Virtual Field Trips

La Selva Amazonica - Pte 1 (En Espagnol)

National Council for the Social Studies (NCSS)
Social Studies

Grade 5 - Adopted: 2010

THEME  NCSS.1. CULTURE

DEFINITION
SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.

CATEGORY 1.1.

KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION 1.1.1. 'Culture' refers to the socially transmitted behaviors, beliefs, values, traditions, institutions, and ways of living together of a group of people.
LEARNING EXPECTATION 1.1.3. How culture influences the ways in which human groups solve the problems of daily living.
LEARNING EXPECTATION 1.1.6. That culture may change in response to changing needs, concerns, social, political, and geographic conditions.
LEARNING EXPECTATION 1.1.7. How people from different cultures develop different values and ways of interpreting experience.

THEME  NCSS.1. CULTURE

DEFINITION
SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.

CATEGORY 1.2.

PROCESSES - Learners will be able to:
LEARNING EXPECTATION 1.2.1. Ask and find answers to questions related to culture.
LEARNING EXPECTATION 1.2.7. Draw inferences from data about the ways in which given cultures respond to persistent human issues, and how culture influences those responses.

THEME  NCSS.2. TIME, CONTINUITY, AND CHANGE

DEFINITION
SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF THE PAST AND ITS LEGACY.

CATEGORY 2.1.

KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION 2.1.6. The origins and influences of social, cultural, political, and economic systems.

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 geographic phenomena such as climate, vegetation, and natural resources.

LEARNING EXPECTATION 3.1.3. Past and present changes in physical systems, such as seasons, climate, and weather, and the water cycle, in both national and global contexts.

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).

LEARNING EXPECTATION 3.1.7. Human modifications of the environment.

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 3.2. PROCESSES - Learners will be able to:

LEARNING EXPECTATION 3.2.3. Acquire, organize, and analyze information and use geographic tools to draw conclusions about historic or current national and global environmental change.

THEME NCSS.5. INDIVIDUALS, GROUPS, AND INSTITUTIONS

DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF INTERACTIONS AMONG INDIVIDUALS, GROUPS, AND INSTITUTIONS.

CATEGORY 5.1. KNOWLEDGE - Learners will understand:

LEARNING EXPECTATION 5.1.2. Concepts such as: mores, norms, status, role, socialization, ethnocentrism, cultural diffusion, competition, cooperation, conflict, race, ethnicity, and gender.

LEARNING EXPECTATION 5.1.9. That groups and institutions influence culture in a variety of ways.

THEME NCSS.9. GLOBAL CONNECTIONS

DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF GLOBAL CONNECTIONS AND INTERDEPENDENCE.

CATEGORY 9.2. PROCESSES - Learners will be able to:

LEARNING EXPECTATION 9.2.3. Investigate and explain the ways in which aspects of culture, such as language, beliefs, and traditions, may facilitate understanding, or lead to misunderstanding between cultures.

National Council for the Social Studies (NCSS)

Social Studies

Grade 6 - Adopted: 2010

THEME NCSS.1. CULTURE

DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.

CATEGORY 1.1. KNOWLEDGE - Learners will understand:

LEARNING 1.1.1. "Culture" refers to the socially transmitted behaviors, beliefs, values, traditions,
EXPECTATION institutions, and ways of living together of a group of people.
LEARNING EXPECTATION 1.1.3. How culture influences the ways in which human groups solve the problems of daily living.
LEARNING EXPECTATION 1.1.6. That culture may change in response to changing needs, concerns, social, political, and geographic conditions.
LEARNING EXPECTATION 1.1.7. How people from different cultures develop different values and ways of interpreting experience.

THEME NCSS.1. CULTURE
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.
CATEGORY 1.2. PROCESSES - Learners will be able to:
LEARNING EXPECTATION 1.2.1. Ask and find answers to questions related to culture.
LEARNING EXPECTATION 1.2.7. Draw inferences from data about the ways in which given cultures respond to persistent human issues, and how culture influences those responses.

THEME NCSS.2. TIME, CONTINUITY, AND CHANGE
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF THE PAST AND ITS LEGACY.
CATEGORY 2.1. KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION 2.1.6. The origins and influences of social, cultural, political, and economic systems.

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 geographic phenomena such as climate, vegetation, and natural resources.
LEARNING EXPECTATION 3.1.3. Past and present changes in physical systems, such as seasons, climate, and weather, and the water cycle, in both national and global contexts.
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).
LEARNING EXPECTATION 3.1.7. Human modifications of the environment.

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 3.2. PROCESSES - Learners will be able to:
LEARNING EXPECTATION 3.2.3. Acquire, organize, and analyze information and use geographic tools to draw conclusions about historic or current national and global environmental change.

THEME NCSS.5. INDIVIDUALS, GROUPS, AND INSTITUTIONS
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF INTERACTIONS AMONG INDIVIDUALS, GROUPS, AND INSTITUTIONS.
National Council for the Social Studies (NCSS)

Social Studies

Grade 7 - Adopted: 2010

THEME NCSS.1. CULTURE
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.

CATEGORY 1.1. KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION 1.1.1. 'Culture'' refers to the socially transmitted behaviors, beliefs, values, traditions, institutions, and ways of living together of a group of people.
LEARNING EXPECTATION 1.1.3. How culture influences the ways in which human groups solve the problems of daily living.
LEARNING EXPECTATION 1.1.6. That culture may change in response to changing needs, concerns, social, political, and geographic conditions.
LEARNING EXPECTATION 1.1.7. How people from different cultures develop different values and ways of interpreting experience.

THEME NCSS.1. CULTURE
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.

CATEGORY 1.2. PROCESSES - Learners will be able to:
LEARNING EXPECTATION 1.2.1. Ask and find answers to questions related to culture.
LEARNING EXPECTATION 1.2.7. Draw inferences from data about the ways in which given cultures respond to persistent human issues, and how culture influences those responses.

THEME NCSS.2. TIME, CONTINUITY, AND CHANGE
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF THE PAST AND ITS LEGACY.

CATEGORY 2.1. KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION 2.1.6. The origins and influences of social, cultural, political, and economic systems.

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 geographic phenomena such as climate, vegetation, and natural resources.

LEARNING EXPECTATION 3.1.3. Past and present changes in physical systems, such as seasons, climate, and weather, and the water cycle, in both national and global contexts.

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).

LEARNING EXPECTATION 3.1.7. Human modifications of the environment.

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 3.2. PROCESSES - Learners will be able to:

LEARNING EXPECTATION 3.2.3. Acquire, organize, and analyze information and use geographic tools to draw conclusions about historic or current national and global environmental change.

THEME NCSS.5. INDIVIDUALS, GROUPS, AND INSTITUTIONS

DEFINITION
SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF INTERACTIONS AMONG INDIVIDUALS, GROUPS, AND INSTITUTIONS.

CATEGORY 5.1. KNOWLEDGE - Learners will understand:

LEARNING EXPECTATION 5.1.2. Concepts such as: mores, norms, status, role, socialization, ethnocentrism, cultural diffusion, competition, cooperation, conflict, race, ethnicity, and gender.

LEARNING EXPECTATION 5.1.9. That groups and institutions influence culture in a variety of ways.

THEME NCSS.9. GLOBAL CONNECTIONS

DEFINITION
SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF GLOBAL CONNECTIONS AND INTERDEPENDENCE.

CATEGORY 9.2. PROCESSES - Learners will be able to:

LEARNING EXPECTATION 9.2.3. Investigate and explain the ways in which aspects of culture, such as language, beliefs, and traditions, may facilitate understanding, or lead to misunderstanding between cultures.

National Council for the Social Studies (NCSS)
Social Studies

Grade 8 - Adopted: 2010

THEME NCSS.1. CULTURE

DEFINITION
SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.
CATEGORY 1.1. KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION 1.1.1. 'Culture' refers to the socially transmitted behaviors, beliefs, values, traditions, institutions, and ways of living together of a group of people.
LEARNING EXPECTATION 1.1.3. How culture influences the ways in which human groups solve the problems of daily living.
LEARNING EXPECTATION 1.1.6. That culture may change in response to changing needs, concerns, social, political, and geographic conditions.
LEARNING EXPECTATION 1.1.7. How people from different cultures develop different values and ways of interpreting experience.
THEME NCSS.1. CULTURE
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.

CATEGORY 1.2. PROCESSES - Learners will be able to:
LEARNING EXPECTATION 1.2.1. Ask and find answers to questions related to culture.
LEARNING EXPECTATION 1.2.7. Draw inferences from data about the ways in which given cultures respond to persistent human issues, and how culture influences those responses.
THEME NCSS.2. TIME, CONTINUITY, AND CHANGE
DEFINITION SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF THE PAST AND ITS LEGACY.

CATEGORY 2.1. KNOWLEDGE - Learners will understand:
LEARNING EXPECTATION 2.1.6. The origins and influences of social, cultural, political, and economic systems.
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 geographic phenomena such as climate, vegetation, and natural resources.
LEARNING EXPECTATION 3.1.3. Past and present changes in physical systems, such as seasons, climate, and weather, and the water cycle, in both national and global contexts.
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).
LEARNING EXPECTATION 3.1.7. Human modifications of the environment.
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 3.2. PROCESSES - Learners will be able to:
LEARNING EXPECTATION 3.2.3. Acquire, organize, and analyze information and use geographic tools to draw conclusions about historic or current national and global environmental change.
THEME NCSS.5. INDIVIDUALS, GROUPS, AND INSTITUTIONS
SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF INTERACTIONS AMONG INDIVIDUALS, GROUPS, AND INSTITUTIONS.

5.1. KNOWLEDGE - Learners will understand:
- Concepts such as: mores, norms, status, role, socialization, ethnocentrism, cultural diffusion, competition, cooperation, conflict, race, ethnicity, and gender.
- That groups and institutions influence culture in a variety of ways.

NCSS.9. GLOBAL CONNECTIONS

SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF GLOBAL CONNECTIONS AND INTERDEPENDENCE.

9.2. PROCESSES - Learners will be able to:
- Investigate and explain the ways in which aspects of culture, such as language, beliefs, and traditions, may facilitate understanding, or lead to misunderstanding between cultures.

NCSS.1. CULTURE

SOCIAL STUDIES PROGRAMS SHOULD INCLUDE EXPERIENCES THAT PROVIDE FOR THE STUDY OF CULTURE AND CULTURAL DIVERSITY.

1.1. KNOWLEDGE - Learners will understand:
- 'Culture' refers to the socially transmitted behaviors, beliefs, values, traditions, institutions, and ways of living together of a group of people.
- How culture develops and changes in ways that allow human societies to address their needs and concerns.
- How people from different cultures develop diverse cultural perspectives and frames of reference.

1.2. PROCESSES - Learners will be able to:
- Ask questions related to culture and find, select, organize, and interpret data from research to address research questions.
- Evaluate how data and experiences may be interpreted by people from diverse cultural perspectives and frames of reference.
- Analyze data from various cultural perspectives and evaluate the consequences of interpretations associated with the world views of different cultures.
- Construct reasoned judgments about specific cultural responses to persistent human issues.
- Analyze historic and current issues to determine the role that culture has played.

Grade 9 - Adopted: 2010

National Council for the Social Studies (NCSS)

Social Studies
<table>
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<th>THEME</th>
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<td>CATEGORY</td>
<td>3.1. KNOWLEDGE - Learners will understand:</td>
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<td>LEARNING EXPECTATION 3.1.1.</td>
<td>The theme of people, places, and environments involves the study of the relationship between human populations in different locations and regional and global geographic phenomena, such as landforms, soils, climate, vegetation, and natural resources.</td>
</tr>
<tr>
<td>LEARNING EXPECTATION 3.1.2.</td>
<td>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.</td>
</tr>
<tr>
<td>LEARNING EXPECTATION 3.1.3.</td>
<td>Consequences of changes in regional and global physical systems, such as seasons, climate, and weather, and the water cycle.</td>
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<td>3.2. PROCESSES - Learners will be able to:</td>
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<td>LEARNING EXPECTATION 3.2.6.</td>
<td>Evaluate the consequences of human actions in environmental terms.</td>
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<td>NCSS.4. INDIVIDUAL DEVELOPMENT AND IDENTITY</td>
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<td>CATEGORY</td>
<td>4.3. PRODUCTS - Learners demonstrate understanding by:</td>
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<td>LEARNING EXPECTATION 4.3.3.</td>
<td>Analyzing the similarities and differences in the values and traditions honored across cultures or historical eras, and presenting the findings in a product of their choice.</td>
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<td>CATEGORY</td>
<td>5.1. KNOWLEDGE - Learners will understand:</td>
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<td>LEARNING EXPECTATION 5.1.2.</td>
<td>Concepts such as: mores, norms, ritual, status, role, socialization, ethnocentrism, cultural diffusion, competition, cooperation, conflict, assimilation, race, ethnicity, and gender.</td>
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<td>9.2. PROCESSES - Learners will be able to:</td>
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<td>LEARNING EXPECTATION 9.2.3.</td>
<td>Explain how language, belief systems, and other cultural elements can facilitate global understanding or cause misunderstanding.</td>
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National Geography Standards (NGS)
## Grade 5 - Adopted: 2012

### ESSENTIAL ELEMENT

<table>
<thead>
<tr>
<th>NGS.PS.</th>
<th>Physical Systems</th>
</tr>
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### STANDARD

<table>
<thead>
<tr>
<th>PS.7.</th>
<th>The physical processes that shape the patterns of Earth's surface</th>
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</table>

### STRAND

<table>
<thead>
<tr>
<th>PS.7.1.</th>
<th>Components of Earth's Physical Systems: The four components of Earth’s physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere) are interdependent</th>
</tr>
</thead>
</table>

### BENCHMARK

<table>
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<tr>
<th>PS.7.1.A.</th>
<th>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).</th>
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### EXPECTATION

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<tr>
<th>PS.7.1.A.2.</th>
<th>Describe how the angle of the Sun’s rays changes at different latitudes by shining a light directly on the equator of a globe and noting the change in the location (on the tropic lines) and angle of the direct rays as the tilted globe is moved to represent the different seasons.</th>
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### ESSENTIAL ELEMENT

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<th>PS.8.</th>
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### STRAND

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<th>PS.8.1.</th>
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### BENCHMARK

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<th>PS.8.1.A.</th>
<th>Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to describe the flow of energy and the cycling of matter through an ecosystem (e.g., the food chain, photosynthesis).</th>
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### EXPECTATION

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<th>PS.8.1.A.1.</th>
<th>Describe the flow of energy and the cycling of matter through an ecosystem (e.g., the food chain, photosynthesis).</th>
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### BENCHMARK

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<th>PS.8.1.B.</th>
<th>Construct a model to explain how an ecosystem works, as exemplified by being able to construct a flow chart to explain the interactions of components within an ecosystem (e.g., water cycle, oxygen and carbon dioxide exchange, producers, consumers, and decomposers).</th>
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### EXPECTATION

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<th>PS.8.1.B.3.</th>
<th>Construct a flow chart to explain the interactions of components within an ecosystem (e.g., water cycle, oxygen and carbon dioxide exchange, producers, consumers, and decomposers).</th>
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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.

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.

National Geography Standards (NGS)

Science

Grade 6 - Adopted: 2012

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

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).

Earth-Sun relationships drives physical processes that follow an annual cycle and create patterns on Earth

Explain why the hours of visible sunlight changes with seasons (e.g., the equatorial region experiences approximately 12 hours of sunlight year round while places in the Arctic and Antarctic circles vary from 0 to 24 hours of visible sunlight).
| EXCEPTATION | PS.7.2.A.3. | Describe how the angle of the Sun’s rays changes at different latitudes by shining a light directly on the equator of a globe and noting the change in the location (on the tropic lines) and angle of the direct rays as the tilted globe is moved to represent the different seasons. |

**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.1. Describe the flow of energy and the cycling of matter through an ecosystem (e.g., the food chain, photosynthesis).

**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.B. Construct a model to explain how an ecosystem works, as exemplified by being able to

**EXPECTATION** PS.8.1.B.3. Construct a flow chart to explain the interactions of components within an ecosystem (e.g., water cycle, oxygen and carbon dioxide exchange, producers, consumers, and decomposers).

**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.

**National Geography Standards (NGS)**
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.7.2. 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 why the hours of visible sunlight changes with seasons (e.g., the equatorial region experiences approximately 12 hours of sunlight year round while places in the Arctic and Antarctic circles vary from 0 to 24 hours of visible sunlight).

EXPECTATION PS.7.2.A.2.

EXPECTATION PS.7.2.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 describe the flow of energy and the cycling of matter through an ecosystem (e.g., the food chain, photosynthesis).

EXPECTATION PS.8.1.A.1.

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.B. Construct a model to explain how an ecosystem works, as exemplified by being able to construct a flow chart to explain the interactions of components within an ecosystem (e.g., water cycle, oxygen and carbon dioxide exchange, producers, consumers, and decomposers).

EXPECTATION PS.8.1.B.3.

ESSENTIAL 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. 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 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. 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.

National Geography Standards (NGS)
Science

Grade 8 - 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 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. 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. Earth-Sun Relationships: Earth-Sun relationships drives physical processes that follow an annual cycle and create patterns on Earth

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 why the hours of visible sunlight changes with seasons (e.g., the equatorial region experiences approximately 12 hours of sunlight year round while places in the Arctic and Antarctic circles vary from 0 to 24 hours of visible sunlight).

EXPECTATION PS.7.2.A.2. Explain why the hours of visible sunlight changes with seasons (e.g., the equatorial region experiences approximately 12 hours of sunlight year round while places in the Arctic and Antarctic circles vary from 0 to 24 hours of visible sunlight).
### Expectation PS.7.2.A.3
Describe how the angle of the Sun’s rays changes at different latitudes by shining a light directly on the equator of a globe and noting the change in the location (on the tropic lines) and angle of the direct rays as the tilted globe is moved to represent the different seasons.

### Essential Elements

<table>
<thead>
<tr>
<th>National Geography Standards (NGS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong> PS.7.2.A.3.</td>
</tr>
<tr>
<td><strong>Expectation</strong> PS.7.2.A.3.</td>
</tr>
<tr>
<td><strong>Essential Elements</strong> NGS.PS.</td>
</tr>
<tr>
<td><strong>Physical Systems</strong></td>
</tr>
<tr>
<td><strong>Strand</strong> PS.8.</td>
</tr>
<tr>
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</tr>
<tr>
<td><strong>Expectation</strong> PS.8.1.A.1.</td>
</tr>
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<td><strong>Benchmark</strong> PS.8.1.A.</td>
</tr>
<tr>
<td><strong>Description</strong></td>
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<td>Describe the flow of energy and the cycling of matter through an ecosystem (e.g., the food chain, photosynthesis).</td>
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### 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.1.
Describe how the components of ecosystems are connected and contribute to the energy of their own cycles, as exemplified by being able to

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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong> PS.8.</td>
</tr>
<tr>
<td><strong>Benchmark</strong> PS.8.1.B.</td>
</tr>
<tr>
<td><strong>Expectation</strong> PS.8.1.B.3.</td>
</tr>
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<td>Construct a model to explain how an ecosystem works, as exemplified by being able to Construct a flow chart to explain the interactions of components within an ecosystem (e.g., water cycle, oxygen and carbon dioxide exchange, producers, consumers, and decomposers).</td>
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<tr>
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</tr>
<tr>
<td><strong>Benchmark</strong> PS.8.2.A.</td>
</tr>
<tr>
<td><strong>Expectation</strong> PS.8.2.A.2.</td>
</tr>
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<td><strong>Description</strong></td>
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<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>
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</tr>
<tr>
<td><strong>Benchmark</strong> PS.8.3.A.</td>
</tr>
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<td><strong>Description</strong></td>
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<tr>
<td>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.</td>
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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
Components of Earth’s Physical Systems: The interactions of Earth's
physical systems (the atmosphere, biosphere, hydrosphere, and lithosphere)
vary across space and time
STRAND  PS.7.1.  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
Analyze and explain the differential effects on climate of the relationship
between water and wind at different latitudes (e.g., cold currents influence
the creation of deserts at 20 and 30 degrees north and south latitudes, the
formation of hurricanes and tropical storms).
EXPECTATION  PS.7.1.A.2.  Analyze and explain the relationships between physical processes and the
location of land features (e.g., river valleys, canyons, deltas, glaciated lakes
and moraines, limestone deposits, caves, alluvial fans, canyons).

ESSENTIAL ELEMENT  NGS.PS.  Physical Systems
STANDARD  PS.8.  The characteristics and spatial distribution of ecosystems and biomes on
Earth's surface
STRAND  PS.8.1.  COMPONENTS OF ECO SYSTEMS: ECO SYSTEMS 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
Analyze 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.  Compare the biodiversity and productivity in an ecosystem that is
experiencing some form of stress with a similar healthy ecosystem.

National Geography Standards (NGS)

Social Studies

Grade 5 - Adopted: 2012

ESSENTIAL ELEMENT  NGS.WST.  The World in Spatial Terms
How to analyze the spatial organization of people, places, and environments on Earth's surface

Spatial Models: Models are used to represent spatial processes that shape human and physical systems

Describe the processes that shape human and physical systems (e.g., diffusion, migration, and plate tectonics) using models, as exemplified by being able to

Describe a model that illustrates the diffusion of cultural characteristics (e.g., music styles, clothing styles, fast-food preferences).

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.

How to apply geography to interpret the past

Using Geography to Interpret the Past: A historical event is influenced by the geographic context (the human and physical characteristics of places and environments) in which it occurred

Analyze and explain the influence of the geographic context on historical events, as exemplified by being able to

Analyze the significance of physical features that have influenced historical events (e.g., the role of hydrologic features such as the fall line, Cumberland Gap, the Ohio River, the Ogallala Aquifer, or artesian wells of the Great Plains in the settlement of the United States, the role of ocean currents and prevailing winds in exploration by Columbus, the forced transport of Africans to North and South America).

National Geography Standards (NGS)

Social Studies

The World in Spatial Terms

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

Spatial Models: Models are used to represent spatial processes that shape human and physical systems

Describe the processes that shape human and physical systems (e.g., diffusion, migration, and plate tectonics) using models, as exemplified by being able to

Describe a model that illustrates the diffusion of cultural characteristics
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. | 
EXCEPTION         | PS.8.3.A.3. |  

ESSENTIAL ELEMENT  | NGS.UG.  | The Uses of Geography  
STANDARD          | UG.17.   | How to apply geography to interpret the past  
STRAND            | UG.17.1. | Using Geography to Interpret the Past: A historical event is influenced by the geographic context (the human and physical characteristics of places and environments) in which it occurred  
BENCHMARK         | UG.17.1.A. | 
EXCEPTION         | UG.17.1.A.1. |  

### National Geography Standards (NGS)

#### Social Studies

**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.3.3.  | Spatial Models: Models are used to represent spatial processes that shape human and physical systems  
BENCHMARK         | WST.3.3.A. | Describe the processes that shape human and physical systems (e.g., diffusion, migration, and plate tectonics) using models, as exemplified by being able to  
EXCEPTION         | WST.3.3.A.1. | Describe a model that illustrates the diffusion of cultural characteristics (e.g., music styles, clothing styles, fast-food preferences).  

| 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.

National Geography Standards (NGS)

Social Studies

Grade 8 - Adopted: 2012

The World in Spatial Terms

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

Spatial Models: Models are used to represent spatial processes that shape human and physical systems

Describe the processes that shape human and physical systems (e.g., diffusion, migration, and plate tectonics) using models, as exemplified by being able to describe a model that illustrates the diffusion of cultural characteristics (e.g., music styles, clothing styles, fast-food preferences).

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.
ESSENTIAL ELEMENT  NGS.UG.  The Uses of Geography
STANDARD      UG.17.  How to apply geography to interpret the past
STRAND        UG.17.1.  Using Geography to Interpret the Past: A historical event is influenced by the geographic context (the human and physical characteristics of places and environments) in which it occurred
BENCHMARK     UG.17.1.A.  Analyze and explain the influence of the geographic context on historical events, as exemplified by being able to
                    Analyze the significance of physical features that have influenced historical events (e.g., the role of hydrologic features such as the fall line, Cumberland Gap, the Ohio River, the Ogallala Aquifer, or artesian wells of the Great Plains in the settlement of the United States, the role of ocean currents and prevailing winds in exploration by Columbus, the forced transport of Africans to North and South America).
EXPECTATION   UG.17.1.A.1.  Ancestry and explain the influence of the geographic context on historical events, as exemplified by being able to
                    Analyze the significance of physical features that have influenced historical events (e.g., the role of hydrologic features such as the fall line, Cumberland Gap, the Ohio River, the Ogallala Aquifer, or artesian wells of the Great Plains in the settlement of the United States, the role of ocean currents and prevailing winds in exploration by Columbus, the forced transport of Africans to North and South America).

Next Generation Science Standards (NGSS)
Science

Grade 5 - Adopted: 2013
STRAND    NGSS.5.-LS.  LIFE SCIENCE
TITLE     5-LS2.  Ecosystems: Interactions, Energy, and Dynamics
PERFORMANCE EXPECTATION  5-LS2-1.  Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Next Generation Science Standards (NGSS)
Science

Grade 6 - Adopted: 2013
STRAND    NGSS.MS-LS.  LIFE SCIENCE
TITLE     MS-LS2.  Ecosystems: Interactions, Energy, and Dynamics
PERFORMANCE EXPECTATION  MS-LS2-2.  Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
PERFORMANCE EXPECTATION  MS-LS2-3.  Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
PERFORMANCE EXPECTATION  MS-LS2-4.  Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Next Generation Science Standards (NGSS)
Science

Grade 7 - Adopted: 2013
Students who demonstrate understanding can:

**PERFORMANCE EXPECTATION**

**MS-LS2.2.** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

**MS-LS2.3.** Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

**MS-LS2.4.** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

**Next Generation Science Standards (NGSS)**

**Science**

**Grade 8 - Adopted: 2013**

**PERFORMANCE EXPECTATION**

**MS-LS2.2.** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

**MS-LS2.3.** Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

**MS-LS2.4.** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

**Next Generation Science Standards (NGSS)**

**Science**

**Grade 9 - Adopted: 2013**

**PERFORMANCE EXPECTATION**

**HS-LS1.3.** Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

**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.

**HS-LS2.3.** Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.

**HS-LS2.4.** Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

**HS-LS2.6.** Evaluate the claims, evidence, and reasoning that the complex interactions
in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem.

Students who demonstrate understanding can:

Use a model to describe how variations in the flow of energy into and out of Earth’s systems result in changes in climate.