Inclined Planes for a Purpose Rubric

Lab Section	Emerging Proficiency (< 75%)	Proficient (75-85%)	Proficient With Distinction (>85%)
Model + Cost Estimate	Student provides a model which is visually interesting, drawn or designed to meet a scale and includes both the micro and macro scale. This model can include measurements that maybe are less than realistic, yet may make sense in context. Some measurements may be missing or incorrect, but reasoning is provided. The model may not be realistic and therefore could not be constructed. A fairly accurate cost estimate should be provided. This estimate may be brief.	Student provides a model which is visually interesting, drawn or designed to meet a scale and includes both the micro and macro scale. This model should be coded with angular values, dimensions, and be easy to identify. The model should be able to function as a ramp if built roughly to the specifications. A fairly accurate cost estimate should be provided. This estimate must include all materials present and the quantity of such.	Student provides a model which is visually interesting, drawn or designed to meet a scale and includes both the micro and macro scale. This model should be coded with angular values, dimensions, and be easy to identify. The model should be able to function as a ramp if built roughly to the specifications. Model indicates a plethora of research and is designed to meet specifications of a larger body such as the ADA. An accurate cost estimate should be provided and itemized. This estimate must include all materials present and the quantity of such. Model is designed in such a way that it is abstract yet conveys the intent of the project: designing a ramp that can be used for handicap citizens.
Mathematics & Free Body Diagram	Free body is present and includes forces such as Weight (may not be broken into components), friction, force applied and normal. Forces are drawn to indicate equilibrium. The mathematical calculation of Weight components, friction and normal are all present and may represent an unrealistic equilibrium (i.e. the angle and mu provided	Free body is present and includes forces such as Weight (may not be broken into components), friction, force applied and normal. All forces are aligned with a parallel and perpendicular axis but may not lie along these axes. Additionally, equilibrium is assumed and forces are balanced as they should be. The mathematical calculation of Weight components, friction and normal are all present and may	Free body is present and includes forces such as Weight (may not be broken into components), friction, force applied and normal. Free body is drawn in several ways, with weight decomposed and not, and may also factor in different mu values (wet and dry). All forces are aligned with a parallel and perpendicular axis but may not lie along these axes. Additionally, equilibrium is assumed and forces are balanced as they should be. The mathematical calculation of Weight components, friction and normal are all present and an

	may not be enough to support the parallel component of weight).	represent an unrealistic equilibrium (i.e. the angle and mu provided may not be enough to support the parallel component of weight).	explanation is given for any unrealistic values.
Explanation of Results, Choices and Product.	Explanation is present and may be formatted incorrectly or is missing parts/neatness. This explanation may be written as a paragraph, a letter or as bullet points. Explanation is brief but does at least vaguely explain reasoning for materials and or angles used.	Explanation is present and formatted neatly as a Google Document. This explanation may be written as a paragraph, a letter or as bullet points. Explanation is brief but does at least vaguely explain reasoning for materials and or angles used.	Explanation is present and formatted neatly as a Google Document. This explanation may be written as a paragraph, a letter or as bullet points. Explanation is thorough and complete. It demonstrates a clear understanding of forces, angles and materials. All aspects (mu, angle, forces, materials, dimensions, etc.) are addressed.
Citations	No citations	Citations are mostly present	Citations are all present.
+5% for physical/ digital model			
5% for creativity			