

Methodology Proposal Sheet

- **Hypothesis:** The daily *mean temperature range* is greater in the summer.

- **Search Strategy**

To find the list of all potential schools, i.e. population, I will start my search using a _____ map x graph

My set of potential schools will include all schools that

Have at least 1 year of temperature data, with at least 20 measurements taken during each month (search strategy = schools with > 1000 air temperature measurements)

- **Sampling**

What sampling strategies will I use and what is the size of the sample?

I will begin with one school. I can then randomly select 2 other schools from the potential schools found if I have time.

- **Data Classification or Reduction**

What strategy will you use to reclassify your data? Will group it by categories, use means to reduce the amount, etc

In our case, we will first reduce the amount of data by using temperature ranges. Next, we will group our data by dividing the year into seasons and then using the average for those seasons, i.e. we will take the seasonal means. We will define the seasons as follows: Winter – (Dec, Jan, Feb), Spring (Mar, Apr, May), Summer (Jun, Jul, Aug), Fall (Sep, Oct, Nov)

- **Analyze**

What methods will you use to analyze the data?

<input type="checkbox"/> Visual comparison	<input checked="" type="checkbox"/> Measure of central tendency
<input type="checkbox"/> Counting points	<input checked="" type="checkbox"/> Measure of variability (<i>range</i>)
<input type="checkbox"/> Subtracting/adding	<input type="checkbox"/> Measure of confidence
<input type="checkbox"/> Percentages/ratios	<input type="checkbox"/> Other

Check types of analysis to be used and explain how you will use this form of analysis.

To find the mean seasonal range:

1. *Search for the school*
2. *Make a graph of “Temperature Range (Monthly Average)” for 1 year (the year should run from Dec 1 to Dec 1 of the next year so that you will have 3 consecutive months in the winter season)*

3. Go to “Options”. Choose “ Show Table”. The monthly average temperature range will be displayed on the 15th of the month in the table.
4. Find the seasonal mean temperature range for each season by adding the average range for each 3 months of the season, then dividing by 3. Record the seasonal mean range on the proposal sheet.

Example

<i>Month</i>	<i>Monthly Avg. Range</i>	<i>Season Avg. Range</i>
<i>Dec</i>	<i>10</i>	$(10+11+12) \div 3 = 11$
<i>Jan</i>	<i>11</i>	
<i>Feb</i>	<i>12</i>	

- **Interpret & Conclude**

What will be included in your interpretation of the data (graphs, maps, tables, statistics)?

Table of Seasonal Temperature Ranges		
<i>Site Name</i>	<i>Season</i>	<i>Seasonal Mean Range</i>
<i>My School</i>	<i>Fall (SON)</i>	
	<i>Winter (DJF)</i>	
	<i>Spring (MAM)</i>	
	<i>Summer (JJA)</i>	
<i>School 2</i>		

After creating the table, I will examine the data to see if the greatest temperature range falls in the summer. If it does, I will accept the hypothesis. If it does not, I will refute the hypothesis and examine the data to see if the greatest range falls consistently in any other season or if I can pick out any variables that might need to be controlled (e.g., latitude, elevation, etc.)

- **Further Research**

I would like to create a larger sample that used stratified sampling to include schools at different elevations, latitudes, and MUC classes. I would like to test the seasonal pattern by controlling each of those variables to see if the hypothesis could be accepted in differing geographic areas.

- **Communicate**

My results will be presented in a PowerPoint presentation