Environmental Literacy Unit Plan

Grade: 9
Title: ***Our Changing Planet***
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NGSS Unit Plan

Title of Unit	Our Changing Planet (Global Climate Change)	**Grade Level**	9
Curricular Theme (s)	*Earth Science* *Environmental Science*	**Time Frame**	8 weeks
Essential Question(s) to be Addressed	How do changes in climate occur, and how do they impact Earth's systems? How do changes in climate influence human activity, and how do we develop analyze the criteria and constraints for solutions?		

Background Information and Context

NGSS Performance Expectations: Students who demonstrate understanding can:

- **HS-ESS2-4.** Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
- **HS-ESS2-2.** Analyze geosciences data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
- **HS-ESS3-5.** Analyze geosciences 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.
- **HS-ESS3-1.** Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
- **HS-ETS1-1.** Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.

Applicable Common Core Standards (CCSS ELA and CCSS Math)

ELA/Literacy

- **RST.11-12.1.** Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account. (HS-ESS3-1, HS-ESS3-5, HS-ESS2-2)
- **RST.11-12.2.** Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. (HS-ESS3-5, HS-ESS2-2)
- **RST.11-12.7.** Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. (HS-ESS3-5)
- **WHST.9-12.2.** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (HS-ESS3-1)
- **SL.11-12.5.** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. (HS-ESS2-4)

Mathematics

- **MP.2.** Reason abstractly and quantitatively. (HS-ESS3-1, HS-ESS3-5, HS-ESS2-2, HS-ESS2-4)
- **MP.4.** Model with mathematics. (HS-ESS2-4)
- **HSN.Q.A.1.** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. (HS-ESS3-1, HS-ESS3-5, HS-ESS2-2, HS-ESS2-4)
- **HSN.Q.A.2.** Define appropriate quantities for the purpose of descriptive modeling. (HS-ESS3-1, HS-ESS3-5, HS-ESS2-4)
- **HSN.Q.A.3.** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. (HS-ESS3-1, HS-ESS3-5, HS-ESS2-2, HS-ESS2-4)

Prior Understandings

From Middle School:

- Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. (MS-ESS3-3)
- Human activities, such as the release of greenhouse gases from burning of fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and on applying that knowledge wisely in decisions and activities. (MS-ESS3-5)
- Greenhouse Effect should be use as an analogy rather than a literal description.
- Emphasis should be placed on climate versus weather.
- Earth's climate is controlled BOTH by the atmosphere circulation AND ocean circulation, not just the atmosphere

Community Connections: Sustainability Initiatives

- Koshland Museum
- Canal Park and National Building Museum
- Smithsonian Institution Museum of Natural History
- NOAA

Disciplinary Core Ideas: (Students will know …)

- **ESS1.B. Earth and the Solar System.** Cyclical changes in the shape of Earth's orbit around the sun, together with changes in the tilt of the planet's axis of rotation, both occurring over hundreds of thousands of years, have altered the intensity and distribution of sunlight falling

on the earth. These phenomena cause a cycle of ice ages and other gradual climate changes. (secondary to HS-ESS2-4)

- **ESS2.A. Earth Materials and Systems.** Earth's systems, being dynamic and interacting, cause feedback effects that can increase or decrease the original changes. (HS-ESS2-1, HS-ESS2-2)
  - The geological record shows that changes to global and regional climate can be caused by interactions among changes in the sun's energy output or Earth's orbit, tectonic events, ocean circulation, volcanic activity, glaciers, vegetation, and human activities. These changes can occur on a variety of time scales from sudden (e.g., volcanic ash clouds) to intermediate (ice ages) to very long-term tectonic cycles. (HS-ESS2-4)
- **ESS2.D. Weather and Climate**. The foundation for Earth's global climate systems is the electromagnetic radiation from the sun, as well as its reflection, absorption, storage, and redistribution among the atmosphere, ocean, and land systems, and this energy's re-radiation into space. (HS-ESS2-2, HS-ESS2-4)
  - Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate. (HS-ESS2-4)
- **ESS3.A. Natural Resources.** Resource availability has guided the development of human society. (HS-ESS3-1)
- **ESS3.D. Global Climate Change.** Though the magnitudes of human impacts are greater than they have ever been, so too are human abilities to model, predict, and manage current and future impacts. (HS-ESS3-5)

Science and Engineering Practices: (Students will …)

Analyze and Interpret Data

Analyzing data in 9–12 builds on K–8 experiences and progresses to introducing more detailed statistical analysis, the comparison of data sets for consistency, and the use of models to generate and analyze data.

- Analyze data using computational models in order to make valid and reliable scientific claims. (HS-ESS3-5)
- Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution. (HS-ESS2-2)

Construct Explanations and Design Solutions

Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific knowledge, principles, and theories.

- Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. (HS-ESS3-1)

Develop and Use Models

Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s).

- Use a model to provide mechanistic accounts of phenomena. (HS-ESS2-4)

Scientific Investigations Use a Variety of Methods

- Science investigations use diverse methods and do not always use the same set of procedures to obtain data. (HS-ESS3-5)
- New technologies advance scientific knowledge. (HS-ESS3-5)

Scientific Knowledge Is Based on Empirical Evidence

- Science knowledge is based on empirical evidence. (HS-ESS3-5)
- Science arguments are strengthened by multiple lines of evidence supporting a single explanation. (HS-ESS2-4, HS-ESS3-5)

Cross Cutting Concepts (Students will connect …)

Cause and Effect

- Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (HS-ESS2-4, HS-ESS3-1)

Stability and Change

- Change and rates of change can be quantified and modeled over very short or very long periods of time. Some system changes are irreversible. (HS-ESS3-3, HS-ESS3-5)
- Feedback (negative or positive) can stabilize or destabilize a system. (HS-ESS2-2)

Performance Task
Performance Task Description: *(Note: The performance task should include elements from the three dimensions from the NGSS (both knowing and doing)* Students will, in groups, choose a region of the world that has been or will be impacted by climate change and develop a presentation to share at a ***Global Climate Change Summit*** for their community. Each group will choose a different region of the world (some of which are global countries/cities/regions and some of which are local US states/cities/regions) from a given list on which to focus their research.

Goal	Students will analyze data gathered from research to construct an explanation about how energy flow has resulted in climate change in their region as a result of changes in Earth's systems, how it has influenced human activity, and what future impacts it will have on the region.
Role	Student Scientist and Region Specialist: Students will need to work like Scientists to analyze data and use evidence to support their understanding of the general processes by which climate change occurs and its impact. Students will also need to become Region Specialists who deeply understand how climate change has influenced human activity and what future impacts it will have on their specific region.
Audience	Outreach event (***Global Climate Change Summit***) to the community (parents, siblings, peers, community members, etc) and/or elementary school students in their

	classes
Situation	The challenge involves a focus on a specific region and predicting future impacts of climate change for that research. (For example, increasing desertification in Western US and the Middle Easter, coral reef destruction in Australia's Great Barrier Reef, and rising sea level's effect on business in South Beach, FL.)
Product/ Performance	Students will develop a summit presentation using data and models to share their research and solution criteria and constraints at the Global Climate Change Summit.
Standards and Criteria for Success	Student presentations need to include data analysis, models, feedback mechanisms, climate changes as a result of energy flow into and out of Earth's systems, influences on human activity, evidence-based forecast of rate of climate change, future impacts to Earth's systems, and constraints and criteria for solutions that account for societal needs and wants.
Other Evidence	*See Rubric file.

Grouping Strategies	Materials and Equipment Required
Groups of 2 to 4	• Access to computers with Internet for current research and data gathering. • List of regions for students to select from (some international countries/cities/regions and some of local US states/cities/regions. Each region should include key vocabulary, concepts, and suggested impacts for students to examine; for example, maple syrup production changes in NE USA, polar bear habitats in the Arctic, fresh water access and cyclone patterns in Bangladesh). • For the Greenhouse Effect laboratory investigation: 50 mL beakers, thermometers, Saran wrap, incandescent or heat lamps.

Learning Plan/Instructional Sequence

GLOBAL CLIMATE CHANGE— GRADE 9 EARTH/ENVIRONMENTAL SCIENCE
Part 1 – Effects of Global Climate Change
Part 2 – Climate vs. Weather
Part 3 – Cycles of Climate Change Over Time (Natural and Human)
Part 4 – Greenhouse Effect

Part 1 – Effects of Global Climate Change

ENGAGE: Lesson 1
DCI: HS-ESS3.1A, ESS3.5D
Scientific Practices: Data Analysis
Crosscutting Concept: Cause and Effect

Narrative: Students complete a Gallery Walk (pictures from around the world that demonstrate the effects of climate change are posted around the room) and make observations about what they see happening and inferences about why they think it is happening. After the Gallery Walk, students share their observations and inferences as a class and begin to compile a list on a poster of the effects of climate change around the world (students update this list throughout the unit). Students will note some of the effects of climate change and the teacher will be able to elicit students' previous understanding of the cause(s) of these effects and of climate change.

EXPLORE: Lesson 2
DCI: HS-ESS3.1A, ESS3.5D Global Climate Change
Scientific Practices:
Crosscutting Concept: Cause and Effect
Narrative: Students will watch the first 5-10 minutes of a video of effects of Climate Change in Bangladesh and record their observations and thoughts. As a class, they discuss what was reported as happening there and how it compares to their developing list of climate impacts.
http://www.pbs.org/now/shows/543/index.html

EXPLAIN: Lesson 3
DCI: HS-ESS3.1A, ESS3.5D Global Climate Change
Scientific Practices:
Crosscutting Concept: Cause and Effect

Narrative: Teacher will provide an overview of the Unit Performance Task. Students, in groups, will each choose a region of the world that has been or will be impacted by climate change and develop a presentation to share at a Global Climate Change Summit for their community. Each group will choose a different region of the world on which to focus their research. Teacher generates a list of international countries/ cities/regions and local US states/cities/regions.

- A series of fact sheets of different regions around the world will be provided, each containing 2-4 facts, pictures, and clues about how climate change is affecting that region. Each group will select a different fact sheet that they're interested in and the teacher will reveal and assign that region of the world to them.
- Teacher will model with students how to analyze data and allow students time to practice with data sets of climate change evidence from their chosen region [See Resources file for links to datasets.]
- Students will set up a poster/Google Doc to use throughout the quarter to record their findings about their specific region (to reference during their performance task at the end of the quarter). Students should record the effects of climate change they collect on this document starting first thing, including data and source information/citations according to the school's choice of format (MLA/APA, etc. – check with the teachers of English/Literature).

- Students will then conduct their own research on their region to gather more data and evidence of the effects of climate change in their region and record these findings on their document.

ELABORATE: Lesson 4
DCI: HS-ESS3.1A, ESS3.5D Global Climate Change
Scientific Practices: Data Analysis and Explanation with Evidence
Crosscutting Concept: Cause and Effect

Narrative: Students will share their findings about the effects of climate change on their region with the class and make comparisons between the different regions.

- As a class, they will continue to update the list of the effects of climate change around the world on the poster.
- Groups that find similar effects could collaborate to help each other understand effects that are similar in different regions.

EVALUATE: Lesson 5
DCI: HS-ESS3.1A, ESS3.5D Global Climate Change
Scientific Practices: Data Analysis and Explanation with Evidence
Crosscutting Concept: Cause and Effect

Narrative: As an assessment, students will be presented with data from another region of the world (a region not chosen by any group) and information about that region. Using that data and information, students will have to analyze the data and determine the effects of climate change on that region, allowing the teacher to assess both their ability to analyze data and their understanding of the effects of climate change.

Part 2 – Climate vs. Weather

ENGAGE: Lesson 6
DCI: HS-ESS2.D
Scientific Practices: Data Analysis
Crosscutting Concept: Stability and Change

Narrative: Teacher will introduce the lesson with NASA connect videos (URLs below) and then explain the difference between weather and climate based on the videos.

- Weather: the state of the atmosphere at any time and place in regards to temperature, cloudiness, wind, pressure, precipitation.
- Climate: the pattern of average weather for a place, determined from data and observations collected over many years**.**
  - http://www.youtube.com/watch?v=rBKB-q9obdw
  - http://www.youtube.com/watch?v=wUiwtVSkUwQ

Students and Teacher discuss the following:

- If you were going to travel to a new city, you would want to know what the climate is like there. What parts of the climate would you want to know about?

EXPLORE: Lesson 7
DCI: HS-ESS2.D
Scientific Practices: Data Analysis
Crosscutting Concept:

Narrative: Students will use statistical data provided on precipitation and temperature for a given city to create a climatograph for that city.

Students will analyze their own climatograph and other students':

- What does the graph tell you about the climate of that city?
- How does the climate of your city compare to those of other cities examined by your classmates?
- Based on the graphical analyses, where in the U.S. would you most like to travel, based on the climate there? (SEE CLIMATOGRAPH WORKSHEET IN THE Grade 9 FOLDER)

EXPLAIN: Lesson 8
DCI: HS-ESS2.D
Scientific Practices: Data Analysis
Crosscutting Concept: Cause and Effect

Narrative: Students will compare climates of designated cities (by referencing climatographs) and their location (with maps provided).

- Students will analyze this data to make inferences about how location affects climate and then use assigned readings to check the accuracy of their inferences in examining the geographical factors that determine climate for a given area.

ELABORATE: Lesson 9
DCI: HS-ESS2.D
Scientific Practices: Data Analysis
Crosscutting Concept: Cause and Effect

Narrative: Students will research the climate of their region for their Performance Task and make a poster about how geographical factors affect the climate for their given region.

EVALUATE: Lesson 10
DCI: HS-ESS2.D
Scientific Practices: Data Analysis and Explanation with Evidence
Crosscutting Concept: Cause and Effect

Narrative: As an assessment, using geographical information provided about a location, students should be able to predict the climate of that region and justify their claim with evidence and explanation.

- Students will also interpret climatographs for other cities to assess their ability to accurate use climatographs and analyze data.

Part 3 – Cycles of Climate Change Over Time (Natural and Human)

ENGAGE: Lesson 10
DCI: HS-ESS1.B, ESS2.A
Scientific Practices: Data Analysis
Crosscutting Concept: Stability and Change

Narrative: Students will analyze pictures of NYC marks and make predictions about how the marks might have been produced. (These pictures are really of marks that indicate glacier movement from historical ice ages.)

EXPLORE: Lesson 11
DCI: HS-ESS1.B, ESS2.A
Scientific Practices: Data Analysis
Crosscutting Concept: Stability and Change

Narrative: Students will analyze temperature data from the last 20,000 years to determine the extent of ice ages and how climate has naturally changed throughout history.

EXPLAIN: Lesson 12
DCI: HS-ESS1.B, ESS2.A
Scientific Practices: Explanation with Evidence
Crosscutting Concept: Stability and Change

Narrative: Students will conduct a lab investigation to model the Earth's orbit and how it changes over longer periods of time, as well as how the tilt of the Earth has wobbled over time.

- Students will use their understanding from this lab and read texts to create a graphic organizer or infographic that explains how and why the climate has changed throughout time as a result of natural events.

ELABORATE: Lesson 13
DCI: HS-ESS1.B, ESS2.A
Scientific Practices: Explanation with Evidence
Crosscutting Concept: Stability and Change

Narrative: Students will analyze tree rings and watch videos about ice cores to understand how scientists obtained their data to study how the climate has changed over time.

EVALUATE: Lesson 14
DCI: HS-ESS1.B, ESS2.A
Scientific Practices: Explanation with Evidence
Crosscutting Concept: Stability and Change

Narrative: Students will write an explanation, using evidence of how the cyclical changes of the Earth's orbit and tilt have causes cycles of ice ages and gradual climate change throughout history through natural occurrences.

Teacher will provide instruction/reintroduce/review how to develop/write and discuss arguments using claims, evidence and reasoning.

Part 4 – Greenhouse Effect

ENGAGE: Lesson 15
DCI: HS-ESS2.D
Scientific Practices: Explanation with Evidence
Crosscutting Concept: Cause and Effect

Narrative: Students will view a picture of a black car in the sun. They describe what it would be like to be in the car in the summertime, as well as how the car would create the conditions they describe. (NOTE: collect some news articles deaths of babies inside cars; see Resources excel file) Why might there be an organization called Kids and Cars?

- Teacher should point out that the way the car traps heat is similar to the way the Greenhouse Effect works to trap heat on the Earth.
- Have students draw a model or diagram of what they think is happening and then revise the diagram in the EXPLAIN phase to compare/contrast the hot car with the Earth.
- Teacher posts a (KWL) chart on the board labeled with three columns. (Know, Want to Know, and Learned) "**Let's discuss what you know already from your work thus far**! And then…"
- Students will draw the same chart on a piece of paper. After a class discussion about what the students know and want to know about the greenhouse effect and greenhouse gases, points from the discussion will be recorded on the board and students should record these points in their notes. Students receive a diagram, "The Greenhouse Effect and Greenhouse Gases."

EXPLORE: Lesson 16
DCI: HS-ESS2.D
Scientific Practices: Explanation with Evidence
Crosscutting Concept: Cause and Effect

Narrative: Students will investigate the heating of the Earth by completing a lab investigation.

- In this lab, students will measure temperature changes inside two separate beakers (one covered with Saran wrap) as a heat lamp is shined on them to model the Greenhouse Effect.
- Students predict which one will reach a higher temperature, modeling the Greenhouse Effect.
- Groups of students measure the change of temperature inside the beakers with inserted thermometers.
- To conduct the experiment, they fill both beakers with 50 mL of water, insert the thermometer and record the temperature of each beaker, then cover one beaker thoroughly with Saran/Cling wrap and record the temperature again (should be the same initial temperature). Place both water-filled beakers under an incandescent or heat lamp.
- Students record the (change/increase in) temperature of each beaker over a twenty- minute time period.
- The beaker with Saran wrap on top should have a greater increase in temperature than the beaker without Saran wrap.

- This lab demonstrates the fundamental concept that underlies climate change science while providing data that are easy for students to interpret.

EXPLAIN: Lesson 17
DCI: HS-ESS2.D
Scientific Practices: Explanation with Evidence
Cross Cutting Concept: Cause and Effect
Narrative: Students work in groups of two or three to interpret a diagram of the Greenhouse Effect to examine: the steps of the process and what happens as a result.

- Students record questions they have about the diagram under the "Want to Know" column of their chart.
- Teacher will help students understand the diagram by clarifying their interpretations.
- As a class, begin a list in the "Learned" column adding the new information.
- Students write down what they have learned and keep a record of additional questions they have about the Greenhouse Effect.
- Optional extension: Students make a poster of their own Greenhouse Effect diagram, complete with an explanation of the greenhouse effect and greenhouse gases.

ELABORATE: Lesson 18
DCI: HS-ESS2.D
Scientific Practices: Explanation with Evidence
Crosscutting Concept: Cause and Effect

Narrative: Compare the function of the atmosphere on Earth with the atmosphere of other planets to make predictions about how their different atmospheres would affect the temperature of those planets.

Elaborate Discussion Questions:

1. What would happen if there were more greenhouse gases in the atmosphere? In your answer discuss:
   a. change in temperature of our atmosphere
   b. effect on living things on Earth

2. Venus is the 2nd planet from the sun, while we are the third. Its atmosphere has 93 times the mass of Earth's atmosphere. Venus has the densest atmosphere in the solar system. Most of the atmosphere is CO_2. Compare the greenhouse effect on Venus with Earth using the following guiding questions:
   a. Describe what will happen to the radiation on Venus compared to the radiation on Earth.
   b. Predict the temperature of Venus compared with Earth. Explain your answer.

3. Mercury is the smallest planet. It has the least gravity and cannot hold its own atmosphere. This means that it has hardly any atmosphere. It is the closest planet to the sun. The temperature on Mercury can reach 850°F during the day and drop as low as -275°F at night.

(Diagram of planet during day and at night)

a. Why do you think Mercury is so hot during the day?
b. Why do you think Mercury is so cold at night?

EVALUATE: Lesson 19
DCI: HS-ESS2.D
Scientific Practices: Data Analysis
Crosscutting Concept: Cause and Effect

Narrative: In place of a quiz, design a performance assessment to give students the capstone opportunity to share what they have learned in the different parts of the unit (regional changes, climatographs, greenhouse effect, weather and climate) producing a short documentary movie (in the genre of Gore's *"An Inconvenient Truth"*) or a website advocating awareness of Global Climate Change.

Universal Access

Supporting English Language Learners

Reading, Writing, or Speaking Activity *(listed in Learning and Instructional Sequence)*	**Supports for *Emerging* learners?**	**Supports for *Expanding* learners?**	**Supports for *Bridging* learners?**
Segments: 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 16, 17, 18, and 19	• Match visual representations to words/phrases • Match sentence-level descriptions to visual representations • Compare content-related features in visuals and graphics	• Apply multiple meanings of words/phrases to social and academic contexts • Classify or organize information presented in visuals or graphs	• Interpret visually- or graphically-supported information • Infer meaning from text/images • Evaluate usefulness of data or information supported visually or graphically
Segments: 7, 13, and 17	• Follow multi-step instructions supported by visuals or data	• Interpret visually- or graphically-supported information • Infer meaning from text	• Infer significance of data or information on grade-level material

Segments: 3, 4, 5, 6, 8, 9, 10, 13, 14, 15, and 18	• Make content-related lists of words, phrases, or expressions • Take notes using graphic organizers or models	• Complete reports from templates • Outline ideas and details using graphic organizers • Compare and reflect on performance against criteria (e.g., rubrics)	• Summarize content-related notes from lectures or text • Revise work based on narrative or oral feedback • Justify or defend ideas and opinions • Produce content-related reports

Supporting Struggling Learners

Activity *(listed in Learning and Instructional Sequence)*	**Supports for Students who need *Minor* Support**	**Supports for Students who Need *Intensive* Support**
N/A		

Supporting Advanced Learners

Activity	Extensions for Advanced Students
	• Justify Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios. (HS-ESS3-2) • All forms of energy production and other resource extraction have associated economic, social, environmental, and geopolitical costs and risks as well as benefits. New technologies and social regulations can change the balance of these factors. (HS-ESS3-2)

Connecting to the Core: NGSS Aligned Performance Task

ELA Connections- *(Reading, Writing or Speaking Activity) listed in Learning and Instructional Sequence*

- Students will need to cite textual evidence in their presentations. (RST.11-12.1)
- Students will need to draw conclusions from a complex text as they do their research for their presentation (RST.11-12.1) and evaluate multiple sources in order to fully address a question (RST.11-12.7)
- Students will need to make strategic use of digital media in their presentation (SL.11-12.5)

Math Connections – *listed in Learning and Instructional Sequence*

- Students will need to use appropriate units for data measurements (HSN.Q.A.1) and define appropriate quantities for the purpose of descriptive modeling in their presentations (HSN.Q.A.2)
- Students will need to utilize appropriate accuracy to limitations on measurement when reporting quantities of data in their presentation (HSN.Q.A.3)