

National Council for the Social Studies (NCSS), National Geography Standards (NGS), Next Generation Science Standards (NGSS)

Subjects: Science, Social Studies

Grades: 4, 5, 6, 7, 8, 9

Virtual Field Trips

National Parks - West - Alaska & Hawaii

National Council for the Social Studies (NCSS)

Social Studies

Grade 4 - Adopted: 2010

THEME	NCSS.3. PEOPLE, PLACES, AND ENVIRONMENTS
DEFINITION	SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF PEOPLE, PLACES, AND ENVIRONMENTS.
CATEGORY	3.1. KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION	3.1.3. Physical and human characteristics of the school, community, state, and region, and the interactions of people in these places with the environment.
LEARNING EXPECTATION	3.1.5. Physical changes in community, state, and region, such as seasons, climate, and weather, and their effects on plants and animals.

National Council for the Social Studies (NCSS)

Social Studies

Grade 5 - Adopted: 2010

THEME	NCSS.3. PEOPLE, PLACES, AND ENVIRONMENTS
DEFINITION	SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF PEOPLE, PLACES, AND ENVIRONMENTS.
CATEGORY	3.1. KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION	3.1.5. The concept of regions identifies links between people in different locations according to specific criteria (e.g., physical, economic, social, cultural, or religious).

National Council for the Social Studies (NCSS)

Social Studies

Grade 6 - Adopted: 2010

THEME	NCSS.3. PEOPLE, PLACES, AND ENVIRONMENTS
DEFINITION	SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF PEOPLE, PLACES, AND ENVIRONMENTS.

CATEGORY	3.1.	KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION	3.1.5.	The concept of regions identifies links between people in different locations according to specific criteria (e.g., physical, economic, social, cultural, or religious).

National Council for the Social Studies (NCSS)

Social Studies

Grade 7 - Adopted: 2010

THEME	NCSS.3. PEOPLE, PLACES, AND ENVIRONMENTS	
DEFINITION	SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF PEOPLE, PLACES, AND ENVIRONMENTS.	
CATEGORY	3.1.	KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION	3.1.5.	The concept of regions identifies links between people in different locations according to specific criteria (e.g., physical, economic, social, cultural, or religious).

National Council for the Social Studies (NCSS)

Social Studies

Grade 8 - Adopted: 2010

THEME	NCSS.3. PEOPLE, PLACES, AND ENVIRONMENTS	
DEFINITION	SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF PEOPLE, PLACES, AND ENVIRONMENTS.	
CATEGORY	3.1.	KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION	3.1.5.	The concept of regions identifies links between people in different locations according to specific criteria (e.g., physical, economic, social, cultural, or religious).

National Council for the Social Studies (NCSS)

Social Studies

Grade 9 - Adopted: 2010

THEME	NCSS.3. PEOPLE, PLACES, AND ENVIRONMENTS	
DEFINITION	SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF PEOPLE, PLACES, AND ENVIRONMENTS.	
CATEGORY	3.1.	KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION	3.1.1.	The theme of people, places, and environments involves the study of the relationships between human populations in different locations and regional and global geographic phenomena, such as landforms, soils, climate, vegetation, and natural resources.
LEARNING EXPECTATION	3.1.2.	Concepts such as: location, physical and human characteristics of national and global regions in the past and present, and the interactions of humans with the environment.

National Geography Standards (NGS)

Science

Grade 4 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.PR.	Places and Regions
STANDARD	PR.4.	The physical and human characteristics of places
STRAND	PR.4.2.	The Characteristics of Places: Places have physical and human characteristics
BENCHMARK	PR.4.2.A.	Describe and compare the physical characteristics of places at a variety of scales, local to global, as exemplified by being able to
EXPECTATION	PR.4.2.A.2.	Describe and compare the vegetation in different places in the world (e.g., deserts, mountains, rain forests, plains).
EXPECTATION	PR.4.2.A.3.	Describe and compare the physical environments and landforms of different places in the world (e.g., mountains, islands, valleys or canyons, mesas).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: There are four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere)
BENCHMARK	PS.7.1.A.	Identify attributes of Earth's different physical systems, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify examples of water features on Earth's surface that comprise the hydrosphere (e.g., oceans, rivers, lakes, water vapor, ground water, different types of precipitation).
EXPECTATION	PS.7.1.A.3.	Identify examples of landforms on Earth's surface (e.g., mountains, volcanoes, valleys, plains).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.3.	Physical Processes: Physical processes shape features on Earth's surface
BENCHMARK	PS.7.3.A.	Identify examples of physical processes, as exemplified by being able to
EXPECTATION	PS.7.3.A.3.	Identify the components and relationships in the erosion cycle (e.g., water carving canyons, wind sculpting mesas, landslides, avalanches).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.3.	Physical Processes: Physical processes shape features on Earth's surface
BENCHMARK	PS.7.3.B.	Describe how physical processes shape features on Earth's surface, as exemplified by being able to
EXPECTATION	PS.7.3.B.2.	Describe the physical processes that shaped particular landform features using pictures of landforms such as canyons, mesas, and deltas.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: The components of ecosystems

BENCHMARK	PS.8.1.A.	Identify the components of different ecosystems, as exemplified by being able to
EXPECTATION	PS.8.1.A.2.	Identify examples of each ecosystem component (e.g., pine trees versus grasslands, low versus high rainfall, clay versus sandy soils).
EXPECTATION	PS.8.1.A.3.	Describe local ecosystems by surveying and recording the properties of their components.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: The characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Identify and describe the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.1.	Identify and describe the characteristics of an ecosystem (specific types of plants, climate, and soil) in which a favorite or interesting creature lives.
EXPECTATION	PS.8.2.A.2.	Identify and draw pictures of different plants and animals in various local ecosystems (e.g., a pond, forest, city park).
EXPECTATION	PS.8.2.A.3.	Compare the characteristics of different ecosystems (e.g., pond, deciduous forest, coral reef).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.3.	Characteristics and Geographic Distribution of Biomes: The characteristics of biomes
BENCHMARK	PS.8.3.A.	Describe the characteristics of biomes, as exemplified by being able to
EXPECTATION	PS.8.3.A.1.	Describe the defining characteristics of a biome as a large region of ecosystems with similar climate and vegetation characteristics.
EXPECTATION	PS.8.3.A.2.	Describe the temperature, precipitation, and vegetation characteristics of various biomes, (e.g., deserts, grasslands, savannahs, temperate forests, tropical forests, arctic tundra).
EXPECTATION	PS.8.3.A.3.	Identify the characteristics in photographs of different types of vegetation and match them to the appropriate sections of a world climate map (e.g., cacti and succulents on a desert climate region, tropical forest trees on a tropical climate region, coral in shallow, tropical marine waters).
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.14.	How human actions modify the physical environment
STRAND	ES.14.3.	Consequences for People and Environments: The consequences of human modifications of the physical environment
BENCHMARK	ES.14.3.A.	Identify and describe examples of how human activities impact the physical environment, as exemplified by being able to
EXPECTATION	ES.14.3.A.1.	Identify and describe the changes in local habitats that resulted from human activities.
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.16.	The changes that occur in the meaning, use, distribution, and importance of resources

STRAND	ES.16.1.	Types and Meanings of Resources: The characteristics of renewable, nonrenewable, and flow resources
BENCHMARK	ES.16.1.A.	Identify and explain the characteristics of renewable, nonrenewable, and flow resources, as exemplified by being able to
EXPECTATION	ES.16.1.A.1.	Explain the meaning of the term "resource" and then illustrate the idea of renewable, nonrenewable, and flow resources by sorting example photographs into each of the three categories.
ESSENTIAL ELEMENT	NGS.UG.	The Uses of Geography
STANDARD	UG.18.	How to apply geography to interpret the present and plan for the future
STRAND	UG.18.1.	Using Geography to Interpret the Present and Plan for the Future: Geographic contexts (the human and physical characteristics of places and environments) are the settings for current events
BENCHMARK	UG.18.1.A.	Analyze geographic contexts in which current events and issues occur, as exemplified by being able to
EXPECTATION	UG.18.1.A.3.	Analyze a current environmental issue in the region (e.g., building or demolishing a dam, building or expansion of freeway system, creation of parks and open spaces, regulatory legislation on industry to prevent further air, water, and land pollution) and describe ways in which people and the environment interact to affect the issue positively and negatively.
ESSENTIAL ELEMENT	NGS.UG.	The Uses of Geography
STANDARD	UG.18.	How to apply geography to interpret the present and plan for the future
STRAND	UG.18.2.	Changes in Geographic Contexts: Places, regions, and environments will continue to change
BENCHMARK	UG.18.2.A.	Describe current changes in places, regions, and environments and predict how these locations may be different in the future, as exemplified by being able to
EXPECTATION	UG.18.2.A.1.	Describe how to plan for the environmental future of a place by completing the following statements: "I will keep...." "I will change...." and "I will remove...."

National Geography Standards (NGS)

Science

Grade 5 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.3.	How to analyze the spatial organization of people, places, and environments on Earth's surface
STRAND	WST.3.2.	Spatial Patterns and Processes: Processes shape the spatial patterns of people, places, and environments over time
BENCHMARK	WST.3.2.A.	Describe and compare the processes that influence the distribution of human and physical phenomena, as exemplified by being able to
EXPECTATION	WST.3.2.A.3.	Describe and compare changes in natural vegetation zones and land uses on the slopes of a mountain (e.g., vertical zonation, tree lines in middle latitudes).
ESSENTIAL ELEMENT	NGS.PR.	Places and Regions

STANDARD	PR.4.	The physical and human characteristics of places
STRAND	PR.4.2.	The Characteristics of Place: Physical and human characteristics of places change
BENCHMARK	PR.4.2.A.	Explain the ways that physical processes change places, as exemplified by being able to
EXPECTATION	PR.4.2.A.2.	Explain the ways in which islands and coastal places may change as a result of sea level rise.
EXPECTATION	PR.4.2.A.3.	Explain how changes in climate may result in changes to places (e.g., drought and stressed vegetation, more precipitation and increased vegetation, warmer temperatures and longer growing seasons at higher latitudes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.B.	Analyze and explain patterns of physical features resulting from the interactions of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.B.2.	Analyze the pattern of glacial features as a result of glacial retreat (e.g., moraines, kettle lakes, cirques).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.2.	Earth-Sun Relationships: Earth-Sun relationships drives physical processes that follow an annual cycle and create patterns on Earth
BENCHMARK	PS.7.2.A.	Explain how Earth-Sun relationships drive Earth's physical processes and create annual patterns, as exemplified by being able to
EXPECTATION	PS.7.2.A.1.	Explain the occurrences of weather phenomena in different locations due to annual changes in the Earth-Sun relationship (e.g., hurricanes in the fall in subtropical areas, monsoon rainfall, tornadoes in the mid-latitudes during the spring and summer).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.3.	Physical Processes: Physical processes generate patterns of features across Earth's surface
BENCHMARK	PS.7.3.A.	Analyze and explain the patterns that occur on Earth's surface as a result of

		physical processes, as exemplified by being able to
EXPECTATION	PS.7.3.A.2.	Explain how physical processes related to plate tectonics form islands (e.g., Hawaiian Islands) or increase the elevation of mountains (e.g., Himalayan Mountains).
EXPECTATION	PS.7.3.A.3.	Explain the effects of erosion processes on landscape features over time (e.g., Chimney Rock, Devil’s Tower, Grand Canyon, Arches National Park).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: Components of ecosystems are interdependent
BENCHMARK	PS.8.1.A.	Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to
EXPECTATION	PS.8.1.A.3.	Identify and describe the variable components in an ocean ecosystem that influence the interdependencies in an ecosystem (e.g., water temperature, depth, salinity, acidity, plants, fish, and marine mammals in an aquatic ecosystem).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.2.	Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.3.	Characteristics and Geographic Distribution of Biomes: Climate primarily determines the characteristics and geographic distribution of biomes
BENCHMARK	PS.8.3.A.	Describe and explain how climate (temperature and rainfall) primarily determines the characteristics and geographic distribution of biomes, as exemplified by being able to
EXPECTATION	PS.8.3.A.3.	Explain how biomes do not always follow lines of latitude by identifying the influences of oceans and mountain ranges on the distribution of climate and vegetation.
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.14.	How human actions modify the physical environment
STRAND	ES.14.3.	Consequences for People and Environments: The physical environment can both accommodate and be endangered by human activities
BENCHMARK	ES.14.3.A.	Analyze the positive and negative consequences of humans changing the physical environment, as exemplified by being able to
EXPECTATION	ES.14.3.A.1.	Analyze the positive and negative effects of human actions on the lithosphere (e.g., land degradation and erosion, soil salinization and

		acidification).
EXPECTATION	ES.14.3.A.3.	Analyze the ways humans can have positive effects on the physical environment (e.g., open green space protection, wetland restoration, sustainable forestry).
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.15.	How physical systems affect human systems
STRAND	ES.15.2.	Environmental Hazards: The types, causes, and characteristics of environmental hazards occur at a variety of scales from local to global
BENCHMARK	ES.15.2.A.	Describe and explain the types and characteristics of hazards, as exemplified by being able to
EXPECTATION	ES.15.2.A.1.	Identify and explain the types of threats posed to human settlement by different types of environmental hazards (e.g., wind destruction, fires, flooding, collapse of structures).
EXPECTATION	ES.15.2.A.2.	Construct a table of climate-related and tectonic-related hazards and explain the characteristics of each type of hazard.

National Geography Standards (NGS)

Science

Grade 6 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.3.	How to analyze the spatial organization of people, places, and environments on Earth's surface
STRAND	WST.3.2.	Spatial Patterns and Processes: Processes shape the spatial patterns of people, places, and environments over time
BENCHMARK	WST.3.2.A.	Describe and compare the processes that influence the distribution of human and physical phenomena, as exemplified by being able to
EXPECTATION	WST.3.2.A.3.	Describe and compare changes in natural vegetation zones and land uses on the slopes of a mountain (e.g., vertical zonation, tree lines in middle latitudes).
ESSENTIAL ELEMENT	NGS.PR.	Places and Regions
STANDARD	PR.4.	The physical and human characteristics of places
STRAND	PR.4.2.	The Characteristics of Place: Physical and human characteristics of places change
BENCHMARK	PR.4.2.A.	Explain the ways that physical processes change places, as exemplified by being able to
EXPECTATION	PR.4.2.A.2.	Explain the ways in which islands and coastal places may change as a result of sea level rise.
EXPECTATION	PR.4.2.A.3.	Explain how changes in climate may result in changes to places (e.g., drought and stressed vegetation, more precipitation and increased vegetation, warmer temperatures and longer growing seasons at higher latitudes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's

		physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.B.	Analyze and explain patterns of physical features resulting from the interactions of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.B.2.	Analyze the pattern of glacial features as a result of glacial retreat (e.g., moraines, kettle lakes, cirques).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.2.	Earth-Sun Relationships: Earth-Sun relationships drives physical processes that follow an annual cycle and create patterns on Earth
BENCHMARK	PS.7.2.A.	Explain how Earth-Sun relationships drive Earth's physical processes and create annual patterns, as exemplified by being able to
EXPECTATION	PS.7.2.A.1.	Explain the occurrences of weather phenomena in different locations due to annual changes in the Earth-Sun relationship (e.g., hurricanes in the fall in subtropical areas, monsoon rainfall, tornadoes in the mid-latitudes during the spring and summer).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.3.	Physical Processes: Physical processes generate patterns of features across Earth's surface
BENCHMARK	PS.7.3.A.	Analyze and explain the patterns that occur on Earth's surface as a result of physical processes, as exemplified by being able to
EXPECTATION	PS.7.3.A.2.	Explain how physical processes related to plate tectonics form islands (e.g., Hawaiian Islands) or increase the elevation of mountains (e.g., Himalayan Mountains).
EXPECTATION	PS.7.3.A.3.	Explain the effects of erosion processes on landscape features over time (e.g., Chimney Rock, Devil's Tower, Grand Canyon, Arches National Park).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: Components of ecosystems are interdependent
BENCHMARK	PS.8.1.A.	Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to
EXPECTATION	PS.8.1.A.3.	Identify and describe the variable components in an ocean ecosystem that influence the interdependencies in an ecosystem (e.g., water temperature,

		depth, salinity, acidity, plants, fish, and marine mammals in an aquatic ecosystem).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.2.	Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.3.	Characteristics and Geographic Distribution of Biomes: Climate primarily determines the characteristics and geographic distribution of biomes
BENCHMARK	PS.8.3.A.	Describe and explain how climate (temperature and rainfall) primarily determines the characteristics and geographic distribution of biomes, as exemplified by being able to
EXPECTATION	PS.8.3.A.3.	Explain how biomes do not always follow lines of latitude by identifying the influences of oceans and mountain ranges on the distribution of climate and vegetation.
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.14.	How human actions modify the physical environment
STRAND	ES.14.3.	Consequences for People and Environments: The physical environment can both accommodate and be endangered by human activities
BENCHMARK	ES.14.3.A.	Analyze the positive and negative consequences of humans changing the physical environment, as exemplified by being able to
EXPECTATION	ES.14.3.A.1.	Analyze the positive and negative effects of human actions on the lithosphere (e.g., land degradation and erosion, soil salinization and acidification).
EXPECTATION	ES.14.3.A.3.	Analyze the ways humans can have positive effects on the physical environment (e.g., open green space protection, wetland restoration, sustainable forestry).
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.15.	How physical systems affect human systems
STRAND	ES.15.2.	Environmental Hazards: The types, causes, and characteristics of environmental hazards occur at a variety of scales from local to global
BENCHMARK	ES.15.2.A.	Describe and explain the types and characteristics of hazards, as exemplified by being able to
EXPECTATION	ES.15.2.A.1.	Identify and explain the types of threats posed to human settlement by different types of environmental hazards (e.g., wind destruction, fires, flooding, collapse of structures).
EXPECTATION	ES.15.2.A.2.	Construct a table of climate-related and tectonic-related hazards and

explain the characteristics of each type of hazard.

National Geography Standards (NGS)

Science

Grade 7 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.3.	How to analyze the spatial organization of people, places, and environments on Earth's surface
STRAND	WST.3.2.	Spatial Patterns and Processes: Processes shape the spatial patterns of people, places, and environments over time
BENCHMARK	WST.3.2.A.	Describe and compare the processes that influence the distribution of human and physical phenomena, as exemplified by being able to
EXPECTATION	WST.3.2.A.3.	Describe and compare changes in natural vegetation zones and land uses on the slopes of a mountain (e.g., vertical zonation, tree lines in middle latitudes).
ESSENTIAL ELEMENT	NGS.PR.	Places and Regions
STANDARD	PR.4.	The physical and human characteristics of places
STRAND	PR.4.2.	The Characteristics of Place: Physical and human characteristics of places change
BENCHMARK	PR.4.2.A.	Explain the ways that physical processes change places, as exemplified by being able to
EXPECTATION	PR.4.2.A.2.	Explain the ways in which islands and coastal places may change as a result of sea level rise.
EXPECTATION	PR.4.2.A.3.	Explain how changes in climate may result in changes to places (e.g., drought and stressed vegetation, more precipitation and increased vegetation, warmer temperatures and longer growing seasons at higher latitudes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.B.	Analyze and explain patterns of physical features resulting from the

		interactions of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.B.2.	Analyze the pattern of glacial features as a result of glacial retreat (e.g., moraines, kettle lakes, cirques).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.2.	Earth-Sun Relationships: Earth-Sun relationships drives physical processes that follow an annual cycle and create patterns on Earth
BENCHMARK	PS.7.2.A.	Explain how Earth-Sun relationships drive Earth's physical processes and create annual patterns, as exemplified by being able to
EXPECTATION	PS.7.2.A.1.	Explain the occurrences of weather phenomena in different locations due to annual changes in the Earth-Sun relationship (e.g., hurricanes in the fall in subtropical areas, monsoon rainfall, tornadoes in the mid-latitudes during the spring and summer).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.3.	Physical Processes: Physical processes generate patterns of features across Earth's surface
BENCHMARK	PS.7.3.A.	Analyze and explain the patterns that occur on Earth's surface as a result of physical processes, as exemplified by being able to
EXPECTATION	PS.7.3.A.2.	Explain how physical processes related to plate tectonics form islands (e.g., Hawaiian Islands) or increase the elevation of mountains (e.g., Himalayan Mountains).
EXPECTATION	PS.7.3.A.3.	Explain the effects of erosion processes on landscape features over time (e.g., Chimney Rock, Devil's Tower, Grand Canyon, Arches National Park).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: Components of ecosystems are interdependent
BENCHMARK	PS.8.1.A.	Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to
EXPECTATION	PS.8.1.A.3.	Identify and describe the variable components in an ocean ecosystem that influence the interdependencies in an ecosystem (e.g., water temperature, depth, salinity, acidity, plants, fish, and marine mammals in an aquatic ecosystem).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.2.	Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.

ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.3.	Characteristics and Geographic Distribution of Biomes: Climate primarily determines the characteristics and geographic distribution of biomes
BENCHMARK	PS.8.3.A.	Describe and explain how climate (temperature and rainfall) primarily determines the characteristics and geographic distribution of biomes, as exemplified by being able to
EXPECTATION	PS.8.3.A.3.	Explain how biomes do not always follow lines of latitude by identifying the influences of oceans and mountain ranges on the distribution of climate and vegetation.
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.14.	How human actions modify the physical environment
STRAND	ES.14.3.	Consequences for People and Environments: The physical environment can both accommodate and be endangered by human activities
BENCHMARK	ES.14.3.A.	Analyze the positive and negative consequences of humans changing the physical environment, as exemplified by being able to
EXPECTATION	ES.14.3.A.1.	Analyze the positive and negative effects of human actions on the lithosphere (e.g., land degradation and erosion, soil salinization and acidification).
EXPECTATION	ES.14.3.A.3.	Analyze the ways humans can have positive effects on the physical environment (e.g., open green space protection, wetland restoration, sustainable forestry).
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.15.	How physical systems affect human systems
STRAND	ES.15.2.	Environmental Hazards: The types, causes, and characteristics of environmental hazards occur at a variety of scales from local to global
BENCHMARK	ES.15.2.A.	Describe and explain the types and characteristics of hazards, as exemplified by being able to
EXPECTATION	ES.15.2.A.1.	Identify and explain the types of threats posed to human settlement by different types of environmental hazards (e.g., wind destruction, fires, flooding, collapse of structures).
EXPECTATION	ES.15.2.A.2.	Construct a table of climate-related and tectonic-related hazards and explain the characteristics of each type of hazard.

National Geography Standards (NGS)

Science

Grade 8 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.3.	How to analyze the spatial organization of people, places, and environments on Earth's surface
STRAND	WST.3.2.	Spatial Patterns and Processes: Processes shape the spatial patterns of people, places, and environments over time
BENCHMARK	WST.3.2.A.	Describe and compare the processes that influence the distribution of

		human and physical phenomena, as exemplified by being able to
EXPECTATION	WST.3.2.A.3.	Describe and compare changes in natural vegetation zones and land uses on the slopes of a mountain (e.g., vertical zonation, tree lines in middle latitudes).
ESSENTIAL ELEMENT	NGS.PR.	Places and Regions
STANDARD	PR.4.	The physical and human characteristics of places
STRAND	PR.4.2.	The Characteristics of Place: Physical and human characteristics of places change
BENCHMARK	PR.4.2.A.	Explain the ways that physical processes change places, as exemplified by being able to
EXPECTATION	PR.4.2.A.2.	Explain the ways in which islands and coastal places may change as a result of sea level rise.
EXPECTATION	PR.4.2.A.3.	Explain how changes in climate may result in changes to places (e.g., drought and stressed vegetation, more precipitation and increased vegetation, warmer temperatures and longer growing seasons at higher latitudes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.B.	Analyze and explain patterns of physical features resulting from the interactions of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.B.2.	Analyze the pattern of glacial features as a result of glacial retreat (e.g., moraines, kettle lakes, cirques).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.2.	Earth-Sun Relationships: Earth-Sun relationships drives physical processes that follow an annual cycle and create patterns on Earth
BENCHMARK	PS.7.2.A.	Explain how Earth-Sun relationships drive Earth's physical processes and create annual patterns, as exemplified by being able to
EXPECTATION	PS.7.2.A.1.	Explain the occurrences of weather phenomena in different locations due to annual changes in the Earth-Sun relationship (e.g., hurricanes in the fall in subtropical areas, monsoon rainfall, tornadoes in the mid-latitudes during the spring and summer).

ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.3.	Physical Processes: Physical processes generate patterns of features across Earth's surface
BENCHMARK	PS.7.3.A.	Analyze and explain the patterns that occur on Earth's surface as a result of physical processes, as exemplified by being able to
EXPECTATION	PS.7.3.A.2.	Explain how physical processes related to plate tectonics form islands (e.g., Hawaiian Islands) or increase the elevation of mountains (e.g., Himalayan Mountains).
EXPECTATION	PS.7.3.A.3.	Explain the effects of erosion processes on landscape features over time (e.g., Chimney Rock, Devil's Tower, Grand Canyon, Arches National Park).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: Components of ecosystems are interdependent
BENCHMARK	PS.8.1.A.	Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to
EXPECTATION	PS.8.1.A.3.	Identify and describe the variable components in an ocean ecosystem that influence the interdependencies in an ecosystem (e.g., water temperature, depth, salinity, acidity, plants, fish, and marine mammals in an aquatic ecosystem).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.2.	Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.3.	Characteristics and Geographic Distribution of Biomes: Climate primarily determines the characteristics and geographic distribution of biomes
BENCHMARK	PS.8.3.A.	Describe and explain how climate (temperature and rainfall) primarily determines the characteristics and geographic distribution of biomes, as exemplified by being able to
EXPECTATION	PS.8.3.A.3.	Explain how biomes do not always follow lines of latitude by identifying the influences of oceans and mountain ranges on the distribution of climate and vegetation.
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society

STANDARD	ES.14.	How human actions modify the physical environment
STRAND	ES.14.3.	Consequences for People and Environments: The physical environment can both accommodate and be endangered by human activities
BENCHMARK	ES.14.3.A.	Analyze the positive and negative consequences of humans changing the physical environment, as exemplified by being able to
EXPECTATION	ES.14.3.A.1.	Analyze the positive and negative effects of human actions on the lithosphere (e.g., land degradation and erosion, soil salinization and acidification).
EXPECTATION	ES.14.3.A.3.	Analyze the ways humans can have positive effects on the physical environment (e.g., open green space protection, wetland restoration, sustainable forestry).
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.15.	How physical systems affect human systems
STRAND	ES.15.2.	Environmental Hazards: The types, causes, and characteristics of environmental hazards occur at a variety of scales from local to global
BENCHMARK	ES.15.2.A.	Describe and explain the types and characteristics of hazards, as exemplified by being able to
EXPECTATION	ES.15.2.A.1.	Identify and explain the types of threats posed to human settlement by different types of environmental hazards (e.g., wind destruction, fires, flooding, collapse of structures).
EXPECTATION	ES.15.2.A.2.	Construct a table of climate-related and tectonic-related hazards and explain the characteristics of each type of hazard.

National Geography Standards (NGS)

Science

Grade 9 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The interactions of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) vary across space and time
BENCHMARK	PS.7.1.A.	Explain how the effects of physical processes vary across regions of the world and over time, as exemplified by being able to
EXPECTATION	PS.7.1.A.1.	Explain the changing relationships among climate, vegetation, and landforms (e.g., desertification and soil degradation, glacial advances and retreats).
EXPECTATION	PS.7.1.A.3.	Analyze and explain the relationships between physical processes and the location of land features (e.g., river valleys, canyons, deltas, glaciated lakes and moraines, limestone deposits, caves, alluvial fans, canyons).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The interactions of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) vary across space and time
BENCHMARK	PS.7.1.B.	Explain the ways in which Earth's physical processes are dynamic and

		interactive, as exemplified by being able to
EXPECTATION	PS.7.1.B.2.	Explain how increasing surface temperatures result in melting ice sheets and rising sea levels.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.2.	Earth-Sun Relationships: Earth-Sun relationships are variable over long periods of time resulting in changes in physical processes and patterns on Earth
BENCHMARK	PS.7.2.A.	Explain how variability in Earth-Sun relationships affect Earth's physical processes over time, as exemplified by being able to
EXPECTATION	PS.7.2.A.1.	Explain how cyclic changes (e.g., precession or Milankovich cycle) in Earth's orbit are responsible for changes in heating that result in climatic changes such as an ice age and glaciation of Earth's surface.
EXPECTATION	PS.7.2.A.2.	Describe the variability in climate over historic periods of time (e.g., over the last 1,500 years or during epochs such as the Pleistocene).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: Ecosystems are dynamic and respond to changes in environmental conditions
BENCHMARK	PS.8.1.A.	Explain how there are short-term and long-term changes in ecosystems, as exemplified by being able to
EXPECTATION	PS.8.1.A.2.	Explain the response of ecosystems to stress caused by physical events in terms of their characteristics and capacity to respond (e.g., changes in mangroves by tsunamis, changes in forest flora and fauna after a fire).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: The characteristics and geographic distribution of ecosystems
BENCHMARK	PS.8.2.B.	Evaluate ecosystems in terms of their biodiversity and productivity, as exemplified by being able to
EXPECTATION	PS.8.2.B.3.	Evaluate changes in the biodiversity and productivity of an ecosystem following the loss or introduction of a plant or animal species.
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society
STANDARD	ES.15.	How physical systems affect human systems
STRAND	ES.15.2.	Environmental Hazards: Humans perceive and react to environmental hazards in different ways
BENCHMARK	ES.15.2.A.	Explain and compare how people in different environments think about and respond to environmental hazards, as exemplified by being able to
EXPECTATION	ES.15.2.A.1.	Construct a list of environmental hazards and compare and contrast how people in developed and developing world regions prepare for and cope with the aftermath of these disasters.
ESSENTIAL ELEMENT	NGS.ES.	Environment and Society

ELEMENT		
STANDARD	ES.16.	The changes that occur in the meaning, use, distribution, and importance of resources
STRAND	ES.16.3.	Sustainable Resource Use and Management: Policies and programs that promote the sustainable use and management of resources impact people and the environment
BENCHMARK	ES.16.3.B.	Evaluate policy decisions regarding the sustainable use of resources in different regions and at different spatial scales in the world, as exemplified by being able to
EXPECTATION	ES.16.3.B.2.	Compare government policies and programs to promote sustainability (e.g., reducing fossil-fuel dependency, recycling, conserving water) in developed and developing countries.
ESSENTIAL ELEMENT	NGS.UG.	The Uses of Geography
STANDARD	UG.18.	How to apply geography to interpret the present and plan for the future
STRAND	UG.18.1.	Using Geography to Interpret the Present and Plan for the Future: Geographic contexts (the human and physical characteristics of places and environments) provide the basis for analyzing current events and making predictions about future issues
BENCHMARK	UG.18.1.B.	Analyze and evaluate the connections between the geographic contexts of current events and possible future issues, as exemplified by being able to
EXPECTATION	UG.18.1.B.1.	Evaluate the feasibility and long-range impacts in a series of scenarios for dealing with social and environmental issues (e.g., absorbing and dispersing refugees, responding to threats from global warming, managing the future of Antarctica).

National Geography Standards (NGS)

Social Studies

Grade 4 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.PR.	Places and Regions
STANDARD	PR.4.	The physical and human characteristics of places
STRAND	PR.4.1.	The Concept of Place: Places are locations having distinctive characteristics that give them meaning and distinguish them from other locations
BENCHMARK	PR.4.1.A.	Describe the distinguishing characteristics and meanings of several different places, as exemplified by being able to
EXPECTATION	PR.4.1.A.3.	Describe how certain places may have meanings that distinguish them from other places (e.g., cemetery, historical park or battlefield, religious shrines or temples, state or national parks).
ESSENTIAL ELEMENT	NGS.PR.	Places and Regions
STANDARD	PR.4.	The physical and human characteristics of places
STRAND	PR.4.2.	The Characteristics of Places: Places have physical and human characteristics
BENCHMARK	PR.4.2.A.	Describe and compare the physical characteristics of places at a variety of scales, local to global, as exemplified by being able to

EXPECTATION	PR.4.2.A.3.	Describe and compare the physical environments and landforms of different places in the world (e.g., mountains, islands, valleys or canyons, mesas).
ESSENTIAL ELEMENT	NGS.PR.	Places and Regions
STANDARD	PR.5.	That people create regions to interpret Earth's complexity
STRAND	PR.5.1.	The Concept of Region: Regions are areas of Earth's surface with unifying physical and/or human characteristics
BENCHMARK	PR.5.1.A.	Describe the distinguishing characteristics and meanings of several different regions, as exemplified by being able to
EXPECTATION	PR.5.1.A.3.	Describe the characteristics that define a physical region in the state (e.g., Front Range in Colorado, Sand Hills in Nebraska, Hill Country in Texas).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: There are four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere)
BENCHMARK	PS.7.1.A.	Identify attributes of Earth's different physical systems, as exemplified by being able to
EXPECTATION	PS.7.1.A.1.	Identify different attributes of physical systems in photographs (e.g., sky, clouds, plants, soil, oceans, lakes, mountains).
EXPECTATION	PS.7.1.A.3.	Identify examples of landforms on Earth's surface (e.g., mountains, volcanoes, valleys, plains).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: The components of ecosystems
BENCHMARK	PS.8.1.A.	Identify the components of different ecosystems, as exemplified by being able to
EXPECTATION	PS.8.1.A.1.	Identify the three major components of an ecosystem (i.e., biomass, climate, and soil).
EXPECTATION	PS.8.1.A.2.	Identify examples of each ecosystem component (e.g., pine trees versus grasslands, low versus high rainfall, clay versus sandy soils).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: The characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Identify and describe the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.1.	Identify and describe the characteristics of an ecosystem (specific types of plants, climate, and soil) in which a favorite or interesting creature lives.
EXPECTATION	PS.8.2.A.3.	Compare the characteristics of different ecosystems (e.g., pond, deciduous forest, coral reef).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems

STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.3.	Characteristics and Geographic Distribution of Biomes: The characteristics of biomes
BENCHMARK	PS.8.3.A.	Describe the characteristics of biomes, as exemplified by being able to
EXPECTATION	PS.8.3.A.1.	Describe the defining characteristics of a biome as a large region of ecosystems with similar climate and vegetation characteristics.
EXPECTATION	PS.8.3.A.2.	Describe the temperature, precipitation, and vegetation characteristics of various biomes, (e.g., deserts, grasslands, savannahs, temperate forests, tropical forests, arctic tundra).
EXPECTATION	PS.8.3.A.3.	Identify the characteristics in photographs of different types of vegetation and match them to the appropriate sections of a world climate map (e.g., cacti and succulents on a desert climate region, tropical forest trees on a tropical climate region, coral in shallow, tropical marine waters).

National Geography Standards (NGS)

Social Studies

Grade 5 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.2.	How to use mental maps to organize information about people, places, and environments in a spatial context
STRAND	WST.2.3.	Using Mental Maps: Mental maps are used to answer geographic questions about locations, characteristics, and patterns of places and regions
BENCHMARK	WST.2.3.A.	Identify from memory and describe the locations, characteristics, and patterns of places and regions to answer geographic questions, as exemplified by being able to
EXPECTATION	WST.2.3.A.3.	Identify from memory the distribution, pattern, and characteristics of major world deserts and mountain ranges that can be barriers to travel or settlement.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of

ecosystems, as exemplified by being able to
 Explain how different locations can have similar ecosystems as a function of
 EXPECTATION PS.8.2.A.2. temperature, precipitation, elevation, and latitude by using climographs and
 vegetation maps.

National Geography Standards (NGS)

Social Studies

Grade 6 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.2.	How to use mental maps to organize information about people, places, and environments in a spatial context
STRAND	WST.2.3.	Using Mental Maps: Mental maps are used to answer geographic questions about locations, characteristics, and patterns of places and regions
BENCHMARK	WST.2.3.A.	Identify from memory and describe the locations, characteristics, and patterns of places and regions to answer geographic questions, as exemplified by being able to
EXPECTATION	WST.2.3.A.3.	Identify from memory the distribution, pattern, and characteristics of major world deserts and mountain ranges that can be barriers to travel or settlement.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.2.	Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.

National Geography Standards (NGS)

Social Studies

Grade 7 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.2.	How to use mental maps to organize information about people, places, and environments in a spatial context
STRAND	WST.2.3.	Using Mental Maps: Mental maps are used to answer geographic questions about locations, characteristics, and patterns of places and regions
BENCHMARK	WST.2.3.A.	Identify from memory and describe the locations, characteristics, and patterns of places and regions to answer geographic questions, as exemplified by being able to
EXPECTATION	WST.2.3.A.3.	Identify from memory the distribution, pattern, and characteristics of major world deserts and mountain ranges that can be barriers to travel or settlement.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.2.	Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.

National Geography Standards (NGS)

Social Studies

Grade 8 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.WST.	The World in Spatial Terms
STANDARD	WST.2.	How to use mental maps to organize information about people, places, and environments in a spatial context
STRAND	WST.2.3.	Using Mental Maps: Mental maps are used to answer geographic questions about locations, characteristics, and patterns of places and regions
BENCHMARK	WST.2.3.A.	Identify from memory and describe the locations, characteristics, and

		patterns of places and regions to answer geographic questions, as exemplified by being able to
EXPECTATION	WST.2.3.A.3.	Identify from memory the distribution, pattern, and characteristics of major world deserts and mountain ranges that can be barriers to travel or settlement.
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.7.	The physical processes that shape the patterns of Earth's surface
STRAND	PS.7.1.	Components of Earth's Physical Systems: The four components of Earth's physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent
BENCHMARK	PS.7.1.A.	Identify and describe patterns in the environment that result from the interaction of Earth's physical processes, as exemplified by being able to
EXPECTATION	PS.7.1.A.2.	Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.2.	Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems
BENCHMARK	PS.8.2.A.	Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to
EXPECTATION	PS.8.2.A.2.	Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.

National Geography Standards (NGS)

Social Studies

Grade 9 - Adopted: 2012

ESSENTIAL ELEMENT	NGS.PS.	Physical Systems
STANDARD	PS.8.	The characteristics and spatial distribution of ecosystems and biomes on Earth's surface
STRAND	PS.8.1.	Components of Ecosystems: Ecosystems are dynamic and respond to changes in environmental conditions
BENCHMARK	PS.8.1.A.	Explain how there are short-term and long-term changes in ecosystems, as exemplified by being able to
EXPECTATION	PS.8.1.A.2.	Explain the response of ecosystems to stress caused by physical events in terms of their characteristics and capacity to respond (e.g., changes in mangroves by tsunamis, changes in forest flora and fauna after a fire).
EXPECTATION	PS.8.1.A.3.	Explain how ecosystems respond to long-term changes in the physical environment (e.g., glacial retreat, volcanic eruptions, sea-level rise, increases in sea temperatures).

Next Generation Science Standards (NGSS)

Science

Grade 4 - Adopted: 2013

STRAND	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TITLE	4-ESS2.	Earth's Systems Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	4-ESS2-1.	Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.

Next Generation Science Standards (NGSS)

Science

Grade 5 - Adopted: 2013

STRAND	NGSS.5-ESS.	EARTH AND SPACE SCIENCE
TITLE	5-ESS2.	Earth's Systems Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	5-ESS2-1.	Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
STRAND	NGSS.5-ESS.	EARTH AND SPACE SCIENCE
TITLE	5-ESS3.	Earth and Human Activity Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	5-ESS3-1.	Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Next Generation Science Standards (NGSS)

Science

Grade 6 - Adopted: 2013

STRAND	NGSS.MS-LS.	LIFE SCIENCE
TITLE	MS-LS2.	Ecosystems: Interactions, Energy, and Dynamics Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-LS2-2.	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
PERFORMANCE EXPECTATION	MS-LS2-4.	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
PERFORMANCE EXPECTATION	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
STRAND	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
TITLE	MS-ESS2.	Earth's Systems Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-ESS2-2.	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

PERFORMANCE EXPECTATION	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.
STRAND	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
TITLE	MS-ESS3.	Earth and Human Activity Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geoscience processes.
PERFORMANCE EXPECTATION	MS-ESS3-5.	Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

**Next Generation Science Standards (NGSS)
Science**

Grade 7 - Adopted: 2013

STRAND	NGSS.MS-LS.	LIFE SCIENCE
TITLE	MS-LS2.	Ecosystems: Interactions, Energy, and Dynamics Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-LS2-2.	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
PERFORMANCE EXPECTATION	MS-LS2-4.	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
PERFORMANCE EXPECTATION	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
STRAND	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
TITLE	MS-ESS2.	Earth’s Systems Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-ESS2-2.	Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
PERFORMANCE EXPECTATION	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.
STRAND	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
TITLE	MS-ESS3.	Earth and Human Activity Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geoscience processes.
PERFORMANCE EXPECTATION	MS-ESS3-5.	Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Next Generation Science Standards (NGSS)

Science

Grade 8 - Adopted: 2013

STRAND	NGSS.MS-LS.	LIFE SCIENCE
TITLE	MS-LS2.	Ecosystems: Interactions, Energy, and Dynamics Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-LS2-2.	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
PERFORMANCE EXPECTATION	MS-LS2-4.	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
PERFORMANCE EXPECTATION	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
STRAND	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
TITLE	MS-ESS2.	Earth's Systems Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-ESS2-2.	Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.
PERFORMANCE EXPECTATION	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.
STRAND	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
TITLE	MS-ESS3.	Earth and Human Activity Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	MS-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
PERFORMANCE EXPECTATION	MS-ESS3-5.	Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

Next Generation Science Standards (NGSS)

Science

Grade 9 - Adopted: 2013

STRAND	NGSS.HS-LS.	LIFE SCIENCE
TITLE	HS-LS2.	Ecosystems: Interactions, Energy, and Dynamics Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	HS-LS2-2.	Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
PERFORMANCE EXPECTATION	HS-LS2-7.	Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
PERFORMANCE EXPECTATION	HS-LS2-8.	Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.

STRAND	NGSS.HS-LS.	LIFE SCIENCE
TITLE	HS-LS4.	Biological Evolution: Unity and Diversity Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	HS-LS4-6.	Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.
STRAND	NGSS.HS-ESS.	EARTH AND SPACE SCIENCE
TITLE	HS-ESS1.	Earth's Place in the Universe Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	HS-ESS1-5.	Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
STRAND	NGSS.HS-ESS.	EARTH AND SPACE SCIENCE
TITLE	HS-ESS2.	Earth's Systems Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	HS-ESS2-1.	Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.
PERFORMANCE EXPECTATION	HS-ESS2-4.	Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
PERFORMANCE EXPECTATION	HS-ESS2-5.	Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
STRAND	NGSS.HS-ESS.	EARTH AND SPACE SCIENCE
TITLE	HS-ESS3.	Earth and Human Activity Students who demonstrate understanding can:
PERFORMANCE EXPECTATION	HS-ESS3-1.	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
PERFORMANCE EXPECTATION	HS-ESS3-2.	Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
PERFORMANCE EXPECTATION	HS-ESS3-3.	Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.
PERFORMANCE EXPECTATION	HS-ESS3-5.	Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.
PERFORMANCE EXPECTATION	HS-ESS3-6.	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

