Name _____ Date_____

# Posing Statistical Questions

1. Indicate whether each of the following two questions is a statistical question. Explain why or why not.
   a. How much does Susan's dog weigh?

   b. How much do the dogs belonging to students at our school weigh?

2. If you collected data on the weights of dogs, would the data be numerical or categorical? Explain how you know it is numerical or categorical.

1. For each of the following, determine whether the question is a statistical question. Give a reason for your answer.
   a. How many letters are in my last name?
   b. How many letters are in the last names of the students in my 6th grade class?
   c. What are the colors of the shoes worn by the students in my school?
   d. What is the maximum number of feet that roller coasters drop during a ride?
   e. What are the heart rates of the students in a 6th grade class?
   f. How many hours of sleep per night do 6th graders usually get when they have school the next day?
   g. How many miles per gallon do compact cars get?

2. Identify each of the following data sets as categorical (C) or numerical (N). Explain your answer.
   a. Arm spans of 12 $6^{th}$ graders
   b. Number of languages spoken by each of 20 adults
   c. Favorite sport of each person in a group of 20 adults
   d. Number of pets for each of 40 $3^{rd}$ graders
   e. Number of hours a week spent reading a book for a group of middle school students

3. Rewrite each of the following questions as a statistical question.
   a. How many pets does your teacher have?
   b. How many points did the high school soccer team score in its last game?
   c. How many pages are in our math book?
   d. Can I do a handstand?

4. Write a statistical question that would be answered by collecting data from the $6^{th}$ graders in your classroom.

5. Are the data you would collect to answer that question categorical or numerical? Explain your answer.

1. Indicate whether each of the following two questions is a statistical question. Explain why or why not.

   a. How much does Susan's dog weigh?

      *This is not a statistical question. This question is not answered by collecting data that vary.*

   b. How much do the dogs belonging to students at our school weigh?

      *This is a statistical question. This question would be answered by collecting data on weights of dogs. There is variability in these weights.*

2. If you collected data on the weights of dogs, would the data be numerical or categorical?

   *Numerical*

1. For each of the following, determine whether the question is a statistical question. Give a reason for your answer.

   a. How many letters are in my last name?

      *No, this question is not answered by collecting data that vary.*

   b. How many letters are in the last names of the students in my 6th grade class?

      *Yes, there is variability in the lengths of the last names.*

   c. What are the colors of the shoes worn by the students in my school?

      *Yes, we expect variability in the colors.*

   d. What is the maximum number of feet that roller coasters drop during a ride?

      *Yes, we expect variability in the feet to drop for different roller coasters; they are not all the same.*

   e. What are the heart rates of the students in a 6th grade class?

      *Yes, we expect variability – not all 6th graders have exactly the same heart rate.*

   f. How many hours of sleep per night do $6^{th}$ graders usually get when they have school the next day?

      *Yes, we do not expect that all $6^{th}$ graders sleep the same number of hours.*

   g. How many miles per gallon do compact cars get?

      *Yes, we expect variability in the miles per gallon – not all compact cars get the same miles per gallon.*

2. Identify each of the following data sets as categorical (C) or numerical (N). Explain your answer.

   a. Arm spans of $12$ 6th graders

      *N; the arm span can be measured as number of inches for example, so the data is numerical.*

   b. Number of languages spoken by each of $20$ adults

      *N; number of languages is clearly numerical.*

   c. Favorite sport of each person in a group of $20$ adults

      *C; a sport falls into a category, such as "soccer" or "hockey" and cannot be measured numerically.*

   d. Number of pets for each of $40$ 3rd graders

      *N; number of pets is clearly numerical.*

   e. Number of hours a week spent reading a book for a group of middle school students

      *N; number of hours is clearly numerical.*

3. Rewrite each of the following questions as a statistical question.

   *Answers will vary*

   a. How many pets does your teacher have?

      *How many pets do students in our school have?*

   b. How many points did the high school soccer team score in its last game?

      *How many points did the high school soccer team score in soccer games this season?*

   c. How many pages are in our math book?

      *How many pages are in the books in the school library?*

   d. Can I do a handstand?

      *Can most 6th graders do a handstand?*

4. Write a statistical question that would be answered by collecting data from the 6th graders in your classroom.

   *Answers will vary. Check if the question would be answered by collecting data that vary.*

5. Are the data you would collect to answer that question categorical or numerical? Explain your answer.

   *Answers will vary.*