

Sciences assessment criteria: Years 4 and 5

Criterion A: Knowing and understanding

Maximum: 8

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

- 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">i. state scientific knowledgeii. apply scientific knowledge and understanding to suggest solutions to problems set in familiar situationsiii. interpret information to make judgments.
3–4	The student is able to: <ol style="list-style-type: none">i. outline scientific knowledgeii. apply scientific knowledge and understanding to solve problems set in familiar situationsiii. interpret information to make scientifically supported judgments.
5–6	The student is able to: <ol style="list-style-type: none">i. describe scientific knowledgeii. apply scientific knowledge and understanding to solve problems set in familiar situations and suggest solutions to problems set in unfamiliar situationsiii. analyse information to make scientifically supported judgments.
7–8	The student is able to: <ol style="list-style-type: none">i. explain scientific knowledgeii. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situationsiii. analyse and evaluate information to make scientifically supported judgments.

Criterion B: Inquiring and designing

Maximum: 8

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

- 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"> i. state a problem or question to be tested by a scientific investigation ii. outline a testable hypothesis iii. outline the variables iv. design a method, with limited success.
3–4	The student is able to: <ol style="list-style-type: none"> i. outline a problem or question to be tested by a scientific investigation ii. formulate a testable hypothesis using scientific reasoning iii. outline how to manipulate the variables, and outline how relevant data will be collected iv. design a safe method in which he or she selects materials and equipment.
5–6	The student is able to: <ol style="list-style-type: none"> i. describe a problem or question to be tested by a scientific investigation ii. formulate and explain a testable hypothesis using scientific reasoning iii. describe how to manipulate the variables, and describe how sufficient, relevant data will be collected iv. design a complete and safe method in which he or she selects appropriate materials and equipment.
7–8	The student is able to: <ol style="list-style-type: none"> i. explain a problem or question to be tested by a scientific investigation ii. formulate and explain a testable hypothesis using correct scientific reasoning iii. explain how to manipulate the variables, and explain how sufficient, relevant data will be collected iv. 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 5, students should be able to:

- 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"> i. collect and present data in numerical and/or visual forms ii. interpret data 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.
3–4	The student is able to: <ol style="list-style-type: none"> i. correctly collect and present data in numerical and/or visual forms ii. accurately interpret data and explain results 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 v. outline improvements or extensions to the method that would benefit the scientific investigation.
5–6	The student is able to: <ol style="list-style-type: none"> i. correctly collect, organize and present data in numerical and/or visual forms ii. accurately interpret data and explain results using scientific reasoning iii. discuss the validity of a hypothesis based on the outcome of a scientific investigation iv. discuss the validity of the method based on the outcome of a scientific investigation v. describe improvements or extensions to the method that would benefit the scientific investigation.

Achievement level	Level descriptor
7-8	<p>The student is able to:</p> <ul style="list-style-type: none"> i. correctly collect, organize, transform and present data in numerical and/or visual forms ii. accurately interpret data and explain results using correct scientific reasoning iii. evaluate the validity of a hypothesis based on the outcome of a scientific investigation iv. evaluate the validity of the method based on the outcome of a scientific investigation v. explain 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 5, students should be able to:

- 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"> i. outline the ways in which science is used to address a specific problem or issue ii. outline the implications of using science to solve a specific problem or issue, interacting with a factor iii. apply scientific language to communicate understanding but does so with limited success iv. document sources, with limited success.
3–4	The student is able to: <ol style="list-style-type: none"> i. summarize the ways in which science is applied and used to address a specific problem or issue ii. describe the implications of using science and its application to solve a specific problem or issue, interacting with a factor iii. sometimes apply scientific language to communicate understanding iv. sometimes document sources correctly.
5–6	The student is able to: <ol style="list-style-type: none"> i. describe the ways in which science is applied and used to address a specific problem or issue ii. discuss the implications of using science and its application to solve a specific problem or issue, interacting with a factor iii. usually apply scientific language to communicate understanding clearly and precisely iv. usually document sources correctly.

Achievement level	Level descriptor
7–8	<p>The student is able to:</p> <ul style="list-style-type: none"><li>i. explain the ways in which science is applied and used to address a specific problem or issue<li>ii. discuss and evaluate the implications of using science and its application to solve a specific problem or issue, interacting with a factor<li>iii. consistently apply scientific language to communicate understanding clearly and precisely<li>iv. document sources completely.