# **Research Project Requirements**

Your research project must deal with a biological topic and involve the collection and analysis of data/information. Following the Scientific Method is a must. Effective identification of Dependent, Independent, and Controlled Variables will be expected. Your project may be an experiment or involve a survey (make sure to have an adequate sample size and expect many no responses) . 70% of your grade is on your research effort & 30% on presentation.   
  
  
If your research idea falls outside the realm of what you can accomplish with limited resources, you may propose what you would like to do with resources that may be available to other researchers. 70% of your grade is based on presentation & 30% on write up.  
  
Looking over [previous projects](http://www.pleasanton.k12.ca.us/amador/Creek/AP98/AP98.html) would be very helpful. Their conclusions & recommendations may open the door to interesting and meaningful research.

Items to consider when completing your project

### **Introduction**

* Expected to be the equivalent of five to seven single spaced type written pages
* Provide information regarding how/why topic was selected
* Use quotes from selected resources that support your point of view
* Use your resources to convince the reader that your research is significant and offer "expert in the field" support
* Multiple reputable resources cited
* Organize content in a way that prepares reader for the purpose of your project
* Question you are addressing is clear ("crystal")

### **Hypothesis/Prediction**

* Hypothesis in the form of an answer to your question
* Prediction is an "If, Then" statement
* "If" component restates hypothesis, "then" component defines experiment/survey

### **Experiment/Survey**

* All materials needed have been identified & functions are clear
* Procedure is so clear that anyone would be able to repeat your research exactly as you have done it
* Data is presented in raw and organized form (tables, graphs, images)
* Graphs, tables, and images easily referenced from conclusion (Id#, links to..)
* Substantial evidence to indicate level of involvement (images, e-mail from scientists...)

### **Conclusion**

* Clear and complete evaluation of data
* Evaluation is accurate and presented intelligently
* Reference is given to specific components of data
* Potential problems with design or implementation of experiment are identified
* Recommendations for future or related research are given

### **Bibliography**

* Several resources are identified
* URL’s are active links
* Resources demonstrate effective research (texts, journals, internet)
* Footnotes

### **Journal**

* Chronological account of research activities (names if a team)

\* Project must be submitted in HTML format. Templates will be available.  
\* Extra Credit will be given to anyone entering the Tri-Valley Science & Engineering Fair. Bonus points will be alloted for second, first, and sweepstakes winners  
\* Project may involve one or a team of two (compatible availability is critical for teams of two)   
\* Substantial data and analysis of the data increases chances of success in Fair(s)  
**\* Web Pages** due Monday after Spring Break (templates available) - procrastinators will lose  
Research Presentation - After AP exam