LAB-AIDS Correlations for

NGSS HIGH SCHOOL EARTH AND SPACE SCIENCE STANDARDS

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This document is intended to show how our curriculum products align with the Earth and Space Science standards in the *Next Generation Science Standards* document.

ABOUT OUR PROGRAMS
LAB-AIDS Core Science Programs are developed to support current knowledge on the teaching and learning of science. All materials support an inquiry-driven pedagogy, with support for literacy skill development and with assessment programs that clearly show what students know and are able to do from using the programs. All programs have extensive support for technology in the school science classroom and feature comprehensive teacher support. For more information please visit www.labaids.com and navigate to the program of interest.

ABOUT *EDC EARTH SCIENCE*
EDC Earth Science – Revised (EDC-R), Copyright 2021, is a full year, activity-driven high school earth science course developed by the Education Development Center (EDC), with support from the National Science Foundation, and is fully aligned to the *Next Generation Science Standards (*NRC and Lead States, 2013). *EDC Earth Science* is designed around the belief that students are capable of rigorous and in-depth explorations in science when given adequate support, structure, and motivation for learning.

EDC Earth Science features the following design components:

- In-depth treatment of content based on recommendations in national standards and representative state frameworks
- Developmentally appropriate lessons featuring Earth Science concepts that build on previous learning and prepare students for more advanced courses
- Using historical, newsworthy, and fictionalized stories to draw students into the earth science content, to motivate them to acquire the knowledge for solving problems, and to serve as a framework around which students build conceptual understanding
- Differentiated instructional strategies and activities that help students construct meaning from their experiences and that serve as bridges between concrete and abstract thinking
- Support for developing literacy skills and the use of formative assessment techniques
- Each chapter of EDC: Earth Science is a cluster of activities that addresses a specific set of concepts and skills. The amount of class time for each chapter will vary. A chapter may range from one to four weeks of classroom sessions. Not shown here are two project-oriented shorter chapters that open and close the course, which taken together require 2-4 weeks for completion. This provides up to 32 weeks of actual instructional time, plus an additional 4 weeks for assessment and related activities.

Unit Title	*Core Science Content*	*Suggested Time*
1 Hydrosphere: Water in Earth's Systems	Water cycle; surface water, groundwater, assessing and protecting water supplies, Global patterns of ocean circulation; how wind and density differences drive ocean currents; global conveyor belt; El Niño	3-4 weeks
2 Atmosphere and Climate	Climate and weather; influence of latitude, atmospheric circulation, proximity to ocean, elevation, land features, and prevailing winds on regional climate, Energy balance, albedo effect, greenhouse effect, carbon cycle, positive and negative feedback loops; Paleoclimatology, climate proxies, climate change in Earth's past, Milankovitch cycles, tectonic processes that influence climate, human impact on climate	5-8 weeks
3 Earth's Place in the Universe	Life and death of stars, solar nebular condensation hypothesis, Kepler's Laws, Earth's interior structure and composition, internal sources of heat energy, seismic waves, introduction to plate tectonic theory, driving forces of plate movement	3-4 weeks
4 Plate Tectonics	Transform-fault boundaries, earthquakes, physical and computer models Subduction zones, volcanoes, formation of igneous rocks, field-measurement technologies for volcano monitoring seafloor spreading, paleomagnetism, plate tectonics summary, landforms associated with plate boundaries	5-7 weeks
5 The Rock Cycle	Erosion and deposition, deltaic processes, formation of sedimentary rock, The nature of rocks and minerals, rock cycle	3-6 weeks
6 Earth Resources	The geologic processes by which mineral ores are formed; mineral extraction and processing Fossil fuel formation, petroleum resources and exploration technologies	3-6 weeks

Each TE chapter provides detailed information on support for key NGSS core content, practices, and cross cutting concepts. For more information, visit us at www.lab-aids.com.

ABOUT THE LAB-AIDS CITATIONS

The following tables show locations in EDC Earth Science (student book chapter and page numbers and when appropriate, Resource Supplements (RS)) that support NGSS High School performance expectations (PE).

NGSS HS EARTH AND SPACE SCIENCE PERFORMANCE EXPECTATIONS	Where found in *EDC Earth Science*	
	Unit(s) and Title	**Chapter(s) and Pages**
Earth's Place in the Universe (ESS1)		
HS-ESS1-1: Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.	3: Earth's Place in the Universe	8: 200-203, 212-215, RS 8.0
HS-ESS1-2: Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.	3: Earth's Place in the Universe	8: 200-206, RS 8.0
HS-ESS1-3: Communicate scientific ideas about the way stars, over their life cycle, produce elements.	3: Earth's Place in the Universe	8: 200-201
HS-ESS1-4: Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.	3: Earth's Place in the Universe	8: 208-209
HS-ESS1-5: Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.	4: Plate Tectonics 5: The Rock Cycle	10: 256-260 12: 342-347 14: 399-401, 415-426
HS-ESS1-6: Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of.	3: Earth's Place in the Universe 5: The Rock Cycle	9: 195-199, 203-206 14: 415-426
Earth's Systems (ESS2)		
HS-ESS2-1: Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.	3: Earth's Place in the Universe 4: Plate Tectonics 5: The Rock Cycle	9: 241-244 10: 250-279 11: 289-322, RS 11.1 12: 336-345, 350-352 13: 363-389 14: 415-426, RS 14.1
HS-ESS2-2: Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.	1: Hydrosphere: Water in Earth's Systems 2: Atmosphere and Climate	3: 66-70, 72-76 4: 102-106 5: 115-135, RS 5.0 6: 155-164
HS-ESS2-3: Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.	3: Earth's Place in the Universe 4: Plate Tectonics	9: 241-244 11: 317-319 12: 342-352
HS-ESS2-4: Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.	1: Hydrosphere: Water in Earth's Systems 2: Atmosphere and Climate 3: Earth's Place in the Universe	3: 66-76 4: 94-98 5: 115-123 6: 165-178 8: RS 8.2
HS-ESS2-5: Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.	1: Hydrosphere: Water in Earth's Systems 2: Atmosphere and Climate	2: 24-35 3: 58-76 4: 99-103 5: 116-124, 133-135 6: 165-175

NGSS HS EARTH AND SPACE SCIENCE PERFORMANCE EXPECTATIONS	Where found in *EDC Earth Science*	
	Unit(s) and Title	**Chapter(s) and Pages**
HS-ESS2-6: Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere,	2: Atmosphere and Climate	5: 124-135 6: 160-163
HS-ESS2-7: Construct an argument based on evidence about the coevolution of Earth's systems and life on Earth. (Changes in the atmosphere from plants and other organisms along with feedback mechanisms.)	1: Hydrosphere: Water in Earth's Systems 2: Atmosphere and Climate 3: Earth's Place in the Universe 5: The Rock Cycle 6: Earth Resources	2: 36-40 5: 127-135, RS 5.1 6: 165-178 8: RS 8.1 13: 387-389 14: 425-426 15: 447-453 16: 479-485
HS-ESS2-8: Evaluate data and communicate information to explain how the movement and interactions of air masses result in changes in weather conditions.	2: Atmosphere and Climate	4: 97-98, 102-103, 104-106
Earth and Human Activity (ESS3)		
HS-ESS3-1: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.	1: Hydrosphere: Water in Earth's Systems 4: Plate Tectonics 5: The Rock Cycle 6: Earth Resources	2: 18-20, 38-40 10: 250-253, 283-284 11: 290-292, 321-322 13: 358-361, 387-389, RS 13.1 15: 432-435, 444-456 16: 461-468, 479-485
HS-ESS3-2: Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost benefit ratios.	6: Earth Resources	16: 482-484, RS 16.1
HS-ESS3-3: Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	1: Hydrosphere: Water in Earth's Systems 2: Atmosphere and Climate 6: Earth Resources	2:18-23 5: 127-132 6: 165-178 16: 463-467
HS-ESS3-4: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.	1: Hydrosphere: Water in Earth's Systems 5: The Rock Cycle 6: Earth Resources	2: 38-40 13: 387-389 15: 447-453, RS 15.2 16: 479-481
HS-ESS3-5: Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.	2: Atmosphere and Climate	6: 165-178
HS-ESS3-6: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.	2: Atmosphere and Climate	5: 127-135 6: 165-175