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| **Lesson Title : Designing a Disaster Relief Plan** | **Unit #:1** | **Lesson #:2** | **Activity #:4** |
| **Activity Title: Design a Plan** |  |  |  |

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| **Estimated Lesson Duration:** | **7 Class Periods** |
| **Estimated Activity Duration:** | **5 Class Periods** |

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| **Setting:** | **Classroom, School Library, and Computer Lab** |

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| **Activity Objectives:** |

Upon completion of the activity, students will be able to:

1. Research the shortcomings of a historical disaster relief such as Katrina/Haiti
2. Focus on one historical disaster to base their relief plan around
3. Create a detailed disaster relief plan
4. Present the disaster relief plan and vote on the best class plan

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| **Activity Guiding Questions:** |

1. How do you design a detailed disaster relief plan?
2. How do you present your plan to be evaluated by peers?

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| **Next Generation Science Standards (NGSS)** |  |
| **Science and Engineering Practices (Check all that apply)** | **Crosscutting Concepts (Check all that apply)** |
| ☒ Asking questions (for science) and defining problems (for engineering) | ☐ Patterns |
| ☐ Developing and using models | ☒ Cause and effect |
| ☒ Planning and carrying out investigations | ☐ Scale, proportion, and quantity |
| ☒ Analyzing and interpreting data | ☐ Systems and system models |
| ☒ Using mathematics and computational thinking | ☐ Energy and matter: Flows, cycles, and conservation |
| ☐ Constructing explanations (for science) and designing solutions (for engineering) | ☐ Structure and function. |
| ☐ Engaging in argument from evidence | ☐ Stability and change. |
| ☒ Obtaining, evaluating, and communicating information |  |

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| **Ohio’s New Learning Standards for Science (ONLS)** |
| **Expectations for Learning - Cognitive Demands (Check all that apply)** |
| ☐ Designing Technological/Engineering Solutions Using Science concepts **(T)** |
| ☒ Demonstrating Science Knowledge **(D)** |
| ☒ Interpreting and Communicating Science Concepts **(C)** |
| ☐ Recalling Accurate Science **(R)** |

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| **Common Core State Standards -- Mathematics (CCSS)** |  |
| **Standards for Mathematical Practice (Check all that apply)** |  |
| ☒ Make sense of problems and persevere in solving them | ☒ Useappropriate tools strategically |
| ☒ Reason abstractly and quantitatively | ☒ Attendto precision |
| ☒ Construct viable arguments and critique the reasoning of others | ☐ Look for and make use of structure |
| ☒ Model with mathematics | ☐ Look for and express regularity in repeated reasoning |

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| **Unit Academic Standards (NGSS, ONLS and/or CCSS):** |

[CCSS.Math.Content.HSG-SRT.D.11](http://www.corestandards.org/Math/Content/HSG/SRT) Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).

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| **Materials**: (Link Handouts, Power Points, Resources, Websites, Supplies) |

Design a Disaster Relief Plan Worksheet and Grading Rubric

[**www.fema.gov**](http://www.fema.gov)[**www.redcross.org**](http://www.redcross.org)[**www.m25m.org**](http://www.m25m.org)[**www.thechildrenarewaiting.org**](http://www.thechildrenarewaiting.org)

[**www.nytimes.com**](http://www.nytimes.com)[**www.usatoday.com**](http://www.usatoday.com) **docs.google.com** [**www.prezi.com**](http://www.prezi.com)

[**www.geogebra.org**](http://www.geogebra.org)

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| **Teacher Advance Preparation:** |

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| **Activity Procedures:** |

1) Introduce the idea of each group creating a detailed disaster relief plan.

2) Groups will need 4-5 days in the Library/Computer Lab to work together.

3) Each group must research the shortcomings of a historical disaster relief such as Katrina/Haiti.

4) Each group must focus their plan around a specific historical disaster.

5) As the groups work on the disaster relief plan be creative in ways to present all aspects.

6) Groups will present to other math classes as a practice run for feedback

7) Presentations will be graded based on the rubric provided on the worksheet.

8) Groups will give a final presentation to their class and then vote on the best plan.



When each group presents to another math class for a practice run and feedback, they will get a chance to make adjustments before being graded or taking a test.



All group presentations will be graded according to the rubric given out on the Design a Disaster Relief Plan worksheet and grading rubric.

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| **Differentiation:** Describe how you modified parts of the Lesson to support the needs of different learners.  Refer to Activity Template for details. |

Depending on a student’s’ prefered learning styles, I would guide them towards contributing certain aspects of the group project.

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| **Reflection:** Reflect upon the successes and shortcomings of the lesson. |

The students created some amazing presentations for this activity. I was pleasantly surprised by the level of detail some students went into (i.e. budgeting for crayons and toys for babies). It was very rewarding for me to see the trigonometry drawn right over top of a Google Map as if they were really about to leave for this Disaster Relief Plan and save a lot of lives. When I use this activity next year I may refine some of the point distribution, rubric descriptions, or have students take on specific roles within each group.