Create Your Own Compound Machine

Background Knowledge

1. A compound machine is a machine that is made up of two or more simple machines.
2. A simple machine is something that makes work easier or happen more quickly than if you were doing it by hand (without the machine's help).
3. There are 6 types of simple machines: Lever, Wheel and Axle, Pulley, Inclined Plane, Wedge, and Screw.

Project

You may work alone or with a partner.

You are to design a compound machine that does something that a person would normally do by hand. You can NOT use a motor because it is already a compound machine and would only be used to power YOUR compound machine, something that is completely unnecessary.

To help you think of ideas, consider a machine that could do work in one of the following areas: (You do not need to limit yourself to this list.)

Garden/farm
Kitchen/restaurant
Office
School
Garage

Step 1:
Read through this handout and show it to your parents. Ask your parent/guardian to sign here to indicate they have read through it:

X_____

Step 2:
You are to make a detailed drawing of your compound machine design, indicating on the drawing what simple machines are being used. You will also need to include a list of supplies you will need in order to build it. Supplies should be from home. Supplies should NOT be purchased (as much as possible). The drawing and list of supplies will be due for Mrs. Tjepkema to check by Friday, March 14th. **Please do not start building your machine until after this date.** Keep in mind you will be continuing to learn information in Science that will help you do a better job and get a better mark on this project. If you are eager to read ahead and get an early start on this project, chapters 2 and 3 in our science text book, as well as the Internet, are great resources.

Step 3:
You are to build either a working model or an actual prototype of your compound machine. You will need to troubleshoot, test your machine, and make any necessary adjustments.

Step 4:
You will present your compound machine to the class. You should include the following information in your presentation:

1. Name of compound machine
2. Identify the 2 (or more) simple machines the compound machine is made out of.
3. Explain the purpose/function of the machine.
4. Identify any troubleshooting/refinements made while constructing the compound machine.
5. Persuade the audience why we should "purchase" your compound machine.

All students need to be prepared to present their project on **Wednesday, April 9th**.

Assessment
The attached rubric shows how you will be marked. The highest mark possible is 25.

Create Your Own Compound Machine Rubric

Name of student _____ **Mark:** _____ **out of 25**

	5	4	3	2	1
Work Habits	The student always has a positive attitude about the task, is cooperative, uses class time well, and takes pride in his/her work.	The student often has a positive attitude about the task, is usually cooperative, often uses class time well, and takes pride is his/her work.	The student usually has a positive attitude about the task but is not always cooperative. He/she occasionally needs help to begin working.	The student sometimes has a negative attitude about the task and struggles to cooperate and/or use class time well.	The student sometimes has a negative attitude about the task. Poor work habits have led to a rushed or incomplete project.
Design Drawing/ Supply List	The drawing/list or supplies is detailed and easy to understand. The drawing is done neatly. It is labeled and includes at least 2 simple machines that are being used in the correct way.	The drawing/list of supplies is detailed, but somewhat difficult to understand. The drawing is somewhat messy. It is labeled and includes at least one simple machine that is being used in the correct way.	The drawing/list of supplies does not have a lot of detail and is somewhat messy. It is not labeled, but the 2 simple machines are being used in the correct way.	The drawing/list of supplies is does not have any details and is difficult to understand because of messiness. The design is not labeled and only one simple machine is being used in the correct way.	The drawing/list of supplies is incomplete.
Function	Compound machine has a function that can be demonstrated using all parts of the machine. Compound machine has a name. The machine is original and shows creativity.	Compound machine has a function that can be demonstrated using all parts of the machine. Compound machine has a name.	Compound machine has a function that can be demonstrated using some parts of the machine. Compound machine has a name.	Compound machine has a function that cannot be demonstrated. Compound machine has a name.	Compound machine has no function or name.
Modification/ Testing	There is clear evidence of troubleshooting, testing, and refinements based on data or scientific principles.	There is clear evidence of troubleshooting, testing and refinements.	There is some evidence of troubleshooting, testing and refinements.	There is little evidence of troubleshooting, testing or refinement.	The project has not been followed through to completion.
Presentation	The scientist(s) spoke loudly and described their invention extremely well.	The scientist(s) spoke loudly and described their invention with some accuracy.	The scientist(s) spoke somewhat loudly, but had some difficulty describing their invention.	The scientist(s) did not speak loudly and had a difficult time describing their invention.	The scientist(s) did not speak loudly and could not describe their invention.