SCIENCES

Criterion A: Knowing and understanding

Maximum: 8

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

1. describe scientific knowledge
2. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations
3. analyze information to make scientifically supported judgements.

|  |  |
| --- | --- |
| **Achievement Level** | **Level Descriptor** |
| 0 | The student does not reach a standard described by any of the descriptors below |
| 1-2 | The student is able to:   1. **recall** scientific knowledge 2. apply scientific knowledge and understanding to **suggest solutions** to problems set in **familiar situations** 3. **apply** information to make **judgements.** |
| 3-4 | The student is able to:   1. **state** scientific knowledge 2. apply scientific knowledge and understanding to **solve problems** set in **familiar situations** 3. **apply** information to make **scientifically supported** **judgements.** |
| 5-6 | The student is able to:   1. **outline** scientific knowledge 2. apply scientific knowledge and understanding to **solve problems** set in **familiar situations** and **suggest solutions** to problems set in **unfamiliar situations** 3. **interpret** information to make **scientifically supported** **judgements.** |
| 7-8 | The student is able to:   1. **describe** scientific knowledge 2. apply scientific knowledge and understanding to **solve problems** set in **familiar and unfamiliar situations** 3. **analyze** information to make **scientifically supported** **judgements.** |

Criterion B: Inquiring and designing

Maximum: 8

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

1. describe a problem or question to be tested by a scientific investigation
2. outline a testable hypothesis and explain it using scientific reasoning
3. describe how to manipulate the variables, and describe how data will be collected
4. design scientific investigations.

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

Criterion C: Processing and evaluating

Maximum: 8

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

1. present collected and transformed data
2. interpret data and describe results using scientific reasoning
3. discuss the validity of a hypothesis based on the outcome of the scientific investigation
4. discuss the validity of the method
5. describe improvements or extensions to the method.

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

1. describe the ways in which science is applied and used to address a specific problem or issue
2. discuss and analyze the various implications of using science and its application in solving a specific problem or issue
3. apply scientific language effectively
4. document the work of others and sources of information used.

|  |  |
| --- | --- |
| **Achievement Level** | **Level Descriptor** |
| 0 | The student does not reach a standard described by any of the descriptors below |
| 1-2 | The student is able to:   1. **state** the ways in which science is used to address a specific problem or issue 2. **state** the implications of using science to solve a specific problem or issue, interacting with a factor 3. **apply** scientific language to communicate understanding but does so **with limited success** 4. document sources, **with** **limited success.** |
| 3-4 | The student is able to:   1. **outline** the ways in which science is applied and used to address a specific problem or issue 2. **outline** the implications of using science to solve a specific problem or issue, interacting with a factor 3. **sometimes apply** scientific language to communicate understanding 4. **sometimes** document sources **correctly**. |
| 5-6 | The student is able to:   1. **summarize** the ways in which science is applied and used to address a specific problem or issue 2. **describe** the implications of using science and its application to solve a specific problem or issue, interacting with a factor 3. **usually apply** scientific language to communicate understanding **clearly and precisely** 4. **usually** document sources **correctly**. |
| 7-8 | The student is able to:   1. **describe** the ways in which science is applied and used to address a specific problem or issue 2. **discuss and analyze** the implications of using science and its application to solve a specific problem or issue, interacting with a factor 3. **consistently apply** scientific language to communicate understanding **clearly and precisely** 4. document sources **completely**. |