

# Unit 05 - Probability Distributions

Content Area: **Math**  
Course(s): **Prob/Stat A**  
Time Period: **Marking Period 2**  
Length: **3 weeks**  
Status: **Published**

## Unit Introduction

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## Standards

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MA.S-CP.B.9	Use permutations and combinations to compute probabilities of compound events and solve problems.
MA.S-MD.A.1	Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.
MA.S-MD.A.2	Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
MA.S-MD.A.3	Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value.
MA.S-MD.A.4	Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.
MA.S-MD.B.7	Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).
MA.S-MD.B.5a	Find the expected payoff for a game of chance.
MA.S-MD.B.5b	Evaluate and compare strategies on the basis of expected values.

## Essential Questions

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## Content

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- Section 5.1: Introduction (Pgs. 238-239)
- Section 5.2: Probability Distributions (Pgs. 239-245)
- Section 5.3: Mean, Variance, Standard Deviation, and Expectation (Pgs. 245-255)
- Section 5.4: The Binomial Distribution (Pgs. 256-265)

## Skills

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- Find the mean and standard deviation of a binomial distribution

- Identify distributions as symmetric or skewed
- Recognize and apply the binomial distribution