

UbD: Geometry - Probability

Time Frame: 11 Lessons	Unit 8: Conditional Probability	Course Name: Geometry
Stage 1: Desired Results		
Established Goal(s)	Transferable Skills	
Standards Addressed:	<p><i>Students will be able to independently use their learning to...</i></p> <ul style="list-style-type: none"> understand and evaluate random processes underlying statistical experiments make inferences and justify conclusions from sample surveys, experiments and observational studies understand independence and conditional probability and use them to interpret data use the rules of probability to compute probabilities of compound events in a uniform probability mode calculate expected values and use them to solve problems use probability to evaluate outcomes of decisions apply mathematical knowledge, skill, and reasoning to solve real-world problems. develop clear and effective communication. increase self-direction. develop creative and practical problem-solving. become responsible and involved citizens. develop informed and integrative thinking. 	
	Meaning	
	<p><u>Understandings</u></p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> math is a continuum, Algebra is needed for Geometry, and math concepts will build on themselves as we develop our mathematical understandings. chance experiments can not be solved absolutely. We can only look at the likelihood or probability that an event will occur given a certain sample space. knowledge of probability will allow students to be educated consumers of information in an uncertain world. there is independence and conditional probability and use them to interpret data. they can use the rules of probability to compute probabilities of compound events in a uniform probability model. 	<p><u>Essential Questions</u></p> <ul style="list-style-type: none"> How can I use my knowledge of probability to make informed decisions about uncertain events? How can I collect and organize data to come to make reasonable predictions about real-life phenomena?

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<p>HSS-CP.A.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer</p> <p>HSS-CP.B.6 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.</p> <p>HSS-CP.B.7 Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.</p> <p>HSS-ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.</p>	<ul style="list-style-type: none"> they can calculate expected values and use them to solve problems. 	
	Acquisition	
	<p><i>Students will know...</i></p> <ul style="list-style-type: none"> it is possible to find or estimate probability using a model or data from a chance experiment. attributes of a chance experiment and how to identify one. how to find the sample space for chance experiments. how to model situations using probability. how to use sample space to calculate probability. how to create organized lists, tables, and tree diagrams and use them to calculate probabilities. how to use information in a two-way table to find relative frequencies and estimate probability. how to use tables and Venn diagrams to represent sample spaces and to find probabilities. how to use the addition rule to find probabilities. how to estimate probabilities, including conditional probabilities, from two-way tables. how to use probabilities and conditional probabilities to decide if events are independent. how to define and correctly use the glossary terms: chance experiment, event, outcome, probability, sample space, addition rule, dependent events, independent events, and conditional probability. the addition rule can be used to find probabilities. that tables and Venn diagrams can be used to represent sample spaces and find probabilities. how to find the sample space for chance experiments. 	<p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> estimate probability using a model or data from a chance experiment. identify chance experiments. model situations using probability. I can use sample space to calculate probability. create organized lists, tables, and tree diagrams and use them to calculate probabilities. use information in a two-way table to find relative frequencies and estimate probability. estimate probabilities, including conditional probabilities, from two-way tables. estimate probabilities, including conditional probabilities, from two-way tables. define and use geometry-specific vocabulary words that were introduced in this unit. <p>Mathematical Practices:</p> <ul style="list-style-type: none"> make sense of problems and persevere in solving them. reason abstractly and quantitatively. construct viable arguments and critique the reasoning of others. model with mathematics. use appropriate tools strategically. attend to precision. look for and make use of structure. look for and express regularity in repeated reasoning.
Stage 2: Evidence & Assessment		
Evaluative Criteria	Assessment Evidence	