

**Louisiana High School Science
Contents Standards Mapping**

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Earth and Space Science	Boardworks High School Earth Science Presentations
Energy in Earth's System	
1. Describe what happens to the solar energy received by Earth every day (ESS-H-A1)	Heat Transfer and Global Interactions
2. Trace the flow of heat energy through the processes in the water cycle (ESS-H-A1)	The Water Cycle
3. <i>Describe the effect of natural insulation on energy transfer in a closed system (ESSH-A1)</i>	–
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) (ESS-H-A2)	The Rotation of the Earth
5. Explain how the process of fusion inside the Sun provides the external heat source for Earth (ESS-H-A3)	Nuclear Fusion
6. <i>Discuss how heat energy is generated at the inner core-outer core boundary (ESSH-A4)</i>	–
7. Analyze how radiant heat from the Sun is absorbed and transmitted by several different earth materials (ESS-H-A5)	Conduction and Convection
8. <i>Explain why weather only occurs in the tropospheric layer of Earth's atmosphere (ESS-H-A5)</i>	–
9. Compare the structure, composition, and function of the layers of Earth's atmosphere (ESS-H-A6)	The Atmosphere
10. Analyze the mechanisms that drive weather and climate patterns and relate them to the three methods of heat transfer (ESS-H-A6)	Heat Transfer and Global Interactions Weather and Climate
11. Describe the processes that drive lithospheric plate movements (i.e., radioactive decay, friction, convection) (ESS-H-A7) (ESS-H-A3) (ESS-H-A4)	Plate Tectonics
12. Relate lithospheric plate movements to the occurrences of earthquakes, volcanoes, mid-ocean ridge systems, and off-shore trenches found on Earth (ESS-H-A7)	Plate Tectonics Earthquake Causes Earth's Structure Volcanoes
Geochemical Cycles	
13. Explain how stable elements and atoms are recycled during natural geologic processes (ESS-H-B1)	The Rock Cycle The Carbon Cycle The Nitrogen Cycle
14. Compare the conditions of mineral formation with weathering resistance at Earth's surface (ESS-H-B1)	Weathering The Rock Cycle Erosion, Transportation and Deposition

	Erosion, Transportation and Deposition The Rock Cycle Heat Transfer and Global Interactions The Water Cycle
15. Identify the sun-driven processes that move substances at or near Earth's surface (ESS-H-B2)	
The Origin and Evolution of the Earth System	
16. Use the nebular hypothesis to explain the formation of a solar system (ESS-H-C1)	Planets of the Solar System
17. <i>Determine the relative ages of rock layers in a geologic profile or cross section (ESSH-C2)</i>	–
18. Use data from radioactive dating techniques to estimate the age of earth materials (ESS-H-C2)	Radioactive Dating
19. <i>Interpret geological maps of Louisiana to describe the state's geologic history (ESSH-C3)</i>	–
20. <i>Determine the chronological order of the five most recent major lobes of the Mississippi River delta in Louisiana (ESS-H-C3)</i>	–
21. Use fossil records to explain changes in the concentration of atmospheric oxygen over time (ESS-H-C4)	The Atmosphere
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) (ESS-H-C5)	The Rock Cycle The Atmosphere
The Origin and Evolution of the Universe	
23. Identify the evidence that supports the big bang theory (ESS-H-D1)	Doppler Effect Astronomical Distances
24. Describe the organization of the known universe (ESS-H-D2)	Structure of the Universe
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-H-D3)	Properties of Stars Observing the Universe
26. Identify the elements present in selected stars, given spectrograms of known elements and those of the selected stars (ESS-H-D4)	Observing the Universe
27. Trace the movement and behavior of hydrogen atoms during the process of fusion as it occurs in stars like the Sun (ESS-H-D5)	Nuclear Fusion The Life Cycle of Stars
28. Identify the relationship between orbital velocity and orbital diameter (ESS-H-D6) (PS-H-E2)	Gravity and Orbits
29. Demonstrate the elliptical shape of Earth's orbit and describe how the point of orbital focus changes during the year (ESS-H-D6)	Gravity and Orbits
30. Summarize how current technology has directly affected our knowledge of the universe (ESS-H-D7)	Observing the Universe Satellites Telescopes