Name _____Class _____ Date_____

Crash Science in the Classroom

NOT YOUR AVERAGE [CRASH TEST] DUMMY

ACTIVITY SHEET 2 - MATH/STATISTICS LESSON

Part 1 - Types of Crash Test Dummy Descriptive Statistics

1. Describe what you think each of these terms mean in your own words.

   Mean:

   Median:

   Mode:

   Average:

   50th percentile:

2. What do you think all of these terms have in common when describing a set of data?

3. Explain how each of these measures of central tendency is determined:

   Mean:

   Median:

   Mode:

Part 2 - Determining Measures of Central Tendency of a Sample Data Set

4. Record the values provided by your teacher in order in the table below and circle the units used (weight in pounds or mass in kilograms). At the bottom of this table, record the total number of values in the data set and use a calculator to calculate and record the sum total of all of these values added together.

FIELD TESTING

Sample Data Set – Weight or Mass of Adult Females in the United States in 2025

CIRCLE UNITS USED: Weight in pounds(lbs.) Mass in kilograms (kg)

TOTAL NUMBER OF VALUES IN THE SAMPLE:
SUM TOTAL OF ALL VALUES IN THE SAMPLE:

5. Use the procedures for determining mean, median, and mode and a calculator to determine each measure of central tendency to the nearest tenth decimal place for this data set and record them below. Be sure to include correct units (lbs. or kg).

   MEAN OF SAMPLE:

   MEDIAN OF SAMPLE:

   MODE OF SAMPLE:

6. Based on your findings, are the mean, median, and mode always the same for a given sample of data?

7. Of these 3 different measures of central tendency, which one do you think is used <u>most often</u> in statistical analyses?

FIELD TESTING

Part 3 - Creating a Data Set and Determining Measures of Central Tendency

8. Follow the instructions provided by your teacher to measure the heights of your classmates and create a whole-class list of these measurements. Remember to round off each height measurement to the nearest inch or centimeter as instructed by your teacher.

9. Next, work with your teacher and classmates to organize these measurements into a data set ordered from shortest to tallest height and tally and record the total number of students and the sum total of all student heights in the chart below.

10. Then, refer to the whole-class ordered data set of heights and use a calculator to determine the mean, median, and mode of your class data set. Be sure to include correct units when recording the sum total, mean, median, and mode.

Heights of All Students in Our Class

CIRCLE UNITS USED: Inches Centimeters

TOTAL NUMBER OF STUDENTS:
SUM TOTAL OF ALL HEIGHTS:
MEAN:
MEDIAN:
MODE:

11. How do the mean, median, and mode of your class data set compare? Are they very similar or very different?

12. If someone asked you what the "average" height of the students in your class is, would you use the mean, median, or mode?

13. The only 2 types of dummies used in IIHS crash tests are 5th percentile females (5'0" tall and 108 pounds) and 50th percentile males (5'9" tall and 171 pounds). Do you think the 50th percentile male dummy represents the mean, median, or mode of heights and weights of the data set of US adult males used to create this dummy?

FIELD TESTING