

Climate Change Interdisciplinary Curriculum Unit

Content Area: **Social Studies**
Course(s): **Social Studies**
Time Period: **3rd Trimester**
Length: **4-5 weeks**
Status: **Not Published**

Summary of the Unit

In this 5th grade interdisciplinary unit, students will examine climate change using social studies as its primary lens. Students will use social studies to aid in exploring the causes and effects of climate change with a primary focus on the human and societal factors. Students will explore the ways that climate change impacts various communities, responses to environmental challenges, and the role of civic action in addressing global issues. Through mapping exercises, research, and analyzing graphs, students examine how human activity has impacted the environment and how communities are affected by climate-related issues. Ultimately, this unit empowers students to become informed, engaged, and articulate citizens in addressing climate change.

Enduring Understandings

- Investigate human-environment interactions through history and today to explore ways that communities can respond to environmental challenges.
- Research can be used to explore climate zones, human impact and adaptation strategies and help to find critical evidence to build strong projects.
- People can analyze temperature patterns to determine the ways that weather and climate are connected.
- The building materials used in an urban, suburban, and rural community contributes to the climate of an environment.

Essential Questions

- How does greenhouse gases impact ecosystems, weather, and people?
- How does climate differ from weather?
- What are the natural and human causes of climate change?
- How do we know the climate is changing?
- What are major climate zones?
- What can individuals and communities do to help with the impact of climate change?
- How does climate change affect different regions and people?

Summative Assessment and/or Summative Criteria

Completion of vocabulary quiz on key terms

[Climate Change Cross Curricular Project](#)

Climate Change In Our Backyard

My Name: _____

My Group Members: _____

In this project, you and a partner will become Climate Change experts! You will choose a local issue that contributes to climate change, something that happens in our area.

Key Questions:

- What is the issue?
- What is causing it?
- How is it affecting people, nature, and animals?
- What are some possible solutions?

After gathering your facts, pictures, and graphs, work together to create a presentation (tri-fold, powerpoint, poster) to teach others about your topic.

You will include the following sections in your presentation:

- The Problem
- The Causes
- Effects on the environment and community
- Solutions and how we can help

Topics to choose from

1. Pollution
2. Flooding
3. Temperature changes
4. Deforestation
5. Landfills
6. Agriculture
7. Carbon Footprint
8. Forest Fires
9. Greenhouse Effect

Local Climate Change

Name: _____

Issue: _____

| Criteria for Poster on a Local Climate Issue | Advanced (4 pts) | Proficient (3pts) | Developing (2pts) | Beginning (1pt) |
|--|--|--|---|--|
| Understanding the Issue | Clearly explains the local climate issue with lots of details and shows deep understanding. | Explains the local climate issue with some details and shows good understanding. | Gives a basic explanation of the issue but needs more details or clarity. | Has trouble explaining the issue or gives very little information. |
| Causes and Effects | Thoroughly describes the causes and clearly explains how the issue affects people, nature, and animals, using specific examples. | Describes the causes and explains effects on people, nature, and animals. | Mentions some causes or effects but needs more explanation or examples. | Does not clearly describe causes or effects. |
| Solutions and Actions | Gives multiple creative and realistic solutions, and clearly explains how we can help. | Gives some solutions and explains how we can help. | Mentions a solution but does not explain how we can help. | Does not suggest any solutions or actions. |
| Organization and Clarity | All poster sections are included, clearly labeled, and information is well-organized and easy to understand. | Most sections are included and labeled, and information is organized. | Some sections are missing or not labeled, or information is hard to follow. | Poster is missing several sections or is very hard to understand. |
| Visual Presentation | Poster is neat, colorful, and creative, with drawings or images that help explain the issue. | Poster is neat and has some color or images. | Poster has little color or images, or is a bit messy. | Poster is very messy or hard to read, with no images or color. |

Total: _____ / 20pts

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Resources

[Belouga](#)

Discovery Education Videos

Fountas & Pinnell IRA Text Sets

-Caring For Our World

-Problem Solving & Resourcefulness

Vocabulary (add to class word wall)

Weather

Renewable energy

Fossil fuels

Sea level rise

Ecosystem

Sustainability

Absorb

Reflect

Carbon dioxide (CO₂)

Websites

climatekids.nasa.gov

Brainpop “What is the Greenhouse Effect?”

Discovery Kids [How to Identify Climate Change](#) [Understanding weather and climate](#)

[Creation of Urban Heat Islands](#)

Achieve 3000 Articles

[Floating Cities](#)

[As Earth Warms, Birds Move](#)

[Are Fossil Fuels Running Out?](#)

[Ask the Scientist: Weather](#)

[Way Back Warrior: Weather](#)

[Weather Stations Save Time/Money](#)

[Secrets of the Sky](#) [Fighting Fire with Fire](#)

[See the Sea](#) [Should We Mine the Oceans?](#)

[Stopping the Rising Tide](#)

[The Floating City](#) [The Last Generation?](#)

[Turning the Tide](#) [Playing for the Planet](#)

Unit Plan

| Topic/Selection Timeframe | General Objectives | Instructional Activities | Benchmarks/Assess ments |
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| Unit Overview 1 day | SWBAT define climate and weather to compare weather reports and complete a Weather vs. Climate Venn Diagram. | Discussion using the climate NASA kids resource poster. Weather vs. Climate Change poster Additional video for viewing: What's the Difference Between Weather and Climate? | Completion of a Weather vs. Climate Venn Diagram |
| Vocabulary 1-2 days | SWBAT define key vocabulary words related to the environment and climate change. | Define vocabulary for the unit: <i>Weather, Renewable energy, ecosystem, sustainability, greenhouse gases</i> | Vocabulary Quiz |
| Earth's Atmosphere and Greenhouse Effect 2 days | SWBAT examine ways that certain gases in Earth's atmosphere block heat from escaping (greenhouse effect) | Table Top Discussion: <i>What do you know or have heard about the Greenhouse Effect?</i> SW write on poster or use post-it notes to explain the Greenhouse Effect as they view it. Brainpop What is the Greenhouse Effect? SW read the article How Does the Greenhouse Effect Work? SW create a persuasion tree to outline an argument of | Greenhouse Gases Persuasion Tree Exit Ticket: How do greenhouse gases trap heat? |

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| | | how man-made activities impact the greenhouse gases | |
| 1-2 days | SWBAT define sea level, renewable energy, fossil fuels, carbon dioxide | SW discuss vocabulary terms and read the article Stop the Rising Tide . SW illustrate the impacts of a rising tide due to climate change by reading about the city of Venice is impacted by a rising tide. Students will read the article Turning the Tide? SW learn about why the Kyoto Protocol was established to form an agreement that reduces greenhouse gases, which impact rising tides. | Chart of the cause vs. effect of a rising tide due to climate change Chart with a list of the terms |
| What Causes Climate Change? 2-3 days | SWBAT explore the causes of natural and human climate change | SW become “Carbon Detectives” to track classroom energy usage SW learn that everyday energy usage contributes towards climate change SW track classroom energy usage:(e.g. lights, technology, fans, etc.) | Chart of classroom energy consumption overtime Exit Ticket: In what ways can we conserve daily classroom energy consumption? |
| Creation of Urban Heat Islands 1 week | SWBAT understand, identify and analyze ways that cities experience warmer temperatures than rural and suburban areas. SWBAT analyze how well the surfaces in each environment absorb and hold heat. | SW learn that factors such as building materials contribute to rising surface temperatures Why do urban building materials have in common? Students will learn about the rising temperatures within | Surface temperature data recording sheet |

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| | | <p>rural, suburban and urban environments and analyze a heat island chart Heat Island Chart</p> <p>Compare and contrast the surface temperatures of wet green sponge(rural), sand(suburban), black construction paper(urban), white construction paper(suburban), aluminum foil(urban), soil(suburban and rural)</p> <p>SW use thermometers to measure and identify the hottest and coolest materials in their environment</p> | |
| Local Concerns 1-2 weeks | *Students will synthesize their research of nonfiction articles and climate change data into a culminating presentation highlighting a local or regional issue along with possible solutions to advocate for change. | *Working with a partner or small group, research and create a <u>Multidisciplinary Presentation</u> highlighting a local or regional issue and a possible solution to the problem *Use data gathered from research to create and identify visuals to support cross curricular project topic. | *Students will create and present a poster on an issue in Climate Change within a group of 2-3 students on the topic of their choosing. |

Standards

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|----------------------|---|
| SOC.6.1.5.CivicsPI.1 | Describe ways in which people benefit from and are challenged by working together, including through government, workplaces, voluntary organizations, and families. |
| SOC.6.1.5.GeoPP.1 | Compare and contrast characteristics of regions in the United States based on culture, economics, and physical characteristics to understand the concept of regionalism. |
| SOC.6.1.5.GeoPP.2 | Describe how landforms, climate and weather, and availability of resources have impacted where and how people live and work in different regions of New Jersey and the United States. |
| SOC.6.1.5.GeoPP.3 | Use geographic models to describe how human movement relates to the location of |

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| | natural resources and sometimes results in conflict. |
| SOC.6.1.5.GeoPP.4 | Investigate the different physical and human characteristics of urban, suburban and rural communities and identify the factors that might attract individuals to that space. |
| SOC.6.1.5.GeoSV.3 | Demonstrate how to use digital geographic tools, maps and globes to measure distances and determine time zones, and locations using latitude and longitude. |
| SOC.6.1.5.GeoSV.4 | Use a variety of geographic representations to describe the similarities and differences between places in New Jersey, the United States and the world (e.g., maps, data visualizations, graphs, diagrams, aerial and other photographs, GPS). |
| SOC.6.1.5.GeoHE.1 | Use a variety of sources from multiple perspectives, including aerial photographs or satellite images to describe how human activity has impacted the physical environment during different periods of time in New Jersey and the United States. |
| SOC.6.1.5.GeoHE.2 | Cite examples of how technological advances have changed the environment in New Jersey and the United States (e.g., energy, transportation, communications). |
| SOC.6.1.5.EconET.1 | Identify positive and negative incentives that influence the decisions people make. |
| SOC.6.1.5.EconEM.2 | Identify examples of the variety of resources that are used to produce goods and services (i.e., human capital, physical capital, natural resources). |
| SOC.6.1.5.EconEM.4 | Compare different regions of New Jersey to determine the role that geography, natural resources, climate, transportation, technology, and/or the labor force play in economic opportunities. |
| SOC.6.1.5.EconGE.4 | Compare and contrast how the availability of resources affects people across the world differently. |
| SOC.6.3.5.CivicsPD.1 | Develop an action plan that addresses issues related to climate change and share with school and/or community members. |
| SOC.6.3.5.GeoHE.1 | Plan and participate in an advocacy project to inform others about the impact of climate change at the local or state level and propose possible solutions. |
| SOC.6.3.5.GeoGI.1 | Use technology to collaborate with others who have different perspectives to examine global issues, including climate change and propose possible solutions. |

Suggested Modifications for Students with Disabilities, MLs, Academically At Risk and Gifted Students

Students with Disabilities, Academically At Risk*:

- Collaboration between content education and special education teachers
- Preferential seating
- Printed and highlighted notes
- Modified test/quizzes/worksheets/written assignments
- Repetition of directions and refocus activities

- Read test/quiz/assessment questions orally if needed
- Allow for more time on assessments and assignments

*Consistent with individual plans when appropriate

Multilingual Learners

- Collaboration between Content Education and ESL teachers
- Use of audio tapes when applicable
- Use of translation dictionary when applicable
- Provide for oral performance
- Allow the use of a computer or other technological devices.
- Highlight notes
- Use of graphic organizers
- Peer liaison
- Visual aids
- Provide materials in multiple languages or at varying levels of English proficiency.
- Use visuals (e.g., diagrams, pictures) to support understanding.
- Pre-teach essential vocabulary and concepts.
- Allow for alternative forms of communication (e.g., drawing, gestures).
- Provide opportunities for peer collaboration and language practice.

Gifted Students

- Provide more elaborate, complex, and in-depth study of significant ideas and themes that integrate knowledge within and across the curriculum.
- Provide other outside sources (media, content, community) for thematic study.
- Promote self-directed and self-initiated learning.
- Allow for the development of productive thinking skills to allow students to generate new knowledge.
- Provide opportunities for independent research and exploration.

- Encourage critical thinking and problem-solving skills.
- Allow for student-led projects and presentations.
- Provide opportunities for leadership and mentorship in group activities.

Suggested Technological Innovations/Use

- Students will use technology to produce written work in Google Docs and Slides
- Students can use Google Sheets to create graphs based on research
- Teachers can use:
 - Online databases
 - Videos
 - Google Maps
 - Map Tools
 - Educational games (ex. Kahoot, blooet)
 - Videos and audio recordings when applicable
 - Excel/Google Sheets to organize climate change data and create graphs
 - Interactive maps and graphs that demonstrate climate change data
 - Achieve3000, NewsELA, Tumble Books, Commonlit, Scholastic StoryWorks, Readworks, Epic

UDL Framework

In this 5th-grade social studies unit on climate change, students explore the historical, geographical, and cultural dimensions of environmental change and human response through multiple means of representation. For example, by engaging with maps and primary-source photographs, animated videos explaining the greenhouse effect, and accessible texts paired with audio versions and visual glossaries. Motivational and relevance are built into the curriculum through multiple means of engagement: students choose topics that resonate with them such as local climate impacts, community conservation practices, or global migration due to environmental shifts and collaborate on authentic community action plans. To demonstrate their understanding, learners use multiple means of action and expression, opting to create multimedia presentations, write a narrative from a historical or cultural perspective, design infographics or posters, or act out a role-play policymaker or scientist. This approach intentionally removes barriers and celebrates learner variability right from the unit's design-making learning accessible, equitable, and personally meaningful for every student.

Cross Curricular/Career Readiness, Life Literacies and Key Skill Practices

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| MATH.K-12.5 | Use appropriate tools strategically |
| ELA.L.WF.5.2 | Demonstrate command of the conventions of writing, including those listed under grade four foundational skills. |
| LA.RF.5.4.A | Read grade-level text with purpose and understanding. |
| ELA.W.AW.5.1 | Write opinion pieces on topics or texts, supporting a point of view with reasons and information. |
| ELA.W.IW.5.2 | Write informative/explanatory texts to examine a topic and convey ideas and information clearly. |
| MATH.5.DL.B.5 | Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. |
| MATH.5.G.A.1 | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x -axis and x -coordinate, y -axis and y -coordinate). |
| MATH.5.G.A.2 | Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. |
| LA.SL.5.1 | Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly. |
| ELA.W.WR.5.5 | Establish a central idea about a topic, investigation, issue or event and use several sources to support the proposed central idea. |
| ELA.W.SE.5.6 | Gather relevant information from multiple valid and reliable print and digital sources; summarize or paraphrase information in notes and finished work, making note of any similarities and differences among ideas presented; and provide a list of sources. |
| LA.SL.5.2 | Summarize a written text read aloud or information presented in diverse media and formats (e.g., visually, quantitatively, and orally). |
| LA.SL.5.5 | Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. |
| LA.SL.5.6 | Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. |
| | Using Mathematics and Computational Thinking |
| | Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. |
| | Describe and graph quantities such as area and volume to address scientific questions. |
| SCI.5-ESS3-1 | Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources, environment, and address climate change issues. |
| | Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods. |
| | Obtain and combine information from books and/or other reliable media to explain |

phenomena or solutions to a design problem.

- TECH.9.4.5.CI.1 Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6).
- TECH.9.4.5.CI.2 Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).
- TECH.9.4.5.CI.3 Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a).
- TECH.9.4.5.CT.1 Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
- TECH.9.4.5.CT.2 Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem (e.g., 2.1.5.CHSS.1, 4-ESS3-1).
- TECH.9.4.5.CT.4 Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).