

## Data Table and Box Plot Guidelines

### Data Tables

Table 1  
Density Data

<u>Trial</u>	<u>Rod</u>	<u>Mass</u> <u>(g)</u>	<u>Radius</u> <u>(mm)</u>	<u>Length</u> <u>(mm)</u>	<u>Volume</u> <u>(mm<sup>3</sup>)</u>	<u>Density</u> <u>(g/mm<sup>3</sup>)</u>
1	A	67.9623	3.200	128.01	4115.982	0.0170
2	B	67.8645	3.185	127.88	4073.345	0.0170

The above table shows density data, results and averages.

- 1) Data tables should be properly numbered, anchored and titled
- 2) Row headings should include units and units should not appear in data cells.
- 3) Data should be right justified trials should be centered.
- 4) Trials numbers and Average (word ) should be centered justified
- 5) A one- two sentence third person description of the table is given with out analysis.
- 6) There should be a separate data table with one detailed comment for each trials observation.
- 7) Final answer (density, specific heat, alpha) should be reported with 3 significance figures after the decimal place; all other columns should reflect significance of the tool used.
- 8) Only values in the units used to calculate your valuable (density, specific heat, alpha) should be reported.
- 9) A row including averages for all values should be at the bottom of the table.

Table 2  
Thermal Expansion Data

<u>Trial</u>	<u>Rod</u>	<u><math>\Delta L</math></u> <u>(mm)</u>	<u>Initial</u> <u>Length</u> <u>(mm)</u>	<u>Initial</u> <u>Temp.</u> <u>(C°)</u>	<u>Final</u> <u>Temp.</u> <u>(C°)</u>	<u>Alpha</u> <u>Coefficient</u> <u>(°C<sup>-1</sup> x 10<sup>-6</sup>)</u>
1	A	0.0508	128.01	99.7	23.0	5.174
2	B	0.0381	127.88	99.8	24.5	3.957

Table 3  
Specific Heat Data

<u>Trial</u>	<u>Initial Temp.</u> <u>(C°)</u>		<u>Equilibrium</u> <u>Temp.</u> <u>(C°)</u>	<u>Change in</u> <u>Temp. (C°)</u>		<u>Mass</u> <u>(g)</u>		<u>Specific</u> <u>Heat</u> <u>(J/g x C°)</u>
	<u>Water</u>	<u>Metal</u>		<u>Water</u>	<u>Metal</u>	<u>Metal</u>	<u>Water</u>	
1	23.7	99.8	25.3	1.6	-74.5	67.96	100	0.132
2	24.3	98.6	26.1	1.8	-72.5	67.86	100	0.153

## Box Plots

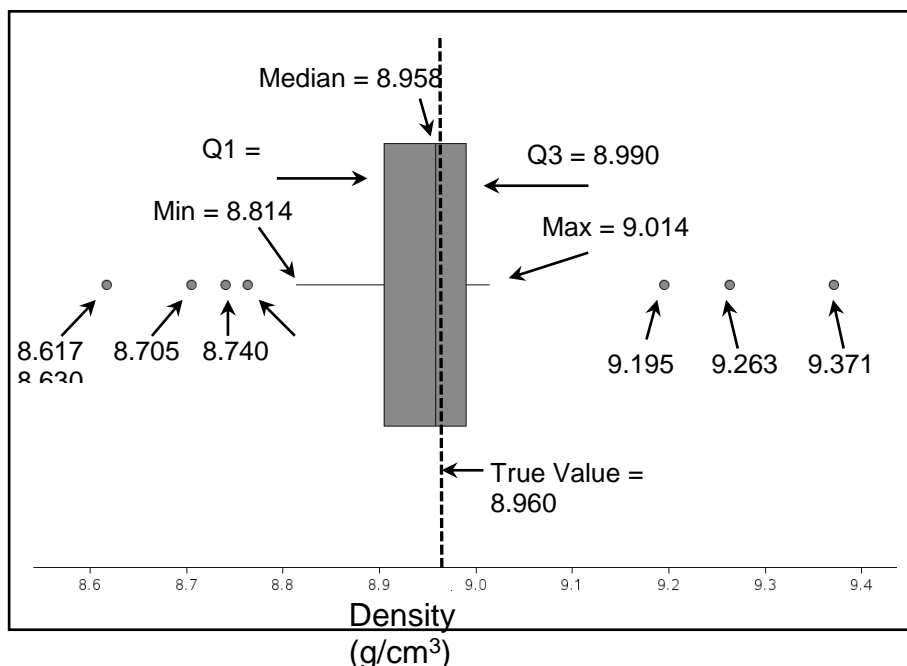


Figure 5. Box Plot of Density Values

Figure 5 shows a box plot of the densities calculated for each trial. The plot shows that the data fell between  $8.814 \text{ g/cm}^3$  and  $9.014 \text{ g/cm}^3$ , giving the data set a range of  $0.2 \text{ g/cm}^3$ . The data also appears to be slightly left skewed, and there are seven outliers which suggest that the trials may not have been very consistent. Despite the skew and several outliers, the plot also shows that the median experimental density,  $8.958 \text{ g/cm}^3$ , is very close to the true value,  $8.960 \text{ g/cm}^3$ , the density of copper.

- 1) Experimental mean labeled
- 2) "true value" (vertical line) labeled
- 3) X-axis labeled with units
- 4) Figures should be properly numbered, anchored and titled.
- 5) Text should not wrap around figures.
- 6) A one – two sentence third person description of graph with no analysis is given unless in the data analysis section of your paper.
- 7) Make sure you discuss your box plots in full detail in your paper. What is the standard deviant, median, percent error, distribution of data. What is the relevance of all of this information?

**\*\*\*\*\* NOTE: \*\*\*\*\***

When you turn in box plots for math please include a sample calculation formatted in Microsoft equation editor on a separate sheet of paper. Later, this will be included in your appendix.