**TASK: WHAT IS A STATISTICAL QUESTION?**

**ESSENTIAL QUESTIONS:**

- What is a statistical question?
- How do I write a statistical question?
- How do I recognize if a question is statistical or not?
- How do I write a statistical question by looking at the graphical display of the data?

**STANDARDS ADDRESSED**

MCC6.SP.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.

**STANDARDS OF MATHEMATICAL PRACTICE:**

2. **Reason abstractly and quantitatively.** Students reason to determine if a question is statistical or not.
3. **Construct viable arguments and critique the reasoning of others.** Students construct arguments to prove that a question is statistical. Students will take a question and make it into a statistical question that can be used to collect data.
6. **Attend to precision.** Students use appropriate terminology when referring to statistical questions and expected.
7. **Look for and make use of structure.** Students examine the structure of statistical questions and recognize a statistical question as one that anticipates variability in the data related to the question. All statistical questions anticipate variability in the data, have specific populations, and account for the variability in the answers (data collected).
8. **Look for and express regularity in repeated reasoning.** Students identify possible statistical questions from the graphical display.

This is a good video on statistical questions and would be good to show to the class.

[http://www.youtube.com/watch?v=ReSuQ5p8H0](http://www.youtube.com/watch?v=ReSuQ5p8H0)

**MATERIALS NEEDED**

An interesting scenario to present to the class. Ideas:
- Project a picture of a crowd of people from a recent event such as a festival or sporting event.
- Show a portion of a recent news clip.
- Write a statement such as, “This weekend I went to a basketball game” on the board.

[https://www.youtube.com/watch?v=6fbkkj5ZZ4U](https://www.youtube.com/watch?v=6fbkkj5ZZ4U)
TEACHER NOTES
In this task, students will be presented with a scenario then asked to create a list of questions that could go along with the situation. These questions should be recorded on the board and on a student recording sheet. Students will then determine which questions can be answered with just one answer (i.e. non-statistical questions) versus those that contain variability in their answers (i.e. statistical questions).

LEARNING TASK: WHAT IS A STATISTICAL QUESTION?

1. Examine the situation presented by your teacher.
   a. Make a list of at least 10 questions you could ask about this scenario.
   b. Circle questions that can be answered with a single answer such as, “What is your name?”
   c. Underline the questions with answers containing variability such as, “How far do you live from your classmates?”

2. What must be true about a question for it to classified as a statistical question?
   All statistical questions anticipate variability in the data, have specific populations, and account for the variability in the answers (data collected).

   Students should engage in discussion and sharing of parts 1 and 2 before continuing

3. For each question, decide if it is a statistical question; if it is, put an S beside it. If it is not, EXPLAIN why it is not and REWRITE it as a statistical question.
   A. How many words are there in this sentence?  Anticipates a fixed answer, ex. How many words are in each sentence of the book, The Hunger Games.
   B. How many TV’s are in your house?  Anticipates fixed answers, ex. How many TV’s are in the homes of the people in your neighborhood?
   C. How many siblings do the students on Mrs. Johnson’s homeroom have living in their homes?  S
   D. How many socks are in your drawer?  There will be only one answer. How many socks do the students in the sixth grade class own?
F. What is your favorite color? *There will be only one answer. What are the favorite colors of all the students that attend Cross Schools?*

G. How far does Savannah have to walk to reach Colin’s house each day? *Anticipates a fixed answer, ex. How far do all of Colin’s friends have to walk to reach his house?*

4. Look at each graphical display and write a question that COULD have been asked to collect the specific data.

A. *Answers will vary - What are the favorite sports of the students in the sixth grade at Inman Middle School?*
B. 
*Answers will vary* - Mr. Oliver asked all the students to bring in pennies for an activity they were planning. How many pennies did each student bring in for the activity?

C. 
*Answers will vary* - What were the scores on Unit 5 Test of all the students in the sixth grade?
D. (Mark represents any category that the student can make up)

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Answers will vary - How many pieces of candy did each student on the Harvey Team win during the game?
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   b. Circle questions that can be answered with a single answer such as, “What is your name?”

   c. Underline the questions with answers containing variability such as, “How far do you live from your classmates?”

2. What must be true about a question for it to classified as a statistical question?

3. For each question, decide if it is a statistical question; if it is, put an S beside it. If it is not, EXPLAIN why it is not and REWRITE it as a statistical question.

   A. How many words are there in this sentence?

   B. How many TV’s are in your house?

   C. How many siblings do the students on Team B have living in their homes?
D. How many socks are in your drawer?

F. What is your favorite color?

G. How far does Savannah have to walk to reach Colin’s house each day?

4. Look at each graphical display and write a question that COULD have been asked to collect the specific data.

A
B.

C.
D. (Mark represents any category that the student can make up)

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