Assessment criteria overview

Assessment for science courses in all years of the programme is criterion-related, based on four equally weighted assessment criteria:

Criterion A	Knowing and understanding	**Maximum 8**
Criterion B	Inquiring and designing	**Maximum 8**
Criterion C	Processing and evaluating	**Maximum 8**
Criterion D	Reflecting on the impacts of science	**Maximum 8**

Subject groups **must** assess **all** strands of **all** four assessment criteria **at least twice** in **each year** of the MYP.

In the MYP, subject-group objectives correspond to assessment criteria. Each criterion has eight possible achievement levels (1–8), divided into four bands that generally represent limited (1–2); adequate (3–4); substantial (5–6); and excellent (7–8) performance. Each band has its own unique descriptor that teachers use to make "best-fit" judgments about students' progress and achievement.

This guide provides the **required assessment criteria** for years 1, 3 and 5 of MYP sciences. In response to national or local requirements, schools may add criteria and use additional models of assessment. Schools must use the appropriate assessment criteria as published in this guide to report students' final achievement in the programme.

Teachers clarify the expectations for each summative assessment task with direct reference to these assessment criteria. Task-specific clarifications should clearly explain what students are expected to know and do. They could be in the form of:

- a task-specific version of the required assessment criteria
- a face-to-face or virtual classroom discussion
- a detailed task sheet or assignment.

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	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.

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: 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	The student is able to: 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	The student is able to: 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 s**ufficient, 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: 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	The student is able to: 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	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 v. **outline** improvements or extensions to the method that would benefit the scientific investigation.

Achievement level	Level descriptor
7–8	The student is able to: 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	The student is able to: 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	The student is able to: 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	The student is able to: 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	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**.

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	The student is able to: 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	The student is able to: 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	The student is able to: 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	The student is 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**.

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: 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: 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: 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: 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: 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: 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: 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	The student is able to: 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: 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: 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: 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	The student is 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 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**.