Plan for Algebra 1 Unit 1: One-variable Statistics

Relevant Unit(s) to review: N/A

Essential prior concepts to engage with this unit	• Interpreting dot plots, histograms, and box plots. • Describing distributions using measures of center (mean and median) and measures of variability (mean absolute deviation and interquartile range).
Brief narrative of approach	In grades 6–8, students used data displays (histograms, dot plots, and box plots) as a way to summarize data. Lessons 1 through 5 of this unit are designed to revisit these concepts, but with a focus on interpretation and what they reveal about the data in addition to the mechanics of constructing the data displays. Students were first introduced to one-variable statistics in Grade 6, Unit 8, and these topics are revisited again in Grade 7, Unit 8 in the context of probability and sampling. Because students may have not considered these topics in several years, review lessons are built into this unit, and no review of below-grade level content is added. Lessons 6–8 of the unit introduce students to creating data displays and calculating summary statistics using technology. Geogebra's spreadsheets were chosen for their versatility for the on-level mathematics in this course. While other spreadsheet programs have additional functionality and uses, they are limited in other ways (such as creating histograms, dot plots, or box plots and computing quartiles correctly). Spreadsheets will be used again in Unit 3 of this course, so if you choose to adapt lessons for different technology, consider both units when making those choices. Because of the built-in review, this unit was designed as a start to the course. Students will be able to access grade-level mathematics that isn't as dependent on prior skills as some other topics. Gathering and displaying data, measuring data distribution, and interpreting statistical results encourages students to collaborate, communicate, and explore new tools and routines. Beginning the year this way is an opportunity to give students a fresh start, and to focus on learning new routines. Every Math Language Routine is built into this unit, as well as math talks and card sorts. These routines will be revisited in subsequent units, and these lessons are designed as a low-stakes opportunity to

	experience the routines for the first time. Unit 2 will launch straight into major work of the course. Careful attention to teaching the instructional routines in Unit 1 will support student learning in Unit 2.

Lessons to Add	Lessons to Remove or Modify
No lessons to address prior concepts have been added to this unit. If students require additional support with prior concepts, use the optional lessons provided and pay careful attention to student progress in the lessons that provide those supports.	Although there are no lessons added, if time is an issue, Lessons 6–8 are designed to introduce students to using spreadsheets and can be omitted or condensed.
Lessons added: 0	Lessons removed: 0

Modified Plan for Algebra 1 Unit 1

Day	IM lesson	Notes
	assessment	A1.1 Check Your Readiness Assessment Note that the Check Your Readiness Assessment includes item-by-item guidance to inform just-in-time adjustments to instruction within the lessons in A1.1.
1	A1.1.1	Statistical questions
2	A1.1.2	Optional: addresses below-grade level content on creating and interpreting dot plots, box plots, and histograms.
3	A1.1.3	Create box plots, dot plots, and histograms
4	A1.1.4	Describe the shape of data.
5	A1.1.5	Optional: addresses below-grade level content on calculating MAD and IQR.
6	A1.1.6	Optional: introduces how to use spreadsheets.

7	A1.1.7	Optional: introduces how to use spreadsheets.
8	A1.1.8	Optional: introduces how to use spreadsheets.
9	A1.1.9	Use technology to calculate important statistics and create data displays.
10	A1.1.10	How data shape effects mean and median.
11	A1.1.11	Interpret MAD and IQR.
12	A1.1.12	Introduce standard deviation.
13	A1.1.13	Describe standard deviation in context.
14	A1.1.14	Describe and calculate outliers.
15	A1.1.15	Compare and contrast situations using measures of center and variability.
16	A1.1.16	Collect data from an experiment, compare data sets.

Priority and Category List for Lessons

High priority (+), Medium priority (0), Low priority (-)

E: Explore, Play, and Discuss, D: Deep Dive, A: Synthesize and Apply

Lesson	Priority (+, 0, -)	Category (E, D, A)	Notes
A1.1.1	0	E	This lesson introduces the unit. It's an opportunity for students to generate statistical questions, collect data from their classmates, and get a feel for the kinds of responses statistical and non-statistical questions generate.
A1.1.2	0	D	This lesson reviews data displays—a topic that students should be familiar with from middle school. It guides students through the process of creating data displays. Although this is optional, it is essential that students understand the concepts in this lesson.
A1.1.3	0	A	This is an opportunity for students to get more practice creating data displays and using the data they collected in the first lesson.
A1.1.4	+	E	This lesson introduces key vocabulary in describing the shapes of data. Students move from informal, intuitive descriptions of the shapes of data, to formal language.
A1.1.5	0	D	This lesson explores calculating and interpreting mean absolute deviation and interquartile range in detail. Although this is optional, it is essential that students understand the concepts in this lesson.
A1.1.6	-	E	This optional lesson introduces use of spreadsheets. Students explore cell references and create arguments for mathematical operations.
A1.1.7	-	E	This optional lesson explores calculating values in spreadsheets from word problems.
A1.1.8	-	E	This optional lesson explores shortcuts for spreadsheets.
A1.1.9	0	A	This applies learning from the unit (or prior knowledge of spreadsheets) to create data displays and calculate statistics using technology.

A1.1.10	0	E	This is an opportunity to play with data sets and explore how extremes affect measures of center. It is an additional opportunity to use technology.
A1.1.11	+	D	This is an opportunity for students to explore in greater depth the appropriate measure of center to use to describe a data set, and to deepen their understanding of variability. This lesson is an opportunity to assess student understanding of the key ideas introduced in the unit.
A1.1.12	+	D	This lesson transitions students from using MAD as a measure of variability to using standard deviation as a measure of variability. Understanding standard deviation as a measure of variability is a key concept in this unit.
A1.1.13	+	A	This lesson builds directly on the previous lesson to apply their learning about standard deviation in context and to interpret standard deviation.
A1.1.14	+	D	This introduces the formal definition of outlier, and teaches students when to exclude an outlier from a data set.
A1.1.15	+	A	This is an opportunity for students to connect and apply all of their learning from the unit. Students determine appropriate statistical measures to use to make an argument and compare data sets.
A1.1.16	0	A	This culminating lesson gives students an opportunity to generate a statistical question, conduct an experiment, collect data, create data displays and use statistics to analyze data. It could be another opportunity for students to use technology to calculate statistics or create data displays.