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Simple Tools and Machines

Megan Harris
The College at Brockport

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The problem that is identified in this project includes portions of the 7th grade science curriculum for the Rochester City School District. The 7th grade curriculum requires students to understand physical concepts using simple tools and machines. The portion of the curriculum that includes “determining the speed and acceleration of a moving object”¹ can be found listed under Physical Setting Skills. There is a section of the curriculum labeled “Making Models” that includes the following suggested assessments; “models can be computer generated, and create representations of objects, ideas or events to demonstrate how something looks or works”². Conceptual Statements are general categories based on the Major Understandings and Performance Indicators, such as the following; “telling how an object, item, idea or model function works or behaves and, telling what the purpose or use of the object or model should be”³.

With some understanding of the curriculum, the problem encompasses many aspects of mathematical and scientific concepts. The main problem would fall under the New York State Science Standard 1, Analysis, Inquiry, and Design. The standard is stated as, “students will use mathematical analysis, scientific inquiry and engineering designs, as appropriate, to pose questions, seek answers and develop solutions”⁴. Students were told to create a machine composed of simple tools to resolve a real life problem. With a basic understanding of physics and a unique problem to solve, the students were directed to draw a blueprint of their machine that could solve the problem, and then recreate this machine on a program called Interactive Physics.

¹ Rochester City School District Intermediate Science Curriculum, p. VI

² Rochester City School District Intermediate Science Curriculum, p. IX

³ Rochester City School District Intermediate Science Curriculum, p. XI

⁴ Rochester City School District Intermediate Science Curriculum, p. 1