# Living on the Edge- Linking Engineering, Geography, and Social Studies

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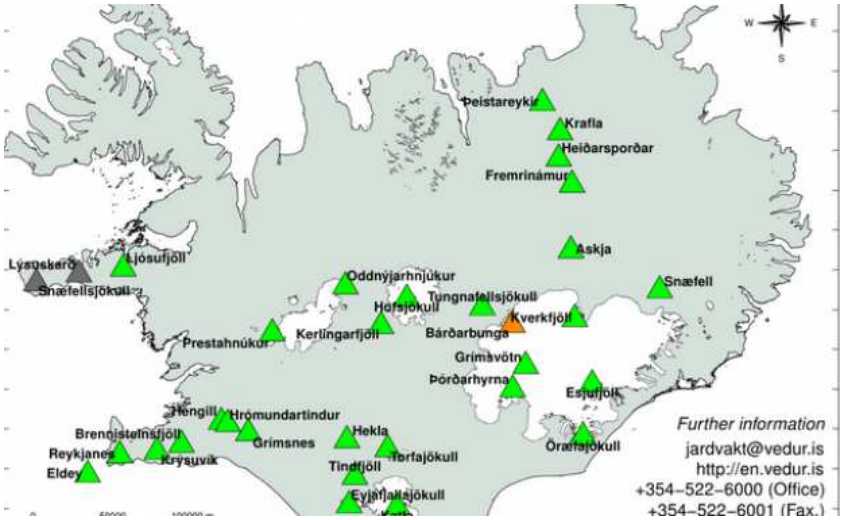
# Travel and Professional Development

- California Geographic Alliance  CGA
- National Council for Geographic Education  NCGE
- GeoCamp Iceland  Summer 2015
- Cuba Summer 2016
- Library of Congress-Teaching with Primary Sources summer 2016

# Why Geography and Science?

# Iceland

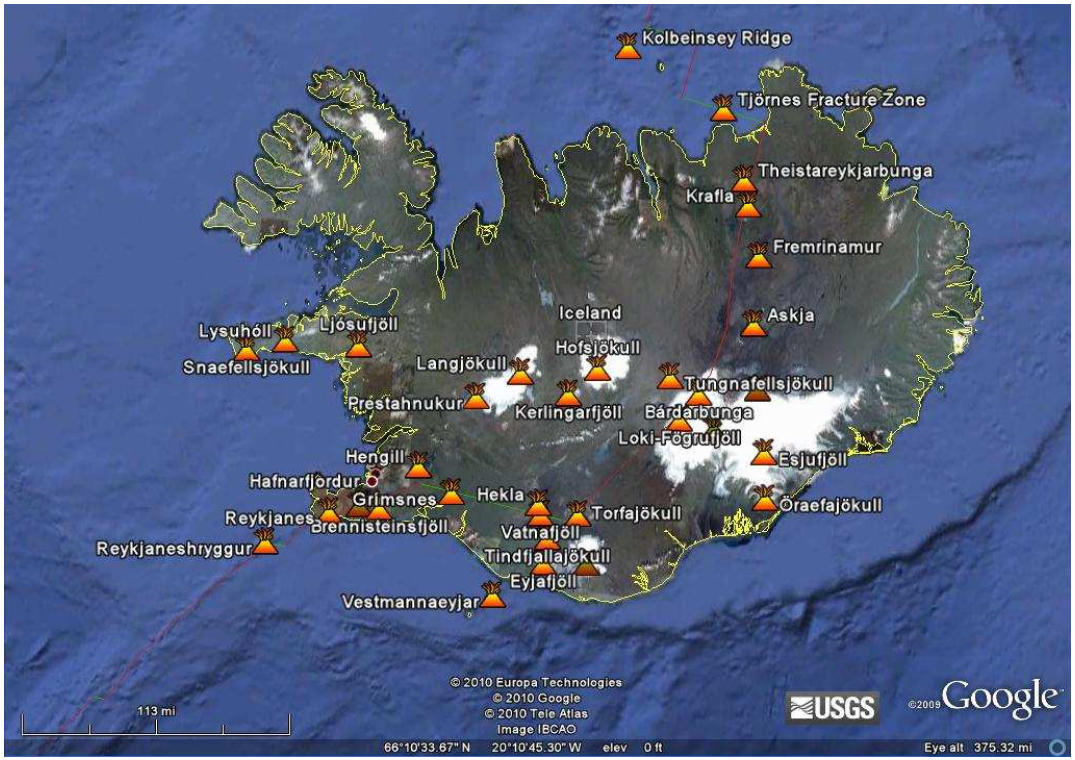




*Located on the Mid-Atlantic Ridge

*Frequent volcanic activity, often causing glacial melt and flooding

# Key Question: Is Iceland a safe place to live?




1. What does the source definitely tell me?
2. What can I infer from the source?
3. What does the source not tell me?
4. What else would I like to find out? What other questions can I ask?

# Key Question: What adaptations made long-term settlement of Iceland possible?

1. What does the source definitely tell me?
2. What can I infer from the source? What guesses can I make?
3. What does the source not tell me?
4. What else would I like to find out? What other questions can I ask?

# Volcanic Eruptions and Flooding

# Engineering Challenge: Design a new style of home to better survive volcanic eruptions and flooding.

- The students work in groups to brainstorm new home styles and designs which will not be destroyed in volcanic eruptions or flooding. Designs may be innovative or new – be creative!
- Constraints: Must use available resources (rocks, bricks, soil, very little wood (few trees), minimal metal (must be imported.)
- Draw a detailed illustration of your design – include labels to explain key features.
- Student groups share their designs with the class. Student groups modify and improve their designs, then build a physical model of their home.

# NGSS – Engineering Design

- 3-5 ETS 1-1. Define a simple design problem reflecting a need or a want that includes a specified criteria for success and constraints on materials, time, or cost.

- 3-5 ETS 1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

# Cuba


Houston
New Orleans
Jacksonville
Chihuahua
Corpus Christi
Tampa
Sargasso Sea
Brownsville
Miami
Torreon
Culiacan
Gulf of Mexico
Bahamas
Mexico
Tampico
Leon
Merida
Cuba
Mexico City
Santiago de Cuba
Colima
Dominican Rep.
Puerto Rico
Jamaica
Acapulco
Belize
Guatemala
Honduras
Caribbean Sea
El Salvador
Nicaragua
Barbados
Curaçao
Grenada
Trinidad and Tobago
Cartagena
Costa Rica
Panama
San Cristobal
Medellin
Venezuela
Georgetown
©OpenStreetMap


worldatlas
USA
Florida (USA)
Gulf of Mexico
Miami
Bahamas
Atlantic Ocean
Havana
Cuba
Dominican Republic
CARIBBEAN
Mexico
Haiti
San Juan
Jamaica
Kingston
Antigua and Barbuda
St. Kitts and Nevis
Caribbean Sea
Dominica
Honduras
Central America
400 mi
St. Lucia
St. Vincent and the Grenadines
Barbados
Nicaragua
400 km
Grenada
Trinidad and Tobago
Costa Rica
Panama Canal
Caracas
Venezuela
Pacific Ocean
Panama
Colombia
SOUTH AMERICA
Atlantic Ocean
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# What is it like to live in Cuba?

1. What does the source definitely tell me?
2. What can I infer from the source? What guesses can I make?
3. What does the source not tell me?
4. What else would I like to find out? What other questions can I ask?

# Hurricanes in Cuba


# Engineering Challenge: Design a new style of home to better survive extreme wind and rain from hurricanes.

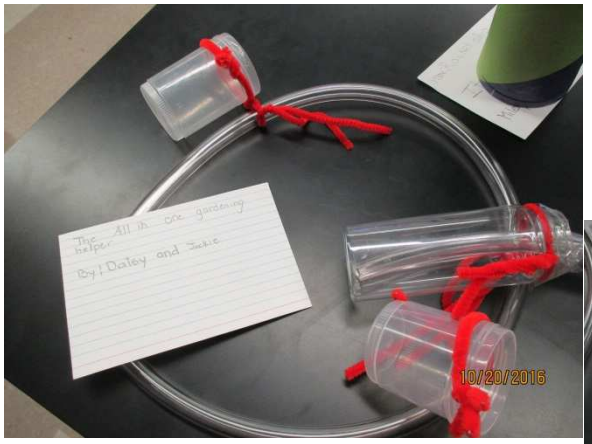
- The students work in groups to brainstorm new home styles and designs which will not be destroyed in a hurricane. Designs may be innovative or new – be creative!
- Constraints: Must use available resources ( wood, cement brick, recycled metal.)
- Draw a detailed illustration of your design – include labels to explain key features.
- Student groups share their designs with the class. Student groups modify and improve their designs, then build a physical model of their home.

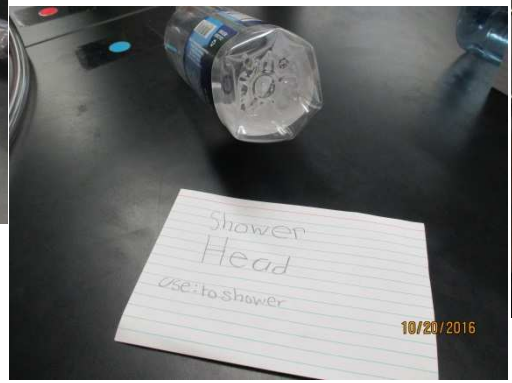
# Geography Standards

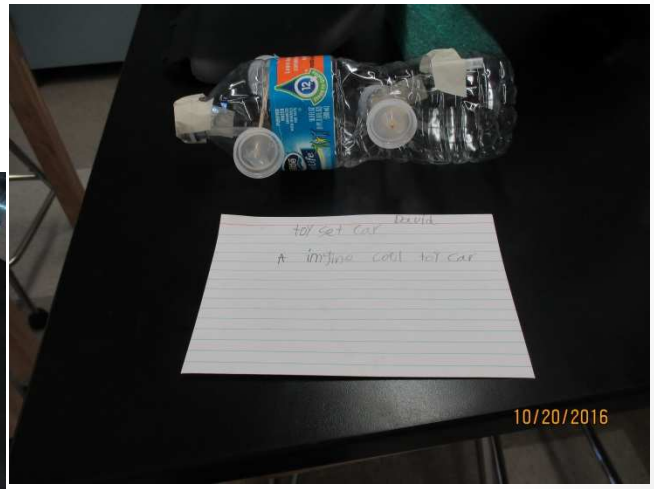
- Properties and locations of geographic representations – such as maps, globes, graphs, diagrams, and photographs .
- Spatial models
- The concept of place
- Components of Earth's physical systems

# Additional Activity

- Water Bottle Challenge: create a useful object made from water bottles and other recycled materials, inspired by the challenges of limited supplies and material faced by the Cuban people.



# Teacher Resources – travel and PD

- PolarTREC
- Earthwatch
- American Wilderness Leadership School
- Forestry Institute for Teachers FIT
- National Geographic Grovesnor Scholarship