

Coefficients of Friction Rubric

	Level 4	Level 3	Level 2	Level 1
Knowledge and Understanding	Friction and mechanics terminology is always used correctly. Free-body diagrams are complete and accurate. Factors affecting the coefficient of friction are thoroughly and correctly described.	Friction and mechanics terminology is usually used correctly. Free-body diagrams are accurate. Factors affecting the coefficient of friction are correctly described.	Friction and mechanics terminology is sometimes used correctly. Free-body diagrams are accurate. Some factors affecting the coefficient of friction are correctly described.	Friction and mechanics terminology is sometimes used correctly. Free-body diagrams are attempted. Factors affecting the coefficient of friction are described.
Application	The experiment is performed efficiently and data collection is precise and accurate.	The experiment is performed correctly and data collection is accurate.	The experiment to determine the coefficient of static friction is performed correctly and data collection takes place.	The experiment to determine the coefficient of static friction is performed mostly correctly and some data is collected.

<p>Thinking and Investigation</p>	<p>A new and innovative procedure to determine the coefficient of static friction is developed. Students correctly explain why it is difficult to measure the coefficient of kinetic friction accurately using the same equations. More than one other way to reduce the coefficient of friction is described. More than two reasonable sources of experimental error are identified.</p>	<p>Students explain why it is difficult to measure the coefficient of kinetic friction accurately using the same equations. More than one other way to reduce the coefficient of friction is described. Two reasonable sources of experimental error are identified.</p>	<p>Students explain why it is difficult to measure the coefficient of kinetic friction accurately using the same equations. One other way to reduce the coefficient of friction is described. Two sources of experimental error are identified.</p>	<p>One other way to reduce the coefficient of friction is described. One to two sources of experimental error are identified.</p>
<p>Communication</p>	<p>No spelling, punctuation or grammar errors or very few mistakes presented.</p>	<p>Minor errors in spelling, grammar and punctuation.</p>	<p>Somewhat considerable errors in spelling, grammar and punctuation.</p>	<p>Significant errors in spelling, grammar and punctuation.</p>