

## M111 - Modeling with Data: One-Variable Measurement Data

### Badge Specific Essential Concepts

- ❖ Distributions of quantitative data (continuous or discrete) in one variable should be described in the context of the data with respect to what is typical (the shape, with appropriate measures of center and variability, including standard deviation) and what is not (outliers), and these characteristics can be used to compare two or more subgroups with respect to a variable. [NCTM Essential Concept EC.SP.VSD.2]

### Administration Notes

This Pre-Post Task is to be used as a tool for students to understand their learning. When administering this task, it is important to highlight a few things for students:

- Students will have the opportunity to complete the task at the beginning and the end of this badge. This is because we want students to be able to see how much they've learned and reflect on that learning in ways that matter to them.
- The work on the task will not be graded. The task is not a quiz or a test - it is designed to support students in understanding how much they have learned from the beginning of the badge to the end.
- Students can have access to any technology that they typically use during classroom instruction to complete this task.
- Students should work individually on the task.

Please share these things with students, reinforcing the idea that this task has been designed to support them in reflecting on the mathematics they have learned. In some tasks, students may create work in different places. It is helpful for them to have their own online folders to store their pre-post tasks as well as any supporting artifacts, such as screenshots from online tools that they use.

### Task Analysis

The purpose of the task analysis section is to report on student performance at two points in time -- before and after badge instruction. Complete a table for each student based on an analysis of their responses. You can create summary data for yourself if you choose to understand more globally how students are doing on the concepts measured by the task.

**PRE**

Were there any interesting or instructionally useful responses or insights from students? Please record those here:

Question/Look For	Blank or similar	Emerging	Approaching	Meeting	Other Notes
(1) The purpose of this prompt is to immerse students in the context of the prompts that follow. This question is not analyzed.					
(2) Student describes why both questions are statistical questions.					
(3) Student calculates a reasonable estimate (~20%) for the proportion of teens who get less than 9 hours of sleep.					
4) Student offers a reasonable estimate using a measure of center ( <i>mean or median</i> ) and offers an explanation why median is more appropriate. Student offers a reasonable estimate for variance ( <i>Std. Dev or IQR</i> ).					
(5) Student offers reasonable feedback to improve the study relative to the question about students' typical sleep habits (e.g. larger sample size, extend beyond one night, etc.)					

## POST

Were there any interesting or instructionally useful responses or insights from students? Please record those here:

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