Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

UNIT 10 LESSON 1

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| AIM: | SWBAT identify and formulate statistical questions |

**THINK ABOUT IT!**

Jerome is a huge baseball fan. He collects baseball cards. When he showed his friends his baseball cards, they asked him a bunch of questions about the cards. The questions asked have been sorted into two categories – statistical questions and non-statistical questions.

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| **Statistical Questions** | **Non-Statistical Questions** |
| * Where did you buy each card? * How much is each card worth? | * How many cards do you have? * What is the total worth of all the cards? |

What is the difference between the statistical questions and the non-statistical questions? How do you know?

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Key Point

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| A statistical question has \_\_\_\_\_\_\_\_\_\_\_\_ than one possible answer. |

**Numerical Data:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Categorical Data: \_**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Interaction with New Material**

*Ex. 1)* For each question, determine whether or not the question is a statistical question. Explain your reasoning. If the question is not statistical, revise it so that it is.

1. How tall are your classmates?

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1. What color shirt did you wear to school today?

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Ex. 2) The dot plot below reflects the results of a one question survey that was asked of 20 people. What statistical question might the survey have asked?

Hours

0 1 2 3 4 5 6 7 8 9 10

[[1]](#endnote-1)

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**PARTNER PRACTICE**

* **CFS for top quality work**
  + Problem is annotated
  + Claim is stated
  + Evidence is provided using the **appropriate definition** and c**ontext** from the question

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| *Bachelor Level* |

1. For each of the following questions, determine whether or not the question is a statistical question. Give a reason for your answer. If the question is not a statistical question, revise it so that it is a statistical question.
2. Who is Mr. Davis’ favorite super hero?

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1. What are the favorite colors of 6th graders at Brownsville MS?

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1. How many years have the students in the Bushwick Middle School band been playing their instruments?

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1. What type of data would be collected if question B was asked, numerical or categorical? Why?

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| *Master Level* |

1. Stephanie wants to conduct a survey about M&Ms.



* 1. Write a statistical question she could ask that would result in numerical data.

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* 1. Write a statistical question she could ask that would result in categorical data.

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* 1. Write a question that is not a statistical question.

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**INDEPENDENT PRACTICE**

* **CFS for top quality work**
  + Problem is annotated
  + Claim is stated
  + Evidence is provided using the **appropriate definition** and c**ontext** from the question

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| *Bachelor Level* |

1. A class of students collected buttons. Which of the following are statistical questions that could be asked about the jar below? Circle all that apply.



1. What is the typical number of holes in these buttons?
2. Are there any gold buttons in this jar?
3. How many buttons did each student put in the jar?
4. How many buttons are green?
5. If Tyler grabbed a handful of buttons, what are the chances that all of the buttons in his hand are round?
6. What is the typical size of a button in the jar?
7. What materials (e.g. plastic, metal, wood, etc.) were used to make these buttons?
8. How many buttons are in the jar?
9. How many buttons have two holes?
10. How are these buttons distributed according to color?
11. Pick one of the questions above and explain why it is a statistical question:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Pick one of the questions above and explain why it is **NOT** a statistical question:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Revise the question you picked for part B to make it a statistical question

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1. Identify each of the following data sets as categorical or numerical data
   1. Heights of 20 6th graders \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Favorite flavor of ice cream of 10 7th graders \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Eye color for each of 30 3rd graders \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. Number of pencils in the desks in a classroom \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *Master Level* |

1. Ronnie, a 6th grader, wanted to find out if he lived the farthest from school. Write a statistical question that would help Ronnie find the answer.

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1. Mayor DeBlasio conducted a one question survey. His results are recorded below. Write two statistical questions that he could have asked.2

|  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |

500 600 700 800 900 1,000 1,100 1,200 1,300 1,400 1,500

1. Question: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Question: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. The results of a one question survey are shown below:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 gallon | 8 gallon | 2 gallon | 6 gallon | 8 gallon | 4 gallon | 2 gallon | 8 gallon | 5 gallon | 6 gallon | 2 gallon | 5 gallon |

1. Represent the data above in a line plot.
2. List one possible statistical question that the data might reflect.

Question: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| *PhD Level* |

1. Teachers with iPhones were asked one question and the data represented in the table.

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| Number of iPhone Apps |
| 15 18 30 19 27 30 16 18 25 30 25 16 18 18 20 30 26 26 30 25 24 |

1. What statistical question could have been asked?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Create a line plot to represent the data.
2. What kind of data were collected? Numerical or categorical? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. How many teachers have less than 20 iPhone Apps? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What is the difference between the greatest number and least number of iPhone Apps? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What is the most common number of iPhone Apps amongst teachers? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. List two questions that this data set **cannot** answer.
7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. If you conducted this experiment in 6 months, would you expect to see similar or different results? Explain your thinking.

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10.5 ft

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

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| Self-assessment | I mastered the learning objective today. | I am almost there. | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there. | You need more practice and feedback. |

1. Part A: Which question(s) below are statistical questions? Select all that apply.
   1. How many people are on each car on the J-Train at 6am?
   2. How many pets do you have?
   3. What was the mean number of hours of television watched by students at your school last night?
   4. What is the school principal’s favorite television program?
   5. Do most students at your school tend to watch at least one hour of television on the weekend?

Part B: Choose one question below that is NOT a statistical question and revise is so that it is.

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1. Would the following data would be numerical or categorical when collected? Explain.
   1. Data collected on the weights of dogs.

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* 1. Data collected on the favorite sport of each person in a group of 20 people.

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1. [↑](#endnote-ref-1)