



Science – Eighth Grade 2023-24

First Quarter

SCIENCE	THREE DIMENSIONS (DCI, CCC, SEP)
Week 1, Aug 2-4 (3-day week) Pre-assess all standards	
Week 2, Aug 7-11 8.PS2.1 Design and conduct investigations depicting the relationship between magnetism and electricity in electromagnets, generators, and electrical motors, emphasizing the factors that increase or diminish the electric current and the magnetic field strength. 8.ETS1.1 Develop a model to generate data for ongoing testing and modification of an electromagnet, a generator, and a motor such that an optimal design can be achieved.	DCI: Relationship between magnetism and electricity in electromagnets, generators, & electrical motors; factors that increase/decrease the electric current or magnetic field strength CCC: Cause and effect SEP: Asking questions (for science) and defining problems (for engineering) DCI: Electromagnetism/Electromagnetic Induction CCC: Structure and function SEP: Analyzing and interpreting data
Week 3, Aug 14-18 8.PS2.1/ETS1.1 Continued Unit Assessment (8.PS2.1 & 8.ETS1.1)	
Week 4, Aug 21-25 8.PS2.2 Conduct an investigation to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.	DCI: Non-Contact Forces: Gravitational force, electricity, and magnetism CCC: Cause and effect SEP: Planning and carrying out controlled investigations
Week 5, Aug 28-Sept 1 8.PS2.3 Create a demonstration of an object in motion and describe the position, force, and direction of the object.	DCI: Motion maps (position, force, direction) CCC: Systems and system models SEP: Developing and using models

Week 6, Sept 5-8 (4-day week) 8.PS2.3 Continued	
Week 7, Sept 11-15 8.PS2.4 Plan and conduct an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.	DCI: Newton's Second Law of Motion CCC: Cause and effect SEP: Planning and carrying out investigations
Week 8, Sept 19-22 (4-day week) 8.PS2.5 Evaluate and interpret that for every force exerted on an object there is an equal force exerted in the opposite direction.	DCI: Newton's Third Law of Motion CCC: Systems and system models SEP: Developing and using models
Week 9, Sept 25-29 Unit Assessment (8.PS2.2-5) District Science Checkpoint Assessment 1 (all Qtr 1 standards through 8.PS2.5)	
Week 10, Oct 2-6 Re-testing in Groups/Data Conferences 8.PS4.1 Develop and use models to represent the basic properties of waves including frequency, amplitude, wavelength, and speed.	DCI: Properties of waves CCC: Patterns SEP: Using mathematics and computational thinking



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Second Quarter

SCIENCE	THREE DIMENSIONS (DCI, CCC, SEP)
Week 1, Oct 16-20 8.PS4.1 Continued , Develop and use models to represent the basic properties of waves including frequency, amplitude, wavelength, and speed.	DCI: Properties of waves CCC: Patterns SEP: Using mathematics and computational thinking
Week 2, Oct 23-27 8.PS4.2 Compare and contrast mechanical waves and electromagnetic waves based on refraction, reflection, transmission, absorption, and their behavior through a vacuum and/or various media.	DCI: Mechanical vs electromagnetic waves CCC: Patterns SEP: Constructing explanations and designing solutions
Week 3, Oct 30-Nov 3 8.PS4.3 Evaluate the role that waves play in different communication systems. Unit Assessment (8.PS4.1-3)	DCI: Digitizing information CCC: Structure and function SEP: Constructing explanations and designing solutions
Week 4, Nov 6-10 8.ESS1.1 Research, analyze, and communicate that the universe began with a period of rapid expansion using evidence from the motion of galaxies and composition of stars.	DCI: The universe began with a period of rapid expansion (e.g., motion of galaxies, composition of stars) CCC: Energy and matter SEP: Constructing explanations and designing solutions
Week 5, Nov 13-17 8.ETS1.2 Research and communicate information to describe how data from technologies (telescopes, spectrosopes, satellites, and space probes) provide information about objects in the solar system and universe. 8.ESS1.2 Explain the role of gravity in the formation of our sun and planets. Extend this explanation to address gravity's effect on the motion of celestial objects in our solar system and Earth's ocean tides.	DCI: Technology providing dynamic views of our universe CCC: Scale, proportion, and quantity SEP: Obtaining, evaluating, and communicating information DCI: Gravity's role in forming stars and planets and their motion CCC: Systems and system models SEP: Developing and using models

Week 6, Nov 20-21 (2-day week) 8.ESS1.2 Continued	
Week 7, Nov 27-Dec 1 Unit Assessment (8.ESS1.1-2, 8.ETS1.2) 8.ESS2.2 Evaluate data collected from seismographs to create a model of Earth's structure	DCI: Seismographs/seismic waves CCC: Structure & function SEP: Developing and using models
Week 8, Dec 4-8 8.ESS2.2 Continued 8.ESS2.3 Describe the relationship between the processes and forces that create igneous, sedimentary, and metamorphic rocks.	DCI: Formation of igneous, sedimentary, and metamorphic rocks CCC: Stability and change SEP: Developing and using models
Week 9, Dec 11-15 8.ESS2.3 Continued District Science Checkpoint Assessment 2 (all Qtr 2 standards through 8.ESS2.2)	
Week 10, Dec 18-20 (2.5-day week) Re-testing in Groups/Data Conferences	



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Third Quarter

SCIENCE	THREE DIMENSIONS (DCI, CCC, SEP)
Week 1, Jan 4-5 (2-day week) 8.ESS2.4 Gather and evaluate evidence that energy from the earth's interior drives convection cycles within the asthenosphere which creates changes within the lithosphere including plate movements, plate boundaries, and sea-floor spreading	DCI: Earth's convection cycles within the asthenosphere results in lithospheric changes CCC: Energy and matter SEP: Developing and using models
Week 2, Jan 8-12 8.ESS2.4 Continued Unit Assessment (8.ESS2.2-4)	
Week 3, Jan 16-19 (4-day week) 8.ESS2.5 Construct a scientific explanation using data that explains the gradual process of plate tectonics accounting for A) the distribution of fossils on different continents, B) the occurrence of earthquakes, and C) continental and ocean floor features (including mountains, volcanoes, faults, and trenches).	DCI: Tectonic theory CCC: Cause and effect SEP: Constructing explanations and designing solutions
Week 4, Jan 22-26 8.ESS2.5 Continued 8.ESS3.2 Collect data, map, and describe patterns in the locations of volcanoes and earthquakes related to tectonic plate boundaries, interactions, and hotspots.	DCI: Relationship between tectonic theory and the location of volcanoes and earthquakes CCC: Patterns SEP: Using mathematics and computational thinking
Week 5, Jan 29-Feb 1 (4-day week) 8.ESS3.2 Continued	

Week 6, Feb 5-9 8.ESS3.1 Interpret data to explain that earth's mineral, fossil fuel, and groundwater resources are unevenly distributed as a result of geologic processes.	DCI: Relationship between the formation processes of earth's natural resources and their location CCC: Cause and effect SEP: Constructing explanations and designing solutions
Week 7, Feb 12-16 Unit assessment (8.ESS2.5, 8.ESS3.1-2) 8.LS4.1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change in life forms throughout Earth's history	DCI: Evidence from fossil record CCC: Patterns SEP: Analyzing and interpreting data
Week 8, Feb 20-23 (4-day week) 8.LS4.1 Continued	
Week 9, Feb 26-Mar 1 8.ESS2.1 Analyze and interpret data to support the assertion that rapid or gradual geographic changes lead to drastic population changes and extinction events District Science Checkpoint Assessment 3 (all Qtr 3 standards through 8.LS4.1)	DCI: Geographic changes that drive the processes of natural selection & adaptation CCC: Scale, proportion, and quantity SEP: Analyzing and interpreting models https://a.co/d/b2mtu7O
Week 10, Mar 4, 6-8 (4-day week) Re-testing in Groups/Data Conferences 8.ESS2.1 Continued	



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Fourth Quarter

SCIENCE	THREE DIMENSIONS (DCI, CCC, SEP)
Week 1 March 18-22 8.LS4.2 Construct an explanation addressing similarities and differences of the anatomical structures and genetic information between extinct and extant organisms using evidence of common ancestry and patterns between taxa	DCI: Cladograms (evidence of common ancestry) CCC: Patterns SEP: Constructing explanations and designing solutions
Week 2 March 25-28 (4-day week) 8.LS4.2 continued 8.LS4.3 Analyze evidence from geology, paleontology, and comparative anatomy to support that specific phenotypes within a population can increase the probability of survival of that species and lead to adaptation	DCI: Variability of traits within a population CCC: Cause and effect SEP: Engaging in argument from evidence
Week 3 April 2-5 (4-day week) 8.LS4.3 Continued 8.LS4.4 Develop a scientific explanation of how natural selection plays a role in determining the survival of a species in a changing environment	DCI: Natural selection CCC: Structure and function SEP: Developing and using models
Week 4, April 8-12 8.LS4.5 Obtain, evaluate, and communicate information about the technologies that have changed the way humans use artificial selection to influence the inheritance of desired traits in other organisms. Unit Assessment (8.LS4.1-5, 8.ESS2.1)	DCI: Artificial selection CCC: Cause and effect SEP: Obtaining, evaluating, and communicating information
Week 5, Apr 15-19 STEM PBL/Project/Enrichment	
Week 6, Apr 22-26 STEM PBL/Project/Enrichment	

Week 7, Apr 29-May 3 STEM PBL/Project/Enrichment	
Week 8, May 6-10 STEM PBL/Project/Enrichment	
Week 9, May 13-17 STEM PBL/Project/Enrichment	
Week 10, May 20-22 (2.5-day week) STEM PBL/Project/Enrichment	