Correlation of Smithsonian's STC Middle School™ to the Tennessee Academic Standards for Science, Grades 6–8

For more information, contact:
Atiya Merchant
Curriculum Support Representative, Curriculum Sales
atiya.merchant@carolina.com
336.263.6930

Smithsonian | STC Science and Technology Concepts™ Middle School

CAROLINA K-8 CURRICULUM

Smithsonian's STC Middle School™ Recommended Scope and Sequence for Tennessee Academic Standards for Science, Grades 6–8

GRADE 6	Ecosystems and Their Interactions	Weather and Climate Systems	Energy, Forces, and Motion
GRADE 7	Structure and Function	Genes and Molecular Machines	Matter and Its Interactions
GRADE 8	Earth's Dynamic Systems	Space Systems Exploration	Electricity, Waves, and Information Transfer

For more information, contact:
Atiya Merchant
Curriculum Support Representative, Curriculum Sales
atiya.merchant@carolina.com
336.263.6930

Smithsonian | STC Science and Technology Concepts™ Middle School

CAROLINA K–8 CURRICULUM

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 6		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
6.PS3: Energy		
1) Analyze the properties and compare sources of mechanical, electrical, chemical, radiant, and thermal energy.	**Energy, Forces, and Motion TE:** L8 pgs. 163a–181b	Students read about different forms of energy and create chart to compare them.
2) Construct a scientific explanation of the transformations between potential and kinetic energy.	**Energy, Forces, and Motion TE:** L5 pgs. 63a–81; L7 pgs. 103a–123; L8 pgs. 123a–141	Students build a roller coaster and use it to conduct investigations to explore the relationships between potential energy, kinetic energy, and speed.
3) Analyze and interpret data to show the relationship between kinetic energy and the mass of an object in motion and its speed.	**Energy, Forces, and Motion TE:** L1 pgs. 1a–13; L2 pgs. 13a–31; L5 pgs. 63a–81; L7 pgs. 103a–123; L8 pgs. 123a–141; L9 pgs. 141a–153 **Electricity, Waves, and Information Transfer TE *(recommended for Grade 8)*:** L1 pgs. 1a–19; L4 pgs. 65a–91; L5 pgs. 91a–115a; L10 pgs. 201c–219a	Students plan and perform investigations to explore collisions between cars with different masses.
4) Conduct an investigation to demonstrate the way that heat (thermal energy) moves among objects through radiation, conduction, or convection.	**Electricity, Waves, and Information Transfer TE *(recommended for Grade 8)*:** L5 pgs. 91a–115a; L10 pgs. 201c-219a	Students design, build, and test a device that regulates thermal energy transfer to the surrounding environment.
6.LS2: Ecosystems: Interactions, Energy, and Dynamics		
1) Evaluate and communicate the impact of environmental variables on population size.	**Ecosystems and Their Interactions TE:** L1 pgs. 1a–27; L2 pgs. 27a–49; L3 pgs. 49a–71; L6 pgs. 125a–147; L11 pgs. 243a–249	Students perform a simulation to see how resource availability affects the number of organisms an ecosystem can support.
2) Determine the impact of competitive, symbiotic, and predatory interactions in an ecosystem.	**Ecosystems and Their Interactions TE:** L1 pgs. 1a–27; L6 pgs. 125a–147; L11 pgs. 243a–249	Students build a pond and collect data about the pond ecosystem over time. Students analyze their data, which includes data about symbiotic, competitive, and predatory interactions in their pond ecosystem.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 6		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
3) Draw conclusions about the transfer of energy through a food web and energy pyramid in an ecosystem.	**Ecosystems and Their Interactions TE:** L1 pgs. 1a–27; L4 pgs. 79a–97; L5 pgs. 97a–125; L11 pgs. 243a–249	Students analyze information about how organisms in the African savanna interact and then design a food web to show those interactions.
4) Using evidence from climate data, draw conclusions about the patterns of abiotic and biotic factors in different biomes, specifically the tundra, taiga, deciduous forest, desert, grassland, rainforest, marine, and freshwater ecosystems.	**Ecosystems and Their Interactions TE:** L7 pgs. 147a–179	Students explore biotic and abiotic factors in their model ponds that can lead to population changes.
5) Analyze existing evidence about the effect of a specific invasive species on native populations in Tennessee and design a solution to mitigate its impact.	**Ecosystems and Their Interactions TE:** L7 pgs. 147a–179	Students model how new species impact native species.
6) Research the ways in which an ecosystem has changed over time in response to changes in physical conditions, population balances, human interactions, and natural catastrophes.	**Ecosystems and Their Interactions TE:** L7 pgs. 147a–179; L11 pgs. 243a–249	Students make changes to their model ponds and measure the impact of those changes on the populations of organisms in the ponds over time.
7) Compare and contrast auditory and visual methods of communication among organisms in relation to survival strategies of a population.	**No correlation to program.**	
6.LS4: Biological Change: Unity and Diversity		
1) Explain how changes in biodiversity would impact ecosystem stability and natural resources.	**Ecosystems and Their Interactions TE:** L1 pgs. 1a–27; L9 pgs. 199a–221; L10 pgs. 221a–243; L11 pgs. 243a–249	Students conduct research about an organism, its habitat, and reintroductions of similar organisms to make a claim based on evidence about whether an organism should be reintroduced to parts of its historic range.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 6		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
2) Design a possible solution for maintaining biodiversity of ecosystems while still providing necessary human resources without disrupting environmental equilibrium.	**Ecosystems and Their Interactions TE:** L9 pgs. 199a–221; L10 pgs. 221a–243; L11 pgs. 243a–249	Students research a threat to an ecosystem, research and evaluate existing solutions to lessen or eliminate that threat, and then design their own solution.
6.ESS2: Earth's Systems		
1) Gather evidence to justify that oceanic convection currents are caused by the sun's transfer of heat energy and differences in salt concentration leading to global water movement.	**Weather and Climate Systems TE:** L5 pgs. 63c–81	Students use the results of their investigations to construct a scientific explanation about the effects of temperature and salinity on ocean currents.
2) Diagram convection patterns that flow due to uneven heating of the Earth.	**Weather and Climate Systems TE:** L4 pgs. 41a–63a; L5 pgs. 63c–81; L6 pgs. 81a–101; L10 pgs. 153a–175b	Students plan and carry out an investigation and collect data to examine what happens when air masses meet.
3) Construct an explanation for how atmospheric flow, geographic features, and ocean currents affect the climate of a region through heat transfer.	**Weather and Climate Systems TE:** L1 pgs. 1a–9; L2 pgs. 9a–23; L4 pgs. 41a–63a; L5 pgs. 63c–81; L9 pgs. 139a–153	Students conduct investigations to gather evidence to explain what factors might be important in determining the climate of an area.
4) Apply scientific principles to design a method to analyze and interpret the impact of humans and other organisms on the hydrologic cycle.	**Weather and Climate Systems TE:** L11 pgs. 175c–199	Students use research conducted at the Smithsonian Environmental Research Center to analyze and interpret the impact of increasing carbon dioxide and nitrogen levels and sea level rise will impact wetlands.
5) Analyze and interpret data from weather conditions, weather maps, satellites, and radar to predict probable local weather patterns and conditions.	**Weather and Climate Systems TE:** L6 pgs. 81a–101; L7 pgs. 101a–117; L8 pgs. 117c–138	Students use weather maps, satellite data, and weather conditions to track Hurricane Katrina as a model for predicting probable weather conditions.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 6		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
6) Explain how relationships between the movement and interactions of air masses, high- and low-pressure systems, and frontal boundaries result in weather conditions and severe storms.	**Weather and Climate Systems TE:** L3 pgs. 35a–57; L4 pgs. 57a–77; L6 pgs. 81a—101; L7 pgs. 101a–117; L8 pgs. 117c –138	Students develop a controlled experiment to compare how air pressure affects cloud formation.
6.ESS3: Earth and Human Activity		
1) Differentiate between renewable and nonrenewable resources by asking questions about their availability and sustainability.	**Weather and Climate Systems TE:** L11 pgs. 195–199	Students investigate renewable and nonrenewable resources to determine availability and sustainability.
2) Investigate and compare existing and developing technologies that utilize renewable and alternative energy resources.	**Weather and Climate Systems TE:** L11 pgs. 195–199	Students investigate developing technologies that use alternative energy resources.
3) Assess the impacts of human activities on the biosphere including conservation, habitat management, species endangerment, and extinction.	**Ecosystems and Their Interactions TE:** L10 pgs. 221a–243; L11 pgs. 243a–249	Students plan and carry out an investigation to determine how human activities impact plant growth.
6.ETS1: Engineering Design		
1) Evaluate design constraints on solutions for maintaining ecosystems and biodiversity.	**Ecosystems and Their Interactions TE:** L10 pgs. 221a–243	Students design a solution to mediate the impact that human activity is having on the environment.
2) Design and test different solutions that impact energy transfer.	**Ecosystems and Their Interactions TE:** L5 pgs. 97a–125	Students use the model ponds they set up to test solutions that impact energy transfer.

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 7		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
7.PS1: Matter and Its Interactions		
1) Develop and use models to illustrate the structure of atoms, including the subatomic particles with their relative positions and charge.	**Matter and Its Interactions TE:** L5 pgs. 83c–107b; L7 pgs. 141a–162	Students use plastic atoms to represent elements in physical models that show the atomic composition of simple molecules.
2) Compare and contrast elemental molecules and compound molecules.	**Matter and Its Interactions TE:** L5 pgs. 83c–107b	Students compare multiple molecular-level models (drawings, 3-D ball-and-stick structures, 3-D computer representations) to identify similarities and differences.
3) Classify matter as pure substances or mixtures based on composition.	**Matter and Its Interactions TE:** L2 pgs. 17c–37b; L6 pgs. 107c–141	Students perform investigations to determine if a substance is pure or a mixture.
4) Analyze and interpret chemical reactions to determine if the total number of atoms in the reactants and products support the Law of Conservation of Mass.	**Matter and Its Interactions TE:** L4 pgs. 61c–83b; L9 pgs. 181c–192	Students investigate chemical reactions and collect data to determine the number of atoms in the reactants to support the law of Conservation of Mass.
5) Use the periodic table as a model to analyze and interpret evidence relating to physical and chemical properties to identify a sample of matter.	**Matter and Its Interactions TE:** L5 pgs. 83c–107b	Students use the periodic table to identify a sample of matter.
6) Create and interpret models of substances whose atoms represent the states of matter with respect to temperature and pressure.	**Matter and Its Interactions TE:** L4 pgs. 61c–83b; L5 pgs. 83c–107b	Students develop models of phase changes that describe changes in particle motion, temperature, and state of matter when thermal energy is added or removed.
7.LS1: From Molecules to Organisms: Structures and Processes		
1) Develop and construct models that identify and explain the structure and function of major cell organelles as they contribute to the life activities of the cell and organism.	**Structure and Function TE:** L2 pgs. 15a–43a; L3 pgs. 43c–65	Students develop and construct models to identify the structures and functions of cell parts, including organelles.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 7		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
2) Conduct an investigation to demonstrate how the cell membrane maintains homeostasis through the process of passive transport.	**Structure and Function TE:** L2 pgs. 15a–43a; L3 pgs. 43c–65	Students develop a model to demonstrate how the cell membrane maintains homeostasis.
3) Evaluate evidence that cells have structural similarities and differences in organisms across kingdoms.	**Structure and Function TE:** L2 pgs. 15a–43a; L3 pgs. 43c–65; L4 pgs. 65a–91; L5 pgs. 91a–111	Students evaluate cells and determine the differences and similarities among various types of plant, animal, and bacteria cells.
4) Diagram the hierarchical organization of multicellular organisms from cells to organism.	**Structure and Function TE:** L6 pgs. 111a–141	Students diagram the hierarchical organization of multicellular organisms.
5) Explain that the body is a system comprised of subsystems that maintain equilibrium and support life through digestion, respiration, excretion, circulation, sensation (nervous and integumentary), and locomotion (musculoskeletal).	**Structure and Function: TE:** L6 pgs. 111a–141; L7 pgs. 141a–165	Students investigate how a body is a system made up of subsystems that work together to support life.
6) Develop an argument based on empirical evidence and scientific reasoning to explain how behavioral and structural adaptations in animals and plants affect the probability of survival and reproductive success.	**Genes and Molecular Machines TE:** L7 pgs. 111a–129; L8 pgs. 129a–141; L9 pgs. 141a–165	Students use beads to investigate and model artificial selection and probability.
7) Evaluate and communicate evidence that compares and contrasts the advantages and disadvantages of sexual and asexual reproduction.	**Genes and Molecular Machines TE:** L3 pgs. 33c–49	Students observe sexual reproduction of paramecium (fission) and hydra (budding) and compare sexual and asexual reproduction.
8) Construct an explanation demonstrating that the function of mitosis for multicellular organisms is for growth and repair through the production of genetically identical daughter cells.	**Genes and Molecular Machines TE:** L4 pgs. 49a–67	Students design, construct, and discuss models of mitosis.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 7		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
9) Construct a scientific explanation based on compiled evidence for the processes of photosynthesis, cellular respiration, and anaerobic respiration in the cycling of matter and flow of energy into and out of organisms.	**Structure and Function TE:** L4 pgs. 65a–91; L5 pgs. 91a–111	Students explore the energy-producing processes of photosynthesis and cell respiration and construct a scientific explanation about how organisms obtain food.
7.LS2: Ecosystems: Interactions, Energy, and Dynamics		
1) Develop a model to depict the cycling of matter, including carbon and oxygen, including the flow of energy among biotic and abiotic parts of an ecosystem.	**Ecosystems and Their Interactions TE *(recommended for Grade 6)*:** L1 pgs. 1a–27; L2 pgs. 27a–49; L4 pgs. 79a–97; L7 pgs. 147a–179	Students build a model pond that depicts the cycling of matter and the flow of energy.
7.LS3: Heredity: Inheritance and Variation of Traits		
1) Hypothesize that the impact of structural changes to genes (i.e., mutations) located on chromosomes may result in harmful, beneficial, or neutral effects to the structure and function of the organism.	**Genes and Molecular Machines TE:** L6 pgs. 87c–111	Students transcribe DNA sequences, compare them to traits and explore the impact of mutations on traits.
2) Distinguish between mitosis and meiosis and compare the resulting daughter cells.	**Genes and Molecular Machines TE:** L4 pgs. 49a–67	Students observe and compare onion root cells undergoing mitosis and explore plant cell meiosis.
3) Predict the probability of individual dominant and recessive alleles to be transmitted from each parent to offspring during sexual reproduction and represent the phenotypic and genotypic patterns using ratios.	**Genes and Molecular Machines TE:** L5 pgs. 67a–87b; L6 pgs. 87c–111; L8 pgs. 129a–141	Students investigate variation in a lady beetle population and predict the probability of individual dominant and recessive alleles.
7.ESS3: Earth and Human Activity		
1) Graphically represent the composition of the atmosphere as a mixture of gases and discuss the potential for atmospheric change.	**Weather and Climate Systems TE *(recommended for Grade 6)*:** L4 pgs. 41a–63a; L11 pgs. 175c–199	Students view a video on atmospheric gases and discuss possible outcomes of changing levels of atmospheric gases.

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 7		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
2) Engage in a scientific argument through graphing and translating data regarding human activity and climate.	**Weather and Climate Systems TE *(recommended for Grade 6)*:** L10 pgs. 153a—175b; L11 pgs. 175c–199	Students view videos and engage in a scientific argument about human activity and climate change.
7.ETS2: Links Among Engineering, Technology, and Applications of Science		
1) Examine a problem from the medical field pertaining to biomaterials and design a solution taking into consideration the criteria, constraints, and relevant scientific principles of the problem that may limit possible solutions.	No correlation to program.	

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 8		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
8.PS2: Motion and Stability: Forces and Interactions		
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.	**Electricity, Waves, and Information Transfer TE:** L3 pgs. 47c–62; L4 pgs. 63c–78 **Energy, Forces, and Motion TE *(recommended for Grade 6)*:** L1 pgs. 1a–13; L3 pgs. 31a–49	Students design and conduct investigations to determine factors that increase or diminish electric current. They disassemble and reassemble an electric motor.
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.	**Energy, Forces, and Motion TE *(recommended for Grade 6)*:** L1 pgs. 1a–13; L3 pgs. 31a–49 **Electricity, Waves, and Information Transfer TE:** L4 pgs. 63c–78	Students design an experiment to determine how distance from a magnet affects the motion of an object in the magnetic field.
3) Create a demonstration of an object in motion and describe the position, force, and direction of the object.	**Energy, Forces, and Motion TE *(recommended for Grade 6)*:** L1 pgs. 1a–13; L2 pgs. 13a–31; L4 pgs. 49a–63; L6 pgs. 81a–103; L7 pgs. 103a–123; L9 pgs. 141a–153	Students perform several investigations to demonstrate objects in motion and describe position, force, and direction of the objects.
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.	**Energy, Forces, and Motion TE *(recommended for Grade 6)*:** L4 pgs. 49a–63; L6 pgs. 81a–103; L7 pgs. 103a–123; L9 pgs. 141a–153	Students plan and conduct investigations with a rolling ball to provide evidence that change in motion depends on the mass of the object and the force applied.
5) Evaluate and interpret that for every force exerted on an object there is an equal force exerted in the opposite direction.	**Energy, Forces, and Motion TE *(recommended for Grade 6)*:** L6 pgs. 81a–103; L7 pgs. 103a–123	Students plan and conduct an investigation using a car and use the data they collect to construct evidence-based explanations for Newton's laws.

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 8		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
8.PS4: Waves and Their Applications in Technologies for Information Transfer		
1) Develop and use models to represent the basic properties of waves including frequency, amplitude, wavelength, and speed.	**Electricity, Waves, and Information Transfer TE:** L6 pgs. 115c–135a; L7 pgs. 135c–157a	Students investigate the properties of waves using various instruments. They draw and label the properties.
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.	**Electricity, Waves, and Information Transfer TE:** L7 pgs. 135c–157a	Students observe light and sound waves and investigate how they move through various media.
3) Evaluate the role that waves play in different communication systems.	**Electricity, Waves, and Information Transfer TE:** L8 pgs. 157c–177	Students design an information communication system.
8.LS4: Biological Change: Unity and Diversity		
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.	**Earth's Dynamic Systems TE:** L1 pgs. 1a–13a; L9 pgs. 241c–275a; L12 pgs. 319c–329	Students investigate how fossils are formed and interpret data using the fossil record.
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.	**Structure and Function TE *(recommended for Grade 7)*:** L1 pgs. 1a–15; L6 pgs. 111a–141; L8 pgs. 165a–171a	Students construct an explanation of differences and similarities of extinct and extant organisms using models and simulations.
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.	**Earth's Dynamic Systems TE:** L9 pgs. 241c–275a	Students analyze evidence to support the probability of a population's survival and possible adaptations.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 8		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
4) Develop a scientific explanation of how natural selection plays a role in determining the survival of a species in a changing environment.	**Genes and Molecular Machines TE *(recommended for Grade 7)*:** L1 pgs. 1a–17; L9 pgs. 141a–165; L11 pgs. 181a–187	Students collect data, read, and develop a scientific explanation about how natural selection plays a role in determining the survival of a species.
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.	**Genes and Molecular Machines TE *(recommended for Grade 7)*:** L9 pgs. 141a–165; L10 pgs. 165a–181	Students research technologies humans have used to manipulate organisms.
8.ESS1: Earth's Place in the Universe		
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.	**Space Systems Exploration TE:** L2 pgs. 17a–35; L8 pgs. 147a–167	Students use a model to investigate the relationship between mass and orbital speed and read to learn more about how gravitational attraction formed galaxies, stars, and other bodies in our universe.
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.	**Space Systems Exploration TE:** L1 pgs. 1a–17; L7 pgs. 127a–147; L8 pgs. 147a–167; L10 pgs. 187a–193	Students explain the role of gravity in the formation of our Sun and planets and investigate the relationship of gravity to orbiting bodies.
8.ESS2: Earth's Systems		
1) Analyze and interpret data to support the assertion that rapid or gradual geographic changes lead to drastic population changes and extinction events.	**Earth's Dynamic Systems TE:** L9 pgs. 241c–275a; L11 pgs. 295c–319a	Students conduct research to collect, analyze, and interpret patterns related to existence, diversity, anatomical structures, and extinction of organisms.
2) Evaluate data collected from seismographs to create a model of Earth's structure.	**Earth's Dynamic Systems TE:** L3 pgs. 39c–73a	Students use seismographs to collect simulated earthquake data, analyze readings, and locate the epicenter of an earthquake.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 8		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
3) Describe the relationship between the processes and forces that create igneous, sedimentary, and metamorphic rocks.	**Earth's Dynamic Systems TE:** L5 pgs. 117c–147a	Students conduct investigations and simulations to model how heat and pressure form different types of rocks.
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 seafloor spreading.	**Earth's Dynamic Systems TE:** L4 pgs. 73c–117a; L5 pgs. 117c–147a; L11 pgs. 295c–319a	Students model the movement of lithospheric plates on the asthenosphere.
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).	**Earth's Dynamic Systems TE:** L2 pgs. 13c–39a; L3 pgs. 39c–73a; L4 pgs. 73c–117a; L5 pgs. 117c–147a; L6 pgs. 147c–181; L7 pgs. 181a–209a; L11 pgs. 295c–319a	Students use evidence gathered over a series of investigations to create a model of a landmass and break it into continents to demonstrate divergent boundaries. Students analyze and interpret data related to the distribution of rocks, landforms, and features of the seafloor.
8.ESS3: Earth and Human Activity		
1) Interpret data to explain that Earth's mineral, fossil fuel, and groundwater resources are unevenly distributed as a result of geologic processes.	**Earth's Dynamic Systems TE:** L10 pgs. 275c–295a; L11 pgs. 295c–319a	Students map data about the locations of copper deposits and compare it to a map of earthquake and volcano data. They look for patterns and devise an explanation for them.
2) Collect data, map, and describe patterns in the locations of volcanoes and earthquakes related to tectonic plate boundaries, interactions, and hotspots.	**Earth's Dynamic Systems TE:** L2 pgs. 13c–39a; L3 pgs. 39c–73a; L4 pgs. 73c–117a; L5 pgs. 117c–147a; L6 pgs. 147c–181; L7 pgs. 181a–209a; L10 pgs. 275c–295a	Students collect data and map and describe patterns of the locations of earthquakes and volcanoes.

TE – Teacher Edition; **L –** Lesson

Correlation of Smithsonian's STCMS™ to the Tennessee Academic Standards for Science, Grades 6–8

Grade 8		
Tennessee Standards	**STCMS Module Correlation**	**Evidence**
8.ETS1: Engineering Design		
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.	**Electricity, Waves, and Information Transfer TE:** L4 pgs. 65a–91	Students design, build, and redesign a motor.
2) Research and communicate information to describe how data from technologies (telescopes, spectroscopes, satellites, and space probes) provide information about objects in the solar system and universe.	**Space Systems Exploration TE:** L2 pgs. 17a–35; L4 pgs. 57a–77; L6 pgs. 95a–127	Students read about and investigate ancient and current technologies for collecting data from space.