

Completing the Extended Experimental Investigation

Over the course of three weeks, students will engage in four activities which contribute to the generation of their evidence of learning and achievement in the EEI

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| A. Questioning and predicting | B. Planning and conducting |
| C. Processing and analysing | D. Reflecting and reporting |

It is not intended to present the activities as a rigid and linear process. Each activity may be revisited at different times as students complete the investigation.

A. Questioning and Predicting

For this part of the investigation students may work individually or in small groups. Each student must contribute to the work of the group.

- Choose the topic
- Decide the research question
- Collect information on the background theory related to the research question
- Refine the question to help with the justification of their hypothesis/prediction
- Record the sources of information
- Write the hypothesis/prediction

B. Planning and Conducting

For this part of the investigation students may work individually or in groups. Each student must contribute to the collection of data.

- Hands-on experience in the laboratory to plan and refine experimental design
- Decide what equipment and materials will be necessary
- Assess any possible risks
- Write *individual* Investigation Plans
- Submit *individually* for investigation approval
- Conduct the investigation
- Record all data as well as problems and changes to method used during any preliminary trials and during final experiments

C. Processing and Analysing

For this part of the investigation students must work *individually*

- Analyse their own data
- Perform any necessary calculations
- Consider how to best represent and analyse their data
- Identify patterns and relationships in the data
- Explain any anomalous data
- Describe the relationships between the variables
- Draw conclusions
- Consider if their hypothesis or prediction has or has not been supported

D. Reflecting and Reporting

Students may work individually or in groups to reflect on their work. They should be encouraged to critically discuss various aspects of their investigation, such as:

- the design of the experiment and possible improvements
- the limitations of their data
- any possible theoretical or practical implications of their findings
- further related investigations that they might conduct and why

Students must work *individually* to compile the report of their investigation, using the information/data they have recorded in their research throughout the investigation. Students will report their research and findings in a format of their choice. If a typed or hand-written report is the format of their choice, the total length of the report would typically be in the 400 - 600 words range (excluding tables, graphs, reference list and research records), but this should not be regarded as a rigid requirement.

When planning the content of their report, students should be familiar with the Features of Quality used to judge the level of achievement which will be awarded to their work.