The Psychology of the Chocolate Chip Cookie   Name _____

Research Methods Unit – Activity 1 of 4   Hour _____
"Psymple Statistics for Psychology"

Intro: Some psychologists ponder the age-old question of which brand of chocolate chip cookie is the best. This experiment gives you the opportunity to act as a psychologist by determining in a scientific fashion which brand of chocolate chip cookies has more chips per cookie. Psychologists use hypotheses generation (prediction), observation, and data to predict or explain behavior.

Step 1: Defining the problem: The first thing psychologists do is to define the problem.

We define our cookie problem in this way: _____

_____

_____

Step 2: Operational definition: Psychologists need to define what they study. In our

case, we need to define a chocolate chip! Shape, size, and color should be included in your

definition so that you know what it is you are measuring. Chocolate chip will be defined as: ____

_____

_____

Step 3: Writing the Research Hypothesis:

The Hypothesis: (Here you must state in sentence form what you expect to find

regarding chips per cookie) _____

_____

_____

Step 4: Data collection and interpretation: One person from your group should obtain cookie samples. You will need to determine how you will label your samples.
Group members should then count the number of chips in their samples and record in the space below:

Part I:

Brand of Cookie	Number of Chips
A.	
B.	
C.	

Part II:

Data interpretation: Was your hypothesis supported? _____

Part III:

Report your results to Mr. LeCloux (then you may consume the samples).

OVER>>>>

Step 5: Record the results for the entire class (as they are written on the board) in the chart below:

Chips per Cookie Chart

Group	Brand A	Brand B	Brand C
1			
2			
3			
4			
5			
6			
7			
8			
9			

Step 6: MEASURES OF CENTRAL TENDENCY: Psychologists use measures of central tendency (mean, median, mode) to make sense of the data.

	Brand A	Brand B	Brand C
Median			
Mode			
Mean			

Step 7: DETERMINE THE RANGE:

	Brand A	Brand B	Brand C
Range			

This is a crude measure of central tendency. A better one is standard deviation.   NEXT SHEET>>

Step 8: VARIABILITY OF THE DATA: Psychologists use the standard deviation to measure the consistency of data. If you take a cookie out of the bag, how close is its number of chips to the average (mean) number of chips per cookie?   How consistent is the bag of cookies?

What is the standard deviation for the Chips Ahoy! Cookie?

	Number of Chips per Cookie	Deviation from the Mean	Squared Deviation
1			
2			
3			
4			
5			
6			
7			
8			
9			

Total: $\sum =$ Sum of deviations^2 =

Mean: $(\sum/n = X)$

* n = total number of data

Formula for standard deviation (sd):

$$\sqrt{\frac{\text{Sum of (deviations)}^2}{\text{Number of scores}}} \quad = \quad \sqrt{\underline{}} \quad sd = \underline{}$$

Interpretation: the higher the sd (in chips per cookie) the more inconsistent the cookies are in terms of how many chips they contain.   The lower the sd, the better the product is in terms of how many chips any one cookie might contain.

Extra credit option: figure out the standard deviation for the other two brands.