

Independent Project report

DESCRIPTION

Each student will conduct a scientific research project that they choose and design. Some class time is reserved for the end of the semester for students to complete some of their investigation; expect that additional time outside of class will be needed to complete the project and report. As the semester unfolds, keep an eye out for project ideas as they come up through the semester. Guidance in selecting topics, digging into the relevant literature, and designing and implementing the experiment will be provided.

OUTLINE

Everyone's project is different so the following is a general outline for all students to use. Specific details will depend on your topic. This outline is essentially the same as others used for earlier reports except that it is generalized. If you need any help with any of the sections, be in touch!

Throughout report: you must cite any information you get from a resource. You can use your preferred method (e.g. footnotes; "(Smith, 1999)" in the text right after the information is summarized; etc.) Copying text word for word without quotes is not acceptable. Quoting large passages is also not acceptable except in rare circumstances...your job is to summarize in your own words the information you have gathered from sources and in fact synthesize it all to fit the context of your research project.

Title! Should be informative.

Introduction: can be brief; should give the reader a general idea of the project topic and the general science fields involved

Background: should include background information you looked up to develop your research question and design the project, and essentially helps to explain why you conducted the project you chose; it should end with the question you posed and/or hypothesis you proposed that the experiment or project addressed.

Experimental materials, setup, and procedure: should include all these aspects with an explanation for choices made when relevant to include

Results and Analyses summary: should include all data, calculations & graphs (calculations & graphs would be types of analyses), photos, observations that are *relevant* for your project; *MUST* include a written summary of all data and observations gathered *without* any interpretations at this point

Interpretation/Explanation of results: this is the section where you try to explain (make sense of) your results using your data collected, background information you gathered, and relevant scientific principles; it is here where you make a claim(s) and support it with evidence & reasoning [remember this from early in the semester?; this part is what many of you left out of the mine report...don't do that here!]

Next possible steps: Any issues you encountered during the experiment that you might change if you were to do the project over; any extensions of the project that you think might make sense to do next (which often comes from new questions you came up with as you analyzed your results)

Conclusions: brief statement about what your results reveal and how they fit into the background context you provided in earlier section of report; any other comments you want to make about the results and/or the process you worked thru to conduct the project; if you have recommendations to offer, this would be the section to include them

Science practices used to conduct this project: note which of the 8 practices you used and for each specifically how you used each.

Reference list: all should be sufficient in information for the reader to get the actual reference you cite...if you use urls it must be one that will get the reader to the resource (e.g. the url for a source found via a library database search typically does not get you back to the actual source), and you also need to include a traditional citation. A url alone is not sufficient.

SCI100 Independent Project grades grid

Name:

Outline component	Comments	Pts earned
<u>Cite refs throughout</u>	None cited	0/5
<u>Title! Should be informative about the topic addressed!</u>		/5
<u>Introduction:</u> general idea of the project topic and the general science fields involved		/5
<u>Background:</u> information found to develop your research question and design the project; helps explain why you conducted the project; ends with the question you posed &/or hypothesis you proposed		/6
<u>Experimental materials, set-up, and procedure:</u> all these aspects with an explanation for choices made when relevant to include		/9
<u>Results and Analyses summary:</u> all data, calculations & graphs, photos, observations that are <i>relevant</i> for your project; <i>MUST</i> include written summary of all data and observations gathered <i>without</i> any interpretations		/11
<u>Interpretation of results:</u> explain (make sense of) your results using data and background info; make claim(s), support it with evidence & reasoning		/10
<u>Next possible steps:</u> Any issues you encountered during the experiment that you might change if you were to do the project over; any extensions of the project that you think might make sense to do next		/5
<u>Conclusions:</u> brief statement about what your results reveal and how they fit into the background context you provided; other comments you want to make about the results and/or the process you worked thru to conduct the project.		/5
<u>Science practices used to conduct this project:</u> note which of the 8 practices you used and for each specifically how you used each		/8
<u>Reference list:</u> sufficient in information for the reader to get the actual reference you cite... A url alone is not sufficient		5/5
	Total pts earned	/75
	Presentation pts	/25
	Total project grade	/100

Comments from grading:

- For the mine project, need to help students develop better understanding of the various geologic history steps that ultimately produced the marble and its ore deposits
- If a student extends a class proj, all sections should be completed even if done for the class proj report, any differences should be noted, and more background information should be obtained and used