

Cornell Moy

## Permutations and Combinations in Probability

## Today's Standard

HSS.CP.B9 - (+) Use permutations and combinations to compute probabilities of compound events and solve problems.

Cues	Notes
Permutations	Permutations: Used when the order of outcomes matters. Example: Arranging books on a shelf.
Combinations	
Compound Events	Combinations: Used when the order of outcomes does not matter. Example: Selecting a committee.
Factorial Notation	Compound Events: Events that consist of two or more simple events. Probability calculations often require permutations or combinations.
Order Matters	Factorial Notation: A mathematical notation used to represent the product of all positive integers up to a specified number. Example: $5! = 5 \times 4 \times 3 \times 2 \times 1$ .
	Order Matters: Key difference between permutations and combinations. Permutations consider order, combinations do not.

## Summary

Understanding permutations and combinations is essential for calculating probabilities of compound events. Permutations are used when order matters, while combinations are used when order does not matter. Mastery of these concepts enables accurate probability calculations and prepares students for more advanced topics in statistics.