Earth Science Curriculum Map
Created August 2025

Month	Unit/Topic of Study	Standards	Key Vocabulary	Test Taking and Reading Strategies and student engagement	Math Skills (decipher/use charts and graphs)	Writing in the content area Writing Map: High School ELA Writing Map	Assessments
Sept	U1-Intro to Earth Science U2-Rock & Minerals	ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	mineral inorganic crystal streak luster Mohs Hardness scale cleavage fracture geode crystallization solution vein gemstone ore smelting alloy granite basalt grains texture igneous rock sedimentary rock metamorphic rock extrusive rock intrusive rock sediment erosion deposition	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	Science Notebook Mini-quizzes Interactive NB activities Science Stations/ Lab Quiz Quiz Trade cards Earth Systems Poster Study guide Unit test

			compaction cementation foliated rock cycle	science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.			
Oct	U3-Plate Tectonics U4-Forces that Shape the Earth	ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. 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.	seismic waves pressure crust mantle lithosphere asthenosphere outer core inner core radiation conduction convection density convection current continental drift Pangaea fossil plate tectonics fault divergent boundary rift valley convergent boundary transform boundary stress tension compression	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question.	Science Notebook Mini-quizzes Interactive NB activities Science Stations/ Lab Quiz Quiz Trade cards Study guide Unit test

			shearing normal fault hanging wall footwall reverse fault strike-slip fault anticline syncline earthquake focus epicenter P wave S wave surface wave magnitude Richter scale seismograph aftershock volcano magma lava Ring of Fire island arc hot spot viscosity silica pahoehoe aa magma chamber pipe vent lava flow crater pyroclastic flow dormant extinct shield volcano cinder cone composite volcano caldera volcanic neck dike sill batholith geothermal activity geyser	discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.		Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	
Nov	U5- Earth's Changing Surface	ESS2-1: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	weathering erosion mechanical weathering abrasion ice wedging	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument.	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question.	Science Notebook Mini-quizzes Interactive NB

		ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	chemical weathering oxidation permeable soil bedrock humus fertility loam soil horizon topsoil subsoil litter decomposer mass movement runoff stream tributary flood plain meander oxbow lake alluvial fan delta groundwater stalactite stalagmite karst topography beach spit sand dune loess glacier continental glacier ice age valley glacier plucking till moraine kettle	Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.		Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	activities Science Stations/ Lab Quiz Quiz Trade cards Study guide Unit test

Dec	U6- A Trip Through Earth's History	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. 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.	fossil mold cast petrified fossil carbon film trace fossil paleontologist evolution extinct law of superposition relative age absolute age extrusion intrusion fossil index atom element radioactive decay half-life geological time scale era period continental drift Paleozoic Era Mesozoic Era Cenozoic Era	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	Science Notebook Mini-quizzes Interactive NB activities Science Stations/ Lab Quiz Quiz Trade cards Geologic Timeline Project Study guide Unit test

				experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.			
Jan	U7- Earth's Waters	ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. ESS2-4: Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. ESS2-5: Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions. ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.	water cycle transpiration condensation precipitation ground water surface tension capillary action river systems lakes wetlands glaciers permeable impermeable saturated zone unsaturated zone water table spring aquifer artesian well geyser wave wavelength frequency tides spring tide neap tide currents gyres Coriolis effect upwelling Great Ocean Conveyor Belt	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	Science Notebook Mini-quizzes Interactive NB activities Science Stations/ Lab Quiz Quiz Trade cards Video Project Study guide Unit test

				visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.			
Feb	U8- Earths' Atmosphere	ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. ESS2-4: Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. ESS3-4: Construct an argument supported by evidence for how increases in human	atmosphere ozone water vapor air pressure barometer altitude troposphere stratosphere mesosphere thermosphere ionosphere exosphere greenhouse effect thermal energy radiation conduction convection temperature inversion wind jet streams clouds cumulus cirrus stratus air pollution point-source pollution nonpoint-source pollution acid precipitation photochemical smog	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	Science Notebook Mini-quizzes Interactive NB activities Science Stations/ Lab Greenhouse Gases Project Quiz Quiz Trade cards Study guide Unit test

		population and per-capita consumption of natural resources impact Earth's systems. ESS3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.	particulate matter Air Quality Index (AQI)	visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.			
March	U9-Weather & Climate	ESS2-5: Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions. ESS2-6: Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. ESS3-5: Ask questions to clarify evidence of the factors that have caused the rise in global	meteorologist Doppler radar station models isobar isotherms high-pressure system low-pressure system cold fronts warm fronts stationary front occluded front thunderstorm tornado hurricane blizzard climate microclimate tropical zone polar zone temperate zones monsoons ice cores ice age	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases.	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research	Science Notebook Mini-quizzes Interactive NB activities Science Stations/ Lab Quiz Quiz Trade cards Study guide Unit test

		temperatures over the past century.		Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.		projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	
April	U10- Astronomy & Space	ESS1-1: 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. ESS1-2: Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. ESS1-3: Analyze and interpret data to	sun orbit revolution rotational axis ellipse solstice equinox full moon waxing crescent first quarter waxing gibbous waning gibbous third quarter waning crescent eclipse maria crater highlands inner planets outer planets Mercury	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases. Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text;	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments.	Science Notebook Mini-quizzes Interactive NB activities Science Stations/ Lab Quiz Quiz Trade cards Study guide

		determine scale properties of objects in the solar system.	Venus Earth Mars Jupiter Saturn Uranus Neptune asteroid comet meteoroids constellation light-year nebula white dwarf black hole galaxy spiral galaxy elliptical galaxy Big Bang Theory telescope Hubble Space Telescope rocket satellite space probes space shuttle International Space Station	provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.		Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	Unit test
May	U11- Natural Resources	ESS3-2: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.	non-renewable energy fossil fuel coal oil natural gas nuclear energy mineral resources renewable energy solar energy wind	Engage effectively in a range of collaborative discussions with diverse partners on middle school topics, texts, and issues, building on others' ideas and expressing their own clearly. Delineate and evaluate a speaker's argument. Present claims and findings. Determine or clarify the meaning of unknown words and phrases.	Patterns Scale, proportion, and quantity	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Conduct short research projects to answer a question. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or	Science Notebook Mini-quizzes Interactive NB activities Science

		ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. ESS3-4: Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.	farm hydroelectric energy tidal energy geothermal energy biomass energy natural resource land air water	Demonstrate understanding of word relationships and nuances in word meanings. Acquire and use academic and domain-specific words and phrases. Determine the central ideas or conclusions of a text; provide an accurate summary of the text. Cite evidence to support analysis of science and text Determine the meaning of symbols, key terms, and other domain-specific words and phrases. Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually. Read and comprehend science independently and proficiently. Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. Compare and contrast information from experiments, simulations, video, or multimedia sources with that from reading a text. Include multimedia components and visual displays in presentations. Adapt speech to a variety of contexts and tasks.		technical processes. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. Write arguments. Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes. Develop and strengthen writing. Conduct short research projects to answer a question. Gather relevant information from multiple print and digital sources. Draw evidence from informational texts to support analysis, reflection, and research.	Stations/ Lab Quiz Quiz Trade cards Design a Green Island Study guide Unit test
June							