SCIENCES

Criterion A: Knowing and understanding

Maximum: 8

At the end of year 5, students should be able to:

1. Explain scientific knowledge
2. Apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations
3. Analyze and evaluate information to make scientifically supported judgements.

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| **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** scientific knowledge
2. apply scientific knowledge and understanding to **suggest solutions** to problems set in **familiar situations**
3. **interpret** information to make **judgements.**
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| 3-4 | The student is able to: 1. **outline** scientific knowledge
2. apply scientific knowledge and understanding to **solve problems** set in **familiar situations**
3. **interpret** information to make **scientifically supported** **judgements.**
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| 5-6 | The student is able to: 1. **describe** 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. **analyze** information to make **scientifically supported** **judgements.**
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| 7-8 | The student is able to: 1. **explain** scientific knowledge
2. apply scientific knowledge and understanding to **solve problems** set in **familiar and unfamiliar situations**
3. **analyze** and **evaluate** information to make **scientifically supported** **judgements.**
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Criterion B: Inquiring and designing

Maximum: 8

At the end of year 5, students should be able to:

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

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| **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
2. **outline** a testable hypothesis
3. **outline** the variables
4. **design** a method, **with limited success.**
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| 3-4 | The student is able to: 1. **outline** a problem or question to be tested by a scientific investigation
2. **formulate** a testable hypothesis **using scientific reasoning**
3. **outline** how to manipulatethe variables, and **outline** how **relevant data** will be collected
4. **design** a **safe method**, in which he or she **selects materials and equipment.**
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| 5-6 | The student is able to: 1. **describe** a problem or question to be tested by a scientific investigation
2. **formulate and explain** a testable hypothesis **using scientific reasoning**
3. **describe** how to manipulatethe variables, and **describe** how **sufficient, relevant data** will be collected
4. **design** a **complete and safe method**, in which he or she **selects appropriate materials and equipment.**
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| 7-8 | The student is able to: 1. **explain** a problem or question to be tested by a scientific investigation
2. **formulate and explain** a testable hypothesis **using correct scientific reasoning**
3. **explain** how to manipulatethe variables, and **explain** 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.**
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Criterion C: Processing and evaluating

Maximum: 8

At the end of year 5, students should be able to:

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

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| **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. **interpret** data
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.
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| 3-4 | The student is able to: 1. **correctly** **collect and present** data in numerical and/or visual forms
2. **accurately interpret** data and **explain** results
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.
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| 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 **explain** results **using 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.
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| 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 **explain** results **using correct scientific reasoning**
3. **evaluate** the validity of a hypothesis based on the outcome of a scientific investigation
4. **evaluate** the validity of the method based on the outcome of a scientific investigation
5. **explain** improvements or extensions to the method that would benefit the scientific investigation.
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Criterion D: Reflecting on the impacts of science

Maximum: 8

At the end of year 5, students should be able to:

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

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| **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. **outline** the ways in which science is 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. **apply** scientific language to communicate understanding but does so **with limited success**
4. document sources, with **limited success.**
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| 3-4 | 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 to solve a specific problem or issue, interacting with a factor
3. **sometimes apply** scientific language to communicate understanding
4. **sometimes** document sources correctly.
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| 5-6 | 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** 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.
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| 7-8 | The student is able to: 1. **explain** the ways in which science is applied and used to address a specific problem or issue
2. **discuss and evaluate** 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**.
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