Link Community Charter School

Grade 6 Science: Earth Science Scope and Sequence

Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Unit 1 addresses the **solar system,** helping students to identify the sun as the center and source of energy, and the planets which orbit the sun.						Interactive Science: Earth Science
Star of the Solar System - The Sun	5.4.6.A.3	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why is gravity important? What impact does the sun have on Earth and the solar system?	The Sun's gravity holds planets and other objects in the solar system in orbit, and planets' gravity holds moons in orbit.	Predict what would happen to an orbiting object if gravity were increased, decreased, or taken away.	Interactive Science: Earth Science
The Planets - Size, Distance	5.4.6.A.4 5.1.8.A.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why is Earth's distance from the Sun important for human survival? Why do children think the sun revolves around the Earth?	The Sun is the central and most massive body in our solar system, which includes eight planets and their moons, dwarf planets, asteroids, and comets. Earth's position relative to the Sun, and the rotation of Earth on its axis, result in patterns and cycles that define time units of days and years.	Compare and contrast the major physical characteristics (including size and scale) of solar system objects using evidence in the form of data tables and photographs. Construct and evaluate models demonstrating the rotation of Earth on its axis and the orbit of Earth around the Sun.	Interactive Science: Earth Science

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The Planet Pocketbook	5.4.6.A.4 5.1.8.A.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why is it difficult to create a model of the solar system that is both accurate for distance from the sun and size of the planets? How does the moon's phase and position impact the tides?	The Sun is the central and most massive body in our solar system, which includes eight planets and their moons, dwarf planets, asteroids, and comets. The relative positions and motions of the Sun, Earth, and Moon result in the phases of the Moon, eclipses, and the daily and monthly cycle of tides.	Compare and contrast the major physical characteristics (including size and scale) of solar system objects using evidence in the form of data tables and photographs. Analyze moon-phase, eclipse, and tidal data to construct models that explain how the relative positions and motions of the Sun, Earth, and Moon cause these three phenomena	Interactive Science: Earth Science
Unit 2 addresses the water cycle. Students learn that Earth's water makes the planet unique; they recognize the limited amount of fresh water available for living things; and they understand						Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
The Water Planet	5.2.6.A.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How does density impact an object's mass and size?	The density of an object can be determined from its volume and mass. Each state of matter has unique properties (e.g., gases can be compressed, while solids and liquids cannot; the shape of a solid is independent of its container; liquids and gases take the shape of their containers).	Calculate the density of objects or substances after determining volume and mass.	Interactive Science: Earth Science
Water Cycles	5.2.4.A.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Does a simple water cycle model fully capture the scientific water cycle? What aspects of nature should be added to the simple water cycle model?	The density of an object can be determined from its volume and mass. Each state of matter has unique properties (e.g., gases can be compressed, while solids and liquids cannot; the shape of a solid is independent of its container; liquids and gases take the shape of their containers).	Calculate the density of objects or substances after determining volume and mass.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Transpiration	5.3.6.C.3 5.4.6.G.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	What happenes to water once it is in the leaves of a plant? How do both animals and plants contribute to the water cycle?	All organisms cause changes in the ecosystem in which they live. If this change reduces another organism's access to resources, that organism may move to another location or die. An ecosystem includes all of the plant and animal populations and nonliving resources in a given area. Organisms interact with each other and with other components of an ecosystem.	Describe how one population of organisms may affect other plants and/or animals in an ecosystem. Create a model of ecosystems in two different locations, and compare and contrast the living and nonliving components.	Interactive Science: Earth Science
Watersheds	5.1.8.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How does water behave in our watershed and why is it important?	Evidence is generated and evaluated as part of building and refining models and explanations.	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.	Interactive Science: Earth Science
Water Cycle Game	5.1.8.A.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How do scientific practices aid in investigating and discovering new information?	Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Unit 3 builds on the importance of the water cycle as a factor in **weather.** Through the series of lessons students explore other factors that contribute to weather patterns.						Interactive Science: Earth Science
Humidity	5.4.6.F.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	What is humidity and how is humidity used as a factor to determine the the heat index?	Weather is the result of short-term variations in temperature, humidity, and air pressure.	Explain the interrelationships between daily temperature, air pressure, and relative humidity data.	Interactive Science: Earth Science
Density	5.2.6.A.3 5.2.6.A.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How deos temperature impact the density of an object? How can we identify an unknown object using information about density?	Pure substances have characteristic intrinsic properties, such as density, solubility, boiling point, and melting point, all of which are independent of the amount of the sample. The density of an object can be determined from its volume and mass.	Determine the identity of an unknown substance using data about intrinsic properties. Calculate the density of objects or substances after determining volume and mass.	Interactive Science: Earth Science
Differential Heating	5.2.6.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	What environmental factors impact heating and cooling of objects? What intrinsic properties of matter impact heating and cooling?	When a new substance is made by combining two or more substances, it has properties that are different from the original substances.	Compare the properties of reactants with the properties of the products when two or more substances are combined and react chemically.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Convection Currents	5.2.6.C.3	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why is the temperature cooler near the shore than inland? Why do certain weather events occur more frequently in different areas? ie. tornadoes	The transfer of thermal energy by conduction, convection, and radiation can produce large-scale events such as those seen in weather.	Relate the transfer of heat from oceans and land masses to the evolution of a hurricane.	Interactive Science: Earth Science
Winds	5.4.6.G.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	What is the role of the sun in energy transfer in the atmosphere and in the oceans?	Circulation of water in marine environments is dependent on factors such as the composition of water masses and energy from the Sun or wind.	Illustrate global winds and surface currents through the creation of a world map of global winds and currents that explains the relationship between the two factors.	Interactive Science: Earth Science
Air Pressure	5.4.6.F.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Does air pressure impact the density of an object? If so, how?	Weather is the result of short-term variations in temperature, humidity, and air pressure.	Explain the interrelationships between daily temperature, air pressure, and relative humidity data.	Interactive Science: Earth Science
Severe Weather	5.2.6.C.3	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How is severe weather different from regular weather and climate patterns and how have we learned to predict these events?	The transfer of thermal energy by conduction, convection, and radiation can produce large-scale events such as those seen in weather.	Relate the transfer of heat from oceans and land masses to the evolution of a hurricane.	Interactive Science: Earth Science
Weather Station and Analyzing Weather Data	5.4.6.F.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How can we use collect and use data to make predictions about weather events?	Climate is the result of long-term patterns of temperature and precipitation.	Create climatographs for various locations around Earth and categorize the climate based on the yearly patterns of temperature and precipitation.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Unit 4 introduces **plate techtonics** and addresses how plate tectonics accounts for important features of the Earth's surface and major geological events.						Interactive Science: Earth Science
Densities Effect on Layers	5.4.8.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How do geologic events occurring today provide insight Earth's past?	Density determines orders of layers of materials. Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	Model the interactions between the layers of Earth.	Interactive Science: Earth Science
Layers of the Earth	5.4.8.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How do the layers of the Earth interact and react with each other?	The Earth has different layers with different densities and temperatures. Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	Model the interactions between the layers of Earth.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Convection Currents in the Mantle	5.4.8.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How do the convection currents in the mantle impact events on the surface of the Earth?	Crust movement is the result of convection currents in the mantle. Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	Model the interactions between the layers of Earth.	Interactive Science: Earth Science
Continental Drift	5.4.8.D.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	What is continental drift and is it still occurring?	Continents have moved and continue to move.	Present evidence to support arguments for the theory of plate motion	Interactive Science: Earth Science
Seismic News	5.1.8.B.4	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7	How can we use the location of earthquakes to determine seismic activity?	Seismic activity can be plotted by locations of earthquakes.	Determine location of earthquakes using seismic measuring tools.	Interactive Science: Earth Science
Sea Floor Spread	5.4.6.D.1 5.4.12.D.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9	How does sea floor spread help scientists explain plate techtonics?	Evidence from sea floor spread provided an explanation for plate techtonics	Model the interactions between the layers of Earth. Present evidence to support arguments for the theory of plate motion	Interactive Science: Earth Science
Plate Techtonics	5.4.6.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How do the layers of the Earth interact and react with each other?	Land changes at plate boundaries in three ways. Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	Model the interactions between the layers of Earth.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Dynamic Planet	5.4.6.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How are the movement of plates measured?	Evidence of movement of plates can be measured. Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	Model the interactions between the layers of Earth.	Interactive Science: Earth Science
Mountain Building	5.4.6.B.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	What do you think happens when a continental plate and oceanic plate converge?	Converging boundaries create mountains. Earth's current structure has been influenced by both sporadic and gradual events. Changes caused by earthquakes and volcanic eruptions can be observed on a human time scale, but many geological processes, such as mountain building and the shifting of continents, are observed on a geologic time scale	Examine Earth's surface features and identify those created on a scale of human life or on a geologic time scale.	Interactive Science: Earth Science
Density of Basalt and Granite	5.4.6.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How does the density of basalt and granite affect the formation of mountains?	Density of basalt and granite affect the formation of land masses on Earth.	Interpret a representation of a rock layer sequence to establish oldest and youngest layers, geologic events, and changing life forms.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Unit 5 focuses on earthquakes and volcanoes and that they are a direct result of plate techtonics. By the end of the unit students will know: Geologic events, such as earthquakes and volcanoes result from movement of the plates.						Interactive Science: Earth Science
Earth Shaking Event	5.4.8.D.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	To what extent does the exchange of energy within the Earth drive geologic events on the surface?	Motion of tectonic plates subject boundaries to stress.	Present evidence to support arguments for the theory of plate motion	Interactive Science: Earth Science
Fault Formations	5.4.6.D.2 5.4.8.C.3	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How do forces inside the earth casue stress at plate boundaries?	Forces in the Earth (shearing, compressions, tension) cause stress at plate boundaries	Present evidence to support arguments for the theory of plate motion	Interactive Science: Earth Science
A Model of Plate Faults	5.4.6.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	What are the different types of faults and how do the create different seismic events?	Movement at plate boundaries causes different types of faults.	Model the interactions between the layers of Earth.	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Up and Down Blocks	5.4.12.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How does the type of fault impact an earthquake?	Exposed rock layers indicate the type of fault.	Explain the mechanisms for plate motions using earthquake data, mathematics, and conceptual models. Convection currents in the upper mantle drive plate motion. Plates are pushed apart at spreading zones and pulled down into the crust at subduction zones.	Interactive Science: Earth Science
Earthquakes and Waves	5.1.8.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How does the transfer of energy cause earthquakes?	Energy is transferred in the earth in the form of seismic waves. Primary and secondary waves travel through the earth materials in different ways.	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.	Interactive Science: Earth Science
Finding the Epicenter	5.1.8.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why doe scientist have to use triangualtion of S and P waves to find the epicenter of an earthquake?	Epicenters of earthquakes can be found by triangulation between the arrival of S and P waves	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.	Interactive Science: Earth Science
Mercalli Scale	5.1.8.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How can you design investigations to collect data and develop scientific theories?	Observable phenomena are used to determine the intensity of an Earthquake using the Mercalli Scale	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.	Interactive Science: Earth Science

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Richter Scale	5.1.8.A.3	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why is it important to use scientific principles to pose theories?	Seismographs record the intesity of an Earthquake. Richter scales use logarithmic scale increasing by ten each time.	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.	Interactive Science: Earth Science
Earthquake building and Shaking Contest	5.1.8.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How can scientific investigations help us discover new information or reaffirm current theories?	Earthquake damage is based on geology. Building construction and magnitude of the earthquake.	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.	Interactive Science: Earth Science
Ring of Fire	5.4.6.D.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why have scientists named a specific area of the Earth the "Ring of Fire"?	Most volcanoes are located near plate boundaries where magma reaches the surface. Earthquakes and volcanoes occur in relationship to each other.	Model the interactions between the layers of Earth.	Interactive Science: Earth Science
Volcano Models	5.4.8.B.1	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How can scientific investigations help us discover new information or reaffirm current theories?	Magma reaches the surface through different volcanic structures	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.	Interactive Science: Earth Science
Eruption Types	5.4.6.D.2	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	How can you prove that the plates of the Earth continue to move?	Volcanic eruptions can be quiet or explosive.	Present evidence to support arguments for the theory of plate motion	Interactive Science: Earth Science

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Unit/Topic	Standards: Science	Standards: CCSS ELA	Essential Questions	Content: What will students know?	Skill: What will students be able to do?	Resources: Texbooks/ Videos/ Worksheets
Landforms from Volcanoes	5.4.6.D.3	RST6-8.1 RST6-8.2 RST6-8.3 RST6-8.4 RST6-8.7 RST6-8.9 RST6-8.10	Why are geomagnetic north and geographic north at different locations?	Volcanoes are classified by how they are formed and the resulting land formations (shield, cinder, cone, composite/strato volcano).	Explain why geomagnetic north and geographic north are at different locations.	Interactive Science: Earth Science

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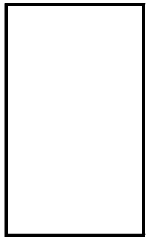

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