Natural Disasters Math Unit

WebQuest Description: This webquest is designed to review graphing data and using basic mathematic skills. These skills involve basic mathematic skills, evaluating expressions, and linear equations (systems) by linking natural disasters from around the world.
Grade Level: 6-8
Curriculum: Art / Music
Keywords: Algebraic Expressions, Integers, variables, Linear systems, Substitution Method, Data, Linear Equations
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Introduction

The goal of this unit is to prepare you for developing an understanding of natural disasters, and how they affect our lives as it relates to math. {You may click on the links below to get an exact definition of the words.}A natural disaster is the consequence of a natural hazard (e.g. volcanic eruption, earthquake, or landslide) which affects human activities. Human vulnerability, exacerbated by the lack of planning or appropriate emergency management, leads to financial, environmental or human losses. (Wikipedia)HELP WANTED!The Natural Disaster Association (NDA) is looking to recruit young meteorologists to cast on their weather channel. And some of the past cast members lacked mathematical skills it took to present and represent the actual facts involving natural disasters around the world. We (NDA) need you to go out and research information and findings about at least 2 natural disasters in the world to make a comparison and contrast including elements of basic math. We need you to create a portfolio that will present this information and graph data to represent your findings. So, please read the webquest carefully and do your best in getting this position.

Tasks

NDA has already given you the information and guidance you need to start this activity.You will choose two different natural disasters, and use the internet to research information about those natural disasters. You may choose the country you are from and another country. You will also create a portfolio to show pictures of their natural disasters. You will collect, organize, display, and interpret data about the natural disasters.And, you will use the data from the two countries to evaluate and create algebraic expressions (linear equations). You will use your linear equations and solve them in a system (linear system).

Process

This process will take a lot of patience, consideration, and hard work from you. In your efforts, if you complete your assignment and task, you will receive a Character Badge to show your improvement and success. Please complete one section at a time. Please print out the Natural Disaster Data Sheet attached below. You may print it as many times as you need.1. You may pick two countries located on these continents:Africa, North America, South America, Asia, Europe, Australia, and Antarctica 2. You will choose two different natural disasters, and use the internet to research information about those natural disasters. You must choose one from this country (United States) and the other natural disaster from another country.[REMINDER: Be sure to keep good records of your information.]You may print out the information to include in your webquest. Remember to find and print pictures of your findings.   A: Click on these links to help you with your research.   http://www.wikipedia.org/ (type: natural disasters - to help you in your search.)   http://www.google.com/   http://www.ask.com/?o=10181&jr=true   http://www.fema.gov/kids/dizarea.htm (FEMA disaster areas)   http://gaiagonewild.com/   B: View these videos about natural disasters to get you motivated. (Click on the links below.)   "WHEN WEATHER CHANGED HISTORY" (Weather Channel)   http://www.weather.com/history/   Forces of Nature: http://environment.nationalgeographic.com/environment/natural-disasters/forces-of-nature.html3. Create a portfolio (a visual presentation of your infomation) to show pictures and data you have collected. To present your graphical data you may use the Create-a-graph.com (website) to make your graphs. Your data can include the damages, cost of damages, or casualties (deaths). (Click on the link to create your graph.) Be sure to print out your results.   http://nces.ed.gov/nceskids/createAgraph/[Materials: poster board, scissors, glue, construction paper, natural disaster pictures, pencils, or colored pencils/markers] 4. Use the natrual disaster data collected from the previous section of the two (2) countries and evaluate and create algebraic expressions. Use your prior knowledge of linear equations and linear systems to create and solve your linear system.A. Create two linear equations including x and y as your variables. Let variables represent either your countries or natural disasters. Please state what your variables represent. Materials: white drawing paper to show your work![For example: x = country and y = natural disaster or in the another order. But each equation must include an x and a y variable.]3x (country1)+ y (natural disaster1)= 36 (deaths)3x + y = 36y (natural disaster2) + x (country2) = 30 (deaths)y + x = 30 SHOW YOUR WORK! PLEASE INCLUDE ALL OF YOUR DATA AND FINDINGS (PICTURES, etc.) IN YOUR WEBQUEST.

Evaluation

Category and Score	Beginning 1	Developing 2	Very Good 3	Exemplary 4	Score
Research and data skills (webquest)	Does not understand how to research and collect data using technology.	Understand how to research and collect data using technology with help from instructor.	Understand the concept of finding information and collecting data with little help from the instructor.	Understand the concept of finding information and collecting data with no help from teacher.	%25
Portfolio	Does not understand how to create a portfolio.	Understands how to create a portfolio with help from instructor.	Shows a clear concept of creating a portfolio.	Understands how to create a portfolio with creativity.	%25
Creating and solving linear systems	Does not understand the concept of creating and solving linear systems.	Understands how to create and solve a linear system with help from the instructor.	Understands how to create and solve a linear system with little help from the instructor.	Understands how to create and solve a linear system with no help from the instructor.	%25
Reflection		Does not understand the meaning of reflecting on what he/she has done in the webquest.		Understands what he/she has done by reflecting on what he/she has done in the webquest.	%25
				Total Score	%100

Conclusion

REFLECTION!! Reflection is an important part of an activity because it improves students’ skills in correlating a subject-based task with comprehension.This activity will have a lasting effect on the students that participated or completed this unit. Students, you are encouraged to complete the following reflection questions. (Please go back to the PROCESS page and print the Reflection attachment at the bottom of the page. These questions are located on that page.)1. Why should you study natural disasters?2. Which disasters are natural disasters? Which are not?3. What is the purpose of knowing the number of people died or survived?4. Click on the REVIEW tab (on the left) and write a sentence about which IBO profile relates to you. Go back to the PROCESS page to print out the IBO Learner Profile Sheet (attachment). Add this document to your webquest .

Teacher Page

This activity can be changed to fit your classroom. FOCUSImplementing and incorporating technology is essential in education today. When used correctly, Webquest can help both teachers and students to collaboratively work together. This unit requires or creates high order thinking skills by incorporating other subjects and intercultural aspects from another country besides the United States. Teachers are able to stay organized when planning as students learn and are challenged with higher order thinking questions. This will push our students to the next level of learning and better prepare them for their future. Differentiated Instruction (optional)This lesson is designed to introduce students to using technology to aid them in completing simple mathematical computation. Students will learn the background resources to natural disasters from two different countries by integrating technology, history, english, art, and intercultural aspects. More practice activities are included for low percentile students as well as the traditional students. (See the Process page.) Also, there is more practice for ELL, LEP and ESE students. OBJECTIVES• apply properties to simplify algebraic expressions, solve linear equations, and apply principles of graphing.simplify and evaluate numerical and algebraic expressions. STUDENT PREREQUISITES• Arithmetic: Students must be able to: o evaluate expressions and linear equations   o solve linear systems   o create graphical analysis from data collected • Technological Students must be able to: o perform basic mouse manipulations such as point, click and drag   o use a website to create a graph from given data. STANDARDSThe activities and discussions in this lesson address the following Standards:• Number sense, number operations and number relationships • Patterns, relationships and functionsEvaluate expressions and solve linear systems

Standards

Credits

Other