Virtual Field Trips

National Parks of the Western Region - Part 1

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.

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).

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.
KNOWLEDGE - Learners will understand:
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.
Grade 4 - Adopted: 2012

**ESSENTIAL ELEMENT**

**STANDARD**

**STRAND**

**BENCHMARK**

**EXPECTATION**

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ESSENTIAL ELEMENT: NGS.PR.

ESSENTIAL ELEMENT: NGS.PS.

ESSENTIAL ELEMENT: NGS.PS.

ESSENTIAL ELEMENT: NGS.PS.

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**National Geography Standards (NGS)**

**Science**

**Places and Regions**

**The physical and human characteristics of places**

**The Characteristics of Places: Places have physical and human characteristics**

**Describe and compare the physical characteristics of places at a variety of scales, local to global, as exemplified by being able to**

**Describe and compare the vegetation in different places in the world (e.g., deserts, mountains, rain forests, plains).**

**Describe and compare the physical environments and landforms of different places in the world (e.g., mountains, islands, valleys or canyons, mesas).**

**Physical Systems**

**Components of Earth’s Physical Systems: There are four components of Earth’s physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere)**

**Identify attributes of Earth's different physical systems, as exemplified by being able to**

**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).**

**Identify examples of landforms on Earth's surface (e.g., mountains, volcanoes, valleys, plains).**

**Physical Processes: Physical processes shape features on Earth’s surface**

**Identify examples of physical processes, as exemplified by being able to**

**Identify the components and relationships in the erosion cycle (e.g., water carving canyons, wind sculpting mesas, landslides, avalanches).**

**Physical Processes: Physical processes shape features on Earth’s surface**

**Describe how physical processes shape features on Earth’s surface, as exemplified by being able to**

**Describe the physical processes that shaped particular landform features using pictures of landforms such as canyons, mesas, and deltas.**

**The characteristics and spatial distribution of ecosystems and biomes on Earth's surface**
Components of Ecosystems: The components of ecosystems

Identify the components of different ecosystems, as exemplified by being able to

Identify examples of each ecosystem component (e.g., pine trees versus grasslands, low versus high rainfall, clay versus sandy soils).

Describe local ecosystems by surveying and recording the properties of their components.

Identify and describe the characteristics of ecosystems, as exemplified by being able to

Identify and describe the characteristics of an ecosystem (specific types of plants, climate, and soil) in which a favorite or interesting creature lives.

Identify and draw pictures of different plants and animals in various local ecosystems (e.g., a pond, forest, city park).

Compare the characteristics of different ecosystems (e.g., pond, deciduous forest, coral reef).

Describe the characteristics of biomes, as exemplified by being able to

Describe the defining characteristics of a biome as a large region of ecosystems with similar climate and vegetation characteristics.

Describe the temperature, precipitation, and vegetation characteristics of various biomes, (e.g., deserts, grasslands, savannahs, temperate forests, tropical forests, arctic tundra).

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).

How human actions modify the physical environment

Identify and describe examples of how human activities impact the physical environment, as exemplified by being able to

Identify and describe the changes in local habitats that resulted from human activities.

How to apply geography to interpret the present and plan for the future
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

Analyze geographic contexts in which current events and issues occur, as exemplified by being able to
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.

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.

National Geography Standards (NGS)

Science

Grade 5 - 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 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.1. Describe and explain how places near a river may change over time (e.g., flood plains, alluvial soils, new channels).
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.7.3. 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.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.1. Describe the rain shadow effect of orographic precipitation and identify the different ecosystems on the windward and leeward side of a mountain range or island (e.g., temperate rain forest on the windward side and high desert on the leeward side of the Cascade Mountain Range).
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
Characteristics and Geographic Distribution of Biomes: Climate primarily determines the characteristics and geographic distribution of biomes. Describe and explain how climate (temperature and rainfall) primarily determines the characteristics and geographic distribution of biomes, as exemplified by being able to 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.

- **STANDARD** HS.10.2. Patterns of Culture: Multiple cultural landscapes exist and vary across space

**BENCHMARK** HS.10.2.A. Explain how a cultural landscape is the physical expression of a culture, as exemplified by being able to describe how human settlements and archaeological remains illustrate the human imprint on the physical environments they occupied (e.g., the Cahokia Mounds left by Native Americans in southern Illinois, Pompeii ruins in Italy as a result of the volcanic eruption in ancient times, speculation about the stone statuary on Easter Island).

**EXPECTATION** HS.10.2.A.1. Cahokia Mounds left by Native Americans in southern Illinois, Pompeii ruins in Italy as a result of the volcanic eruption in ancient times, speculation about the stone statuary on Easter Island.

**ESSENTIAL ELEMENT** NGS.ES. Environment and Society

**STANDARD** ES.14. How human actions modify the physical environment

**BENCHMARK** ES.14.3.A. Analyze the positive and negative consequences of humans changing the physical environment, as exemplified by being able to analyze the ways humans can have positive effects on the physical environment (e.g., open green space protection, wetland restoration, sustainable forestry).

**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

**BENCHMARK** ES.15.2.A. Describe and explain the types and characteristics of hazards, as exemplified by being able to construct a table of climate-related and tectonic-related hazards and explain the characteristics of each type of hazard.

**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.

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**National Geography Standards (NGS)**

**Science**

**Grade 6 - 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 Place: Physical and human characteristics of places change
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<th>Explain the ways that physical processes change places, as exemplified by being able to</th>
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<td>Describe and explain how places near a river may change over time (e.g., flood plains, alluvial soils, new channels). 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).</td>
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<td>Identify and describe patterns in the environment that result from the interaction of Earth’s physical processes, as exemplified by being able to Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).</td>
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<td>Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to 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).</td>
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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.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.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.1. Describe and explain how places near a river may change over time (e.g., flood plains, alluvial soils, new channels).
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 Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).
EXPECTATION PS.7.1.A.2. 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.7.3. 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 Explain the effects of erosion processes on landscape features over time (e.g., Chimney Rock, Devil’s Tower, Grand Canyon, Arches National Park).

EXPECTATION PS.7.3.A.3.

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 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).

EXPECTATION PS.8.1.A.3.

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 Describe the rain shadow effect of orographic precipitation and identify the different ecosystems on the windward and leeward side of a mountain range or island (e.g., temperate rain forest on the windward side and high desert on the leeward side of the Cascade Mountain Range). Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.

EXPECTATION PS.8.2.A.2.

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 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.

EXPECTATION PS.8.3.A.3.

ESSENTIAL NGS.HS. Human Systems
The characteristics, distribution, and complexity of Earth's cultural mosaics

Patterns of Culture: Multiple cultural landscapes exist and vary across space

Explain how a cultural landscape is the physical expression of a culture, as exemplified by being able to describe how human settlements and archaeological remains illustrate the human imprint on the physical environments they occupied (e.g., the Cahokia Mounds left by Native Americans in southern Illinois, Pompeii ruins in Italy as a result of the volcanic eruption in ancient times, speculation about the stone statuary on Easter Island).

How human actions modify the physical environment

Consequences for People and Environments: The physical environment can both accommodate and be endangered by human activities

Analyze the positive and negative consequences of humans changing the physical environment, as exemplified by being able to analyze the ways humans can have positive effects on the physical environment (e.g., open green space protection, wetland restoration, sustainable forestry).

How physical systems affect human systems

Environmental Hazards: The types, causes, and characteristics of environmental hazards occur at a variety of scales from local to global

Describe and explain the types and characteristics of hazards, as exemplified by being able to construct a table of climate-related and tectonic-related hazards and explain the characteristics of each type of hazard.

National Geography Standards (NGS)

Grade 8 - Adopted: 2012

Places and Regions

The physical and human characteristics of places

The Characteristics of Place: Physical and human characteristics of places change

Explain the ways that physical processes change places, as exemplified by being able to 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).
The physical processes that shape the patterns of Earth's surface

Components of Earth’s Physical Systems: The four components of Earth’s physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent

Identify and describe patterns in the environment that result from the interaction of Earth’s physical processes, as exemplified by being able to identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).

Analyse and explain patterns of physical features resulting from the interactions of Earth’s physical processes, as exemplified by being able to explain the pattern of glacial features as a result of glacial retreat (e.g., moraines, kettle lakes, cirques).

Analyze and explain the patterns that occur on Earth’s surface as a result of physical processes, as exemplified by being able to explain the effects of erosion processes on landscape features over time (e.g., Chimney Rock, Devil’s Tower, Grand Canyon, Arches National Park).

Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to 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).

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
Describe the rain shadow effect of orographic precipitation and identify the different ecosystems on the windward and leeward side of a mountain range or island (e.g., temperate rain forest on the windward side and high desert on the leeward side of the Cascade Mountain Range).

EXPECTATION PS.8.2.A.1. Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.

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.HS. Human Systems

STANDARD HS.10. The characteristics, distribution, and complexity of Earth's cultural mosaics

STRAND HS.10.2. Patterns of Culture: Multiple cultural landscapes exist and vary across space

BENCHMARK HS.10.2.A. Explain how a cultural landscape is the physical expression of a culture, as exemplified by being able to
Describe how human settlements and archaeological remains illustrate the human imprint on the physical environments they occupied (e.g., the Cahokia Mounds left by Native Americans in southern Illinois, Pompeii ruins in Italy as a result of the volcanic eruption in ancient times, speculation about the stone statuary on Easter Island).

EXPECTATION HS.10.2.A.1. 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.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.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.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 explain the changing relationships among climate, vegetation, and landforms (e.g., desertification and soil degradation, glacial advances and retreats).

EXPECTATION PS.7.1.A.1. 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).

EXPECTATION PS.7.1.A.3. Explain the changing relationships among climate, vegetation, and landforms (e.g., desertification and soil degradation, glacial advances and retreats).

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 explain the changing relationships among climate, vegetation, and landforms (e.g., desertification and soil degradation, glacial advances and retreats).

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.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 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.2. Explain how there are short-term and long-term changes in ecosystems, as exemplified by being able to 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).

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EXPECTATION PS.8.1.A.2. Explain how there are short-term and long-term changes in ecosystems, as exemplified by being able to 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).
changes in environmental conditions

**BENCHMARK**  PS.8.1.B. Explain how local and global changes influence ecosystems, as exemplified by being able to

**EXPECTATION**  PS.8.1.B.1. Explain how global climate change could influence the location and extent of existing ecosystems and the formation of new ones.

**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.A. Explain the geographic distribution of ecosystems, as exemplified by being able to

**EXPECTATION**  PS.8.2.A.3. Analyze the impact of a river meandering or flooding on the distribution of wetlands over time.

**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 distribution and characteristics of biomes change over time

**BENCHMARK**  PS.8.3.A. Explain how climate can influence and change the characteristics and geographic distribution of biomes, as exemplified by being able to

**EXPECTATION**  PS.8.3.A.1. Explain how rising global temperatures can cause changes in various biomes (e.g., melting permafrost in tundra, changes in the location of deserts, increases in the length of growing seasons).

**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.16.3. 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 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).

**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 describe and compare the physical environments and landforms of different places in the world (e.g., mountains, islands, valleys or canyons, mesas).

**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 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).

**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 identify different attributes of physical systems in photographs (e.g., sky, clouds, plants, soil, oceans, lakes, mountains).

**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

Identify from memory and describe the locations, characteristics, and patterns of places and regions to answer geographic questions, as exemplified by being able to

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

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

Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).

EXPECTATION PS.7.1.A.2.

ESSENTIAL ELEMENT NGS.PS. Physical Systems

STANDARD PS.8. The characteristics and spatial distribution of ecosystems and biomes on Earth's surface

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 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

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. major world deserts and mountain ranges that can be barriers to travel or settlement.

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**National Geography Standards (NGS)**

**Social Studies**

**Grade 7 - Adopted: 2012**

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The characteristics and spatial distribution of ecosystems and biomes on Earth's surface

Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems

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 temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.

National Geography Standards (NGS)

Social Studies

Grade 8 - Adopted: 2012

How to use mental maps to organize information about people, places, and environments in a spatial context

Using Mental Maps: Mental maps are used to answer geographic questions about locations, characteristics, and patterns of places and regions

Identify from memory and describe the locations, characteristics, and patterns of places and regions to answer geographic questions, as exemplified by being able to

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The physical processes that shape the patterns of Earth's surface

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National Geography Standards (NGS)

Social Studies

Grade 9 - Adopted: 2012

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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

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

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.
TITLE MS-LS2. Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

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.
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.
TITLE MS-ESS3. Earth and Human Activity

Students who demonstrate understanding can:

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.
TITLE MS-LS2. Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

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.
TITLE MS-ESS3. Earth and Human Activity
**Next Generation Science Standards (NGSS)**

**Science**

**Grade 8** - Adopted: 2013

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**Next Generation Science Standards (NGSS)**

**Science**

**Grade 9** - Adopted: 2013

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<td>MS-ESS3.</td>
<td>Earth and Human Activity</td>
</tr>
<tr>
<td>Students who demonstrate understanding can:</td>
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<tr>
<td>PERFORMANCE EXPECTATION</td>
<td>MS-ESS3-5.</td>
<td>Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.</td>
</tr>
<tr>
<td>TITLE</td>
<td>PERFORMANCE EXPECTATION</td>
<td>STRAND</td>
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<tr>
<td><strong>Ecosystems: Interactions, Energy, and Dynamics</strong></td>
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<td>Students who demonstrate understanding can:</td>
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<tr>
<td>Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.</td>
<td>HS-LS2-2.</td>
<td>LIFE SCIENCE</td>
</tr>
<tr>
<td>Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.</td>
<td>HS-LS2-7.</td>
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<tr>
<td><strong>Biological Evolution: Unity and Diversity</strong></td>
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<td>Students who demonstrate understanding can:</td>
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<tr>
<td>Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.</td>
<td>HS-LS4-6.</td>
<td>EARTH AND SPACE SCIENCE</td>
</tr>
<tr>
<td>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.</td>
<td>HS-ESS1-5.</td>
<td>EARTH AND SPACE SCIENCE</td>
</tr>
<tr>
<td><strong>Earth’s Place in the Universe</strong></td>
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<td>Students who demonstrate understanding can:</td>
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<td>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.</td>
<td>HS-ESS2-1.</td>
<td>EARTH AND SPACE SCIENCE</td>
</tr>
<tr>
<td>Analyze geoscience data to make the claim that one change to Earth’s surface can create feedbacks that cause changes to other Earth’s systems.</td>
<td>HS-ESS2-2.</td>
<td>EARTH AND SPACE SCIENCE</td>
</tr>
<tr>
<td>Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.</td>
<td>HS-ESS2-4.</td>
<td>EARTH AND SPACE SCIENCE</td>
</tr>
<tr>
<td>Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</td>
<td>HS-ESS2-5.</td>
<td>EARTH AND SPACE SCIENCE</td>
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<td><strong>Earth’s Systems</strong></td>
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<td>Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</td>
<td>HS-ESS3-2.</td>
<td>EARTH AND SPACE SCIENCE</td>
</tr>
<tr>
<td>Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</td>
<td>HS-ESS3-3.</td>
<td>EARTH AND SPACE SCIENCE</td>
</tr>
<tr>
<td>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.</td>
<td>HS-ESS3-5.</td>
<td>EARTH AND SPACE SCIENCE</td>
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</tbody>
</table>