*Crash Science in the Classroom*

# NOT YOUR AVERAGE [CRASH TEST] DUMMY

## ACTIVITY SHEET 3 – OPTIONAL MATH/STATISTICS LESSON EXTENSION

*Part 1 - Percentile vs. Percent*

1. What do you think is the difference between the terms "percent" and "percentile?"

2. If someone answered 8 out of 10 questions correctly on a quiz, what would their grade be in percent?

3. Record the formula for calculating percent below. Then plug the numbers in item 2 above into the formula and show your work for calculating the grade in percent if someone answered 8 out of 10 quiz questions correctly.

    Formula for calculating percent:

    Calculation of percent grade for answering 8 out of 10 questions correctly:

*Part 2 - Calculating Percentile*

1. Record the formula for calculating percentile and explain what each item in the formula (n, P, and N) means:

    n =
    P =
    N =

2. Use the percentile formula to determine which value in a data set containing 20 total values would represent the 60th percentile and show your work below.

Finally, use the percentile formula with the sample data set below to identify the values representing the 5th, 50th, and 80th percentiles and the masses in kg for each of these percentiles.

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

| Mass in kg |
| --- |
| 69.6 |
| 69.9 |
| 70.3 |
| 71.2 |
| 71.7 |
| 71.8 |
| 71.8 |
| 71.9 |
| 72.1 |
| 72.2 |
| 73.8 |
| 75.3 |
| 77.0 |
| 77.9 |
| 79.8 |
| 83.1 |
| 84.9 |
| 91.4 |
| 93.8 |
| 99.2 |
| TOTAL NUMBER OF VALUES: |

**5TH Percentile:**
   3.   Out of these total values, which rank out of the total represents the 5th percentile?

   4.   What is the mass (in kg) of an adult female in the 5th percentile?

**50TH Percentile:**
   5.   Out of these total values, which rank out of the total represents the 50th percentile?

   6.   What is the mass (in kg) of an adult female in the 50th percentile?

**80TH Percentile:**
   7.   Out of these total values, which rank out of the total represents the 80th percentile?

   8.   What is the mass (in kg) of an adult female in the 80th percentile?