Prob & Stats	Name:	
V is for variation: How far are you from the mean?	Date:	Period:

You may work together, but each person must turn in their own work.
Attach this cover sheet to your assignment.

1. Make a dot-plot with box plot of the class **Pulse Rates**.
   Mark the **mean** with a wedge Δ below the number line.

You will now develop a way to quantify the spread of a data set by generating a *statistic* – a single number. We will call this statistic the MAD.

2. Find the absolute value of the difference between each data point and the mean.

3. Make a second dot-plot with box pot, this time plot the differences you just calculated.

4. Using this idea of "differences from the mean", calculate a number that gives a "typical" value for this distance. Indicate it graphically on your absolute value plot. Label it MAD.

Questions

1. In the exercise above you first calculated the absolute value of the distance between your measurement and the mean when coming up with the MAD. What would happen if you didn't take the absolute value? Try it, if you're not sure.

2. *Standard Deviation* is a statistic, like the MAD,used to measure spread. Use your calculator's "1-Var Stats" to find it for the class pulse rates. Write down and compare the s.d. with your MAD. Discus why it might be different from the MAD.

3. Bob suggested that a good measure of spread is to subtract the minimum value from the maximum value and divide by 2. This gives the full range and shows how spread out the data are. What are the advantages and disadvantages of this method? Sketch an example of a distribution and explain why for your example Bob's method does not work.

4. If two sets of numbers have the same mean and range but have different MADs, what does these things say about the two sets of numbers?

Rubric for **V is for Variation**	Score
Overall appearance	/5
Graphing conventions	/5
Mean & MAD correctly on graphs	/2
Answer to Q1	/5
Answer to Q2	/5
Answer to Q3	/5
Answer to Q4	/5