

NGSS CORRELATIONS

SOLAR SYSTEM AND BEYOND

Crosscutting Concepts		Activity number
Cause and Effect	Cause-and-effect relationships may be used to predict phenomena in natural or designed systems.	3
Patterns	Patterns can be used to identify cause-and-effect relationships.	3, 4, 5, 6, 7, 8, 9, 14
	Graphs, charts, and images can be used to identify patterns in data.	2
Scale, Proportion, and Quantity	Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.	4, 10, 11, 12, 13
Systems and System Models	Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy and matter flows within systems.	3, 4, 8, 11, 15, 16
	Models are limited in that they only represent certain aspects of the system under study.	8
Connections to Engineering, Technology, and Applications of Science	Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems	1, 4, 9, 10, 13, 17
Connections to the Nature of Science	Science assumes that objects and events in natural systems occur in consistent patterns and are understandable through measurement and observation.	2, 3, 4, 5, 6, 7, 8, 9, 14, 15, 16
Science and Engineering Practices		Activity number
Analyzing and Interpreting Data	Analyze and interpret data to determine similarities and differences in findings.	1, 2, 4, 5, 6, 7, 10, 11, 12, 13, 14, 17
	Construct and interpret graphical displays of data to identify linear and nonlinear relationships.	6
	Analyze and interpret data to provide evidence for phenomena.	9
Developing and Using Models	Develop a model to predict and/or describe phenomena.	3, 4, 5, 7, 8, 9, 11, 12, 15, 16
Constructing Explanations and Designing Solutions	Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe nature operate today as they did in the past and will continue to do so in the future.	7
	Apply scientific ideas to construct an explanation for real world phenomena, examples, or events.	3, 7, 8

Science and Engineering Practices		Activity number
Using Mathematics and Computational Thinking	Apply mathematical concepts and/or processes (e.g., ratio, rate, percent, basic operations, simple algebra) to scientific and engineering questions and problems.	10
Connections to the Nature of Science	Science findings are frequently revised and/or reinterpreted based on new evidence.	1
Disciplinary Core Ideas		Activity number
The Universe and Its Stars (ESS1.A)	Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models.	2, 3, 4, 5, 6, 7, 9, 16
	Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe.	1, 10, 15, 16
Earth and the Solar System (ESS1.B)	The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.	10, 11, 12, 13, 14, 15, 16, 17
	This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short-term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year.	3, 5, 6, 7, 8, 9
	The solar system appears to have formed from a disk of dust and gas, drawn together by gravity.	15, 16
Performance Expectations		Activity number
Earth's Place in the Universe (ESS1)	Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. (MS-ESS1-1)	5, 9
	Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. (MS-ESS1-2)	16
	Analyze and interpret data to determine scale properties of objects in the solar system. (MS-ESS1-3)	13

COMMON CORE STATE STANDARDS CORRELATIONS

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Common Core State Standards – English Language Arts		Activity number
Reading in Science and Technical Subjects (RST)	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. (RST.6-8.1)	1, 15
	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. (RST.6-8.2)	9
Speaking and Listening (SL)	Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound and valid reasoning, and well-chosen details: use appropriate eye contact, adequate volume, and clear pronunciation. (SL.8.4)	12, 17
	Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (SL.8.5)	7, 9, 17
Writing in History/ Social Studies, Science, and Technological Subjects (WHST)	Write informative/explanatory texts to examine and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (WHST.6-8.2)	3, 5, 9, 12, 15, 17
	Draw evidence from informational texts to support analysis, reflection, and research. (WHST.6-8.9)	1, 17
Common Core State Standards – Mathematics		Activity number
Mathematical Practice (MP)	Reason abstractly and quantitatively. (MP.2)	3, 4, 11, 16
	Model with mathematics. (MP.4)	5, 6, 13, 16
Ratios and Proportional Reasoning (RP)	Understand the concept of a ratio, and use ratio language to describe a ratio between two quantities. (6.RP.A.1)	5, 10, 11, 12
	Use ratio and rate reasoning to solve real-world and mathematical problems. (6.RP.A.3)	8, 13, 14, 16
Statistics and Probability (SP)	Summarize numerical data sets in relation to their context. (6.SP.B.5)	14