

## Appendix 1

### Advanced Higher Chemistry Investigation

December 2004

#### Outcome 1 (O1) Develop a plan for an investigation

Evidence seen at moderation showed a general lack of planning which often led to unstructured experimental work and wasted time. Guidance by class teachers at the planning stage can focus a candidate's thinking and aid final evaluation. Reassessment is to be encouraged (see page 20, DO75 13/NAB 001). Planning is a skill which must be taught and PCs (a), (b) and (c) are an attempt to help this process.

The following points might be useful as a breakdown of the planning activity.

- (1) Formulation of an initial aim to include ideas and reasons for study.
- (2) Background research; list of resources consulted noted in the daybook.
- (3) Consideration of possible options and reasons for selection of techniques/procedures.
- (4) List of techniques/procedures to be used.
- (5) Justification of experimental procedures in relation to the initial aim, eg
  - What is being measured and how?
  - Do the techniques measure what is intended?
  - What variables have to be controlled/
  - How can validity of procedures be measured?
  - What potential errors may be generated and how can they be minimised?
  - How many replicates are required?
- (6) Resources; availability, cost and source of materials and chemicals.
- (7) Risk assessments.
- (8) Timescale.

The help of teachers/lecturers should be sought as the plan takes shape and the support/suggestions given should be recorded. The daybook should show progression, i.e. evidence of modification of the plan as a result of discussions/initial experiments/unexpected results/problems encountered. There may well be further discussion and feedback with the teacher/lecturer which may lead to a revised aim and further experimentation. Help freely given, accepted and acknowledged at this stage will provide a firm foundation on which the candidate can build when they write their final, individual report.