

(30 pts) Approx. 3 days

To begin our conversation about types of machines and the mechanics of different types of machines, we have to start with the 6 simple machines. Whether you're studying physics or engineering, the concepts behind the 6 simple machines are essential to understand. In the first part of our unit here, your job will be to learn about the 6 simple machines, do some mathematics, and then complete a scavenger hunt in our lab to find simple machines in action!

- Notes:** Start by watching the 4 Simple Machine videos linked on the website. As you watch the videos – each of them are pretty long – be sure to take notes about how the simple machine works. Your notes should also include any details or drawings that help explain some of the mathematical concepts behind those machines.
- Take a FULL 2 PAGES of notes on the 6 simple machines. There is a nice one-page summary of each of the simple machines in addition to videos on the topics. The first video discusses the *inclined plane*, *wedge*, and *screw* all in one video. The other videos are clearly labeled as *levers*, *wheels & axles*, and *pulleys*. Make sure that your notes cover all 6 simple machines.
- Simple Machine Math Assignment:** Get the *Simple Machines Math Assignment* from Mr. Benshoof. Use the equations given on that sheet to calculate all the needed forces. Think about how an engineering might use these mathematical ideas to build better machines!
- Scavenger Hunt:** Title a new page in your engineering notebook "Simple Machine Scavenger Hunt". Your scavenger hunt is to find 6 distinct examples of each of the 6 simple machines in our lab. You might find wedges at work in the robotics room.... Or maybe inclined planes in the Makerspace. Take some time to wander the whole engineering lab and record the things you find in your engineering notebook. As you record them, keep your lists organized so Mr. Benshoof can tell which items fall into which categories.

Part 1: Tasks	10-8 points	7-4 points	3-0 points
 Simple Machine Notes	+ You took 2 full pages of notes on the 6 simple machines + Your notes include details on ALL 6 of the simple machines + Your notes make it clear you watched the videos	- Your notes are missing one of the simple machines. - Your notes are lacking details from the videos	- Your notes are missing more than one simple machine
 Simple Machine Math	+ You completed the <i>Simple Machines Math Assignment</i> + You showed your work on the entire assignment + You checked your work with the answer key	- You did not complete the entire assignment	- You were missing large parts of the assignment
 Scavenger Hunt	+ You found 6 examples of every simple machine + Your examples are listed clearly in your engineering notebook + Your lists are organized in an understandable way	- You have fewer than 6 examples for each simple machine - Your examples are poorly organized	- You have fewer than 4 examples for each simple machine - Your examples are missing completely (0 pts)

