Assessment criteria: Year 3

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.

<table>
<thead>
<tr>
<th>Achievement level</th>
<th>Level descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>The student does not reach a standard indicated by any of the descriptors below.</td>
</tr>
</tbody>
</table>
| 1–2               | The student is able to:  
        i. recall scientific knowledge  
        ii. apply scientific knowledge and understanding to suggest solutions to problems set in familiar situations  
        iii. apply information to make judgments. |
| 3–4               | The student is able to:  
        i. state scientific knowledge  
        ii. apply scientific knowledge and understanding to solve problems set in familiar situations  
        iii. apply information to make scientifically supported judgments. |
| 5–6               | The student is able to:  
        i. outline scientific knowledge  
        ii. apply scientific knowledge and understanding to solve problems set in familiar situations and suggest solutions to problems set in unfamiliar situations  
        iii. interpret information to make scientifically supported judgments. |
| 7–8               | The student is 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. |
### 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.

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

<table>
<thead>
<tr>
<th>Achievement level</th>
<th>Level descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>The student <strong>does not</strong> reach a standard identified by any of the descriptors below.</td>
</tr>
</tbody>
</table>
| 1–2               | The student is able to:  
|                   | i. **collect and present** data in numerical and/or visual forms  
|                   | ii. **interpret** data  
|                   | iii. **state** the validity of a hypothesis **with limited reference** to a scientific investigation  
|                   | iv. **state** the validity of the method **with limited reference** to a scientific investigation  
|                   | v. **state limited** improvements or extensions to the method. |
| 3–4               | The student is able to:  
|                   | i. **correctly collect and present** data in numerical and/or visual forms  
|                   | ii. **accurately interpret** data and **describe** results  
|                   | iii. **state** the validity of a hypothesis 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               | The student is able to:  
|                   | i. **correctly collect, organize and present** data in numerical and/or visual forms  
|                   | ii. **accurately interpret** data and **describe** results **using scientific reasoning**  
|                   | iii. **outline** the validity of a hypothesis based on the outcome of a scientific investigation  
|                   | iv. **outline** the validity of the method based on the outcome of a scientific investigation  
<p>|                   | v. <strong>outline</strong> improvements or extensions to the method that would benefit the scientific investigation. |</p>
<table>
<thead>
<tr>
<th>Achievement level</th>
<th>Level descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>7–8</td>
<td>The student is able to:</td>
</tr>
<tr>
<td></td>
<td>i. correctly collect, organize, transform and present data in numerical and/or visual forms</td>
</tr>
<tr>
<td></td>
<td>ii. accurately interpret data and describe results using correct scientific reasoning</td>
</tr>
<tr>
<td></td>
<td>iii. discuss the validity of a hypothesis based on the outcome of a scientific investigation</td>
</tr>
<tr>
<td></td>
<td>iv. discuss the validity of the method based on the outcome of a scientific investigation</td>
</tr>
<tr>
<td></td>
<td>v. describe improvements or extensions to the method that would benefit the scientific investigation.</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Achievement level</th>
<th>Level descriptor</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>The student does not reach a standard identified by any of the descriptors below.</td>
</tr>
<tr>
<td>1–2</td>
<td>The student is able to:</td>
</tr>
<tr>
<td></td>
<td>i. state the ways in which science is used to address a specific problem or issue</td>
</tr>
<tr>
<td></td>
<td>ii. state the implications of the use of science to solve a specific problem or issue, interacting with a factor</td>
</tr>
<tr>
<td></td>
<td>iii. apply scientific language to communicate understanding but does so with limited success</td>
</tr>
<tr>
<td></td>
<td>iv. document sources, with limited success.</td>
</tr>
<tr>
<td>3–4</td>
<td>The student is able to:</td>
</tr>
<tr>
<td></td>
<td>i. outline the ways in which science is used to address a specific problem or issue</td>
</tr>
<tr>
<td></td>
<td>ii. outline the implications of using science to solve a specific problem or issue, interacting with a factor</td>
</tr>
<tr>
<td></td>
<td>iii. sometimes apply scientific language to communicate understanding</td>
</tr>
<tr>
<td></td>
<td>iv. sometimes document sources correctly.</td>
</tr>
<tr>
<td>5–6</td>
<td>The student is able to:</td>
</tr>
<tr>
<td></td>
<td>i. summarize the ways in which science is applied and used to address a specific problem or issue</td>
</tr>
<tr>
<td></td>
<td>ii. describe the implications of using science and its application to solve a specific problem or issue, interacting with a factor</td>
</tr>
<tr>
<td></td>
<td>iii. usually apply scientific language to communicate understanding clearly and precisely</td>
</tr>
<tr>
<td></td>
<td>iv. usually document sources correctly.</td>
</tr>
<tr>
<td>Achievement level</td>
<td>Level descriptor</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------</td>
</tr>
</tbody>
</table>
| 7–8               | The student is 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 implications of using science and its application to solve a specific problem or issue, interacting with a factor  
|                   | iii. consistently apply scientific language to communicate understanding clearly and precisely  
|                   | iv. document sources completely. |