

## MYP Science Criteria Rubric

### Criterion A: Knowing and Understanding

- i. Explain scientific knowledge
- ii. Apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations
- iii. Analyse and evaluate information to make scientifically supported judgments.

Achievement Level	Level descriptor
0	The student does not reach a standard identified by any of the descriptors below.
1-2	The student is able to: <ol style="list-style-type: none"> <li>i. <b>state</b> scientific knowledge</li> <li>ii. apply scientific knowledge and understanding to <b>suggest solutions</b> to problems set in <b>familiar situations</b></li> <li>iii. <b>interpret</b> information to make <b>judgments</b>.</li> </ol>
3-4	The student is able to: <ol style="list-style-type: none"> <li>i. <b>outline</b> scientific knowledge</li> <li>ii. apply scientific knowledge and understanding to <b>solve problems</b> set in <b>familiar situations</b></li> <li>iii. <b>interpret</b> information to make <b>scientifically supported judgments</b>.</li> </ol>
5-6	The student is able to: <ol style="list-style-type: none"> <li>i. <b>explain</b> scientific knowledge</li> <li>ii. apply scientific knowledge and understanding to <b>solve problems</b> set in <b>familiar and unfamiliar situations</b>.</li> <li>iii. <b>analyse</b> and <b>evaluate</b> information to make <b>scientifically supported judgments</b>.</li> </ol>
7-8	The student is able to: <ol style="list-style-type: none"> <li>i. <b>describe</b> scientific knowledge</li> <li>ii. apply scientific knowledge and understanding to <b>solve problems</b> set in <b>familiar situations</b> and <b>suggest solutions</b> to problems set in <b>unfamiliar situations</b></li> <li>iv. <b>analyse</b> information to make <b>scientifically supported judgments</b>.</li> </ol>

### Criterion B: Inquiring and designing

- i. Explain a problem or question to be tested by a scientific investigation
- ii. Formulate a testable hypothesis and explain it using scientific reasoning
- iii. Explain how to manipulate the variables, and explain how data will be collected
- iv. Design scientific investigations

Achievement Level	Level descriptor
0	The student does not reach a standard identified by any of the descriptors below.
1-2	The student is able to: <ol style="list-style-type: none"> <li>i. <b>state</b> a problem or question to be tested by a scientific investigation</li> <li>ii. <b>outline</b> a testable hypothesis</li> <li>iii. <b>outline</b> the variables</li> <li>iv. <b>design</b> a method, <b>with limited success</b>.</li> </ol>
3-4	The student is able to: <ol style="list-style-type: none"> <li>i. <b>outline</b> a problem or question to be tested by a scientific investigation</li> <li>ii. <b>formulate</b> a testable hypothesis <b>using scientific reasoning</b></li> <li>iii. <b>outline</b> how to manipulate the variables, and <b>outline</b> how <b>relevant data</b> will be collected</li> <li>iv. design a <b>safe method</b> in which he or she <b>selects materials and equipment</b>.</li> </ol>
5-6	The student is able to: <ol style="list-style-type: none"> <li>i. <b>describe</b> a problem or question to be tested by a scientific investigation</li> <li>ii. <b>formulate and explain</b> a testable hypothesis <b>using scientific reasoning</b></li> <li>iii. <b>describe</b> how to manipulate the variables, and <b>describe</b> how <b>sufficient, relevant data</b> will be collected.</li> <li>iv. design a <b>complete and safe method</b> in which he or she selects <b>appropriate materials and equipment</b>.</li> </ol>
7-8	The student is able to: <ol style="list-style-type: none"> <li>i. <b>explain</b> a problem or question to be tested by a scientific investigation</li> <li>ii. <b>formulate and explain</b> a testable hypothesis <b>using correct scientific reasoning</b></li> <li>iii. <b>explain</b> how to manipulate the variables, and <b>explain</b> how <b>sufficient, relevant data</b> will be collected</li> <li>iv. <b>design</b> a <b>logical, complete and safe method</b> in which he or she <b>selects appropriate materials and equipment</b>.</li> </ol>

## Criterion C: Processing and evaluating

- i. present collected and transformed data
- ii. interpret data and explain results using scientific reasoning
- iii. evaluate the validity of a hypothesis based on the outcome of the scientific investigation
- iv. evaluate the validity of the method
- v. explain improvements or extensions to the method

Achievement Level	Level descriptor
0	The student does not reach a standard identified by any of the descriptors below.
1-2	The student is able to: <ol style="list-style-type: none"> <li>i. <b>collect and present</b> data in numerical and/or visual forms</li> <li>ii. <b>interpret</b> data</li> <li>iii. <b>state</b> the validity of a hypothesis based on the outcome of a scientific investigation</li> <li>iv. <b>state</b> the validity of the method based on the outcome of a scientific investigation.</li> <li>v. <b>state</b> improvements or extensions to the method.</li> </ol>
3-4	The student is able to: <ol style="list-style-type: none"> <li>i. <b>correctly collect and present</b> data in numerical and/or visual forms</li> <li>ii. <b>accurately interpret</b> data and <b>explain</b> results</li> <li>iii. <b>outline</b> the validity of a hypothesis based on the outcome of a scientific investigation</li> <li>iv. <b>outline</b> the validity of the method based on the outcome of a scientific investigation</li> <li>v. <b>outline</b> improvements or extensions to the method that would benefit the scientific investigation.</li> </ol>
5-6	The student is able to: <ol style="list-style-type: none"> <li>i. <b>correctly collect, organize and present</b> data in numerical and/or visual forms</li> <li>ii. <b>accurately interpret</b> data and <b>explain</b> results <b>using scientific reasoning</b></li> <li>iii. <b>discuss</b> the validity of a hypothesis based on the outcome of a scientific investigation</li> <li>iv. <b>discuss</b> the validity of the method based on the outcome of a scientific investigation</li> <li>v. <b>describe</b> improvements or extensions to the method that would benefit the scientific investigation.</li> </ol>
7-8	The student is able to: <ol style="list-style-type: none"> <li>i. <b>correctly collect, organize, transform and present</b> data in numerical and/or visual forms</li> <li>ii. <b>accurately interpret</b> data and <b>explain</b> results <b>using correct scientific reasoning</b></li> <li>iii. <b>evaluate</b> the validity of a hypothesis based on the outcome of a scientific investigation</li> <li>iv. <b>evaluate</b> the validity of the method based on the outcome of a scientific investigation</li> <li>v. <b>explain</b> improvement or extensions to the method that would benefit the scientific investigation.</li> </ol>

## Criterion D: Reflecting on the impacts of science

- i. explain the ways in which science is applied and used to address a specific problem or issue
- ii. discuss and evaluate the various implications of using science and its application to solve a specific problem or issue
- iii. apply scientific language effectively
- iv. document the work of others and sources of information used

Achievement Level	Level descriptor
0	The student does not reach a standard identified by any of the descriptors below.
1-2	The student is able to: <ol style="list-style-type: none"> <li>i. <b>outline</b> the ways in which science is used to address a specific problem or issue</li> <li>ii. <b>outline</b> the implications of using science to solve a specific problem or issue, interacting with a factor</li> <li>iii. <b>apply</b> scientific language to communicate understanding but does so <b>with limited success</b></li> <li>iv. document sources, with <b>limited success</b>.</li> </ol>
3-4	The student is able to: <ol style="list-style-type: none"> <li>i. <b>summarize</b> the ways in which science is applied and used to address a specific problem or issue</li> <li>ii. <b>describe</b> the implications of using science and its application to solve a specific problem or issue, interacting with a factor</li> <li>iii. <b>sometimes apply</b> scientific language to communicate understanding</li> <li>iv. <b>sometimes</b> document sources correctly.</li> </ol>
5-6	The student is able to: <ol style="list-style-type: none"> <li>i. <b>describe</b> the ways in which science is applied and used to address a specific problem or issue</li> <li>ii. <b>discuss</b> the implications of using science and its application to solve a specific problem or issue, interacting with a factor</li> <li>iii. <b>usually apply</b> scientific language to communicate understanding clearly and precisely</li> <li>iv. <b>usually</b> document sources correctly.</li> </ol>
7-8	The student is able to: <ol style="list-style-type: none"> <li>i. <b>explain</b> the ways in which science is applied and used to address a specific problem or issue</li> <li>ii. <b>discuss and evaluate</b> the implications of using science and its application to solve a specific problem or issue, interacting with a factor</li> <li>iii. <b>consistently apply</b> scientific language to communicate understanding <b>clearly and precisely</b></li> <li>iv. document sources <b>completely</b>.</li> </ol>