AP Statistics Unit 2: The Normal Distribution

Unit #:	APSDO-00019143	Duration:	1.5 Week(s)	Date(s):	

Team:
Andrew Riddle (Author), Jaclyn Lawlor, Matthew Mooney, James Murray, Andrew Riddle
Grades:
11, 12
Subjects:
Mathematics

Unit Focus

In this unit, students will construct density curves and extract appropriate data based on the density curve's properties. Students will standardize observations to find the proportion of observations below or above a given value. They will expand their knowledge of density curves by applying their knowledge to real world applications. Summative assessments may include projects, labs, and tests. Primary instructional materials include The Practice of Statistics 1st Edition, by D. Yates, D. Moore, and G. McGabe, 1999., videos from Against All Odds collection hosted by Teresa Amabile, and past AP exam free response questions presented as classwork prompts.

Stage 1: Desired Results - Key Understandings

Established Goals

Common Core
Mathematics: 11

- Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve. *CCSS.MATH.CONTENT.HSS.ID.A.4*
- Make sense of problems and persevere in solving them. *CCSS.MATH.MP.1*
- Model with mathematics.

Transfer

T1 (T50) Based on an understanding of any problem, initiate a plan, execute it and evaluate the reasonableness of the solution.
T2 (T53) Articulate how mathematical concepts relate to one another in the context of a problem or in the theoretical sense.
T3 (T51) Examine alternate methods to accurately and efficiently solve problems.
T4 (T52) Use appropriate tools strategically to deepen understanding of mathematical concepts.
T5 (T32) Apply appropriate formulas to determine the unknown.

Meaning

Understandings	Essential Questions
U1 (U500) Effective problem solvers work to understand the problem before trying to solve	**Q1** (Q500) What is a reasonable estimate? **Q2** (Q502) What is important here? What is

CCSS.MATH.MP.4	it. **U2** (U501) Effective problem solvers identify relevant information. **U3** (U502) Effective problem solvers identify and apply an appropriate model, tool, or strategy. **U4** (U530) Every problem belongs to a category of problems that has a similar structure and set of characteristics; which means it can be solved using a similar model. **U5** (U307) A data set is summarized by its properties (e.g.,central tendency, variability).	not important? **Q3** (Q505) Is my answer correct? OR Does my solution make sense? **Q4** (Q506) If my answer isn't correct or doesn't make sense, how can I fix it? How can I avoid this error the next time? **Q5** (Q530) Is this problem similar to a problem I have solved before? **Q6** (Q531) What values, numbers, quantities, and/or symbols can be used to solve a problem? **Q7** (Q532) Which model best represents this problem? **Q8** (Q533) How do I use the model to solve other problems? **Q9** (Q301) How precise do I need to be in my measurement? **Q10** (Q303) How do I effectively organize and display data? **Q11** (Q305) What measurements are appropriate to describe the properties of the data set? **Q12** (Q308) Have I accurately applied the appropriate measurement formula?
	Acquisition of Knowledge and Skill	
	Knowledge	**Skills**
		S1 Understand properties of density curves, specifically the normal curve **S2** Standardize an individual observation **S3** Find the proportion of observations that correspond to a given standardized interval **S4**

		Understand the meaning of a standardized observation in a statistical context

Stage 3: Learning Plan

Coding	Code	Description of Learning Activity