### 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.

<table>
<thead>
<tr>
<th>Achievement level</th>
<th>Level descriptor</th>
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<tbody>
<tr>
<td>0</td>
<td>The student does not reach a standard described by any of the descriptors below.</td>
</tr>
</tbody>
</table>
| 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 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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| 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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<tr>
<td>1–2</td>
<td>The student is able to:</td>
</tr>
<tr>
<td></td>
<td>i. use limited mathematical language</td>
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<tr>
<td></td>
<td>ii. use limited forms of mathematical representation to present information</td>
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<tr>
<td></td>
<td>iii. communicate through lines of reasoning that are difficult to interpret.</td>
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<tr>
<td>3–4</td>
<td>The student is able to:</td>
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<tr>
<td></td>
<td>i. use some appropriate mathematical language</td>
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<tr>
<td></td>
<td>ii. use appropriate forms of mathematical representation to present information adequately</td>
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<td></td>
<td>iii. communicate through lines of reasoning that are complete</td>
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<td>iv. adequately organize information using a logical structure.</td>
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<tr>
<td>5–6</td>
<td>The student is able to:</td>
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<tr>
<td></td>
<td>i. usually use appropriate mathematical language</td>
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<tr>
<td></td>
<td>ii. usually use appropriate forms of mathematical representation to present information correctly</td>
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<tr>
<td></td>
<td>iii. usually move between different forms of mathematical representation</td>
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<tr>
<td></td>
<td>iv. communicate through lines of reasoning that are complete and coherent</td>
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<tr>
<td></td>
<td>v. present work that is usually organized using a logical structure.</td>
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<tr>
<td>7–8</td>
<td>The student is able to:</td>
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<tr>
<td></td>
<td>i. consistently use appropriate mathematical language</td>
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<tr>
<td></td>
<td>ii. use appropriate forms of mathematical representation to consistently present information correctly</td>
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<td>iii. move effectively between different forms of mathematical representation</td>
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<tr>
<td></td>
<td>iv. communicate through lines of reasoning that are complete, coherent and concise</td>
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<tr>
<td></td>
<td>v. present work that is consistently organized using a logical structure.</td>
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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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</table>
| 1–2               | The student is able to:  
  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               | 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. discuss 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. 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               | 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 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. |