

## Cross-Curricular Argumentation Guide A

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_ Topic: Order of Operations

<p><b>1. Clarify the claim with any qualifier and define key terms.</b> When solving the equation <math>24 - 6 \div 2 + 3^2 = ?</math> the correct answer is <b>30</b>.</p> <ul style="list-style-type: none"> <li>the order of operations – an agreed-upon set of rules that determines which operation should be done before or after others when solving an equation</li> </ul> <p><b>2. List the evidence.</b> When solving an equation using the order of operations:</p> <ol style="list-style-type: none"> <li>Actions in parentheses should be solved first.</li> <li>Exponents should be solved second.</li> <li>Multiplication or division (from left to right, as found in the problem) should be solved third.</li> <li>Addition or subtraction (from left to right, as found in the problem) should be solved fourth.</li> </ol>	<p><b>3. Analyze the reasoning.</b></p> <ol style="list-style-type: none"> <li>Since there are no parentheses in this equation, we should move to step 2.</li> <li>If exponents are solved second, then the equation becomes <math>24 - 6 \div 2 + 9 = ?</math></li> <li>If division is solved third, then the equation becomes <math>24 - \underline{3} + 9 = ?</math></li> <li>If addition or subtraction from left to right is solved fourth, the equation becomes <math>24 - 3 + 9 = \underline{30}</math></li> </ol>
<p><b>4. Identify other arguments for or against the claim.</b> The order of operations must be used to correctly solve an equation because, in this example, if you simply complete the operations from left to right you would get an answer of 18.</p>	
<p><b>5. Make a judgment about the quality of evidence, reasoning, and other arguments.</b> The evidence is good because the order of operations is a set of rules that should always be used to solve an equation. The reasoning is good because it correctly applies the order of operations to the equation in the claim.</p>	
<p><b>6. State why you accept or reject the claim.</b> I accept the claim based on the quality of the evidence and reasoning.</p>	