Criterion A: Knowing and understanding

**Maximum: 8**

At the end of year 5, 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.

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| **Achievement level** | **Level descriptor** | **Task-Specific/Clarifying Language** |
| 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.  |  |

Criterion B: Investigating patterns

**Maximum: 8**

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

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

ii. **describe** patterns as general rules consistent with findings

iii. **prove**, or **verify** and **justify**, general rules.

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| **Achievement level** | **Level descriptor** | **Task-Specific/Clarifying Language** |
| 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** 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 general rules consistent with findings iii. **verify** the validity of these 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 general rules consistent with correct findings iii. **prove**, or **verify** and **justify**, these 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 in year 5. However, teachers should give enough direction to ensure that all students can begin the investigation.

For year 5, 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.

Criterion C: Communicating

**Maximum: 8**

At the end of year 5, 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, coherent and concise mathematical lines of reasoning

v. **organize** information using a logical structure.

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| **Achievement level** | **Level descriptor** | **Task-Specific/Clarifying Language** |
| 0 | The student does not reach a standard described by any of the descriptors below.  |  |
| 1–2 | 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 | i. **use** some appropriate mathematical language ii. **use** appropriate forms of mathematical representation to present information adequately iii. **communicate** through lines of reasoning that are complete iv. adequately **organize** information using a logical structure.  |  |
| 5–6 | i. usually **use** appropriate mathematical language ii. usually **use** appropriate forms of mathematical representation to present information correctly iii. usually move between different forms of mathematical representation iv. **communicate** through lines of reasoning that are complete and coherent v. **present** work that is usually organized using a logical structure.  |  |
| 7–8 | 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, coherent and concise 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 5, 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. **justify** the degree of accuracy of a solution

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

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| **Achievement level** | **Level descriptor** | **Task-Specific/Clarifying Language** |
| 0 | The student does not reach a standard described by any of the descriptors below.  |  |
| 1–2 | i. **identify** some of the elements of the authentic real-life situation ii. **apply** mathematical strategies to find a solution to the authentic real-life situation, with limited success.  |  |
| 3–4 | 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. **discuss** whether the solution makes sense in the context of the authentic real-life situation.  |  |
| 5–6 | 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. **explain** the degree of accuracy of the solution v. **explain** whether the solution makes sense in the context of the authentic real-life situation. |  |
| 7–8 | 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 to the authentic real-life situation iv. **justify** the degree of accuracy of the solution v. **justify** whether the solution makes sense in the context of the authentic real-life situation. |  |