

Student Essay on Errors in Scientific Experiments

Errors in Scientific Experiments

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Essay

Errors

Agreements on measurements and results in experiments for scientists can be very controversial. Errors aid in this issue by altering data and shifting precision and accuracy. Some errors are conscious, and others, scientists aren't aware of. Many methods, however, are used by scientists to detect and eliminate these errors.

Parallax error and systematic error are examples of human mistakes that can be prevented. Parallax error occurs when the experimenter makes a general error in either calculation or measurement. The way to correct this mistake is to do multiple trials. Systematic error occurs when there is a mistake in the method or problem of the experiment. The only way to fix this error is by doing the experiment again, or testing the hypothesis by an entirely new method.

Another common error in experiments is errors in equipment. Equipment can never be 100% accurate. However, it should come very close. It is important to test the equipment's margin of error and utilize this in the analysis of the data. The experimenter should find how accurate the device is, and then incorporate this information into his or her results. Keeping track of significant figures and finding the mean and standard deviation in data are crucial in eliminating these equipment errors.

The final type of common error in experiments is random errors. These can be almost any type of error in experiment. The most effective way to eliminate random errors is to do multiple trials and rule out the incorrect data by using standard deviation and graphing analysis to find an agreeing result.

There are other ways to eradicate errors such as peer review and repetition of work by other experimenters. For the most part, these methods are unnecessary unless the other methods have failed. Eliminating error is essential in a successful experiment, however it is very hard to completely avoid the mistakes. In practicing the mentioned methods, results should be more pleasing.