Introduction
Forces of Nature, an interdisciplinary lesson, focuses on natural disasters that are happening all over the world. After researching and mapping natural disasters, students create a survey about natural disasters for friends or family members. The information gathered from the survey and student research is used to create a digital presentation that answers the driving question “Where in the world is the safest place to live?”

Student Outcomes
After completing this unit students will be able to:
- Use email.
- Locate specific places on a map.
- Learn about natural disasters.
- Use the Internet to find information.
- Prepare and present a digital presentation.

Content Area and Grade Levels
Grade level: 4th & 5th
Content Areas: Geography, Language Arts

New Mexico Content Standards and Benchmarks
Language Arts
1) Students will apply strategies and skills to comprehend information that is read, heard, and viewed. Benchmarks K-4, 5-8

11) Students will communicate effectively through speaking and writing. Benchmarks K-4, 5-8

Science
5) Employ equipment, tools, a variety of techniques and information sources to gather, analyze, and interpret data. Benchmark 5-8

6) Explain that scientists make the results of their investigations public in ways that allow others to replicate their findings. Benchmark K-4

Social Studies
3) Students will know, understand, and apply the language, tools, and skills of social studies. Benchmark 5-8

12) Students will know and understand physical environments and their relationships to ecosystems and human activities. Benchmark K-4

**Technology Usage**
- Microsoft PowerPoint™
- Internet access
- Email

**Resources**

**Online**
The FEMA, the Federal Emergency Management Association natural disaster site.
[http://www.fema.gov/kids/dizarea.htm](http://www.fema.gov/kids/dizarea.htm)
FEMA’s photo library of natural disasters.
[http://www.fema.gov/kids/p_lib.htm](http://www.fema.gov/kids/p_lib.htm)
EQE is a risk management company. This site provides background knowledge for adults on specific disasters.
Latest weather headlines from all over the world.
Extreme Measures: The Art of Analyzing Natural Disasters – How cataclysmic events are measured.
[http://www.avalanche.org/~aaap/questions.HTML](http://www.avalanche.org/~aaap/questions.HTML)
Hurricane: Storm Science – Interactive page.
[http://www.miamisci.org/hurricane/](http://www.miamisci.org/hurricane/)
Tsunami Science – Animated information on tsunamis.
[http://explorezone.com/earth/tsunamis.htm](http://explorezone.com/earth/tsunamis.htm)
Earthquake Science – Animated information on earthquakes.
Volcano Science – Animated information on volcanoes.
[http://explorezone.com/earth/volcanoes.htm](http://explorezone.com/earth/volcanoes.htm)

**Off line**
Encyclopedia
The Weather Channel
Newspapers: Local and national.

**Process**
Preparations and Tips

- Create a rubric that explains the necessary components for their completed projects.
- Establish the rule that students should use ONLY the school address, NEVER their home email addresses when emailing from school. Students should be reminded that they are not to use their last names nor give out any personal information.
- Have books on topics readily available from school or public library.
- Post large maps of the world and the US for each group. Make sure each group has access to smaller maps or atlases.

Materials:
- Journals
- Individual/group maps
- Push Pins

Tasks: (actions)
1. Instruct students to brainstorm with a partner about natural disasters. Pairs will name at least five natural disasters and explain their destructive nature. As pairs share responses, record on a large chart. Elicit what they want to learn during this discussion and record these questions as well.
2. Pose the driving question: "Given all the natural hazards, where in the world is the safest place to live?"
3. Have students create a journal to record research.
4. Pass out rubric to each group and explain expected tasks. Utilizing student input, create a legend for the class map. For example: blue-hurricanes, red-volcanoes, yellow-tornadoes, green-earthquakes. Post near class map and direct students to record in journals. Students use these symbols when creating their group map of natural disasters.
5. After grouping students, instruct them to create a questionnaire asking for specific information about individual experiences with natural disasters.
6. Students create and email the questionnaire to friends and relatives. Include in the questionnaire a request asking recipients to forward the questionnaire to others.
7. As questionnaires are returned, students record in journals the information, and plot the locations and events on their individual maps.
8. Students research to learn more about the destructive forces of nature and their locations. Information is recorded in journals.
9. Students create a PowerPoint™ presentation that answers the question, “Where in world is the safest place to live?” Group answers include justifications based on research.
10. Students present slide shows and group maps to class.
11. Compile all group information and plot on classroom map.
12. Encourage students to revise their opinions to driving question based on new information.

Presentation
Each group presents one map that illustrates the results of their questionnaires as well as recent natural disasters in addition to a PowerPoint™ presentation that answers the driving question.
Assessment
Create a rubric, either independently or with student input.

Extension
Write and illustrate factual or fictional stories based on a natural disaster researched. Audiences may be readers of a school or class newspaper.
The Mission
Almost every day, somewhere in the world, Mother Nature creates natural disasters. Lightning starts thousands of forest fires and causes millions of dollars of damage. Earthquakes can change the shape of the ground, creating breaks and new land formations. Flash floods can occur within several seconds, devastating whole communities. Given all the natural hazards, where in the world is the safest place to live?

Getting Ready
Preparation
1. What are natural disasters? Write down at least five natural disasters and explain what they are?
2. As a class, create a map legend for all groups to use. For example: Earthquakes may be noted by green dots and fires might be noted by red dots. Make sure your legend includes all hazards. Copy this legend into your journal.

Supplies
- Journals – To record your research.
  - Information to record in your journal includes dates and locations of natural disasters. You can also include any other interesting facts you find.
  - Mail you receive should be stapled or taped into your journal.
- Individual/group world maps – to keep track of where natural disasters occur.

Your Adventure
1. With your group, create a list of survey questions for friends and relatives about natural disasters that have happened near their communities.
2. Type your survey and send it via email or snail mail to friends and relatives.
3. While you are waiting for their answers, do research on natural disasters around the world.
4. Work with your group to plot a world map of these natural disasters. Use your research and the survey responses you have received to find the locations.
5. Create a PowerPoint™ presentation with the information you learned. Remember to answer the question proposed to you at the beginning of the project, “Where in the world is the safest place to live?”
6. Present your map and PowerPoint™ presentation to your classmates.
Resources

ONLINE MULTIMEDIA ACTIVITY: http://reta.nmsu.edu/student modules/

Online

The Disaster Area - Describes the different types of disasters.
http://www.fema.gov/kids/dizarea.htm
Library – Photo library of disasters.
http://www.fema.gov/kids/p_lib.htm
EQE Disaster Report Archive – EQE’s reports on major natural hazards.
http://www.eqe.com/publications/disaster.htm
Wild Weather – Latest weather headlines.
http://www.wildweather.com/
Extreme Measures: The Art of Analyzing Natural Disasters – How cataclysmic events are measured.
http://www.avalanche.org/~aaap/questions.HTML
Hurricane: Storm Science – Interactive page.
http://www.miamisci.org/hurricane/
Tsunami Science – Animated information on tsunamis.
http://explorezone.com/earth/tsunamis.htm
Earthquake Science – Animated information on earthquakes.
http://explorezone.com/earth/earthquakes.htm
Volcano Science – Animated information on volcanoes.
http://explorezone.com/earth/volcanoes.htm

Offline

Encyclopedia.
The Weather Channel (a cable television station).
Newspapers: Local and National.

Vocabulary

| avalanche | devastating | hazard | legend | survey | tsunami |

avalanche - /noun/
1: a large mass of snow, ice, earth, rock, or other material in swift motion down a mountainside or over a precipice
2: a sudden great or overwhelming rush or accumulation of something

devastating - /verb/
1: to bring to ruin or desolation by violent action
2: to reduce to chaos, disorder, or helplessness
**hazard**-noun/
1: a source of danger

**legend**-noun/
1a: an explanatory list of the symbols on a map or chart

**survey**-verb/
1: to examine as to condition, situation, or value
2: to query (someone) in order to collect data for the analysis of some aspect of a group or area

**tsunami**-noun/
1: a great sea wave produced by underwater earth movement or volcanic eruption

**Dig Deeper!**
What other ways can you explore the stories that you have collected about natural disasters?

- Create a class newspaper that features some of the stories you have received through your survey. Have each student pick one of the stories and write an article about it. Then put all the articles together to create a newspaper about natural disasters.
- Choose a classmate with whom to work. As a team, write and illustrate a factual or fictional story that illustrates what you have learned.
- Imagine you have just experienced one of the natural disasters. Write a poem that portrays how you feel.

**Journals:**
Journals are written records of experiences, thoughts, events, or feelings. Journals can be hand-written or typed. Choose your method of keeping a journal for this activity and record your information.