

Science Research

STUDY GUIDE: Class material

Objectives: By the end of the semester you should be able to:

- Determine simple research project questions that involve obtaining quantitative data that would answer the question
- Find out what others have already done in your question area by doing a literature search
- Develop a research procedure to answer the project question
- Carry out the procedure and take data that is both qualitative and quantitative
- Manipulate the data into appropriate tables and graphs with the proper number of significant figures for the quantitative data
- Use the data to answer your research question and draw appropriate conclusions
- List and explain the impact of design errors and variability of data errors on your conclusion
- Give the significance of your results or how it could be used or applied
- Summarize all the above information into a summary called the Abstract
- Communicate your research through the writing of a research paper, the giving of an oral presentation using AV aids such as Powerpoint, and the construction of a "science fair" board or poster
- Understand the importance of research as the act of doing science and the basic element of work in science
- Understand how scientists work together and share information to answer tough questions
- Understand how the science research project can be incorporated with other teaching areas in the elementary classroom
- Understand how discovery experiments and independent research can stimulate student interest in science

Activities:

- The semester long science research project
- Project paper writing practice on various labs
- Numerous demonstrations and lab activities throughout the semester