



**Lab-Aids Correlations for
Nebraska's College and Career Ready Standards for Science, 2017
HIGH SCHOOL EARTH AND SPACE SCIENCES**

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This document is intended to show how the EDC Earth Science materials align with [Nebraska's College and Career Ready Standards for Science](#).

ABOUT OUR PROGRAMS

Lab-Aids has maintained its home offices and operations in Ronkonkoma, NY, since 1963. We publish over 200 kits and core curriculum programs to support science teaching and learning, grades 6-12. All core curricula 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 as a result of program use. All programs have extensive support for technology and feature comprehensive teacher support. For more information, please visit <https://www.lab-aids.com/edc>.

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 NGSS 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.

EDC Earth Science		
<i>Unit Title</i>	<i>Core Science Content</i>	<i>Suggested Time</i>
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's 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, cross cutting concepts, use of phenomena in EDC-R and more. For more information, visit us at www.lab-aids.com/edc.

NEBRASKA EARTH AND SPACE SCIENCES STANDARD	Location in EDC Earth Science
	Unit and title Chapter and pages
SC.HS.11 Space Systems	
SC.HS.11.1. Gather, analyze, and communicate evidence to defend that the universe changes over time.	
SC.HS.11.1.A Develop a model based on evidence to illustrate the <u>stages</u> of stars, like the sun, and the role of nuclear fusion in the sun's core to <u>release energy</u> that eventually reaches Earth in the form of radiation. <i>Assessment does not include details of the atomic and sub-atomic processes involved with the sun's nuclear fusion.</i>	Unit 3: Earth's Place in the Universe Chapter 8: 200-203, 212-215
SC.HS.11.1.B Construct an explanation of the Big Bang theory based on <u>astronomical evidence</u> of light spectra, motion of distant galaxies, and <u>composition of matter</u> in the universe.	Unit 3: Earth's Place in the Universe Chapter 8: 200-206
SC.HS.11.1.C Communicate scientific ideas about the way stars, through their stellar <u>stages</u> , produce elements. <i>Details of the many different nucleosynthesis pathways for stars of differing masses are not assessed.</i>	Unit 3: Earth's Place in the Universe Chapter 8: 200-201
SC.HS.11.1.D Use mathematical or computational representations to <u>predict</u> the motion of orbiting objects in the solar system. <i>Mathematical representations for the gravitational attraction of bodies and Kepler's Laws of orbital motions should not deal with more than two bodies, nor involve calculus.</i>	Unit 3: Earth's Place in the Universe Chapter 8: 208-209
SC.HS.12 Weather and Climate	
SC.HS.12.2 Gather, analyze, and communicate evidence to support that Earth's climate and weather are influenced by energy flow through Earth systems.	
SC.HS.12.2.A Construct an explanation based on evidence for how the <u>sun's energy moves among Earth's systems</u> .	Unit 1: Hydrosphere: Water in Earth's Systems Chapter 3: 60-76 Unit 2: Atmosphere and Climate Chapter 4: 97-106 Chapter 5: 115-123, 133-135
SC.HS.12.2.B Use a model to describe how variations in the flow of energy into and out of Earth's systems <u>result in</u> changes in climate. <i>Assessment of the results of changes in climate is limited to changes in surface temperatures, precipitation patterns, glacial ice volumes, sea levels, and biosphere distribution.</i>	Unit 1: Hydrosphere: Water in Earth's Systems Chapter 3: 66-76 Unit 2: Atmosphere and Climate Chapter 4: 94-98 Chapter 5: 115-123 Chapter 6: 165-178
SC.HS.12.2.C Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the <u>current rate and scale</u> of global or regional climate changes.	Unit 2: Atmosphere and Climate Chapter 6: 165-178

NEBRASKA EARTH AND SPACE SCIENCES STANDARD	Location in EDC Earth Science
	Unit and title Chapter and pages
SC.HS.12.2.D Evaluate the validity and reliability of past and present models of Earth conditions to <u>make projections</u> of future climate trends and their impacts.	Unit 2: Atmosphere and Climate Chapter 6: 165-178
SC.HS.13 Earth's Systems SC.HS.13.3 Gather, analyze, and communicate evidence to defend the position that Earth's systems are interconnected and impact one another.	
SC.HS.13.3.A Analyze geoscience data to make the claim that one change to Earth's surface can <u>create feedbacks</u> that cause changes to other Earth systems.	Unit 1: Hydrosphere: Water in Earth's Systems Chapter 3: 66-70, 72-76 Unit 2: Atmosphere and Climate Chapter 4: 102-106 Chapter 5: 115-135 Chapter 6: 155-164
SC.HS.13.3.B Develop a model based on evidence of Earth's interior to describe the <u>cycling of matter</u> .	Unit 3: Earth's Place in the Universe Chapter 9: 241-244 Unit 4: Plate Tectonics Chapter 11: 317-319 Chapter 12: 342-352
SC.HS.13.3.C Construct an argument based on evidence to explain the multiple <u>processes that cause</u> Earth's plates to move.	Unit 3: Earth's Place in the Universe Chapter 9: 241-245 Unit 4: Plate Tectonics Chapter 12: 342-345, 350-352
SC.HS.13.3.D Plan and conduct an investigation of the <u>properties of water</u> and their effects on Earth materials, surface processes, and groundwater systems.	Unit 1: Hydrosphere: Water in Earth's Systems Chapter 2: 24-35 Chapter 3: 58-76 Unit 2: Atmosphere and Climate Chapter 4: 99-103 Chapter 5: 116-124, 133-135 Chapter 6: 165-175
SC.HS.13.3.E Develop a quantitative model to describe the <u>cycling of</u> carbon and other nutrients among the hydrosphere, atmosphere, geosphere, and biosphere today and in the geological past.	Unit 2: Atmosphere and Climate Chapter 5: 124-135 Chapter 6: 160-163
SC.HS.14 History of Earth SC.HS.14.4 Gather, analyze, and communicate evidence to interpret Earth's history.	
SC.HS.14.4.A Evaluate evidence of the <u>past and current movements</u> of continental and oceanic crust and the theory of plate tectonics to explain the <u>differences in age</u> , structure, and composition of crustal and sedimentary rocks.	Unit 4: Plate Tectonics Chapter 10: 256-260 Chapter 12: 342-347 Unit 5: The Rock Cycle

NEBRASKA EARTH AND SPACE SCIENCES STANDARD	Location in EDC Earth Science
	Unit and title Chapter and pages
	Chapter 14: 399-401, 415-426
<p>SC.HS.14.4.B Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to <u>reconstruct Earth’s formation</u> and early history.</p>	<p>Unit 3: Earth’s Place in the Universe Chapter 9: 195-199, 203-206</p> <p>Unit 5: The Rock Cycle Chapter 14: 415-426</p>
<p>SC.HS.14.4.C Develop a model to illustrate how Earth’s internal and surface processes operate <u>over time</u> to form, modify, and recycle continental and ocean floor features. <i>Assessment does not include memorizing of the details of the formation of specific geographic features of Earth’s surface.</i></p>	<p>Unit 3: Earth’s Place in the Universe Chapter 9: 241-244</p> <p>Unit 4: Plate Tectonics Chapter 10: 250-279; 11: 289-322 Chapter 12: 336-345, 350-352</p> <p>Unit 5: The Rock Cycle Chapter 13: 363-389 Chapter 14: 415-426</p>
<p>SC.HS.14.4.D Construct an argument based on evidence to validate <u>coevolution</u> of Earth’s systems and life on Earth. <i>Assessment does not include a comprehensive understanding of the mechanisms of how the biosphere interacts with all of Earth’s other systems.</i></p>	<p>Unit 1: Hydrosphere: Water in Earth’s Systems Chapter 2: 36-40</p> <p>Unit 2: Atmosphere and Climate Chapter 5: 127-135 Chapter 6: 165-178</p> <p>Unit 5: The Rock Cycle Chapter 13: 387-389 Chapter 14: 425-426</p> <p>Unit 6: Earth Resources Chapter 15: 447-453 Chapter 16: 479-485</p>
<p>SC.HS.15 Sustainability SC.HS.15.5 Gather, analyze, and communicate evidence to describe the interactions between society, environment, and economy.</p>	
<p>SC.HS.15.5.A Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and <u>changes in climate</u> have influenced human activity.</p>	<p>Unit 1: Hydrosphere: Water in Earth’s Systems Chapter 2: 18-20, 38-40</p> <p>Unit 4: Plate Tectonics Chapter 10: 250-253, 283-284 Chapter 11: 290-292, 321-322</p> <p>Unit 5: The Rock Cycle Chapter 13: 358-361, 387-389</p>

NEBRASKA EARTH AND SPACE SCIENCES STANDARD	Location in EDC Earth Science
	Unit and title Chapter and pages
	Unit 6: Earth Resources Chapter 15: 432-435, 444-456 Chapter 16: 461-468, 479-485
SC.HS.15.5.B Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.	Unit 6: Earth Resources Chapter 16: 482-484
SC.HS.15.5.C Create a computational simulation to illustrate the relationships among management of natural resources, the <u>sustainability</u> of human populations, and biodiversity. <i>Assessment for computational simulations is limited to using provided multi-parameter programs or constructing simplified spreadsheet calculations.</i>	Unit 1: Hydrosphere: Water in Earth’s Systems Chapter 2: 18-23 Unit 2: Atmosphere and Climate Chapter 5: 127-132 Chapter 6: 165-178 Unit 6: Earth Resources Chapter 16: 463-467
SC.HS.15.5.D Evaluate or refine a technological solution that increases positive impacts of human activities on <u>natural systems</u> .	Unit 1: Hydrosphere: Water in Earth’s Systems Chapter 2: 38-40 Unit 5: The Rock Cycle Chapter 13: 387-389 Unit 6: Earth Resources Chapter 16: 479-481
SC.HS.15.5.E Evaluate a solution to a complex real-world problem based on prioritized criteria and tradeoffs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible <u>social, cultural, and environmental impacts</u> . (HS-ETS1-3)	Unit 2: Atmosphere and Climate Chap 5: 135-137, Kivalina Town Meeting Unit 4: Plate Tectonics Chap 11: 315-317, Mt Rainier Development Plans Unit 5: The Rock Cycle Chap 13: 389-390, New Orleans Rebuilding Options Unit 6: Earth Resources Chap 15: 453-455, Mineral Resource Development Executive Summary
SC.HS.15.5.F Use a computational representation to illustrate the <u>relationships among Earth systems and the degree to which those relationships are being modified due to human activity</u> . <i>Assessment does not include running computational representations but is limited to using the published results of scientific computational models.</i>	Unit 2: Atmosphere and Climate Chapter 5: 127-135 Chapter 6: 165-175