

Corwin International Magnet School

Mathematics, Level 3 – Assessment Criteria

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.
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.
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.
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.

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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.
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.
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.

Note: A task that does not allow students to select a problem-solving technique is too guided and should result in students earning a maximum achievement level of 4 (year 3 and higher). However, teachers should give enough direction to ensure that all students can begin the investigation.

For year 3 and higher, a student who describes a general rule consistent with incorrect findings will be able to achieve a maximum achievement level of 6, provided that the rule is of an equivalent level of complexity.

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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** different 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. communicate through lines of reasoning that are difficult to interpret.
3–4	The student is able to: i. use some appropriate mathematical language ii. use different forms of mathematical representation to present information adequately iii. communicate through lines of reasoning that are able to be understood, although these are not always clear iv. adequately organize information using a logical structure.
5–6	The student is able to: i. usually use appropriate mathematical language ii. usually use different 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.

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7-8	<p>The student is able to:</p> <ul style="list-style-type: none">i. consistently use appropriate mathematical languageii. use different forms of mathematical representation to consistently present information correctlyiii. move effectively between different forms of mathematical representationiv. communicate through lines of reasoning that are complete and coherentv. present work that is consistently organized using a logical structure.
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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: <ul style="list-style-type: none">i. identify some of the elements of the authentic real-life situationii. apply mathematical strategies to find a solution to the authentic real-life situation, with limited success.
3–4	The student is able to: <ul style="list-style-type: none">i. identify the relevant elements of the authentic real-life situationii. select, with some success, adequate mathematical strategies to model the authentic real-life situationiii. apply mathematical strategies to reach a solution to the authentic real-life situationiv. describe whether the solution makes sense in the context of the authentic real-life situation.
5–6	The student is able to: <ul style="list-style-type: none">i. identify the relevant elements of the authentic real-life situationii. select adequate mathematical strategies to model the authentic real-life situationiii. apply the selected mathematical strategies to reach a valid solution to the authentic real-life situationiv. describe the degree of accuracy of the solutionv. discuss whether the solution makes sense in the context of the authentic real-life situation.

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7-8	<p>The student is able to:</p> <ul style="list-style-type: none">i. identify the relevant elements of the authentic real-life situationii. select appropriate mathematical strategies to model the authentic real-life situationiii. apply the selected mathematical strategies to reach a correct solutioniv. explain the degree of accuracy of the solutionv. explain whether the solution makes sense in the context of the authentic real-life situation.
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