

Sciences assessment criteria: Year 1

Criterion A: Knowing and understanding

Maximum: 8

At the end of year 1, students should be 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.

Achievement level	Level descriptor
0	The student does not reach a standard described by any of the descriptors below.
1–2	<p>The student is able to:</p> <ul style="list-style-type: none"> i. select scientific knowledge ii. select scientific knowledge and understanding to suggest solutions to problems set in familiar situations iii. apply information to make judgments, with limited success.
3–4	<p>The student is able to:</p> <ul style="list-style-type: none"> 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.
5–6	<p>The student is able to:</p> <ul style="list-style-type: none"> 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.
7–8	<p>The student is able to:</p> <ul style="list-style-type: none"> 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.

Criterion B: Inquiring and designing

Maximum: 8

At the end of year 1, students should be able to:

- i. outline an appropriate problem or research question to be tested by a scientific investigation
- ii. outline a testable prediction using scientific reasoning
- iii. outline how to manipulate the variables, and outline how data will be collected
- iv. design scientific investigations.

Achievement level	Level descriptor
0	The student does not reach a standard described by any of the descriptors below.
1–2	<p>The student is able to:</p> <ol style="list-style-type: none"> i. select a problem or question to be tested by a scientific investigation ii. select a testable prediction iii. state a variable iv. design a method with limited success.
3–4	<p>The student is able to:</p> <ol style="list-style-type: none"> i. state a problem or question to be tested by a scientific investigation ii. state a testable prediction iii. state how to manipulate the variables, and state how data will be collected iv. design a safe method in which he or she selects materials and equipment.
5–6	<p>The student is able to:</p> <ol style="list-style-type: none"> i. state a problem or question to be tested by a scientific investigation ii. outline a testable prediction iii. outline how to manipulate the variables, and state how relevant data will be collected iv. design a complete and safe method in which he or she selects appropriate materials and equipment.
7–8	<p>The student is able to:</p> <ol style="list-style-type: none"> i. outline a problem or question to be tested by a scientific investigation ii. outline a testable prediction using scientific reasoning iii. outline how to manipulate the variables, and outline 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 1, students should be able to:

- i. present collected and transformed data
- ii. interpret data and outline results using scientific reasoning
- iii. discuss the validity of a prediction 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 described by any of the descriptors below.
1–2	<p>The student is able to:</p> <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 prediction based on the outcome of a scientific investigation, with limited success iv. state the validity of the method based on the outcome of a scientific investigation, with limited success v. state improvements or extensions to the method that would benefit the scientific investigation, with limited success.
3–4	<p>The student is able to:</p> <ol style="list-style-type: none"> i. correctly collect and present data in numerical and/or visual forms ii. accurately interpret data and outline results iii. state the validity of a prediction 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	<p>The student is able to:</p> <ol style="list-style-type: none"> i. correctly collect, organize and present data in numerical and/or visual forms ii. accurately interpret data and outline results using scientific reasoning iii. outline the validity of a prediction 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.

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 formsii. accurately interpret data and outline results using correct scientific reasoningiii. discuss the validity of a prediction based on the outcome of a scientific investigationiv. discuss the validity of the method based on the outcome of a scientific investigationv. 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 1, students should be able to:

- i. summarize the ways in which science is applied and used to address a specific problem or issue
- ii. describe and summarize 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 described by any of the descriptors below.
1–2	<p>The student is able to, with limited success:</p> <ol style="list-style-type: none"> i. state the ways in which science is used to address a specific problem or issue ii. state the implications of using science to solve a specific problem or issue, interacting with a factor iii. apply scientific language to communicate understanding iv. document sources.
3–4	<p>The student is able to:</p> <ol style="list-style-type: none"> i. state the ways in which science is used to address a specific problem or issue ii. state the implications of using science 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	<p>The student is able to:</p> <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. usually apply scientific language to communicate understanding clearly and precisely iv. usually document sources correctly.
7–8	<p>The student is able to:</p> <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 and summarize 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.

Sciences 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.

Achievement level	Level descriptor
0	The student does not reach a standard indicated by any of the descriptors below.
1–2	<p>The student is able to:</p> <ul style="list-style-type: none"> 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	<p>The student is able to:</p> <ul style="list-style-type: none"> 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	<p>The student is able to:</p> <ul style="list-style-type: none"> 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	<p>The student is able to:</p> <ul style="list-style-type: none"> 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.

Achievement level	Level descriptor
0	The student does not reach a standard identified by any of the descriptors below.
1–2	<p>The student is able to:</p> <ol style="list-style-type: none"> i. state a problem or question to be tested by a scientific investigation, with limited success ii. state a testable hypothesis iii. state the variables iv. design a method, with limited success.
3–4	<p>The student is able to:</p> <ol style="list-style-type: none"> i. state a problem or question to be tested by a scientific investigation ii. outline a testable hypothesis using scientific reasoning iii. outline how to manipulate the variables, and state how relevant data will be collected iv. design a safe method in which he or she selects materials and equipment.
5–6	<p>The student is able to:</p> <ol style="list-style-type: none"> i. outline a problem or question to be tested by a scientific investigation ii. outline and explain a testable hypothesis using scientific reasoning iii. outline how to manipulate the variables, and outline 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	<p>The student is able to:</p> <ol style="list-style-type: none"> i. describe a problem or question to be tested by a scientific investigation ii. outline and explain a testable hypothesis using correct scientific reasoning iii. describe how to manipulate the variables, and describe 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 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 identified by any of the descriptors below.
1–2	<p>The student is able to:</p> <ol style="list-style-type: none"> i. collect and present data in numerical and/or visual forms ii. accurately 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	<p>The student is able to:</p> <ol style="list-style-type: none"> 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	<p>The student is able to:</p> <ol style="list-style-type: none"> 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 v. outline 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 describe results using correct 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.

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 identified by any of the descriptors below.
1–2	<p>The student is able to:</p> <ol style="list-style-type: none"> i. state the ways in which science is used to address a specific problem or issue ii. state the implications of the use of 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	<p>The student is able to:</p> <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. sometimes apply scientific language to communicate understanding iv. sometimes document sources correctly.
5–6	<p>The student is able to:</p> <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. 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">i. describe the ways in which science is applied and used to address a specific problem or issueii. discuss and analyse the implications of using science and its application to solve a specific problem or issue, interacting with a factoriii. consistently apply scientific language to communicate understanding clearly and preciselyiv. document sources completely.

Sciences assessment criteria: Year 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	<p>The student is able to:</p> <ul style="list-style-type: none"> i. state scientific knowledge ii. apply scientific knowledge and understanding to suggest solutions to problems set in familiar situations iii. interpret information to make judgments.
3–4	<p>The student is able to:</p> <ul style="list-style-type: none"> i. outline scientific knowledge ii. apply scientific knowledge and understanding to solve problems set in familiar situations iii. interpret information to make scientifically supported judgments.
5–6	<p>The student is able to:</p> <ul style="list-style-type: none"> i. describe 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. analyse information to make scientifically supported judgments.
7–8	<p>The student is able to:</p> <ul style="list-style-type: none"> 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.

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	<p>The student is able to:</p> <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	<p>The student is able to:</p> <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	<p>The student is able to:</p> <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	<p>The student is able to:</p> <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	<p>The student is able to:</p> <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	<p>The student is able to:</p> <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	<p>The student is able to:</p> <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	<p>The student is able to:</p> <ul 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	<p>The student is able to:</p> <ul 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	<p>The student is able to:</p> <ul 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">i. explain the ways in which science is applied and used to address a specific problem or issueii. discuss and evaluate the implications of using science and its application to solve a specific problem or issue, interacting with a factoriii. consistently apply scientific language to communicate understanding clearly and preciselyiv. document sources completely.