

Create Your Own Amusement Park with Simple and Compound Machines

Grade Level: 1st - 5th; **Type:** Physical Science

Objective:

To design an amusement park using your knowledge of forces and simple machines.

Research Questions:

- How does each simple machine make work easier?
- How can simple machines be combined to create compound machines?

We use machines every day to make our work easier. The compound machines that we use are oftentimes made up of multiple simple machines such as pulleys, levers, and inclined planes. Each simple machine serves a purpose to change force, thus making work easier. Simple and compound machines are not just for work though; they can also be used to create fun such as the rides at an amusement park!

Materials:

- Cardboard
- Scissors
- Balls of different sizes
- Straws
- Thread spools
- Paper plates
- Pencils
- Tape
- Paper fasteners
- Other materials that can be used to build simple and compound machines



Experimental Procedure:

1. If you've ever been to an amusement park, think about the rides that you rode and draw a picture of each. If you haven't been to an amusement park, look at pictures of rides on the Internet or in travel brochures. Looking closely at each ride, determine what types of simple and compound machines could have been used to build them. (e.g. A roller coaster uses inclined planes, screws, and wheel and axles.)
2. Use the ideas that you just generated to design your own amusement park rides. Decide what kind of machines you will need. Make a drawing of each of your rides, labeling the simple machines you used to create them.
3. Compile a list of materials that you will need to make your rides and then gather the materials.
4. Cover a large open space (floor or table) with the large piece of butcher paper or bulletin board paper. Set up your amusement park rides on the paper. Draw in some roads, sidewalks, grass, and other things you might find at an amusement park.
5. After you have your amusement park set up, take some friends or a parent on a tour. Tell them about each of your rides and the simple machines that were combined to build them. If possible, demonstrate how your rides work to show how forces change and how movement takes place.

Terms/Concepts: Force; Simple machine; Compound machine; Inclined plane; Lever; Pulley; Screw; Wedge; Wheel and axle

References:

<http://www.mikids.com/Smachines.htm>

<http://science.pppst.com/simplemachines.html>

<http://edtech.kennesaw.edu/web/simmach.html>

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