of life over time				XX					
ESS-M-B2 devising a model that demonstrates supporting evidence that the Earth has existed for a vast period of time	X	X		XX					
ESS-M-B3 understanding that earth processes such as erosion and weathering affect the Earth today and are similar to those which occurred in the past	XX	X	X	X	X	X	XX	X	X
<b>C. EARTH IN THE SOLAR SYSTEM</b>									
ESS-M-C1 identifying the characteristics of the sun and other stars									
ESS-M-C2 comparing and contrasting the celestial bodies in our solar system									
ESS-M-C3 investigating the force of gravity and the ways gravity governs motion in the solar system and objects on Earth									
ESS-M-C4 modeling the motions of the Earth-moon-sun system to explain day and night, a year, eclipses, moon phases, and tides									
ESS-M-C5 modeling the position of the Earth in relationship to other objects in the solar system									
ESS-M-C6 modeling and describing how radiant energy from the sun affects phenomena on the Earth's surface, such as winds, ocean currents, and the water cycle	X		X			X			X

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ESS-M-C7 modeling and explaining how seasons result from variations in amount of the sun's energy hitting the surface due to the tilt of Earth's rotation on its axis and the length of the day									
ESS-M-C8 understanding that space exploration is an active area of scientific and technological research and development									
<b>SCIENCE AND THE ENVIRONMENT: In learning environmental science, students will develop an appreciation of the natural environment, learn the importance of environmental quality, and acquire a sense of stewardship. As consumers and citizens, they will be able to recognize how our personal, professional, and political actions affect the natural world.</b>									
SE-M-A1 demonstrating knowledge that an ecosystem includes living and nonliving factors and that humans are an integral part of ecosystems	X					X			
SE-M-A2 demonstrating an understanding of how carrying capacity and limiting factors affect plant and animal populations									
SE-M-A3 defining the concept of pollutant and describing the effects of various pollutants on ecosystems			X						XX
SE-M-A4 understanding that human actions can create risks and consequences in the environment			XX		XX		X		XX
SE-M-A5 tracing the flow of energy through an ecosystem and demonstrating a knowledge of the roles of producers, consumers, and decomposers in the ecosystem						X			
SE-E-A6 distinguishing between renewable and nonrenewable resources and understanding that nonrenewable natural resources are not replenished through the natural cycles and thus are strictly limited in quantity			XX		XX				XX
SE-M-A7 demonstrating knowledge of the natural cycles, such as the carbon cycle, nitrogen cycle, water cycle, and oxygen cycle	XX	X	X			X	X		XX
SE-M-A8 investigating and analyzing how technology affects the physical, chemical, and biological factors in an ecosystem		X	X		X		X		X
SE-M-A9 demonstrating relationships of characteristics of soil types to agricultural practices and productivity								XX	
SE-M-A10 identifying types of soil erosion and preventive measures							X	XX	