Topic A:

Understanding Distributions

6.SP.A.1, 6.S.AP.2, 6.SP.B.4, 6.SP.B.5b

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| Focus Standard: | 6.SP.A.1 | Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because one anticipates variability in students’ ages. |
|  | 6.SP.A.2 | Understand that a set of data collected to answer a statistical question has a distribution, which can be described by its center, spread, and overall shape. |
|  | 6.SP.B.4 | Display numerical data in plots on a number line, including dot plots, histograms, and box plots. |
|  | 6.SP.B.5b | Summarize numerical data sets in relation to their context, such as by:   1. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. |
| Instructional Days: | 5 |  |
| Lesson 1: | Posing Statistical Questions (P)[[1]](#footnote-1) | |
| Lesson 2: | Displaying a Data Distribution (P) | |
| Lesson 3: | Creating a Dot Plot (P) | |
| Lesson 4: | Creating a Histogram (P) | |
| Lesson 5: | Describing a Distribution Displayed in a Histogram (P) | |

In Topic A, students begin a study of statistics by learning to recognize a statistical question. They develop an understanding of what data could be collected to answer a statistical question and anticipate variability in the data collected to answer the question. In Lesson 1, statistical questions are introduced in the context of a four-step process for posing and answering questions based on data. As students begin to explore data, they see the need to organize and summarize data. In Lesson 2, students are introduced to the idea that a data distribution can be represented graphically and that there are several different types of graphs, including dot plots and histograms, commonly used to represent a distribution of numerical data. This lesson then builds on students’ previous work with line plots, introducing them to dot plots (line plots, but in a data context where students are to think about the distribution of data rather than to think of individual points plotted on a number line). In Lesson 3, students construct dot plots and begin to describe data distributions. In Lesson 4, students are introduced to histograms as another way of representing a data distribution graphically and the advantages and disadvantages of histograms relative to dot plots are discussed. Additionally, students begin to consider the shape of a data distribution (symmetric versus skewed) in this lesson and are introduced to the idea that different numerical summary measures of center and variability are used to describe data distributions that are approximately symmetric than the measures used to describe data distributions that are skewed. This is an important distinction and is the basis for the content introduced in Topics B and C. Lesson 5 gives students additional practice in constructing and describing histograms and introduces relative frequency histograms (histograms where relative frequency rather than frequency is used for the vertical scale).

1. Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E-**Exploration Lesson, **S-**Socratic Lesson [↑](#footnote-ref-1)