ABSS Math Unit Planning Template

Introduction:

Grade/Course: 9_12 **|** Adv Functions and Modeling			**Suggested Unit Pacing (# of days):** **8**
Unit Number and Title: Unit 1 Statistics and Data Ananlysis			**Mathematical Practices**
			P1 Make sense of problems and persever in solving them.
Conceptual Overview	Introduce several methods of displaying data, including bar graphs, histograms, frequency distributions, stem and leaf plots, box and whisker plots, along with the use of the normal distribution curves; finding central tendancy and variability, predicting true mean of a population and the confidence interval.		**P2** Reason abstractly and quantitatively.
			P3 Construct viable arguments and critique the reasoning of others.
			P4 Model with mathematics.
			P5 Use appropriate tools strategically.
			P6 Attend to precision.
			P7 Look for and make use of structure.
			P8 Look for and express regularity in repeated reasoning.
Essential Understandings			
CCSS	**Using Probability to Make Decisions**	**CCSS.9_12.MA.SP.S.MD.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.
CCSS	**Using Probability to Make Decisions**	**CCSS.9_12.MA.SP.S.MD.CL1**	Calculate expected values and use them to solve problems
CCSS		**CCSS.9_12.MA.SP.S.MD**	Using Probability to Make Decisions
CCSS	**Using Probability to Make Decisions**	**CCSS.9_12.MA.SP.S.MD.2**	(+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
CCSS	**Using Probability to Make Decisions**	**CCSS.9_12.MA.SP.S.MD.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. *For example, find the theoretical probability distribution for the number of correct answers obtained by guessing on all five questions of a multiple-choice test where each question has four choices, and find the expected grade under various grading schemes.*
CCSS	**Using Probability to Make Decisions**	**CCSS.9_12.MA.SP.S.MD.4**	(+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value. *For example, find a current data distribution on the number of TV sets per household in the United States, and calculate the expected number of sets per household. How many TV sets would you expect to find in 100 randomly selected households?*
CCSS	**Using Probability to Make**	**CCSS.9_12.MA.SP.S.MD.5**	(+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

	Decisions		
CCSS	**Use probability to evaluate outcomes of decisions**	**CCSS.9_12.MA.SP.S.MD.5.a**	Find the expected payoff for a game of chance. *For example, find the expected winnings from a state lottery ticket or a game at a fast-food restaurant.*
CCSS	**Use probability to evaluate outcomes of decisions**	**CCSS.9_12.MA.SP.S.MD.5.b**	Evaluate and compare strategies on the basis of expected values. *For example, compare a high-deductible versus a low-deductible automobile insurance policy using various, but reasonable, chances of having a minor or a major accident.*
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.02**	Summarize and analyze univariate data to solve problems.
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.02.a**	Apply and compare methods of data collection.
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.02.b**	Apply statistical principles and methods in sample surveys.
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.02.c**	Determine measures of central tendency and spread.
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.02.d**	Recognize, define, and use the normal distribution curve.
SCS	**The learner will analyze data and apply probability concepts to solve problems.**	**SCS.9_12.MA.1.02.e**	Interpret graphical displays of univariate data.
Learning			

Targets	• make and use bar graphs, histograms, frequency tables, frequency tables, stem-and-leaf plots, and box-and-whisker plots. • find the measures of central tendancy and the measures of variability. • use the normal distribution curve • find the standard error of the mean to predict the true mean of the population with a certain level of confidence.	
Essential Terminology	• line plot • bar graph • back-to-back bar graph • three-dimensional bar graph • frequency distribution • range • class interval • class limits • class marks • histogram • frequency polygon • measures of central tendancy • mean • median • mode • arithmetic mean - x bar • bimodal • stem-and-leaf plot • cummulative frequency distribution • median class • measure of variabilty • quartile • interquartile range • semi-interquartile range • box-and-whisker plot • hinges • whiskers • outliers • mean deviation • standard deviation • variance • normal distribution • normal curve • standard normal curve • empirical formula • five-number-summary • percentile • population • random sample • inferential statistics • standard error about the mean • level of confidence	
Literacy Integration	**Literacy Standards**	Level | Standard | Standard Name
	Literature Connections	Solve real-life problems with statistical methods and make an analysis of the results.
Technology Integration	**Technology Standards**	Level | Standard | Standard Name
	Websites	
Assessment	**Formative**	
	Performance Tasks	
	Summative	
Resources		

Learning Plan	**Instructional Sequence**	• **Introduction to the course; pre-course assessment** • **Frequency Distribution (14-1)** • **Measures fo Central Tendancy (14-2)** • **Measures of Variabilty (14-3)** • **Normal Distribution (14-4),Standard Normal Curve (14-4B)** • **Sample Sets of Data (14-5)** • **Review** • **Assessment**
Differentiation	**Remediation**	
	Enrichment	