

Core Content

Cluster Title: Summarize, represent, and interpret data on a single count or measurement variable.
Standard S.ID.4: 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.
Concepts and Skills to Master
<ul style="list-style-type: none"> Understand that the shape of a normal distribution is symmetric, single-peaked, and bell shaped. Distinguish between examples and non-examples of approximately normally distributed data. Know that any normal distribution can be described by its mean and standard deviation. Understand how the normal distribution uses area to make estimates of frequencies (which can be expressed as probabilities). Know that 1, 2, and 3 standard deviations refer to 68%, 95%, or 99.7% of the population, respectively. Use technology or tables to estimate areas under the curve of a normal distribution (<i>Limit area calculations to 1, 2, and 3 standard deviations, and use approximations for other distances from the mean.</i>)

Supports for Teachers

Critical Background Knowledge	
<ul style="list-style-type: none"> Understanding and calculating means (6.SP.5c) Finding and interpreting standard deviations (I.S.ID.2) 	
Academic Vocabulary	
normal distribution, mean, μ , standard deviation, σ , symmetry	
Suggested Instructional Strategies	Resources
<ul style="list-style-type: none"> Generate data, from both normal and non-normal populations. Compare the data against the 68%-95%-99.7% rule. 	<ul style="list-style-type: none"> Using a normal table: www.math.usu.edu/~schneit/CTIS/
Sample Formative Assessment Tasks	
Skill-Based Task: ACT test scores are approximately normally distributed. One year the scores had a mean of 21 and a standard deviation of 5.2. Sketch and label the distribution, labeling 1, 2 and 3 standard deviations. What proportion of ACT scores are less than 25.2? What is the interval that contains 95% of scores?	Problem Task: Gather classroom data for the total number of letters in first and last names. Make a dot plot of the data and find the mean and standard deviation. Is the data approximately normally distributed? Combine your data with another class. Re-evaluate the normality of the data.