Virtual Field Trips

National Parks - West - Alaska & Hawaii

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.

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.

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.
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).

**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).

**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.  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.

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.2. 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).

EXPECTATION  PS.8.3.A.3. Compare the characteristics of different ecosystems (e.g., pond, deciduous forest, coral reef).

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
EXCEPTION 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. 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
EXCEPTION 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
EXCEPTION 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
EXCEPTION 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
<table>
<thead>
<tr>
<th>STANDARD</th>
<th>PR.4.</th>
<th>The physical and human characteristics of places</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRAND</td>
<td>PR.4.2.</td>
<td>The Characteristics of Place: Physical and human characteristics of places change</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PR.4.2.A.</td>
<td>Explain the ways that physical processes change places, as exemplified by being able to</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PR.4.2.A.2.</td>
<td>Explain the ways in which islands and coastal places may change as a result of sea level rise.</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PR.4.2.A.3.</td>
<td>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>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.7.</td>
<td>The physical processes that shape the patterns of Earth's surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.7.1.</td>
<td>Components of Earth’s Physical Systems: The four components of Earth’s physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.7.1.A.</td>
<td>Identify and describe patterns in the environment that result from the interaction of Earth’s physical processes, as exemplified by being able to</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.7.1.A.2.</td>
<td>Identify and describe the patterns that result from the connections between climate and vegetation (e.g., examples of patterns of ecosystems and biomes).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.7.</td>
<td>The physical processes that shape the patterns of Earth's surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.7.1.</td>
<td>Components of Earth’s Physical Systems: The four components of Earth’s physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.7.1.B.</td>
<td>Analyze and explain patterns of physical features resulting from the interactions of Earth’s physical processes, as exemplified by being able to</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.7.1.B.2.</td>
<td>Analyze the pattern of glacial features as a result of glacial retreat (e.g., moraines, kettle lakes, cirques).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.7.</td>
<td>The physical processes that shape the patterns of Earth's surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.7.2.</td>
<td>Earth-Sun Relationships: Earth-Sun relationships drives physical processes that follow an annual cycle and create patterns on Earth</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.7.2.A.</td>
<td>Explain how Earth-Sun relationships drive Earth’s physical processes and create annual patterns, as exemplified by being able to</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.7.2.A.1.</td>
<td>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).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.7.</td>
<td>The physical processes that shape the patterns of Earth's surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.7.3.</td>
<td>Physical Processes: Physical processes generate patterns of features across Earth’s surface</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.7.3.A.</td>
<td>Analyze and explain the patterns that occur on Earth’s surface as a result of</td>
</tr>
</tbody>
</table>
physical processes, as exemplified by being able to
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.2.
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 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 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).

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.**

**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 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.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 analyze the pattern of glacial features as a result of glacial retreat (e.g., moraines, kettle lakes, cirques).

EXPECTATION PS.7.1.B.2.

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 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).

EXPECTATION PS.7.2.A.1.

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 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.2.

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 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 Describe and compare changes in natural vegetation zones and land uses

**EXPECTATION** WST.3.2.A.3. 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. 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).

**EXPECTATION** PR.4.2.A.3.

**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
Analyze the pattern of glacial features as a result of glacial retreat (e.g.,
moraines, kettle lakes, cirques).

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 drive 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
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).

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
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.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
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. 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
Explain how different locations can have similar ecosystems as a function
of temperature, precipitation, elevation, and latitude by using climographs
and vegetation maps.
Physical Systems

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.

Environment and Society

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 positive and negative effects of human actions on the lithosphere (e.g., land degradation and erosion, soil salinization and acidification).

Analyze the ways humans can have positive effects on the physical environment (e.g., open green space protection, wetland restoration, sustainable forestry).

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

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).

Construct a table of climate-related and tectonic-related hazards and explain the characteristics of each type of hazard.

The World in Spatial Terms

How to analyze the spatial organization of people, places, and environments on Earth’s surface

Spatial Patterns and Processes: Processes shape the spatial patterns of people, places, and environments over time

Describe and compare the processes that influence the distribution of
human and physical phenomena, as exemplified by being able to
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).

**EXPECTATION** WST.3.2.A.3.

**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
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.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
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, tornados in the mid-latitudes during the spring and summer).

**EXPECTATION** PS.7.2.A.1.
<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.7.</td>
<td>The physical processes that shape the patterns of Earth’s surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.7.3.</td>
<td>Physical Processes: Physical processes generate patterns of features across Earth’s surface</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.7.3.A.</td>
<td>Analyze and explain the patterns that occur on Earth’s surface as a result of physical processes, as exemplified by being able to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain how physical processes related to plate tectonics form islands (e.g., Hawaiian Islands) or increase the elevation of mountains (e.g., Himalayan Mountains).</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.7.3.A.2.</td>
<td>Explain the effects of erosion processes on landscape features over time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(e.g., Chimney Rock, Devil’s Tower, Grand Canyon, Arches National Park).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.8.</td>
<td>The characteristics and spatial distribution of ecosystems and biomes on Earth’s surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.8.1.</td>
<td>Components of Ecosystems: Components of ecosystems are interdependent</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.8.1.A.</td>
<td>Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.8.1.A.3.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.8.</td>
<td>The characteristics and spatial distribution of ecosystems and biomes on Earth’s surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.8.2.</td>
<td>Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.8.2.A.</td>
<td>Describe and explain how physical processes determine the characteristics of ecosystems, as exemplified by being able to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain how different locations can have similar ecosystems as a function of temperature, precipitation, elevation, and latitude by using climographs and vegetation maps.</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.8.2.A.2.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.8.</td>
<td>The characteristics and spatial distribution of ecosystems and biomes on Earth’s surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.8.3.</td>
<td>Characteristics and Geographic Distribution of Biomes: Climate primarily determines the characteristics and geographic distribution of biomes</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.8.3.A.</td>
<td>Describe and explain how climate (temperature and rainfall) primarily determines the characteristics and geographic distribution of biomes, as exemplified by being able to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Explain how biomes do not always follow lines of latitude by identifying</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the influences of oceans and mountain ranges on the distribution of climate and vegetation.</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.8.3.A.3.</td>
<td></td>
</tr>
</tbody>
</table>

| 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
EXEMPLARY ES.14.3.A.1. Analyze the ways humans can have positive effects on the lithosphere (e.g., land degradation and erosion, soil salinization and acidification).
EXEMPLARY ES.14.3.A.3. Analyze the ways humans can have positive effects on the environment (e.g., open green space protection, wetland restoration, sustainable forestry).

National Geography Standards (NGS)
Grade 9 - Adopted: 2012

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).
EXEMPLARY 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).

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 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.

**EXPECTATION** ES.15.2.A.1. people in developed and developing world regions prepare for and cope with the aftermath of these disasters.

**ESSENTIAL** NGS.ES. Environment and Society
<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>STANDARD</th>
<th>BENCHMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRAND</td>
<td>ES.16.</td>
<td>ES.16.3.B.</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>ES.16.3.B.</td>
<td></td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>ES.16.3.B.</td>
<td></td>
</tr>
</tbody>
</table>

**National Geography Standards (NGS)**

**Social Studies**

**Grade 4** - Adopted: 2012

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>STANDARD</th>
<th>STRAND</th>
<th>BENCHMARK</th>
<th>EXPECTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGS.PR.</td>
<td>PR.4.</td>
<td>PR.4.2.</td>
<td>PR.4.2.A.</td>
<td></td>
</tr>
</tbody>
</table>

**Places and Regions**

The physical and human characteristics of places

The Concept of Place: Places are locations having distinctive characteristics that give them meaning and distinguish them from other locations

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).

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
<table>
<thead>
<tr>
<th>STANDARD</th>
<th>PS.8.</th>
<th>The characteristics and spatial distribution of ecosystems and biomes on Earth's surface</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRAND</td>
<td>PS.8.3.</td>
<td>Characteristics and Geographic Distribution of Biomes: The characteristics of biomes</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.8.3.A.</td>
<td>Describe the characteristics of biomes, as exemplified by being able to</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.8.3.A.1.</td>
<td>Describe the defining characteristics of a biome as a large region of ecosystems with similar climate and vegetation characteristics.</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.8.3.A.2.</td>
<td>Describe the temperature, precipitation, and vegetation characteristics of various biomes, (e.g., deserts, grasslands, savannahs, temperate forests, tropical forests, arctic tundra).</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.8.3.A.3.</td>
<td>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).</td>
</tr>
</tbody>
</table>

**National Geography Standards (NGS)**

**Social Studies**

**Grade 5 - Adopted: 2012**

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.WST.</th>
<th>The World in Spatial Terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>WST.2.</td>
<td>How to use mental maps to organize information about people, places, and environments in a spatial context</td>
</tr>
<tr>
<td>STRAND</td>
<td>WST.2.3.</td>
<td>Using Mental Maps: Mental maps are used to answer geographic questions about locations, characteristics, and patterns of places and regions</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>WST.2.3.A.</td>
<td>Identify from memory and describe the locations, characteristics, and patterns of places and regions to answer geographic questions, as exemplified by being able to</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>WST.2.3.A.3.</td>
<td>Identify from memory the distribution, pattern, and characteristics of major world deserts and mountain ranges that can be barriers to travel or settlement.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.7.</td>
<td>The physical processes that shape the patterns of Earth's surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.7.1.</td>
<td>Components of Earth’s Physical Systems: The four components of Earth’s physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.7.1.A.</td>
<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>
</tr>
<tr>
<td>EXPECTATION</td>
<td>PS.7.1.A.2.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ESSENTIAL ELEMENT</th>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>STANDARD</td>
<td>PS.8.</td>
<td>The characteristics and spatial distribution of ecosystems and biomes on Earth's surface</td>
</tr>
<tr>
<td>STRAND</td>
<td>PS.8.2.</td>
<td>Characteristics and Geographic Distribution of Ecosystems: Physical processes determine the characteristics of ecosystems</td>
</tr>
<tr>
<td>BENCHMARK</td>
<td>PS.8.2.A.</td>
<td>Describe and explain how physical processes determine the characteristics of</td>
</tr>
</tbody>
</table>
ecosystems, as exemplified by being able to

EXCEPTION  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
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

EXCEPTION  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

EXCEPTION  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

EXCEPTION  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 Identify from memory the distribution, pattern, and characteristics of major world deserts and mountain ranges that can be barriers to travel or settlement.

**EXPECTATION** WST.2.3.A.3.

**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.

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

**EXPECTATION** PS.8.2.A.2.

**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 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). 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).

**EXPECTATION** PS.8.1.A.2.

**EXPECTATION** PS.8.1.A.3.
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.

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.

Next Generation Science Standards (NGSS)

Science

Grade 6 - Adopted: 2013

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.
Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

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.

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.

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.
<table>
<thead>
<tr>
<th>STRAND</th>
<th>NGSS.HS-LS.</th>
<th>LIFE SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
<td>HS-LS4.</td>
<td>Biological Evolution: Unity and Diversity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students who demonstrate understanding can:</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>HS-LS4.6.</td>
<td>Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRAND</th>
<th>NGSS.HS-ESS.</th>
<th>EARTH AND SPACE SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
<td>HS-ESS1.</td>
<td>Earth’s Place in the Universe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students who demonstrate understanding can:</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>HS-ESS1-5.</td>
<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>
</tr>
<tr>
<td>EXPECTATION</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRAND</th>
<th>NGSS.HS-ESS.</th>
<th>EARTH AND SPACE SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE</td>
<td>HS-ESS2.</td>
<td>Earth’s Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students who demonstrate understanding can:</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>HS-ESS2-1.</td>
<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>
</tr>
<tr>
<td>EXPECTATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>HS-ESS2-4.</td>
<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>
</tr>
<tr>
<td>EXPECTATION</td>
<td>HS-ESS2-5.</td>
<td>Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>HS-ESS3.</td>
<td>Earth and Human Activity</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>HS-ESS3-1.</td>
<td>Students who demonstrate understanding can:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>HS-ESS3-2.</td>
<td>Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.</td>
</tr>
<tr>
<td>EXPECTATION</td>
<td>HS-ESS3-3.</td>
<td>Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td>HS-ESS3-5.</td>
<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>
</tr>
<tr>
<td>EXPECTATION</td>
<td>HS-ESS3-6.</td>
<td>Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</td>
</tr>
</tbody>
</table>

© 2018 EdGate Correlation Services, LLC. All Rights reserved. 
Contact Us - Privacy - Service Agreement