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| **LG #** | **A214** | **Standards:** | **S-ID.1.4, S-IC.1.2, S-IC.2.4, S-IC.2.5** |
| **4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond instruction to the standard.****The student will be able to:*** Justify whether a data point is an outlier based on the normal distribution.
* Create a statistical question about the mean of a population and use statistical techniques to estimate the parameter. Design an appropriate product to summarize the process and report the estimate. Explain what the results mean in terms of variability in a population and use results to calculate the error for these estimates.

**No major errors or omissions regarding the score 4.0 content.** |
| **3.5** | In addition to 3.0, in-depth inferences and applications with partial success. |
| **3.0** | **Students will be able to make inferences and justify statistical conclusions about data.****The student will be able to:*** Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. (S-ID.1.4)
* Recognize that there are data sets for which using the mean and standard deviation of a data set to fit it to a normal distribution is not appropriate. (S-ID.1.4)
* Use calculators, spreadsheets, and tables to estimate areas under the normal curve. (S-ID.1.4)
* Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. (S-IC.1.2)
* Use data from a sample survey to estimate a population mean or proportion. (S-IC.2.4)
* Develop a margin of error through the use of simulation models for random sampling. (S-IC.2.4)
* Use data from a randomize experiment to compare two treatments. (S-IC.2.5)
* Use simulations to decide if differences between parameters are significant. (S-IC.2.5)

**No major errors or omissions regarding the score 3.0 content (simple or complex).** |
| **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of 3.0 content. |
| **2.0** | **The student recognizes and describes specific terminology such as:**

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| * Mean
 | * Statistic
 | * Simulation
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| * Standard Deviation
 | * Skewed (Left/Right)
 | * Proportion
 |
| * Variance
 | * Symmetry
 | * Margin of Error
 |
| * Normal Distribution
* Population
* Sample
 | * Empirical Rule
* Inference
* Parameter
 | * Confidence Interval
* Z-Score
* Standard Normal Distribution
 |

**The student will be able to:*** Calculate the mean and standard deviation of a data set. (S-ID.1.4)
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| **1.5** | Partial knowledge of the score 2.0 content, but major errors or omissions regarding score 3.0 content. |
| **1.0** | With partial understanding of some of the simpler details and processes and some of the more complex ideas and processes. |
| **0.5** | With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes. |
| **0.0** | Even with help, no understanding or skill is demonstrated |