



# Alignment Document

## State of Louisiana And Aventa Learning Earth Science

### Earth Science 2005-2007 Benchmark Blueprint

State Standard Number	State Standard Area / Description	Unit Name	Course Topic Description
0	Earth Science		
SI	Science as Inquiry		
0	The Abilities Necessary to Do Scientific Inquiry		
SI.1	Write a testable question or hypothesis when given a topic		
SI.2	Describe how investigations can be observation, description, literature survey, classification, or experimentation		
SI.3	Plan and record step-by-step procedures for a valid investigation, select equipment and materials, and identify variables and controls		
SI.4	Conduct an investigation that includes multiple trials and record, organize, and display data appropriately		
SI.5	Utilize mathematics, organizational tools, and graphing skills to solve problems		
SI.6	Use technology when appropriate to enhance laboratory investigations and presentations of findings		
SI.7	Choose appropriate models to explain scientific knowledge or experimental results (e.g., objects, mathematical relationships, plans, schemes, examples, role-playing, computer simulations)		
SI.8	Give an example of how new scientific data can cause an existing scientific explanation to be supported, revised, or rejected	Planet Earth	Astronomy

SI.9	Write and defend a conclusion based on logical analysis of experimental data		
SI.10	Given a description of an experiment, identify appropriate safety measures		
0	Understanding Scientific Inquiry		
SI.11	Evaluate selected theories based on supporting scientific evidence		
SI.12	Cite evidence that scientific investigations are conducted for many different reasons		
SI.13	Identify scientific evidence that has caused modifications in previously accepted theories	Planet Earth	Astronomy
SI.14	Cite examples of scientific advances and emerging technologies and how they affect society (e.g., MRI, DNA in forensics)		
SI.15	Analyze the conclusion from an investigation by using data to determine its validity		
SI.16	Use the following rules of evidence to examine experimental results:		
SI.16.a	Can an expert's technique or theory be tested, has it been tested, or is it simply a subjective, conclusive approach that cannot be reasonably assessed for reliability?		
SI.16.b	Has the technique or theory been subjected to peer review and publication?		
SI.16.c	What is the known or potential rate of error of the technique or theory when applied?		
SI.16.d	Were standards and controls applied and maintained?		
SI.16.e	Has the technique or theory been generally accepted in the scientific community?		
ESS	Earth and Space Science		
0	Energy in Earth's System		
ESS.1	Describe what happens to the solar energy received by Earth every day	Changes in the Atmosphere	Heating the Atmosphere
ESS.2	Trace the flow of heat energy through the processes in the water cycle		
ESS.3	Describe the effect of natural insulation on energy transfer in a closed system	Planet Earth	Earth as a Complex System
ESS.4	Describe the relationship between seasonal changes in the angle of incoming solar radiation and its consequences to Earth's temperature (e.g., direct vs. slanted rays)	Changes in the Atmosphere	Heating the Atmosphere

ESS.5	Explain how the process of fusion inside the Sun provides the external heat source for Earth		
ESS.6	Discuss how heat energy is generated at the inner core-outer core boundary		
ESS.7	Analyze how radiant heat from the Sun is absorbed and transmitted by several different earth materials	Planet Earth	Earth as a Complex System
ESS.8	Explain why weather only occurs in the tropospheric layer of Earth's atmosphere		
ESS.9	Compare the structure, composition, and function of the layers of Earth's atmosphere	The History of Earth and the Atmosphere	The Atmosphere
ESS.10	Analyze the mechanisms that drive weather and climate patterns and relate them to the three methods of heat transfer	Changes in the Atmosphere	Heating the Atmosphere
ESS.11	Describe the processes that drive lithospheric plate movements (i.e., radioactive decay, friction, convection)	Plate Tectonics, Volcanoes, Earthquakes and Deformation	Internal Structure of the Earth
ESS.12	Relate lithospheric plate movements to the occurrences of earthquakes, volcanoes, mid-ocean ridge systems, and off-shore trenches found on Earth	Plate Tectonics, Volcanoes, Earthquakes and Deformation	Internal Structure of the Earth
		Plate Tectonics, Volcanoes, Earthquakes and Deformation	Earthquakes and Volcanoes
0	Geochemical Cycles		
ESS.13	Explain how stable elements and atoms are recycled during natural geologic processes		
ESS.14	Compare the conditions of mineral formation with weathering resistance at Earth's surface		
ESS.15	Identify the sun-driven processes that move substances at or near Earth's surface	Weathering, Erosion and Deposition	Weathering and Erosion
0	The Origin and Evolution of the Earth System		
ESS.16	Use the nebular hypothesis to explain the formation of a solar system		
ESS.17	Determine the relative ages of rock layers in a geologic profile or cross section	The History of Earth and the Atmosphere	The History of Earth
ESS.18	Use data from radioactive dating techniques to estimate the age of earth materials	The History of Earth and the Atmosphere	The History of Earth
ESS.19	Interpret geological maps of Louisiana to describe the state's geologic history		
ESS.20	Determine the chronological order of the five most recent major lobes of the Mississippi River delta in Louisiana		



AVENTA LEARNING

ESS.21	Use fossil records to explain changes in the concentration of atmospheric oxygen over time		
ESS.22	Analyze data related to a variety of natural processes to determine the time frame of the changes involved (e.g., formation of sedimentary rock layers, deposition of ash layers, fossilization of plant or animal species)		
0	The Origin and Evolution of the Universe		
ESS.23	Identify the evidence that supports the big bang theory	Earth and Space	The Solar System and the Universe
ESS.24	Describe the organization of the known universe		
ESS.25	Using the surface temperature and absolute magnitude data of a selected star, locate its placement on the Hertzsprung-Russell diagram and infer its color, size, and life stage		
ESS.26	Identify the elements present in selected stars, given spectrograms of known elements and those of the selected stars		
ESS.27	Trace the movement and behavior of hydrogen atoms during the process of fusion as it occurs in stars like the Sun		
ESS.28	Identify the relationship between orbital velocity and orbital diameter		
ESS.29	Demonstrate the elliptical shape of Earth's orbit and describe how the point of orbital focus changes during the year	Earth and Space	Earth and the Moon
ESS.30	Summarize how current technology has directly affected our knowledge of the universe	Earth and Space	Exploring Space