EWHS Course Scope & Sequence

Course Title	**Intro to Probability & Statistics**				
Course Overview	**This course introduces students to the fundamental concepts of statistics and probability, including data analysis, experimental design, probability models, and statistical inference. Students will learn to collect, analyze, and interpret data, develop probability models, and make evidence-based conclusions using confidence intervals and hypothesis testing. Emphasis is placed on real-world applications, critical thinking, and the use of technology.**				
Unit Component	**Unit 1**	**Unit 2**	**Unit 3**	**Unit 4**	**Unit 5**
Title	Describing and Summarizing Data	Producing and Evaluating Data	Foundations of Probability	Modeling Discrete Random Variables	Modeling Continuous Random Variables
Guiding or Essential Questions *(if applicable)*	How can we describe data in meaningful ways? What do measures of center and spread tell us?	How do we collect data that leads to valid conclusions? What makes a study reliable or biased?	How can we model chance? What rules govern probability?	How can we model and analyze discrete outcomes? What is expected value and why does it matter?	How do we model continuous data? What is the role of the normal distribution?

Topic This should be the overarching theme or big idea. Brief overview of the unit.	Students analyze and interpret data using graphical displays (histograms, boxplots) and numerical summaries (mean, median, standard deviation). Focus on identifying patterns, trends, and outliers.	Students explore sampling methods, experimental design, bias, and observational vs. experimental studies. Emphasis on designing valid surveys and experiments.	Students learn basic probability rules, including independent/dependent events, conditional probability, and probability models using tables, tree diagrams, and simulations.	Students study discrete random variables, probability distributions, expected value, and binomial distributions. Applications include real-world scenarios like games and decision-making.	Students explore normal distributions, z-scores, and the Central Limit Theorem. Includes calculating probabilities using normal models and interpreting results.
Length *(in weeks)*	6 weeks	4 weeks	5 weeks	6 weeks	4 weeks

Unit Component	**Unit 6**	**Unit 7**			
Title	Estimating Population Parameters	Testing Claims with Data			
Guiding or Essential Questions *(if applicable)*	How can we estimate unknown population values?	How can we use data to make decisions?			

	What does “confidence” really mean?	What evidence is strong enough to support a claim?			
Topic This should be the overarching theme or big idea. Brief overview of the unit.	Students construct and interpret confidence intervals for proportions and means. Focus on margin of error, sample size, and real-world interpretation.	Students perform hypothesis tests for proportions and means. Emphasis on p-values, significance levels, Type I/II errors, and drawing conclusions in context.			
Length *(in weeks)*	5 weeks	5 weeks			