



Statistics in Science Fair Projects

As a tool to strengthen the use of statistical techniques in science fair projects, students should consider using the following statistical techniques (only if statistics are applicable) in presenting and analyzing data collected for their projects:

Junior Division

Graphical Presentation:

- Multiple samples
- Plotting data on graphs
 - X-Y charts
 - Pie charts
 - Bar charts

Intermediate Division

Statistical Analysis:

- Measure with dot plot
- Non-linear plots
- Numerical summaries
 - Median, mean
 - Percentiles, standard deviation

Senior Division

Hypothesis Testing:

- Z-test, T-test, Chi Square and when to use each
- Normal Distribution
- Linear Regression
- Least-squares curve fit

Statistical Advice for a Project:

- Your library will have several references on statistics and statistical techniques to help you with your project.
- A general rule for sample size is 10 minimum per case. When comparing 2 groups use at least 8 samples each. Seek a minimum of 4 samples per group when comparing many groups.
- Present the all of the raw data obtained from the experiment and use statistical techniques to analyze them. Present the results of the analysis. Draw conclusions based upon the results of the analysis.
- Describe and explain any experimental data you obtained but that you chose not to use. Explain why you chose not to use the data.
- Using computer programs to plot and analyze data is acceptable. However, make sure that you know how the programs analyze data – a judge may ask you to explain it.