Assessment criteria overview

Assessment for mathematics 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	Investigating patterns	**Maximum 8**
Criterion C	Communicating	**Maximum 8**
Criterion D	Applying mathematics in real-life contexts	**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 mathematics. 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 might 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.

For further information please refer to *MYP: From principles into practice*, which can be found in the programme resource centre under **MYP resources**>**Learning and teaching**.

Mathematics assessment criteria: Year 1 (Grades 6 & 7)

Criterion A: Knowing and understanding

Maximum: 8

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

i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations

ii. apply the selected mathematics successfully when solving problems

iii. solve problems correctly in a variety of contexts.

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: i. select appropriate mathematics when solving **simple problems** in **familiar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.
3–4	The student is able to: i. select appropriate mathematics when solving **more complex problems** in **familiar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.
5–6	The student is able to: i. select appropriate mathematics when solving **challenging problems** in **familiar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.
7–8	The student is able to: i. select appropriate mathematics when solving **challenging problems** in both **familiar and unfamiliar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.

Criterion B: Investigating patterns

Maximum: 8

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

i. apply mathematical problem-solving techniques to recognize patterns

ii. describe patterns as relationships or general rules consistent with findings

iii. verify whether the pattern works for other examples.

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: i. **apply**, **with teacher support**, mathematical problem-solving techniques to recognize **simple patterns** ii. **state** predictions consistent with simple patterns iii. *(not demonstrated at this level)*.
3–4	The student is able to: i. **apply** mathematical problem-solving techniques to recognize **patterns** ii. **suggest** how these patterns work iii. *(not demonstrated at this level)*.
5–6	The student is able to: i. **apply** mathematical problem-solving techniques to recognize **patterns** ii. **suggest relationships** or general rules consistent with findings iii. verify whether patterns work for **another example**.
7–8	The student is able to: i. **select** and **apply** mathematical problem-solving techniques to recognize **correct patterns** ii. **describe patterns as relationships** or general rules consistent with **correct findings** iii. verify whether patterns work for **other examples**.

Criterion C: Communicating

Maximum: 8

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

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written statements

ii. use appropriate forms of mathematical representation to present information

iii. *(not demonstrated at this level)*

iv. communicate coherent mathematical lines of reasoning

v. organize information using a logical structure.

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: i. use **limited** mathematical language ii. use **limited forms** of mathematical representation to present information iii. *(not demonstrated at this level)* iv. communicate through lines of reasoning that are **difficult to understand** v. *(not demonstrated at this level)*.
3–4	The student is able to: i. use **some appropriate** mathematical language ii. use **appropriate forms** of mathematical representation to present information **adequately** iii. *(not demonstrated at this level)* iv. communicate through lines of reasoning that are **able to be understood**, although these are **not always coherent** v. **adequately organize** information using a logical structure.
5–6	The student is able to: i. **usually** use **appropriate** mathematical language ii. **usually** use **appropriate forms** of mathematical representation to present information **correctly** iii. *(not demonstrated at this level)* iv. communicate through lines of reasoning that are **usually coherent** v. **present** work that is **usually organized** using a logical structure.
7–8	The student is able to: i. **consistently** use **appropriate** mathematical language ii. **consistently** use **appropriate forms** of mathematical representation to present information **correctly** iii. *(not demonstrated at this level)* iv. communicate **clearly** through **coherent** lines of reasoning v. present work that is **consistently organized** using a logical structure.

Criterion D: Applying mathematics in real-life contexts

Maximum: 8

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

i. identify relevant elements of authentic real-life situations

ii. select appropriate mathematical strategies when solving authentic real-life situations

iii. apply the selected mathematical strategies successfully to reach a solution

iv. explain the degree of accuracy of a solution

v. describe whether a solution makes sense in the context of the authentic real-life situation.

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: i. identify **some** of the elements of the authentic real-life situation ii. *(not demonstrated at this level)* iii. apply mathematical strategies to **find a solution** to the authentic real-life situation, **with limited success** iv. *(not demonstrated at this level)* v. *(not demonstrated at this level)*.
3–4	The student is able to: i. identify the relevant elements of the authentic real-life situation ii. (not demonstrated at this level) iii. apply mathematical strategies to reach a solution to the authentic real-life situation iv. (not demonstrated at this level) v. state, but not always correctly, whether the solution makes sense in the context of the authentic real-life situation.
5–6	The student is able to: i. identify the relevant elements of the authentic real-life situation ii. select adequate mathematical strategies to model the authentic real-life situation iii. apply the selected mathematical strategies to reach a valid solution to the authentic real-life situation iv. describe the degree of accuracy of the solution v. state correctly whether the solution makes sense in the context of the authentic real-life situation.
7–8	The student is able to: i. identify the relevant elements of the authentic real-life situation ii. select adequate mathematical strategies to model the authentic real-life situation iii. apply the selected mathematical strategies to reach a correct solution to the authentic real-life situation iv. explain the degree of accuracy of the solution v. describe correctly whether the solution makes sense in the context of the authentic real-life situation.

Mathematics assessment criteria: Year 3 (Grades 7 & 8)

Criterion A: Knowing and understanding

Maximum: 8

At the end of year 3, students should be able to:

i. select appropriate mathematics when solving problems in both familiar and unfamiliar situations

ii. apply the selected mathematics successfully when solving problems

iii. solve problems correctly in a variety of contexts.

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: i. select appropriate mathematics when solving **simple problems** in **familiar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.
3–4	The student is able to: i. select appropriate mathematics when solving **more complex problems** in **familiar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.
5–6	The student is able to: i. select appropriate mathematics when solving **challenging problems** in **familiar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.
7–8	The student is able to: i. select appropriate mathematics when solving **challenging problems** in both **familiar and unfamiliar situations** ii. apply the selected mathematics successfully when solving these problems iii. generally solve these problems correctly in a variety of contexts.

Criterion B: Investigating patterns

Maximum: 8

At the end of year 3, students should be able to:

i. select and apply mathematical problem-solving techniques to discover complex patterns

ii. describe patterns as relationships and/or general rules consistent with findings

iii. verify and justify relationships and/or general rules.

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: i. **apply**, **with teacher support**, mathematical problem-solving techniques to discover **simple patterns** ii. **state predictions** consistent with patterns iii. *(not demonstrated at this level)*.
3–4	The student is able to: i. **apply** mathematical problem-solving techniques to discover **simple patterns** ii. **suggest relationships** and/or general rules consistent with **findings** iii. *(not demonstrated at this level)*.
5–6	The student is able to: i. **select** and **apply** mathematical problem-solving techniques to discover **complex patterns** ii. **describe patterns** as relationships and/or general rules consistent with **findings** iii. **verify** these relationships and/or general rules.
7–8	The student is able to: i. **select** and **apply** mathematical problem-solving techniques to discover **complex patterns** ii. **describe patterns** as relationships and/or general rules consistent with **correct findings** iii. **verify** and **justify** these relationships and/or general rules.

Criterion C: Communicating

Maximum: 8

At the end of year 3, students should be able to:

i. use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations

ii. use appropriate forms of mathematical representation to present information

iii. move between different forms of mathematical representation

iv. communicate complete and coherent mathematical lines of reasoning

v. organize information using a logical structure.

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: i. use limited mathematical language ii. use limited forms of mathematical representation to present information iii. (not demonstrated at this level) iv. communicate through lines of reasoning that are difficult to interpret v. (not demonstrated at this level).
3–4	The student is able to: i. use some appropriate mathematical language ii. use appropriate forms of mathematical representation to present information adequately iii. (not demonstrated at this level) iv. communicate through lines of reasoning that are able to be understood, although these are not always clear v. adequately organize information using a logical structure.
5–6	The student is able to: i. usually use appropriate mathematical language ii. usually use appropriate forms of mathematical representation to present information correctly iii. move between different forms of mathematical representation with some success iv. communicate through lines of reasoning that are clear although not always coherent or complete v. present work that is usually organized using a logical structure.
7–8	The student is able to: i. consistently use appropriate mathematical language ii. use appropriate forms of mathematical representation to consistently present information correctly iii. move effectively between different forms of mathematical representation iv. communicate through lines of reasoning that are complete and coherent v. present work that is consistently organized using a logical structure.

Criterion D: Applying mathematics in real-life contexts

Maximum: 8

At the end of year 3, students should be able to:

i. identify relevant elements of authentic real-life situations

ii. select appropriate mathematical strategies when solving authentic real-life situations

iii. apply the selected mathematical strategies successfully to reach a solution

iv. explain the degree of accuracy of a solution

v. explain whether a solution makes sense in the context of the authentic real-life situation.

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: i. identify **some** of the elements of the authentic real-life situation ii. *(not demonstrated at this level)* iii. apply mathematical strategies to **find a solution** to the authentic real-life situation, **with limited success** iv. *(not demonstrated at this level)* v. *(not demonstrated at this level)*.
3–4	The student is able to: i. identify the **relevant** elements of the authentic real-life situation ii. select, **with some success**, **adequate** mathematical strategies to model the authentic real-life situation iii. apply mathematical strategies to **reach a solution** to the authentic real-life situation iv. *(not demonstrated at this level)* v. **describe** whether the solution makes sense in the context of the authentic real-life situation.
5–6	The student is able to: i. identify the **relevant** elements of the authentic real-life situation ii. select **adequate** mathematical strategies to model the authentic real-life situation iii. apply the selected mathematical strategies to **reach a valid solution** to the authentic real-life situation iv. **describe** the degree of accuracy of the solution v. **discuss** whether the solution makes sense in the context of the authentic real-life situation.
7–8	The student is able to: i. identify the **relevant** elements of the authentic real-life situation ii. select **appropriate** mathematical strategies to model the authentic real-life situation iii. apply the selected mathematical strategies to **reach a correct solution** iv. **explain** the degree of accuracy of the solution v. **explain** whether the solution makes sense in the context of the authentic real-life situation.