

1.05 Energy

Part 1: Lab Worksheet (30 points)

1. Give three examples, from the lab, where potential energy was converted to kinetic energy. (6 points)
2. Describe the adjustments you made to the Rube Goldberg device in order to keep the flow of energy going. (6 points)
3. At the end of the lab all of the matter (such as the string, the ball and the books) stayed in the area. The potential energy, that was stored in the ball on the high shelf and suspended weights as well as the stored mechanical energy of the sling shot, had left the system in the form of sound, motion and heat. What type of energy system (open, closed or isolated) is represented by the lab device and why? (4 points)
4. Provide an example of an isolated energy system and explain how it could be changed to create an open energy system. You may use the examples provided in the lesson or another example. (4 points)
5. Describe how the law of conservation of energy is demonstrated in this laboratory activity. (5 points)
6. In order to participate in this laboratory activity, you needed energy. Where did your energy come from? What types of energy conversions took place that allowed you to complete the laboratory activity? Describe the three steps energy diagram presented below. If you need help there is an example of a simple energy diagram on the examples tab of energy conversions section of the Why page. You do not need to include images, only words. Be sure to include the types of energy you are demonstrating. (5 points)

Part 2: Design your own Rube Goldberg Device (30 points)

Have you ever wanted to be an inventor? Now is your chance! For this portion of the assessment you will design your own Rube Goldberg device. Rube Goldberg devices use simple everyday items and take advantage of simple potential to kinetic energy conversions. When several of these conversions are combined, the device is able to perform a simple task, just like the one in the lab activity.

You do not need to build your device. You must draw it and explain how it will work. You can draw the device freehand and scan or photograph the drawing for submission to your instructor. You may also use a draw paint program on your computer.

Your description must include the energy conversions that take place. If you would like to build your device, you do not need to include a drawing; however, you will still need to provide a written description of the energy conversion (potential–kinetic) that take place in your device. If you build your device, you will need to turn in a video clip or photograph of the device with the written description of energy conversions on this worksheet.

You will be awarded points as follows:

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| The device design and description include a clear illustration and explanation of the work the device is designed to complete. | 5 points |
| There are at least 5 potential–kinetic energy conversions shown in the device construction. | 10 points |
| The energy conversions are properly labeled. | 5 points |
| Includes a written description of how the device works. | 5 points |
| Includes a drawing, video clip, or image of the device. | 5 points |
| Total Points Possible | 30 points |

Drawing and/or written description: