

## NTN Knowledge and Thinking Rubric for Science Argumentation/Explanation, Grade 12

The ability to reason, problem-solve, develop sound arguments or decisions, and create new ideas by using appropriate sources and applying the knowledge and skills of a discipline.



NewTech Network

	EMERGING	E/ D	DEVELOPING	D/ P	PROFICIENT College Ready	P/A	ADVANCED College Level
<b>ARTICULATING A SCIENCE-RELATED ISSUE</b> <i>What is the evidence that the student can articulate a clear issue and explain its scientific context?</i>	<ul style="list-style-type: none"> <li>The scientific, social or technological significance of the issue is <b>missing, vague, or unclear</b></li> <li>Science content <b>contains inaccuracies</b></li> </ul>		<ul style="list-style-type: none"> <li>The scientific, social or technological significance of the issue is <b>clear</b>, but lends itself to <b>readily available answers</b></li> <li>Science content is <b>accurate</b> and makes <b>general connections</b> to the issue</li> </ul>		<ul style="list-style-type: none"> <li>The scientific, social, or technological significance of the issue is thoughtful and lends itself to a <b>complex</b> research project</li> <li>Science content is accurate and <b>discusses specific connections</b> to the issue</li> </ul>		<ul style="list-style-type: none"> <li>The scientific, technological or social significance of the issue is <b>thought-provoking</b> and lends itself to a <b>challenging</b> and complex research project</li> <li>Science content is accurate and includes a <b>clear, detailed, and relevant discussion</b> of the connection to the issue</li> </ul>
<b>ARGUMENT/THESIS</b> <i>What is the evidence that the student can communicate an argument/thesis?</i>	<ul style="list-style-type: none"> <li>Argument/Thesis is <b>unclear</b></li> </ul>		<ul style="list-style-type: none"> <li>Argument/Thesis is <b>somewhat clear</b> but <b>general</b></li> </ul>		<ul style="list-style-type: none"> <li>Argument/Thesis is <b>clear</b> and <b>specific</b></li> </ul>		<ul style="list-style-type: none"> <li>Argument/Thesis is clear, specific, and <b>nuanced</b></li> </ul>
<b>CLAIMS/SUPPORTING IDEAS</b> <i>What is the evidence that the student develop claims/ideas to support the argument/thesis?</i>	<ul style="list-style-type: none"> <li>Includes <b>unclear</b> or <b>irrelevant</b> claims/supporting ideas</li> </ul>		<ul style="list-style-type: none"> <li>Includes claims/supporting ideas <b>relevant</b> to the argument/thesis</li> </ul>		<ul style="list-style-type: none"> <li>Includes <b>specific</b> and <b>significant</b> claims/ideas that support the argument/thesis</li> </ul>		<ul style="list-style-type: none"> <li>Includes specific and <b>most significant</b> claims/ideas that <b>sharpen</b> the argument/thesis</li> </ul>
<b>COUNTERCLAIMS (OPTIONAL)*</b> <i>What is the evidence that the student can acknowledge and address counterclaims, when appropriate?</i>	<ul style="list-style-type: none"> <li>Questions or counterclaims are <b>absent, unclear,</b> and/or <b>simply mentioned</b></li> </ul>		<ul style="list-style-type: none"> <li><b>Includes</b> questions or counterclaims</li> </ul>		<ul style="list-style-type: none"> <li><b>Thoroughly develops</b> and <b>responds to clearly stated</b> questions or counterclaims</li> </ul>		<ul style="list-style-type: none"> <li>Develops and responds to questions and counterclaims in a way that <b>sharpens</b> the argument</li> </ul>
<b>EVIDENCE</b> <i>What is the evidence that the student can select and include supporting evidence?</i>	<ul style="list-style-type: none"> <li>Refers to evidence (e.g. examples, data, information) that is <b>unclear</b> or <b>irrelevant</b> to the claim/counterclaim</li> <li><b>Limited</b> use of data and/or examples or data/examples are <b>missing</b> (when appropriate)</li> </ul>		<ul style="list-style-type: none"> <li><b>Identifies limited</b> or <b>general</b> evidence (e.g. examples, data, information) <b>relevant</b> to claim/counterclaim</li> <li>Data and/or examples are used to illustrate one point of view (when appropriate)</li> </ul>		<ul style="list-style-type: none"> <li>Cites <b>specific</b> evidence (e.g. examples, data, information) <b>most relevant</b> to claim/counterclaim</li> <li>Data and/or examples are used to illustrate <b>varying</b> points of view (when appropriate)</li> </ul>		<ul style="list-style-type: none"> <li>Cites specific, <b>comprehensive</b> evidence (e.g. examples, data, information) most relevant to claim/counterclaim</li> <li>Data and/or examples are used to illustrate <b>varying</b> points of view (when appropriate)</li> </ul>



<p><b>ANALYSIS AND SYNTHESIS</b> <i>What is the evidence that the student can analyze evidence?</i></p>	<ul style="list-style-type: none"> <li>• <b>Summarizes but does not explain</b> how evidence supports the argument</li> <li>• <b>Presents</b> source/s <b>without</b> noting strengths, limitations, or discrepancies between sources (when appropriate)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Summarizes and attempts to explain</b> evidence to support the argument</li> <li>• <b>Acknowledges</b> and <b>attempts to explain</b> strengths or limitations of evidence, and/or discrepancies between sources (when appropriate)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Clearly explains how</b> evidence supports the argument</li> <li>• <b>Explains</b> the strengths and limitations of evidence, <b>addressing</b> discrepancies between sources (when appropriate)</li> </ul>	<ul style="list-style-type: none"> <li>• Explains how evidence supports the argument in a clear and <b>nuanced</b> way</li> <li>• Explains strengths and limitations of evidence, addressing discrepancies (when appropriate) to <b>present a coherent whole</b></li> </ul>
<p><b>CONCLUSION</b> <i>What is the evidence that the student can draw logical and sound conclusions?</i></p>	<ul style="list-style-type: none"> <li>• Conclusions are stated <b>vaguely or generally</b>, or are <b>implausible</b></li> <li>• Conclusions are <b>overstated</b> or <b>overdrawn</b></li> </ul>	<ul style="list-style-type: none"> <li>• Conclusions are <b>logical</b>, and generally <b>plausible</b>; <b>no further</b> implications are raised</li> <li>• <b>Briefly notes</b> limitations or unanswered questions</li> </ul>	<ul style="list-style-type: none"> <li>• Conclusions are logical and <b>well supported</b>; raises <b>plausible</b> implications</li> <li>• <b>Discusses</b> limitations and/or unanswered questions</li> </ul>	<ul style="list-style-type: none"> <li>• Conclusions are logical, well supported, and <b>insightful</b>, and raise <b>important</b> implications</li> <li>• Discusses limitations, unanswered questions, and/or <b>considers alternative explanations</b></li> </ul>

\*Counterclaims are not required or appropriate for all kinds of writing (e.g. explanatory) and should be considered optional based on task requirements

