Laboratory Assessment Criteria

Planning (a)

	Defining problem/research question	Formulating the hypothesis (prediction)	Selection of variables
Complete	The problem/research question is stated clearly.	The hypothesis (prediction) is directly related to the research question and it is explained (quantitatively where appropriate).	The key variable(s) are selected.
Partial	The problem/research question is stated, but it is unclear or incomplete.	The hypothesis (prediction is stated but not explained.	Some variable(s) are selected.
Not at all	No problem/research question is stated.	No hypothesis (prediction) is stated.	No variable(s) are selected.

Planning (b)

	Designing a method with appropriate apparatus/materials	Designing a method for the control of variables	Designing a method for the collection of (raw) data
Complete	Appropriate apparatus/materials are selected (diagram may be acceptable).	A realistic method that allows for the control of variables is designed.	A method that allows for the collection of sufficient relevant data and excludes the collection of irrelevant data is designed.
Partial	Some appropriate apparatus/materials are selected or some essential features are missing.	A method that makes some attempt to allow for the control of variables is designed.	A method that allows for the collection of insufficient relevant data or both relevant and irrelevant data is designed.
Not at all	No apparatus/materials are selected.	A method that makes no attempt to allow for the control of variables is designed.	A method that allows for the collection of only irrelevant data is designed or no method is designed.

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Data Collection — DC

	Observing (collecting) and recording raw data	Presenting raw data
Complete	Raw data (qualitative/quantitative) is recorded appropriately, including units and uncertainties where necessary.	Raw data is presented clearly, allowing easy interpretation.
Partial	Some raw data is recorded.	Raw data is presented in a disorganized manner.
Not at all	No raw data is recorded.	Raw data is presented incomprehensibly or is missing.

Data Processing and Presentation — DPP

	Transforming and manipulating (processing) raw data	Presenting processed data
Complete	The raw data is processed correctly to produce results that help interpretation; where appropriate, error analysis is included.	Data/results are presented appropriately and effectively; where relevant, errors and uncertainties are taken into account.
Partial	Some processing of the raw data is made (attempted) or errors are made in processing the data.	Data/results are presented appropriately but not very effectively; where relevant, errors and uncertainties are not taken into account.
Not at all	No processing of raw data is carried out.	Data/results are presented inappropriately or are presented incomprehensibly or are absent.

Conclusion and Evaluation — CE

	Evaluating (interpreting) results (drawing conclusions)	Evaluating procedure(s)	Modifying the procedure
Complete	A valid conclusion (based on the correct interpretation of the results), with an explanation, is given; where appropriate, results are compared with literature values.	The procedure (apparatus, materials and method) including limitations, weaknesses or errors in manipulation are evaluated. (Discussion of the limitations of data analysis may be included)	Suggestions to improve the investigation following the identification of weaknesses are stated.
Partial	A conclusion that has some validity is stated.	The procedure (apparatus, materials and method) is evaluated partly, but some obvious limitations or errors are missed; irrelevant points may be made.	Suggestions to improve the investigation are stated but are simplistic.
Not at all	A conclusion that completely misinterprets the results is drawn or no conclusion is drawn.	The procedure (apparatus, materials and method) is evaluated superficially of the evaluation is completely irrelevant or is absent.	Suggestions to improve the investigation are unrealistic or no suggestions are stated.

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Summative Evaluation Criteria

Manipulative Skills — MS

Carried out a range of techniques proficiently with due attention to safety; followed instructions

	Carrying out a range of techniques proficiently with due attention to safety	**Following a variety if instructions**
Complete	A wide range of techniques can be carried out with proficiency and appropriate attention paid to safety.	A variety of instructions* can be followed accurately and little (or no) assistance is required in adapting to new circumstances.
Partial	A limited range of techniques can be carried out with proficiency and appropriate attention paid to safety.	A variety of instructions* can be followed, mainly accurately, but some assistance is required.
Not at all	Only little attention is paid to safety, whatever the range of techniques that can be carried out with proficiency.	Some instructions* can be followed accurately but assistance is required.

*Instructions may be given in a variety of forms: verbal, written work sheets, diagrams, photographs, flowcharts, videos, audiotapes, models, computer programs, etc.

Personal Skills (a)

Worked with a team; recognized the contribution of others; encouraged the contributions of others.

	Working within a team	**Recognizing the contributions of others**	**Encouraging the contribution of others**
Complete	Teams, whose members collaborate, can be formed with a wide variety of people.	The views of all members of the team are acknowledged or respected.	The views of all members of the team are expected and actively sought, even from those who are reluctant or less confident.
Partial	Teams can be formed with a variety of people, but members may not always collaborate.	The views of most members of the team are acknowledged.	The views of the more confident members of the team are expected and actively sought.
Not at all	Teams may be formed with a limited number of people, but the members may not always collaborate.	The views of some members of the team are acknowledged with reluctance.	The views of other members of the team are sought, but only on prompting.

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Personal Skills (b)

Approached experiments/investigations/projects and problem solving exercises with self-motivation and perseverance, and in an ethical manner; paid due attention to the environmental impact.

	Approaching scientific investigations with self-motivation and perseverance	**Approaching scientific investigations in an ethical manner**	**Approaching scientific investigations while paying due attention to the environmental impact**
Complete	Scientific investigations can be approached independently, with initiative shown, and followed through to completion.	Considerable attention is paid to the ethical aspects of scientific authenticity of data and information, and the approach to materials (living or non-living).	Considerable attention is paid to the environmental impact of scientific investigations.
Partial	Scientific investigations can be approached independently and followed through to completion.	Some attention is park to the ethical aspects of scientific authenticity of data and information, and the approach to materials (living or non-living).	Some attention is paid to the environmental impact of scientific investigations.
Not at all	Scientific investigations can be approached independently, or followed through to completion.	Little attention is paid to the ethical aspects of scientific authenticity of data and information, and the approach to materials (living or non-living).	Little attention is paid to the environmental impact of scientific investigations.

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