

Science Grade 6 Unit 2
Canterbury Public Schools

Subject	Science
Grade Level	6
Unit Title	Earth Systems & Earth and Human Activity
Unit Goals	Demonstrate an understanding of Earth's processes, its history and how it has and continues to change.
Pacing (# of weeks)	8 Weeks
Standards	<p>NGSS Performance Standards</p> <p>MS-ESS1-4. Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.</p> <p>MS-ESS2-2. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.</p> <p>MS-ESS2-3. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.</p>
Content/Conceptual Knowledge (know)	<p>Science knowledge is based on logical and conceptual connections between evidence and explanations.</p> <p>NGSS Disciplinary Core Ideas (See below)</p> <p>ESS1.C: The History of Planet Earth</p> <ul style="list-style-type: none"> ▪ The geologic time scale interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale. (MS-ESS1- 4) ▪ Tectonic processes continually generate new ocean sea floor at ridges and destroy old seafloor at trenches. (HS.ESS1.C GBE) (secondary to MS-ESS2-3) <p>ESS2.A: Earth's Materials and Systems</p> <ul style="list-style-type: none"> ▪ The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. (MS-ESS2-2) <p>ESS2.B: Plate Tectonics and Large-Scale System Interactions</p> <ul style="list-style-type: none"> ▪ Maps of ancient land and water patterns, based on investigations of rocks and

	<p>fossils, make clear how Earth’s plates have moved great distances, collided, and spread apart. (MS-ESS2-3)</p> <p>ESS2.C: The Roles of Water in Earth’s Surface Processes</p> <ul style="list-style-type: none"> ▪ Water’s movements—both on the land and underground—cause weathering and erosion, which change the land’s surface features and create underground formations. (MS-ESS2-2)
<p>Skills (be able to do)</p>	<p>Inquiry/Science skills:</p> <ul style="list-style-type: none"> ● Observing: Using all five senses to gather information, noting details, and describing objects or events. ● Measuring: Using standard and non-standard measures to accurately quantify dimensions, including the metric system (centimeters, liters, milliliters) ● Inferring: Interpreting or explaining observations to make sense of data. ● Hypothesizing and Testing: Forming a testable, educated guess and designing experiments to test it. ● Controlling Variables: Identifying and managing independent, dependent, and controlled variables in experiments. ● Data Analysis & Interpretation: Creating and reading graphs, charts, and tables to analyze data. ● Modeling: Using models to represent, understand, and explain complex systems. ● Draw conclusions and use data to determine next steps in an attempt to refine the experimentation process. <p>Soft Skills:</p> <ul style="list-style-type: none"> ● Follow step by step directions ● Communication: Active listening, verbal, and written communication are crucial for collaborating and presenting ideas effectively. ● Teamwork & Collaboration: Working effectively in groups, respecting diverse perspectives, and contributing positively to shared goals. ● Adaptability & Flexibility: The ability to adjust to new situations, unexpected challenges, and evolving environments. <p>Digital Literacy Skills</p> <ul style="list-style-type: none"> ● Use Google classroom ● Use technology to complete tasks and research data. ● Use Google sheets to create graphs ● Use Google slides to present data ● Hyperlink data sources
<p>Essential Questions</p>	<ul style="list-style-type: none"> ● How and why is the Earth constantly changing?

	<ul style="list-style-type: none"> ● How do Earth's major systems interact? ● Why do the continents move, and what causes earthquakes and volcanoes? ● How do the properties and movements of water shape Earth's surface and affect its systems? ● How do living organisms alter Earth's processes and structures? ● How do humans change the planet? ● How do people model and predict the effect of human activities on the Earth's Climate? ● What is absolute and relative dating? ● What is the law of superposition? ● What are Earth's Spheres and how do they interact?
<p>Enduring Understandings</p>	<ol style="list-style-type: none"> 1. Earth is about 4.6 Billion years old. 2. The geologic time scale breaks up Earth's history into Eons, Eras, Periods, and Epocs 3. Rocks and Fossils data along with the law of superposition are used to identify and organize the geologic time scale 4. Absolute dating uses the decay of elements to measure old rock. 5. Earth's crust is broken into plates. 6. Plate tectonics is the movement of the plates around due to convection currents in the mantle. 7. When plates move they can collide,split apart, or slide past each other. These cause plate boundaries (convergent, divergent, transform) 8. Earth has 4 major spheres (biosphere, geosphere, atmosphere, hydrosphere) 9. Earth's spheres interact in a variety of ways from microscopic to global from a fractions of a second to billions of years 10. Water is responsible for a majority of weathering but it can also be caused by other sources like wind and oxygen.
<p>Vocabulary</p>	<p>Law of superposition, Geology, Eon, Era, Period, Epoch, Lithosphere, Asthenosphere, Crust, Mantle, Inner Core, Outer Core, Absolute Dating, Relative Dating, Carbon 14, Transform boundary, Convergent boundary, Divergent boundary, Plate tectonics, atmosphere, biosphere, geosphere, hydrosphere, weathering, physical weathering, chemical weathering, erosion, deposition</p>
<p>Common Learning Experiences</p>	<p>Designing and creating a timeline of Earth's history Presentation on the interactions between earth's spheres Field trip to CT science center Experiment on plate tectonics Demonstrations of convection currents in the mantle. Demonstrations of erosion and deposition. Reading articles about how barnacles in Alaska led to early plate tectonic theory. Watching videos that demonstrate the interactions of Earth's spheres.</p>

	Researching major events in each era of the history of Earth.
Assessments	Pretests Unit Assessments Demonstrations Lab Reports Experiments
Student Resources	Classroom library, Google classroom, Mystery Science activities and lessons, online classroom resources Online Super Stem articles,
Teacher Resources	NASA.gov, Mystery Science activities and lessons, Scholastic.com, NGSS,