

## Assessment of “Students are able to solve problems using their knowledge and skills in physics”

<i>Important components of problem solving</i>	<i>Achievement level</i>			
	<b>Good</b>	<b>Average</b>	<b>Needs Improvement</b>	<b>N/A (not applicable)</b>
<b>USEFUL DESCRIPTION</b> (graphical transfer)	The description is useful, appropriate, and complete, or contains only minor omissions or errors.	Parts of the description are not useful, missing, and/or contain errors.	Most or all of the description is not useful, missing, and/or contains errors.	A description is not necessary for this <u>problem</u> . (i.e., it is given in the problem statement)
<b>PHYSICS APPROACH</b>	The physics approach is appropriate and complete, or contains only minor omissions or errors.	Some concepts and principles of the physics approach are missing and/or inappropriate.	Most or all of the physics approach is missing and/or inappropriate.	An explicit physics approach is not necessary for this <u>problem</u> . (i.e., it is given in the problem)
<b>SPECIFIC APPLICATION OF PHYSICS</b>	The specific application of physics is appropriate and complete, or contains only minor omissions or errors.	Parts of the specific application of physics are missing and/or contain errors.	Most or all of the specific application of physics is missing and/or contains errors.	Specific application of physics is not necessary for this <u>problem</u> .
<b>MATHEMATICAL PROCEDURES</b>	The mathematical procedures are appropriate and complete, or contain only minor omissions or errors.	Parts of the mathematical procedures are missing and/or contain errors.	Most or all of the mathematical procedures are missing and/or contain errors.	Mathematical procedures are not necessary for this <u>problem</u> or are very simple.
<b>LOGICAL PROGRESSION</b>	The entire problem solution is clear, focused, and logically connected, or contains only minor inconsistencies.	Parts of the solution are unclear, unfocused, and/or inconsistent.	Most or all of the solution parts are unclear, unfocused, and/or inconsistent.	Logical progression is not necessary for this <u>problem</u> . (i.e., one-step)