

# Unit 10: Probability and Statistics

Content Area: **Mathematics**  
Course(s): **Generic Course**  
Time Period: **Semester 2**  
Length: **3 weeks**  
Status: **Published**

## Standards - NJCCS/CCSS

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MA.S-IC.A.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
MA.S-IC.B.3	Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
MA.S-IC.B.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
MA.S-IC.B.6	Evaluate reports based on data.
MA.S-CP.A.2	Understand that two events $A$ and $B$ are independent if the probability of $A$ and $B$ occurring together is the product of their probabilities, and use this characterization to determine if they are independent.
MA.S-CP.A.3	Understand the conditional probability of $A$ given $B$ as $P(A \text{ and } B)/P(B)$ , and interpret independence of $A$ and $B$ as saying that the conditional probability of $A$ given $B$ is the same as the probability of $A$ , and the conditional probability of $B$ given $A$ is the same as the probability of $B$ .
MA.S-CP.A.5	Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

## Enduring Understandings

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Independent events and Conditional probability can be used to interpret data.

Inferences and conclusions can be made from sample surveys, experiments, and observational studies.

The way that data is collected, organized and displayed influences interpretation.

## Essential Questions

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What are the different strategies in determining the number of ways and the probability of an event occurring?

Why is data collected and analyzed?

How do people use data to influence others?

How can predictions be made based on data?

## **Knowledge and Skills**

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1. Students will be able to describe events as subsets of a sample using characteristics of the outcome, or as unions, intersections, or complements of other events.
2. Students will be able to use two way frequency tables to determine if events are independent and to calculate/approximate conditional probability.
3. Students will be able to use everyday language to explain independence and conditional probability in real world situations.
4. Students will be able to find conditional probability.
5. Students will be able to interpret results in terms of the model.

## **Transfer Goals**

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Recognize and solve practical or theoretical problems involving mathematics, including those for which the solution approach is not obvious, by using mathematical reasoning and strategic thinking.

## **Resources**

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Precalculus: Graphical, Numerical, Algebraic 10th Edition

Desmos

Problem-Attic

Classkick

Geogebra