

# Mathematics

## Criterion A: Knowing and understanding

The descriptors for this criterion are the same in all five years of the program. Teachers provide students with task-specific rubrics which give detailed descriptions of the grade-level achievement expectations in the skills and techniques explored in each unit.

Achievement levels	Descriptors		
	MYP 1	MYP 2-3	MYP 4-5
7-8	The student is able to: <ul style="list-style-type: none"> <li><input type="checkbox"/> select appropriate mathematics when solving <b>challenging</b> problems in <b>both familiar and unfamiliar</b> situations</li> <li><input type="checkbox"/> <b>apply</b> the selected mathematics successfully when solving <b>challenging familiar and unfamiliar</b> problems</li> <li><input type="checkbox"/> generally solve <b>challenging</b> problems correctly</li> </ul>		
5-6	The student is able to: <ul style="list-style-type: none"> <li><input type="checkbox"/> select appropriate mathematics when solving <b>challenging</b> problems in <b>familiar</b> situations</li> <li><input type="checkbox"/> <b>apply</b> the selected mathematics successfully when solving <b>challenging familiar</b> problems</li> <li><input type="checkbox"/> generally solve <b>challenging familiar</b> problems correctly</li> </ul>		
3-4	The student is able to: <ul style="list-style-type: none"> <li><input type="checkbox"/> select appropriate mathematics when solving <b>more complex</b> problems in <b>familiar</b> situations</li> <li><input type="checkbox"/> <b>apply</b> the selected mathematics successfully when solving <b>more complex familiar</b> problems</li> <li><input type="checkbox"/> generally solve <b>more complex familiar</b> problems correctly</li> </ul>		
1-2	The student is able to: <ul style="list-style-type: none"> <li><input type="checkbox"/> select appropriate mathematics when solving <b>simple</b> problems in <b>familiar</b> situations</li> <li><input type="checkbox"/> <b>apply</b> the selected mathematics successfully when solving <b>simple familiar</b> problems</li> <li><input type="checkbox"/> generally solve <b>simple familiar</b> problems correctly</li> </ul>		
0	The student's work does not reach a standard described by any of the descriptors above.		

## Criterion B: Investigating patterns

Achievement levels	Descriptors		
	MYP 1	MYP 2-3	MYP 4-5
7-8	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>select and apply</b> mathematical problem-solving techniques to recognize <b>correct</b> patterns</li> <li><input type="checkbox"/> <b>describe</b> patterns as relationships or general rules <b>consistent with correct</b> findings</li> <li><input type="checkbox"/> <b>verify</b> whether patterns work for <b>other examples</b></li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>select and apply</b> mathematical problem-solving techniques to discover <b>complex</b> patterns</li> <li><input type="checkbox"/> <b>-describe</b> patterns as relationships and/or general rules <b>consistent with correct</b> findings</li> <li><input type="checkbox"/> <b>verify and justify</b> these relationships and/or general rules</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>select and apply</b> mathematical problem-solving techniques to discover <b>complex</b> patterns</li> <li><input type="checkbox"/> <b>-describe</b> patterns as general rules <b>consistent with correct</b> findings</li> <li><input type="checkbox"/> <b>prove or verify, and justify</b> these general rules</li> </ul>
5-6	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>apply</b> mathematical problem-solving techniques to recognize patterns</li> <li><input type="checkbox"/> <b>suggest</b> relationships or general rules <b>consistent with</b> findings</li> <li><input type="checkbox"/> <b>verify</b> whether patterns work for <b>another example</b></li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>select and apply</b> mathematical problem-solving techniques to discover <b>complex</b> patterns</li> <li><input type="checkbox"/> <b>-describe</b> patterns as relationships and/or general rules <b>consistent with</b> findings</li> <li><input type="checkbox"/> <b>verify</b> these relationships and/or general rules</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>select and apply</b> mathematical problem-solving techniques to discover <b>complex</b> patterns</li> <li><input type="checkbox"/> <b>-describe</b> patterns as general rules <b>consistent with</b> findings</li> <li><input type="checkbox"/> <b>verify the validity</b> of these general rules</li> </ul>
3-4	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>apply</b> mathematical problem-solving techniques to recognize patterns</li> <li><input type="checkbox"/> <b>suggest</b> how these patterns work</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>apply</b> mathematical problem-solving techniques to discover <b>simple</b> patterns</li> <li><input type="checkbox"/> <b>suggest</b> relationships and/or general rules consistent with findings</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>apply</b> mathematical problem-solving techniques to discover <b>simple</b> patterns</li> <li><input type="checkbox"/> <b>suggest</b> general rules consistent with findings</li> </ul>
1-2	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>apply, with teacher support</b>, mathematical problem-solving techniques to recognize <b>simple</b> patterns</li> <li><input type="checkbox"/> <b>state</b> predictions consistent with <b>simple</b> patterns</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>apply, with teacher support</b>, mathematical problem-solving techniques to discover <b>simple</b> patterns</li> <li><input type="checkbox"/> <b>state</b> predictions consistent with patterns</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>apply, with teacher support</b>, mathematical problem-solving techniques to discover <b>simple</b> patterns</li> <li><input type="checkbox"/> <b>state</b> predictions consistent with patterns</li> </ul>
0	The student's work does not reach a standard described by any of the descriptors above.		

### Criterion C: Communicating

Achievement levels	Descriptors		
	MYP 1	MYP 2-3	MYP 4-5
7-8	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>consistently</b> use appropriate mathematical language</li> <li><input type="checkbox"/> <b>consistently</b> use <b>different</b> forms of mathematical representation to present information <b>correctly</b></li> <li><input type="checkbox"/> communicate <b>clearly</b> through <b>coherent</b> lines of reasoning</li> <li><input type="checkbox"/> <b>present work</b> that is <b>consistently</b> organized using a logical structure</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>consistently</b> use appropriate mathematical language</li> <li><input type="checkbox"/> use <b>different</b> forms of mathematical representation to <b>consistently</b> present information <b>correctly</b></li> <li><input type="checkbox"/> move <b>effectively</b> between different forms of mathematical representation</li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>complete and coherent</b></li> <li><input type="checkbox"/> <b>present work</b> that is <b>consistently</b> organized using a logical structure</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>consistently</b> use appropriate mathematical language</li> <li><input type="checkbox"/> use <b>appropriate</b> forms of mathematical representation to <b>consistently</b> present information <b>correctly</b></li> <li><input type="checkbox"/> move <b>effectively</b> between different forms of mathematical representation</li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>complete, coherent and concise</b></li> <li><input type="checkbox"/> <b>present work</b> that is <b>consistently</b> organized using a logical structure</li> </ul>
5-6	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>usually</b> use appropriate mathematical language</li> <li><input type="checkbox"/> <b>usually</b> use <b>different</b> forms of mathematical representation to present information <b>correctly</b></li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>usually coherent</b></li> <li><input type="checkbox"/> <b>present work</b> that is <b>usually</b> organized using a logical structure</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>usually</b> use appropriate mathematical language</li> <li><input type="checkbox"/> <b>usually</b> use <b>different</b> forms of mathematical representation to present information <b>correctly</b></li> <li><input type="checkbox"/> move between different forms of mathematical representation <b>with some success</b></li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>clear although not always coherent or complete</b></li> <li><input type="checkbox"/> <b>present work</b> that is <b>usually</b> organized using a logical structure</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>usually</b> use appropriate mathematical language</li> <li><input type="checkbox"/> <b>usually</b> use <b>appropriate</b> forms of mathematical representation to present information <b>correctly</b></li> <li><input type="checkbox"/> <b>usually</b> move between different forms of mathematical representation</li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>complete and coherent</b></li> <li><input type="checkbox"/> <b>present work</b> that is <b>usually</b> organized using a logical structure</li> </ul>
3-4	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> use <b>some</b> appropriate mathematical language</li> <li><input type="checkbox"/> use <b>different</b> forms of mathematical representation to present information <b>adequately</b></li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>able to be understood</b>, although these are <b>not always coherent</b></li> <li><input type="checkbox"/> <b>adequately</b> organize information using a logical structure</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> use <b>some</b> appropriate mathematical language</li> <li><input type="checkbox"/> use <b>different</b> forms of mathematical representation to present information <b>adequately</b></li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>able to be understood</b>, although these are <b>not always clear</b></li> <li><input type="checkbox"/> <b>adequately</b> organize information using a logical structure</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> use <b>some</b> appropriate mathematical language</li> <li><input type="checkbox"/> use <b>appropriate</b> forms of mathematical representation to present information <b>adequately</b></li> <li><input type="checkbox"/> communicate through lines of reasoning that are <b>complete</b></li> <li><input type="checkbox"/> <b>adequately</b> organize information using a logical structure</li> </ul>
1-2	The student is able to:	The student is able to:	The student is able to:

	<input type="checkbox"/> use <b>limited</b> appropriate mathematical language <input type="checkbox"/> use <b>limited</b> forms of mathematical representation to present information <input type="checkbox"/> communicate through lines of reasoning that are <b>difficult to understand</b>	<input type="checkbox"/> use <b>limited</b> appropriate mathematical language <input type="checkbox"/> use <b>limited</b> forms of mathematical representation to present information <input type="checkbox"/> communicate through lines of reasoning that are <b>difficult to understand</b>	<input type="checkbox"/> use <b>limited</b> mathematical language <input type="checkbox"/> use <b>limited</b> forms of mathematical representation to present information <input type="checkbox"/> communicate through lines of reasoning that are <b>difficult to interpret</b>
0	The student's work does not reach a standard described by any of the descriptors above.		

## Criterion D: Applying mathematics in real-life contexts

Achievement levels	Descriptors		
	MYP 1	MYP 2-3	MYP 4-5
7-8	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>- <b>select</b> adequate mathematical strategies to model the authentic real-life situation</li> <li>- apply the selected mathematical strategies to reach a <b>correct</b> solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>explain</b> the degree of accuracy of the solution</li> <li><input type="checkbox"/> <b>describe correctly</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-<b>select</b> adequate mathematical strategies to model the authentic real-life situation</li> <li>-apply the selected mathematical strategies to reach a <b>correct</b> solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>explain</b> the degree of accuracy of the solution</li> <li><input type="checkbox"/> <b>explain</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-<b>select</b> adequate mathematical strategies to model the authentic real-life situation</li> <li>-apply the selected mathematical strategies to reach a <b>correct</b> solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>justify</b> the degree of accuracy of the solution</li> <li><input type="checkbox"/> <b>justify</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>
5-6	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-<b>select</b> adequate mathematical strategies to model the authentic real-life situation</li> <li>-apply the selected mathematical strategies to reach a <b>valid</b> solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>describe</b> the degree of accuracy of the solution</li> <li><input type="checkbox"/> <b>state correctly</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-<b>select</b> adequate mathematical strategies to model the authentic real-life situation</li> <li>-apply the selected mathematical strategies to reach a <b>valid</b> solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>describe</b> the degree of accuracy of the solution</li> <li><input type="checkbox"/> <b>discuss</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-<b>select</b> adequate mathematical strategies to model the authentic real-life situation</li> <li>-apply the selected mathematical strategies to reach a <b>valid</b> solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>explain</b> the degree of accuracy of the solution</li> <li><input type="checkbox"/> <b>explain</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>
3-4	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-apply mathematical strategies to reach a solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>state, but not always correctly</b>, whether the solution makes sense in the context of the authentic real-life situation</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-<b>select, with some success, adequate</b> mathematical strategies to model the authentic real-life situation</li> <li>-apply mathematical strategies to reach a solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>describe</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify the <b>relevant</b> mathematical elements of the authentic real-life situation</li> <li>-<b>select, with some success, adequate</b> mathematical strategies to model the authentic real-life situation</li> <li>-apply mathematical strategies to reach a solution to the authentic real-life situation</li> </ul> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>discuss</b> whether the solution makes sense in the context of the authentic real-life situation</li> </ul>
1-2	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify <b>some</b> of the mathematical elements of</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify <b>some</b> of the mathematical elements of</li> </ul>	<p>The student is able to:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> identify <b>some</b> of the mathematical elements of</li> </ul>

	the authentic real-life situation <input type="checkbox"/> apply mathematical strategies to find a solution to the authentic real-life situation, <b>with limited success</b>	the authentic real-life situation <input type="checkbox"/> apply mathematical strategies to find a solution to the authentic real-life situation, <b>with limited success</b>	the authentic real-life situation <input type="checkbox"/> apply mathematical strategies to find a solution to the authentic real-life situation, <b>with limited success</b>
0	The student's work does not reach a standard described by any of the descriptors above.		