

Probability and Statistics

WebQuest Description: This webquest is about Probability and Statistics, where they are used, and ways to manipulate them.

Grade Level: 9-12

Curriculum: Math

Keywords: Math, Probability and Statistics

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Introduction

In life there are many times that people see probability and statistics. When you watch a sporting event, the stats of the players and the teams are being constantly displayed. When you read a report the information is presented statistically. And when people play cards, there is a certain probability that the card they need will be the one they get. Your role is to be a probability and statistics scientist. You will do various activities to learn about and discover probability and statistics through your own exploration! What is probability? What do statistics mean? These are some of the questions that you'll find answers to.

Tasks

Your Goals: Research information on Probability and Statistics. Develop a meaningful working knowledge of Probability and Statistics. Be able to apply Probability and Statistics to activities you encounter and information you are interested in. How are probability and statistics used everyday? How is knowing probability and statistics relevant? The following websites might be helpful: <http://www.onlinemathlearning.com/math-probability.html>; <http://www.onlinemathlearning.com/statistics.html>. Your Application: - Create your own mini experiments using probability and then record the statistics that you acquired. - Create a game that somehow utilizes the laws of probability. - Find statistics on events, or studies that happen in real life that you are interested in. - Do an online survey where both qualitative and quantitative information is researched. - Find a sporting event that you are interested in and research the stats associated with it. - Participate in an online game and keep track of and record your stats then analyze them.

Process

There are a series of activities that you will be participating in. Some of them will be group activities while others will be individual activities; each one will be designated as such. The group activities will take place with the group you were assigned to at the beginning of the year. There will be times when the group needs to do work together and times when each member must contribute their own work (this is elaborated on more when discussing each separate project). If you have any questions feel free to visit my blog and post a comment to "Probability and Statistics Assignment". <http://nml136.blogspot.com/>. Due Week 1: Create your own mini experiments using probability and then record the statistics that you acquired. This will be a group project. Each member of the group will do their own trials with the mini experiments and then collaborate the results. - In order to complete this assignment you will have to review the concepts of probability. Visit the following websites for help: <http://www.aaastudy.com/sta-prob-simple.htm>; <http://www.aaastudy.com/sta-prob-simple.htm>; This website will help you learn, practice, play, and explore probability. - Create your own scenarios and record the probability. Then participate in those scenarios and record the results. For more information on what mini experiments to explore use the following wiki site. Click on Home, then Discussion, and the Probability. Your information should be typed up using Microsoft Word. <http://nml136.wikispaces.com/>; This wiki presents examples of what mini scenarios look like. - You will also quiz yourself using the following links: [Fun Trivia.com](http://www.funtrivia.com); <http://www.funtrivia.com/trivia-quiz/SciTech/Basic-Probability-Theory->

plays the online game at least 15 times. The group then collaborates their information using Google Docs. Here is the website: <https://www.google.com/accounts/ServiceLogin?service=writely&passive=true&continue=http%3A//docs.google.com/?tab=wo&followup=http%3A//docs.google.com/?tab=wo>. This application allows users to create and share information online.

Evaluation

Category and Score	Beginning 1	Developing 2	Very Good 3	Exemplary 4	Score
Creativity	The piece shows little or no evidence of original thought	The student's work lacked sincere originality	The student's work demonstrates originality	The student's work demonstrates a unique level of originality	%25
Demonstrated Knowledge	Response shows a complete lack of understanding of the project	Response shows some understanding of the problem	Shows substantial understanding of the problem, ideas, and processes	Shows complete understanding of the questions, mathematical ideas, and processes	%25
Mechanics	Major math errors or serious flaws in reasoning	Some serious math errors or flaws in reasoning	No major math errors or flaws in reasoning	No math errors	%25
Requirements	Does not meet the requirements of the problem	Hardly meets the requirements of the problem	Meets the requirements of the problem	Goes beyond the requirements of the problem	%25
				Total Score	%100

Conclusion

You should have a solid understanding of Probability and Statistics. You should be able to calculate probability and explain statistics for a variety of information and situations. You should also be able to find and organize statistics for information that you construct. You will be required to send both the individual information and the group information for each project that is completed to the internet on our class website. You will also be required, as a group, to create a Powerpoint lesson that teaches about Probability and Statistics and poses quiz questions at the end. The Powerpoint Presentation will be judged by the math teachers in the department. The winning presentation will be used as a review for all classes before the test. The group that creates the winning powerpoint lesson will be allowed to use their powerpoint slides for their test. For more information on Probability and Statistics and to take an online tutorial to test your knowledge please visit: <http://www.stat Trek.com/Lesson1/Intro.aspx>. Includes a Probability and Statistics Tutorial and an Advanced Placement Statistics Tutorial

Teacher Page

Subject: Mathematics Course: Probability and Statistics Grade: 11th This WebQuest was designed to be used for high school probability and statistics classes, specifically 11th grade. This lesson focuses different ways of testing a student's knowledge of probability and statistics. It requires the student to use resources that are found on the internet in order to complete the assignments in the WebQuest. There are different assignments using different faucets of the internet and different technologies. It can be used to supplement what students learned in class. It may also be used as an exploratory lesson for students to complete before information is discussed in class, so students have a prior knowledge based on their own experiences. This lesson meets the Pennsylvania State Standards for Mathematics, Algebra II, 2.2.11.F, 2.6.11.A, 2.7.11.A, 2.7.11.B. The following websites were used to construct this WebQuest: <http://nml136.blogspot.com/>; <http://nml136.wikispaces.com/>; This wiki present examples of what mini scenarios look like

<http://www.aaastudy.com/sta-prob-simple.htm>; This website will help you learn, practice, play, and explore probability.

<http://probexplorer.com/index.html>; This site provides "a research-based software application designed with tools that enable students and teachers to design, simulate, and analyze a variety of probabilistic situations".

[Evaluating Web Pages: Techniques to Apply & Questions to Ask](#); <http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Evaluate.html>; Techniques for evaluating websites.

[Learning Statistics](#); <http://library.thinkquest.org/C0122162/>; This site contains "basic knowledge on different elements of statistics and how each element of Statistics is used".

[Fun Trivia.com](#); <http://www.funtrivia.com/trivia-quiz/SciTech/Mean-Mode-and-Median-289559.html>; "Mean, Mode, and Median" quiz; <http://www.funtrivia.com/trivia-quiz/SciTech/Statistics-101-78896.html>; "Statistics 101" quiz; <http://www.funtrivia.com/trivia-quiz/SciTech/Basic-Probability-Theory-293008.html>; "Basic Probability Theory" quiz; <http://www.funtrivia.com/flashquiz/index.cfm?qid=269306>; Statistics and Probability on "Pick A Card, Any Card"; <http://www.funtrivia.com/trivia-quiz/SciTech/A-Matter-of-Probability-280045.html>; "A Matter of Probability" quiz; <http://www.funtrivia.com/trivia-quiz/SciTech/Dice-Probabilities-268305.html>; "Dice Probabilities" quiz, AND <http://www.funtrivia.com/trivia-quiz/SciTech/Practical-Probability-210656.html>; "Practical Probability" quiz; Google Docs; <https://www.google.com/accounts/ServiceLogin?service=writely&passive=true&continue=http%3A//docs.google.com/?tab=wo&followup=http%3A//docs.google.com/?tab=wo>; This application allows users to create and share information online.

Standards

Credits

Other

