

Explore



Introduction:

Thank you for having visited the Patton Museum! We hope the tour was enjoyable and educational.

Simple Machines Post Lesson Plan

Meets **Kentucky** Core Content Guide SC-E-1.2.3: The position and motion of objects can be changed by pushing or pulling. The amount of change in position and motion is related to the strength of the push or pull (force). The force with which a ball is hit illustrates this principle.

Meets **Kentucky** Core Content Guide MA-E-3.1.3: Students will describe properties of, give examples of, and apply to real-world or mathematical situations: The process of using data to answer questions (e.g., pose a question, plan, collect data, organize and display data, interpret data to answer question)

Meets **Indiana** Standard 3.6.1: Investigate how and describe that when parts are put together, they can do things that they could not do by themselves.

Purpose:

To extend knowledge learned at the museum about objects that are used to help humans do tasks.

Objectives: Students will:

1. Analyze a graph created at the Patton Museum and a graph created at home/classroom in order to determine the most common types of simple machines.
2. Be able to identify simple machines (Wheel and axle, inclined plane, pulley, wedge, screw, lever, gear) within their classroom and/or at home.

Vocabulary:

- a. Frequency (the number of observations in a given category)
- b. Estimate (to calculate approximately)
- c. Predict (to say in advance what one believes will happen)

Materials:

1. [Graph Sheet for Patton Museum Tour](#)
2. [Graph Sheet for classroom or home](#)
3. [Worksheet for classroom exercise](#)
4. [A sample of a bar graph](#)
5. [An assessment rubric](#)

Methods:

Time: 30 minutes.

Preparation:

Prior to this exercise have a glance around your classroom to have a look at how many simple machines you already have in your classroom and write the answers down just so you are not caught of guard by some of the student answers.

Anticipatory Set:

Remind students that they had created a graph at the Patton Museum of all the different types of simple machines. Have them retrieve the graph they had constructed at the museum or provide a new graph sheet that they can redo.

Set:

Have students look at the graph they created from the museum. Explain that this type of graph is also known as a bar graph. Show them the bar graph as a sample. From the museum bar graph the students constructed they can access information about all the different machines they sorted at the museum.

1. What is the most common type of simple machine found on the graph? What is the frequency (number) of the most common type of simple machine?
2. What is the least common simple machine? What is its frequency?
3. How many wheels and axles did they find?
4. How many more levers did they find compared with pulleys?

Now give them the blank graph paper. (The next part of the exercise can be done at home or within the classroom. I have designed it for the classroom)

After a comparison of the different machines sorted at the Patton Museum ask the students to estimate (or predict) how many of each type of simple machine they believe they will find within the classroom. Based on the types of simple machines have them write their predictions or estimations down on their worksheet.

Now allow the students to wander around the classroom for 5-10 minutes (depending on their grade level) looking for the simple machines. Have them fill in the blank graph sheet and instead of coloring it in have them write down the object or its location (the desks and chairs may be put together with screws so just have the child write down the object that contains the simple machine). At the end of the time period have them return to their desks.

Now ask them to match their predictions with what they actually found. Have them write down their answer on the worksheet.

Now put a blank simple machines graph sheet on the overhead projector or place/draw a large graph on the board. Ask the students to start listing off the simple machines by category found in the classroom. Construct the graph in front of the students. Leave the graph up, as it will be necessary for them to look at the graph for them to formulate their answers to complete the

worksheet. Have them finish their worksheets and hand in their classroom graph and their worksheet together.

Extensions:

Have the students at their next computer class try to put their classroom graphs (or their Patton Museum) into Excel. They can then make bar graphs, pie graphs and line graphs from the information.

Good Books about Simple Machines:

What is a Pulley (Welcome Books) by Lloyd G. Douglas

What is a Wedge (Welcome Books) by Lloyd G. Douglas

What is a Screw (Welcome Books) by Lloyd G. Douglas

What is a Plane (Welcome Books) by Lloyd G. Douglas

Simple Machines (Starting With Science) by Adrienne Mason, et al

Janice VanCleave's Machines by Janice VanCleave

Experiments With Simple Machines (True Books) by Salvatore Tocci

The NEW Way Things Work by David Macauley (excellent resource book for teachers)