Classroom Lesson Development

Title of Lesson	**Graphing and Charting with Real-life Data**
RET Project Connection	Transfer of self-assembed template-guided Polyaniline solution onto a flexible substrate, Plastics Engineering Laboratory, UMass Lowell. Lowell, MA. Summer 2007
RET Teacher	Ryan Hoffman
School	North Reading High School
Town/District	North Reading
Subject(s) taught	Academic PreCalculus, Honors Calculus, C++
Subjects covered in lesson	PreCalculus, Calculus
Grades appropriate	9-12
Lesson duration	1 or 2 classes
Goals/Objectives of lesson	Show a real world example of how graphing and charting is used in current research.
Background information	I will explain the research Mark and I did this summer, helping them to understand the process of assembly and transfer.
Essential questions	Where and how do we use graphs and charts outside of math class?

Links to Frameworks and Standards

National	
State	AI.D.1 Select, create, and interpret an appropriate graphical representation (e.g., scatterplot, table, stem-and-leaf plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data. (10.D.1) AII.D.1 Select an appropriate graphical representation for a set of data and use appropriate statistics (e.g., quartile or percentile distribution) to communicate information about the data. (12.D.2) PC.D.2 Apply regression results and curve fitting to make predictions from data. (12.D.3)
Local	
Materials required	

Lesson development

1. Students will be given the raw data of our work, perhaps even a photocopy of my actual handwritten lab notebook. From this data, the students will be required to organize it (much the same way Mark and I did), and come up with a processing window (the range of temperatures and pressure for good transfer). Students will also be required to postulate reasons that any anomalies appeared in the data, such as a "partial transfer" in the middle of many "complete transfers". In addition, students will be required to predict what might happen with a shorter compression time.

The main product that the students will need to come up with is a chart, similar to what you see on our poster. The chart should be labeled and clear. It should show the processing window clearly, as well as explain what happens outside the window.

References