Clarity for Learning

Standard KY.HS.SP.19(Algebra 2) Use permutations and combinations to compute probabilities.

Concepts (Nouns)	Skills (Verbs)
counting techniques	compute
Fundamental Counting Principle	calculate
factorial	solve
permutation	
combination	
probability	

Learning Progressions

Prerequisites:
- List outcomes for an event
- Determine if events are independent or dependent
- Compute simple theoretical and experimental probabilities

Grade Level Skills:
- Compute factorial values and use them to simplify expressions.
- Understand permutations and use them to find the number of items in a sample space.
- Understand combinations and use them to find the number of items in a sample space
- Determine if the number of items in a sample space is best described by the Fundamental Counting Principle, permutations, or combinations.
- Find simple probabilities using permutations and combinations.

Clarifications:

Students will recognize that permutations are calculated when order matters and combinations are calculated when the order does not matter.

Students will recognize when to use the Fundamental Counting Principle, permutations, or combinations.

Students will generalize a formula for permutations and combinations.

Learning Intentions (I am learning to...)	Success Criteria (I know I'm successful when...)
Distinguish between situations that can be modeled using counting techniques. Perform calculations using the appropriate counting technique.	● I can calculate the number of permutations and combinations in mathematical and real-world contexts. ● I can use permutations and combinations to compute probabilities of compound events and solve problems.