Criterion B: Inquiring & Designing

i. outline an appropriate problem or research question to be tested by a scientific investigation
ii. outline a testable prediction using scientific reasoning
iii. outline how to manipulate the variables, and outline how data will be collected
iv. design scientific investigations

Level	The student is able to:
1-2	i. **select** a problem or question to be tested by a scientific investigation ii. **select** a testable prediction iii. **state** a variable iv. design a **method with limited success**.
3-4	i. **state** a problem or question to be tested by a scientific investigation ii. **state** a testable prediction iii. **state** how to manipulate the variables, and **state** how **data** will be collected iv. design a **safe method** in which he or she **selects materials and equipment.**
5-6	i. **state** a problem or question to be tested by a scientific investigation ii. **outline** a testable prediction iii. **outline** how to manipulate the variables, and **state** how **relevant data** will be collected iv. design a **complete and safe method** in which he or she **selects appropriate materials and equipment.**
7-8	i. **outline** a problem or question to be tested by a scientific investigation ii. **outline** a testable prediction **using scientific reasoning** iii. **outline** how to manipulate the variables, and **outline** how sufficient, relevant data will be collected iv. design a **logical, complete and safe method** in which he or she **selects appropriate materials and equipment.**

Criterion C: Processing & Evaluating

i. present collected and transformed data
ii. interpret data and outline results using scientific reasoning
iii. discuss the validity of a prediction based on the outcome of the scientific investigation
iv. discuss the validity of the method
v. describe improvements or extensions to the method

Level	The student is able to:
1-2	i. **collect and present** data in numerical and/or visual forms ii. **interpret** data iii. **state** the validity of a prediction based on the outcome of a scientific investigation, **with limited success** iv. **state** the validity of the method based on the outcome of a scientific investigation, **with limited success** v. **state** improvements or extensions to the method that would benefit the scientific investigation, **with limited success**.
3-4	i. **correctly collect and present** data in numerical and/or visual forms ii. **accurately interpret** data and **outline** results iii. **state** the validity of a prediction based on the outcome of a scientific investigation iv. **state** the validity of the method based on the outcome of a scientific investigation v. **state** improvements or extensions to the method that would benefit the scientific investigation.
5-6	i. **correctly collect, organize and present** data in numerical and/or visual forms ii. **accurately interpret** data and **outline** results **using scientific reasoning** iii. **outline** the validity of a prediction based on the outcome of a scientific investigation iv. **outline** the validity of the method based on the outcome of a scientific investigation v. **outline** improvements or extensions to the method that would benefit the scientific investigation.
7-8	i. **correctly collect, organize, transform and present** data in numerical and/or visual forms ii. **accurately interpret** data and **outline** results **using correct scientific reasoning** iii. **discuss** the validity of a prediction based on the outcome of a scientific investigation iv. **discuss** the validity of the method based on the outcome of a scientific investigation v. **describe** improvements or extensions to the method that would benefit the scientific investigation.

B	i. outline an appropriate problem or question to be tested by a scientific investigation	ii. outline a testable prediction using scientific reasoning	iii. outline how to manipulate the variables, and outline how data will be collected	iv. design scientific investigations
1-2	I have selected a **problem** from those provided.	I have selected a **hypothesis** from those provided.	I have stated a **variable**.	I have a **procedure** written down for my lab.
3-4	I have stated a **problem** as a research question.	My **hypothesis** is testable.	I have stated how to manipulate the independent **variable**, and stated how to measure the dependent **variable**.	My **procedures** are safe. I have selected the **materials** I will need.
5-6	I have stated a **problem** as a research question that connects with our topic.	My **hypothesis** is testable, and includes my **variables**.	I have given brief details on how to manipulate the independent **variable**, and stated how to measure the dependent **variable** to collect relevant data.	My **procedures** are safe and complete. Someone else could probably do my lab because I describe how to collect data. I have selected the **materials** I will need, including quantities.
7-8	I have given brief details on how my **problem** is connected to the topic we are studying. I have stated the problem as a research question.	My **hypothesis** is testable, and includes my **variables**, with my reasons as a 'because' statement.	I have given brief details on how to manipulate the independent **variable**, how to measure the dependent **variable** to collect relevant data, and how to manipulate the controlled **variables**.	My **procedures** are safe, complete, and logical. Someone else would have no problem with my lab because I describe how to work with the variables and collect data. I have selected every **material** I will need, including quantities, and I won't need to ask for anything on the day of the lab.

C	i. present collected and transformed data	ii. interpret data and outline results using scientific reasoning	iii. discuss the prediction of a based on the outcome of the scientific investigation	iv. discuss the validity of the method	v. describe improvements or extensions to the method
1-2	I have presented the data I collected in my experiment using **tables** or **graphs**.	I have attempted to recognize **patterns** and draw conclusions from the data.	I have **evaluated my hypothesis**.	I have **evaluated my method**.	I have stated how I **suggest improvement** to my procedures.
3-4	I have presented the data I collected in my experiment by using the correct type of **graph**, including titles, axis labels.	I have used knowledge and understanding of science to recognize **patterns** and draw conclusions from the data.	I have **evaluated my hypothesis** by stating if it has been supported or not, based on my data.	I have **evaluated my method** by listing errors in my procedures and lab work.	I have stated how I **suggest improvement** to limitations in my procedures.
5-6	I have organized the data I collected in my experiment using **tables** that include units in the proper place. My **graph** is the correct type, including titles, axis labels, and I have used lines of best fit.	I have correctly used knowledge and understanding of science to recognize **patterns** and draw conclusions from the data. I have given some details of how and the variables are related.	I have **evaluated my hypothesis** by briefly mentioning the data to state if I my hypothesis has been supported or not, based on my data.	I have **evaluated my method** by briefly considering my procedures and lab work.	I have given brief details of how I **suggest improvement** to limitations in my procedures.
7-8	I have correctly organized the data I collected in my experiment using **tables** that include units in the proper place. I have **processed** my **data** using proper methods and showed examples. My **graph** is correct, including titles, axis labels, and I have used lines of best fit.	I have correctly used knowledge and understanding of science to recognize **patterns** and draw conclusions from the data. I have correctly given some details of how and the variables are related.	I have **evaluated my hypothesis** by considering many possibilities. I have used the data to clearly state if I my hypothesis has been supported or not. I use scientific reasons and sources to help explain my reasons.	I have **evaluated my method** by considering the strengths and limitations of my procedures and lab work. I have discussed the validity and reliability of my methods, and addressed its significance.	I have provided details of how I **suggest improvement** to limitations in my procedures. These suggestions are realistic and based on scientific reasoning and research.