UNIT 15: LESSON 2

Collecting and Examining Statistical Data

OVERVIEW	
Unit Title: The Statistical Process – Posing the Right Question with Snack Trucks	**Length of Lesson in # of Hours:** 3 **# of Classes:** 1
How does this lesson connect to previous or future work as exemplified by the Standards in your scope and sequence? This lesson builds on statistical reasoning work started in Unit 15, Lesson 1 and includes use of benchmark fractions and percents to describe data, in addition to some scientific investigation.	

LESSON OBJECTIVES

At the end of this lesson, students will be able to:

- organize data into consistent categories to suit a purpose
- make numerical statements about data
- explain whether sets of data collected are representative of populations

STANDARDS

Citation	
6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answer.
7.SP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

1 - 3 MATHEMATICAL PRACTICE(S) ADDRESSED IN THIS LESSON	**ELEMENTS OF RIGOR**
MP 3: Construct viable arguments and critique the reasoning of others.	*Which aspect(s) of Rigor do the targeted Standard(s) require?* ☒ Conceptual understanding of key concepts ☐ Procedural skill and fluency ☒ Rigorous application of mathematics in real-world contexts

ESSENTIAL QUESTIONS
Why is it important to organize data into consistent categories? How can benchmark fractions and percents help to analyze data?
EVIDENCE OF LEARNING
Ways I and my students will know the extent to which the objectives have been met.
Students will be able to pose statistical questions and collect and examine statistical data to make informed decisions.

LEARNING PLAN - Vocabulary		
sample audience		
LEARNING PLAN - Introduction	**MATERIALS**	**TIME**
1. Ask students to recall the statistical questions and categories of data they explored in the previous lesson. Ask for a volunteer to report out a summary of the findings.		
2. Share some of the statistical questions they wrote at the end of the previous lesson regarding what they would like to investigate based on the data they had collected.		
3. Say, *Today we will explore a new scenario that will have us considering more statistical questions and more data collection.*		
4. Follow directions for EMPower *Many Points Make a Point: Data and Graphs*, Lesson 2 Opening Discussion (Teacher Book, pp. 27-28) [Most of Us Eat…]		
LEARNING PLAN – Body of the Lesson	**MATERIALS**	**TIME**
Organizing data		
1. Follow directions for EMPower *Many Points Make a Point: Data and Graphs*, Lesson 2 [Most of Us Eat…] activities:		

• Activity 1 (TB, pp. 29-30) [Frequently Eaten Food] • Activity 2 (TB, pp. 30-31) [Consistent Categories] • Activity 3 (TB, p. 31) [Describing the Data] • Activity 4 (TB, p. 32) [Who to Ask?]	EMPower *Many Points Make a Point: Data and Graphs* (Student Book, pp. 19-24)	
Asking the right questions to collect the right data		
Note to teacher: *Formulating statistical questions is a common practice in science. For this next activity, we'll be using the Rare Diseases activity from the National Institutes of Health (NIH) Curriculum Supplement Series. This resource is part of a free curriculum series for elementary, middle, and high school students. The activity we'll be doing comes from Lesson 2, which means students may need some initial background on rare diseases from Lesson 1 in the NIH curriculum. In this lesson, students will assume the roles of medical officers working to protect the health of soldiers at an army post. In the course of their duties, they must consider the major causes of disease and pay special attention to infectious diseases that have the potential to spread throughout the post. Students will formulate questions, collect data, and revise their questions to collect additional data and make decisions.* 2. Follow the lesson plan for Lesson 2: What Causes Rare Diseases for the following activities: • Activity 1: Causes of Disease • Activity 2: Is a Rare Disease Present?	National Institutes of Health (NIH) Curriculum Supplement Series, *Rare Diseases and Scientific Inquiry*, Lesson 2: What Causes Rare Diseases https://science.education.nih.gov/supplements/webversions/diseases/lesson2.html There is a Web version of the activity that will require the use of a computer lab; however, a print version of everything also is provided, including blackline masters for photocopying.	
LEARNING PLAN – Closure / Conclusion	**MATERIALS**	**TIME**
Ask students to respond to the following question: Based on the findings of the Rare Disease activity, what is one question you would ask to continue to investigate the situation at the base?	Index cards	
ADDITIONAL PRACTICE	**MATERIALS**	
For further practice on data collection and organization	EMPower *Many Points Make a Point: Data and Graphs* (SB pp. 24-33)	