Geometry Concepts and Connections Unit 8: Investigating Probability & Statistics

Overview:

In this unit, students will organize real-life data in two-way frequency tables. They will use the two-way frequency tables to find probabilities. Students calculate, model, and interpret probabilities of compound events. Students will calculate permutations and combinations within real-world contexts and develop probability distributions based on the entire sample space. Students will calculate expected value of a probability distribution and understand it to be the mean of that probability distribution. Using expected value, students will make decisions about risk vs reward in real-world situations such as games of chance and insurance.

Learning Targets:

In Unit 8, students will:
- Calculate, model, and interpret probabilities of compound events.
- Calculate permutations and combinations within real-world contexts.
- Develop probability distributions based on the entire sample space.
- Calculate the expected value of a probability distribution and understand it to be the mean of that probability distribution using expected value.
- Make decisions about risk vs. reward in real-world situations such as games of chance and insurance.
- Organize real-life data in two-way frequency tables.
- Explore two-way frequency tables to develop an understanding of probabilities for unions and intersections.
- Use the two-way frequency tables to find probabilities.

Key Vocabulary: (linked to GA DOE Interactive Glossary)

Addition Rule	Conditional Probability	Measures of Variability	Sample Space
Chance	Empirical Probability	Multiplication Rule	Subset
Combination	Expected Value	Permutation	Theoretical Probability
Complement	Experimental Probability	Probability	Two-Way Frequency Tables
Compound Event	Intersection	Probability Distribution	Union

Supporting Resources:

http://ctlslearn.cobbk12.org/

Probability (mathsisfun.com)

https://gavirtual.instructure.com/courses/34328

Probability with permutations & combinations example: taste testing (video) | Khan Academy

How Do You Find Conditional Probability? | Virtual Nerd