

Britannia Secondary School - Group 4 Project

Important Aspects of Initial Planning

1. Agree upon the main question

Your group of about six members, representing different science areas, will decide this. You may use the technique of brainstorming to generate ideas. You are expected to keep a record of all these steps. The use of a log book for this purpose is recommended.

2. Define the problem

This will probably proceed in stages, starting with the overall questions decided by the group, then moving to more specific problems to be investigated by each subgroup. Your sub-group may need to refine the problem several times in order to reach a workable project. This could eventually lead to a reformulation of the main question. A workable project will be one in which suitable written resources are accessible and/or equipment is available for necessary experiments.

3. Formulate hypothesis(es)/ prediction(s)

The purpose of your experiments should be explicit and clearly related to the problem you are investigating. In some, but not all, circumstances it may be useful to formulate one or more hypotheses. Remember that hypotheses are tentative explanations to the questions you are trying to answer in your investigation. Good hypotheses should have the form of educated propositions about cause and are usually based on past experience or previous knowledge of related topics. The following are examples of possible hypotheses formulated when investigating the chemical properties of the water of the Montezuma hot springs and comparing them to those of the water of the Gallinas River:

e.g. Because CO_2 bubbles up through the hot springs, the water is more acidic than that in the river

and/or, Carbonates and hydrogen carbonates make a greater contribution to the basicity of the hot springs (or river) than do hydroxides.

or, Since some types of hardness can be removed by boiling, the water in the hot springs is softer than that in the river.

4. Prepare written evidence of your investigation

This should include

- (a) the problem/hypothesis investigated
- (b) names of group members
- (c) an outline of the specific experiments for each subject, including a list of the materials required for all of the experiments
- (d) conclusions
- (e) list of references - books, periodicals, movies, web sites, etc.