

Lab-Aids Correlations for
2023 PENNSYLVANIA
SCIENCE, TECHNOLOGY & ENGINEERING, ENVIRONMENTAL LITERACY AND SUSTAINABILITY (STEELS)
STANDARDS
EARTH AND SPACE SCIENCE – GRADES 9-12

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This document is intended to show how the *EDC Earth Science* materials align with the [2023 STEELS Standards](#).

ABOUT OUR PROGRAMS

Lab-Aids has based 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 www.lab-aids.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. Each chapter of *EDC: Earth Science* is a cluster of activities that addresses a specific set of concepts and skills through developmentally appropriate lessons that build on previous learning and prepare students for more advanced courses. The curriculum uses historical, newsworthy, and fictionalized stories to draw students into, and motivate them to engage in, the earth science content and build conceptual understanding. Support for developing literacy skills, the use of formative assessment techniques, differentiated instructional strategies, and hands-on activities help all students construct meaning from their experiences. The amount of class time for each chapter will vary. A chapter may range from one to four weeks of classroom sessions.

ABOUT THE LAB-AIDS CITATIONS

This correlation is intended to show selected locations in *EDC Earth Science* that support the STEELS Standards for High School Earth and Space Science. It is not an exhaustive list; other locations may exist that are not listed here.

Citations included in the correlation document are as follows:

<i>EDC Earth Science</i> Unit and Chapter	<i>Earth's Place in the Universe</i> Ch 8: 200-203, 212-215, RS 8.0 *partially covered
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3.3 Earth and Space Science: Grades 9-12		
Strand	Standard	EDC Earth Science Unit and Chapter
The Universe and Its Stars	3.3.9-12.A 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 in the form of radiation.	<i>Earth's Place in the Universe</i> Ch 8: 200-203, 212-215, RS 8.0
	3.3.9-12.B Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, the motion of distant galaxies, and the composition of matter in the universe.	<i>Earth's Place in the Universe</i> Ch 8: 200-206, RS 8.0
	3.3.9-12.C Communicate scientific ideas about the way stars, over their life cycle, produce elements.	<i>Earth's Place in the Universe</i> Ch 8: 200-201
Earth and the Solar System	3.3.9-12.D Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.	<i>Earth's Place in the Universe</i> Ch 8: 208-209
	3.3.9-12.E Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.	<i>Hydrosphere: Water in Earth’s Systems</i> Ch 3: 66-76 <i>Atmosphere and Climate</i> Ch 4: 94-98; Ch 5: 115-123; Ch 6: 165-178 <i>Earth’s Place in the Universe</i> Ch 8: RS 8.2
The History of Planet Earth	3.3.9-12.F 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.	<i>Plate Tectonics</i> Ch 10: 256-260; Ch 12: 342-347 <i>The Rock Cycle</i> Ch 14: 399-401, 415-426
	3.3.9-12.G Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.	<i>Earth's Place in the Universe</i> Ch 9: 195-199, 203-206 <i>The Rock Cycle</i> Ch 14: 415-426
Earth Materials and Systems	3.3.9-12.H Analyze geoscience data to make the claim that one change to Earth's surface can create feedback that causes changes to other Earth systems.	<i>Hydrosphere: Water in Earth’s Systems</i> Ch 3: 66-70, 72-76 <i>Atmosphere and Climate</i> Ch 4: 102-106; Ch 5: 115-135, RS 5.0; Ch 6: 155-164
	3.3.9-12.I Develop a model based on evidence of Earth’s interior to describe the cycling of matter by thermal convection.	<i>Earth's Place in the Universe</i> Ch 9: 241-244 <i>Plate Tectonics</i> Ch 11: 317-319; Ch 12: 342-352

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Strand	Standard	EDC Earth Science Unit and Chapter
Plate Tectonics and Large-Scale System Interactions	3.3.9-12.J 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.	<i>Earth’s Place in the Universe</i> Ch 9: 241-244
		<i>Plate Tectonics</i> Ch 10: 250-279; Ch 11: 289-322, RS 11.1; Ch 12: 336-345, 350-352
		<i>The Rock Cycle</i> Ch 13: 363-389; Ch 14: 415-426, RS 14.1
The Roles of Water in Earth’s Surface Processes	3.3.9-12.K Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.	<i>Hydrosphere: Water in Earth’s Systems</i> Ch 2: 24-35, Ch3: 58-76
		<i>Atmosphere and Climate</i> Ch 4: 99-103; Ch 5: 116-124, 133-135; Ch 6: 165-175
Weather and Climate	3.3.9-12.L Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	<i>Atmosphere and Climate</i> Ch 5: 124-135; Ch 6: 160-163
	3.3.9-12.M Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.	<i>Atmosphere and Climate</i> Ch 5: 127-135; Ch 6: 165-175
	3.3.9-12.S 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.	<i>Atmosphere and Climate</i> Ch 6: 165-178
Biogeology	3.3.9-12.N Construct an argument based on evidence about the simultaneous coevolution of Earth’s systems and life on Earth.	<i>Hydrosphere: Water in Earth’s Systems</i> Ch 2: 36-40
		<i>Atmosphere and Climate</i> Ch 5: 127-135, RS 5.1; Ch 6: 165-178
Natural Resources	3.3.9-12.O 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.	<i>Earth’s Place in the Universe</i> Ch 8: RS 8.1
		<i>The Rock Cycle</i> Ch 13: 387-389; Ch 14: 425-426
		<i>Earth Resources</i> Ch 15: 447-453; Ch 16: 479-485
Natural Resources	3.3.9-12.O 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.	<i>Hydrosphere: Water in Earth’s Systems</i> Ch 2: 18-20, 38-40
		<i>Plate Tectonics</i> Ch 10: 250-253, 283-284; Ch 11: 290-292,

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		321-322 <i>The Rock Cycle</i> Ch 13: 358-361, 387-389, RS 13.1 <i>Earth Resources</i> Ch 15: 432-435, 444-456; Ch 16: 461-468, 479-485
	3.3.9-12.P Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.	<i>Earth Resources</i> Ch 16: 482-484, RS 16.1
Human Impact on Earth Systems	3.3.9-12.Q Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.	<i>Hydrosphere: Water in Earth's Systems</i> Ch 2:18-23 <i>Atmosphere and Climate</i> Ch 5: 127-132; Ch 6: 165-178 <i>Earth Resources</i> Ch 16: 463-467
	3.3.9-12.R Evaluate or refine a technological solution that reduces the impact of human activities on natural systems.	<i>Hydrosphere: Water in Earth's Systems</i> Ch 2: 38-40 <i>The Rock Cycle</i> Ch 13: 387-389 <i>Earth Resources</i> Ch 15: 447-453, RS 15.2; Ch 16: 479-481