Mr. Renwick's Physics 11 Name(s): _____
Project - Rube Goldberg 2025-26

Learning Intention

- To learn how to combine simple machines into a more complex machine
- To learn how energy is calculated: elastic potential energy, gravitational potential energy, kinetic energy
- To learn how to calculate mechanical advantage for pulleys, levers, and gears

Notes

For this project, you will work in a group of 1 to 4 people to build a machine composed of many simple machines.

Videos about Rube Goldberg devices:

https://mrrenwick.ca/index.php/course-materials/physics-11/work-energy-and-power/rube-goldberg-devices/

Requirements

1. The requirements for the project will depend on the number of people in your group.

Number of People in Group	**1**	**2**	**3**	**4**
Videos	1	1	1	1
Number of Mechanisms	3	6	9	12
Calculation of Elastic Potential Energy	1	1	2	2
Calculation of Gravitational Potential Energy	2	4	6	8
Calculation of Kinetic Energy	1	2	3	4
Calculation of MA	1	1	2	2

See over →

2. Planning and Conducting: Submit a video of your Rube Goldberg device in action.
    1. Extending: The Rube Goldberg device works perfectly.
    2. Proficient: The Rube Goldberg device mostly works properly.
    3. Developing: The Rube Goldberg device needs lots of manual help to work properly.
3. Processing and Analyzing Data: Submit calculations of elastic potential energy (using unknown constant of elasticity K), gravitational potential energy, kinetic energy, and mechanical advantage for your Rube Goldberg device.
4. Applying and Innovating
    1. Developing: The project does not include all of the required elements.
    2. Proficient: The project includes all the required elements, combined one after the other.
    3. Extending: The project includes all the required elements, with multiple elements moving at the same time and combining to create an action.
5. Evaluating: Analyze your results. This section is the bulk of your analysis, and should use the physics terms we have been using in this unit.
    1. Describe every energy transformation in the machine.
    2. What energy is put into the machine from the outside world?
    3. What work is done by the machine on the outside world?
    4. Where is energy lost in the machine?
    5. If you had to do this exact same project again, what would you do differently?
    6. How could this project be improved for future classes?

Assessment

https://mrrenwick.ca/index.php/course-materials/physics-11/assessing-curricular-competencies/

Curricular Competency	Insufficient Evidence	Emerging	Developing	Proficient	Extending
Planning and conducting					
Processing and analyzing data					
Evaluating					
Applying and Innovating					
Communicating					