

# NATURAL DISASTERS UNIT

## OVERVIEW

The purpose of this unit is to integrate the Next Generation Science Standards and CT Social Studies Frameworks to explore the effects of natural disasters on the regions of the United States.

<b>TOPIC</b> 4 <sup>th</sup> Grade Science & Social Studies	<b>THEMES</b> Natural Disasters, Geographical Regions, Economy & Engineering	<b>LOCATION</b> Regions: West, Mid-Atlantic, Southeast, Central Pacific, Midwest, Northwest, Northeast
<p style="text-align: center;"><b>RELATED SEARCH TERMS</b></p> <p style="text-align: center;">Natural Disasters, Earthquakes, Hurricanes, Tsunamis, Tornados, Volcanoes, Economy, Regions, Engineering, Blueprints, Budgeting, Benefits, Costs, Climate, Population, Income</p>		

## STANDARDS

<b>NEXT GENERATION SCIENCE STANDARDS</b>	<b>CCSS</b>
<p><i>4-ESS2-2</i>: Analyze and interpret data from maps to describe patterns of Earth’s features.</p> <p><i>4-ESS3-2</i>: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. *</p> <p><i>3-5-ETS1-1</i>: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p>	<p><i>CCSS.ELA-LITERACY.RI.4.3</i>:                      Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p> <p><i>CCSS.ELA-LITERACY.SL.4.1</i>:                      Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.</p>
<p style="text-align: center;"><b>SOCIAL STUDIES FRAMEWORKS</b></p> <p><i>ECO 4.1</i>: Compare the benefits and costs of individual choices.</p> <p><i>ECO 4.2</i>: Identify positive and negative incentives that influence the decisions people make.</p> <p><i>INQ 3-5.8</i>: Identify evidence that draws information from multiple sources in response to compelling questions.</p> <p><i>INQ 3-5.12</i>: Present a summary of arguments and explanations to others outside the classroom using print and oral technologies and digital technologies.</p>	<p><i>CCSS.ELA-LITERACY.W.4.2</i>:                      Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <p><i>CCSS.ELA-LITERACY.W.4.7</i>:                      Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p>

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## DIMENSION 1: COMPELLING QUESTION

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*What impact does climate and weather have on life in the region?*

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### POTENTIAL SUPPORTING QUESTIONS

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- ✓ What resources exist to support a region's economy?
- ✓ What economic opportunities exist for people of the region?
- ✓ What economic factors determine if a region is a good or a bad place to live?
- ✓ Which regions in the United States are most effected by your specific natural disaster?

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## DIMENSION 2: DISCIPLINARY CONCEPTS & TOOLS

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### MATERIALS

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- ✓ Existing maps created of the United States designating the group's specific natural disaster.
- ✓ Chromebooks
- ✓ Class set of "I Survived" books by Lauren Tarshis
- ✓ Research Organizer
- ✓ Blueprint Paper
- ✓ "Shopping list" of available building materials and their costs
- ✓ Materials to build mini houses
- ✓ Calculators
- ✓ Gallery Walk Organizer

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### VOCABULARY

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- ✓ Natural Disasters
  - Earthquakes
  - Hurricanes
  - Tsunamis
  - Tornados
  - Volcanos
- ✓ Regions
  - Northeast, Mid-Atlantic, Southeast, Midwest, Southwest, West, Northwest, Central-Pacific
  - Climate
  - Population
- ✓ Economy
  - Budgeting
  - Benefits
  - Costs
  - Income
- ✓ Engineering
  - Blueprints

## DIMENSION 3: INQUIRY ACTIVITIES

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### RESEARCH: 1 DAY

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Students use organizer to help guide their research based on their region and natural disaster.

Within organizer, students must record:

- ✓ What region is effected by their group's natural disaster?
- ✓ What is the the Population in your region
- ✓ Average household income in the region
- ✓ What is the main source of income in your region? (e.g. fishing, timber, rivers)
- ✓ What is the Climate of your region?
- ✓ What is the Geography of the region like? (e.g. mountains, hills, flatland, peninsulas, rivers, oceans, etc.)
- ✓ History of natural disasters in their region (can include all that they find, but focus on the one from their book club book for the design problem)

### LEARNING ACTIVITY: 2 DAYS

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#### INDEPENDENT PLANNING

Students individually create blueprints of a house that they believe will be able to withstand the climate and possible natural disasters of that region. Students will use the shopping list of materials to determine the benefits of certain building materials and decide which are most fit for the region based on its climate, history of natural disasters which ones they can afford based on the average income of their region.

#### GROUP PROJECT

Students must come together as a group and discuss their individual plans in order to create one final group blueprint for their house. The final blueprint must have a list of materials they need and show how their budget is being used. Then students will purchase their materials to build their house with their allocated budget. Teachers will facilitate the selection process, allowing each group to take turns so that it is realistic to real world trade and fair. Then, students will build their house as a group.

#### INDEPENDENT REFLECTION

Each student will write a paragraph explaining why their group chose to use the materials they did, and explain how will the design of the house and materials they used help their house withstand the region's climate and possible natural disasters. Students are allowed to use their research organizers to help them write their reflections, in addition to observing their blueprints and mini-houses during the writing process.

## DIMENSION 4: COMMUNICATING CONCLUSIONS

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### GALLERY WALK

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All students walk around and observe other groups blueprints, budget sheets, and houses they built. Students will use a graphic organizer to record notes during the walk.

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### JIGSAW

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Once all students have rotated through all of the projects, they will participate in a jigsaw activity. Students form new groups of 4 (with one student from each group) to discuss what they observed about each house/budget, etc.

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## ADDITIONAL RESOURCES

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### WEBSITES TO VISIT

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- ✓ Kid friendly overview of region's climate and major geographical features: [http://www.ducksters.com/geography/us\\_states/us\\_geographical\\_regions.php](http://www.ducksters.com/geography/us_states/us_geographical_regions.php)
- ✓ Kid friendly interactive map of the landform regions of the United States: [http://www.eduplace.com/kids/socsci/books/applications/imaps/maps/g2\\_u2/](http://www.eduplace.com/kids/socsci/books/applications/imaps/maps/g2_u2/)

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### ARTICLES & BOOKS TO READ

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- ✓ Article on the United States, organizes the information of people/culture, geography, nature and government/economy by region: <http://kids.nationalgeographic.com/explore/countries/united-states/#united-states-golden-gate-bridge.jpg>
- ✓ Short article on the biggest Natural Disaster risk for the West Coast, Midwest, South and Northeast: <https://enlightenme.com/biggest-natural-disaster/>

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### VIDEOS TO WATCH

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- ✓ YouTube, tornado proof home: <https://www.youtube.com/watch?v=ga7N-bs4nLU>
- ✓ YouTube, tornado proof dome home: [https://www.youtube.com/watch?v=rE6MJ\\_r\\_Yvk](https://www.youtube.com/watch?v=rE6MJ_r_Yvk)
- ✓ YouTube, hurricane proof home: <https://www.youtube.com/watch?v=jxsSBHTFk3w>
- ✓ YouTube, tsunami proof home: <https://www.youtube.com/watch?v=qGmPiKv8TZc>
- ✓ YouTube, earthquake proof home: <https://www.youtube.com/watch?v=LIM3W8Do3al>
- ✓ YouTube, earthquake proof home: <https://www.youtube.com/watch?v=VHtrMq617gk>

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## DIFFERENTIATION

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### CONTENT

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- ✓ Presenting ideas through both auditory and visual means.
- ✓ Providing graphic organizers to guide research (access to content) and organize information.

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### PROCESS

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- ✓ The independent reflection is written after the process of creating and discussing the topic of the prompt, therefore students have been pre-exposed to the answer to the prompt.

## ASSESSMENT

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Teacher reads each student's independent reflection and uses the rubric to assess understanding of the concepts covered by the guided research.

(Prompt will be provided for the paragraph, so students know exactly what is expected)