

Best Lesson: “Small Things, Simple Machines”

Grade Level: 8th grade

Objective-

Experiment is a general introductory exercise to familiarize students with the different categories of simple machines (lever, inclined plane, pulley, wedge, screw, wheel and axle) by analyzing the structure and function of different items and categorizing them.

Standard-

- S8P3. Students will investigate relationship between force, mass, and the motion of objects.
 - c. Demonstrate the effect of simple machines (lever, inclined plane, pulley, wedge, screw, and wheel and axle) on work.

Materials-

- beam balance scale
- hammer
- wheels
- spring scale
- level
- pliers
- prongs
- wooden block (wedge)
- spoon
- screwdriver
- comb
- clothing line pin
- toy cart
- tape roller
- crank (generator)
- various simple machines

Safety concerns- Be careful when handling hammer and generator because they are heavy items.

Procedure-

1. Before beginning the lesson set up the stations for the experiment on a well-sized table. This is done by setting out each of your simple machines and placing a letter label in front of each simple machine.
2. Then, begin the lesson by giving them a brief introductory overview of the standard, and list on the board the 6 categories of simple machines for them to look up the definitions of provide examples of each. This will also give them a reference while performing the activity.

3. Discuss each term by relating to the class how the items they listed as examples function under the definition of the category of simple machines it was placed.
4. After discussing the terms, the class was split into teams of 3; each group designated one writer to record. I instructed them to rotate around the table recording which simple machine they believed each item was. I gave suggestions as to use the board for reference and noted that some items could fall under 2 or more simple machine categories. I also stated that an award will be given to the group with the most correctly named items (optional).
5. While the students investigated the machines, I wouldn't answer question as to directly tell them which simple machines the items were, but instead reiterated in discussion with them about the definitions and examples on the board.
6. At the end of the period, I collected each paper and then asked the class collectively what each item was and highlighted how they are categorized by their functions. I then went to discuss how many of the items were levers and they were a variety of forms. I told them about the different types of levers for a note to remember for our next experiment (optional).

What you would modify in doing the lesson again-

If I were to do the lesson again, I might use fewer items (only essential ones) and instruct them to write a short response of the reasoning behind which category they placed each item in.

Tips- Some objects were unfamiliar such as the spring scale and generator, so describing how the more ambiguous objects work initially will help.