

## Design

Levels/marks	Aspect 1	Aspect 2	Aspect 3
	Defining the problem and selecting variables	Controlling variables	Developing a method for collection of data
<b>Complete/2</b>	Formulates a focused problem/research question and identifies the relevant variables.	Designs a method for the effective control of the variables.	Develops a method that allows for the collection of sufficient relevant data.
<b>Partial/1</b>	Formulates a problem/research question that is incomplete <b>or</b> identifies only some relevant variables.	Designs a method that makes some attempt to control the variables.	Develops a method that allows for the collection of insufficient relevant data.
<b>Not at all/0</b>	Does not identify a problem/research question <b>and</b> does not identify any relevant variables.	Designs a method that does not control the variables.	Develops a method that does not allow for any relevant data to be collected.

## Data collection and processing

Levels/marks	Aspect 1	Aspect 2	Aspect 3
	Recording raw data	Processing raw data	Presenting processed data
<b>Complete/2</b>	Records appropriate quantitative and associated qualitative raw data, including units and uncertainties where relevant.	Processes the quantitative raw data correctly.	Presents processed data appropriately and, where relevant, includes errors and uncertainties.
<b>Partial/1</b>	Records appropriate quantitative and associated qualitative raw data, but with some mistakes or omissions.	Processes quantitative raw data, but with some mistakes and/or omissions.	Presents processed data appropriately, but with some mistakes and/or omissions.
<b>Not at all/0</b>	Does not record any appropriate quantitative raw data <b>or</b> raw data is incomprehensible.	No processing of quantitative raw data is carried out <b>or</b> major mistakes are made in processing.	Presents processed data inappropriately <b>or</b> incomprehensibly.

## Conclusion and evaluation

Levels/marks	Aspect 1	Aspect 2	Aspect 3
	Concluding	Evaluating procedure(s)	Improving the investigation
<b>Complete/2</b>	States a conclusion, with justification, based on a reasonable interpretation of the data.	Evaluates weaknesses and limitations.	Suggests realistic improvements in respect of identified weaknesses and limitations.
<b>Partial/1</b>	States a conclusion based on a reasonable interpretation of the data.	Identifies some weaknesses and limitations, but the evaluation is weak or missing.	Suggests only superficial improvements.
<b>Not at all/0</b>	States no conclusion <b>or</b> the conclusion is based on an unreasonable interpretation of the data.	Identifies irrelevant weaknesses and limitations.	Suggests unrealistic improvements.

## Manipulative skills (assessed summatively)

This criterion addresses objective 5.

Levels/marks	Aspect 1	Aspect 2	Aspect 3
	Following instructions*	Carrying out techniques	Working safely
<b>Complete/2</b>	Follows instructions accurately, adapting to new circumstances (seeking assistance when required).	Competent and methodical in the use of a range of techniques and equipment.	Pays attention to safety issues.
<b>Partial/1</b>	Follows instructions but requires assistance.	Usually competent and methodical in the use of a range of techniques and equipment.	Usually pays attention to safety issues.
<b>Not at all/0</b>	Rarely follows instructions <b>or</b> requires constant supervision.	Rarely competent and methodical in the use of a range of techniques and equipment.	Rarely pays attention to safety issues.

\*Instructions may be in a variety of forms: oral, written worksheets, diagrams, photographs, videos, flow charts, audio tapes, models, computer programs, and so on, and need not originate from the teacher.

See "The group 4 project" section for the personal skills criterion.