

## Criterion A: Knowing and understanding

**Maximum: 8**

At the end of year 3, students should be able to:

- i. describe scientific knowledge
- ii. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations
- iii. analyse information to make scientifically supported judgments.

Achievement Level	Level Descriptor
0	The student does not reach a standard indicated by any of the descriptors below.
1-2	The student is able to: i. <b>recall</b> scientific knowledge ii. apply scientific knowledge and understanding to <b>suggest solutions</b> to problems set in <b>familiar situations</b> iii. <b>apply</b> information to make <b>judgments</b> .
3-4	The student is able to: i. <b>state</b> scientific knowledge ii. apply scientific knowledge and understanding to <b>solve problems</b> set in <b>familiar situations</b> iii. <b>apply</b> information to make <b>scientifically supported judgments</b> .
5-6	The student is able to: i. <b>outline</b> scientific knowledge 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> iii. <b>interpret</b> information to make <b>scientifically supported judgments</b> .
7-8	The student is able to: i. <b>describe</b> scientific knowledge ii. apply scientific knowledge and understanding to <b>solve problems</b> set in <b>familiar and unfamiliar situations</b> iii. <b>analyse</b> information to make <b>scientifically supported judgments</b> .

## Criterion B: Inquiring and designing

Maximum: 8

At the end of year 3, students should be able to:

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

Achievement Level	Level Descriptor
0	The student does not reach a standard indicated by any of the descriptors below.
1-2	The student is able to: i. <b>state</b> a problem or question to be tested by a scientific investigation, with <b>limited success</b> ii. <b>state</b> a testable hypothesis iii. <b>state</b> the variables iv. design <b>a method, with limited success.</b>
3-4	The student is able to: i. <b>state</b> a problem or question to be tested by a scientific investigation ii. <b>outline</b> a testable hypothesis <b>using scientific reasoning</b> iii. <b>outline</b> how to manipulate the variables, and <b>state</b> how <b>relevant data</b> will be collected iv. design a <b>safe method</b> in which he or she <b>selects materials and equipment.</b>
5-6	The student is able to: i. <b>outline</b> a problem or question to be tested by a scientific investigation ii. <b>outline and explain</b> a testable hypothesis <b>using scientific reasoning</b> iii. <b>outline</b> how to manipulate the variables, and <b>outline</b> how <b>sufficient, relevant data</b> will be collected iv. design <b>a complete and safe method</b> in which he or she <b>selects appropriate materials and equipment.</b>
7-8	The student is able to: i. <b>describe</b> a problem or question to be tested by a scientific investigation ii. <b>outline and explain</b> a testable hypothesis <b>using correct scientific reasoning</b> iii. <b>describe</b> how to manipulate the variables, and <b>describe</b> how <b>sufficient, relevant</b> data will be collected iv. design a <b>logical, complete and safe method</b> in which he or she <b>selects appropriate materials and equipment.</b>

## Criterion C: Processing and evaluating

Maximum: 8

At the end of year 3, students should be able to:

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

Achievement Level	Level Descriptor
0	The student does not reach a standard indicated by any of the descriptors below.
1-2	The student is able to: i. <b>collect and present</b> data in numerical and/or visual forms ii. <b>accurately interpret</b> data iii. <b>state</b> the validity of a hypothesis <b>with limited reference</b> to a scientific investigation iv. <b>state</b> the validity of the method <b>with limited reference</b> to a scientific investigation v. <b>state limited</b> improvements or extensions to the method.
3-4	The student is able to: i. <b>correctly collect and present</b> data in numerical and/or visual forms ii. <b>accurately interpret</b> data and <b>describe</b> results iii. <b>state</b> the validity of a hypothesis based on the outcome of a scientific investigation iv. <b>state</b> the validity of the method based on the outcome of a scientific investigation v. <b>state</b> improvements or extensions to the method that would benefit the scientific investigation.
5-6	The student is able to: i. <b>correctly collect, organize and present</b> data in numerical and/or visual forms ii. <b>accurately interpret</b> data and <b>describe</b> results <b>using scientific reasoning</b> iii. <b>outline</b> the validity of a hypothesis based on the outcome of a scientific investigation iv. <b>outline</b> the validity of the method based on the outcome of a scientific investigation v. <b>outline</b> improvements or extensions to the method that would benefit the scientific investigation.
7-8	The student is able to: i. <b>correctly collect, organize, transform and present</b> data in numerical and/ or visual forms ii. <b>accurately interpret data</b> and <b>describe</b> results <b>using correct scientific reasoning</b> iii. <b>discuss</b> the validity of a hypothesis based on the outcome of a scientific investigation iv. <b>discuss</b> the validity of the method based on the outcome of a scientific investigation v. <b>describe</b> improvements or extensions to the method that would benefit the scientific investigation.

## Criterion D: Reflecting on the impacts of science

Maximum: 8

At the end of year 3, students should be able to:

- i. describe the ways in which science is applied and used to address a specific problem or issue
- ii. discuss and analyse the various implications of using science and its application in solving 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 indicated by any of the descriptors below.
1-2	The student is able to: i. <b>state</b> the ways in which science is used to address a specific problem or issue ii. <b>state</b> the implications of the use of science to solve a specific problem or issue, interacting with a factor iii. <b>apply</b> scientific language to communicate understanding but does so <b>with limited success</b> iv. document sources, <b>with limited success</b> .
3-4	The student is able to: i. <b>outline</b> the ways in which science is used to address a specific problem or issue ii. <b>outline</b> the implications of using science to solve a specific problem or issue, interacting with a factor iii. <b>sometimes apply</b> scientific language to communicate understanding iv. <b>sometimes</b> document sources <b>correctly</b> .
5-6	The student is able to: i. <b>summarize</b> the ways in which science is applied and used to address a specific problem or issue ii. <b>describe</b> the implications of using science and its application to solve a specific problem or issue, interacting with a factor iii. <b>usually apply</b> scientific language to communicate understanding <b>clearly and precisely</b> iv. <b>usually</b> document sources <b>correctly</b> .
7-8	The student is able to: i. <b>describe</b> the ways in which science is applied and used to address a specific problem or issue ii. <b>discuss and analyse</b> the implications of using science and its application to solve a specific problem or issue, interacting with a factor iii. <b>consistently apply</b> scientific language to communicate understanding <b>clearly and precisely</b> iv. document sources <b>completely</b> .