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SCIENCE ★ TECHNOLOGY ★ ENGINEERING ★ MATH

PRESENTED BY: girlstart

Engineer a Chariot

Before there were planes, trains or cars, the ancient Greeks used horse-drawn chariots as fast transportation. Explore how the simple machines of a wheel and axle are used to make your own chariot. What animal would you use to pull your chariot? How would transportation be different if we still used chariots?

TEKS:

5.6A Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy.

5.3C Draw or develop a model that represents how something works or looks that cannot be seen such as how a soda dispensing machine works.

4.6A Differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal.

Materials:

- 2 cardboard wheels per car
- 2 dowels per car
- Cardboard body
- Duct tape
- Scissors

How To

1. To make a chariot, you will need a cardboard body, 2 wheels, duct tape, and two dowels. You will need to remove 2in x 1in piece of cardboard from the middle of the flat end of the cardboard. (The corrugation in the cardboard should be going side to side)
2. Locate the end of the cardboard containing a space where the piece was removed. Students push the dowel through the corrugation on one side of the cardboard. About ¾ of an inch from the edge. Students push the dowel through to the opposite side of the cardboard, being sure to keep the dowel parallel to the edge of the cardboard.
3. Wrap a small piece of tape around each end of the axle approximately one inch from the end. This will prevent the wheel from moving up against the vehicle. Make sure the tape does not rub against the vehicle.
4. Poke a hole through the center of each wheel then insert a wheel into each end of the dowel. Use tape to secure the wheel to the dowel so it does not move freely around the axle.

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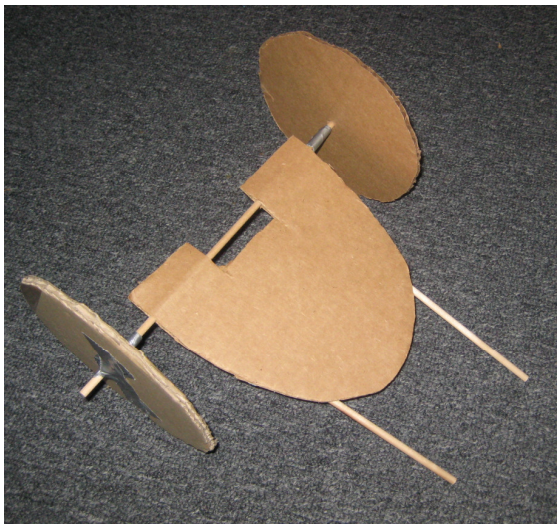
How To Continued...

5. Cut the remaining dowel in half, taping each one on one side of the front of the body. (These will represent the parts of the chariot that are pulled to make it move)
6. Test your completed chariot by pulling on the dowels in the front and making sure it rolls! You can even attach it to a toy car or something to make it move forward on its own.



Why Does it Work?

A wheel and axle is one of the six simple machines. In a wheel and axle, the wheel (or wheels) is attached to the axle and they rotate together as one. This makes it easier for something to move along a surface, by the spinning of the wheels and axle, less work has to be done to move forward.

Career Connection:

Automotive engineers design the vehicles that we use in our daily lives. They follow the engineering process from design to final product. Automotive engineers work to design and produce vehicles that meet safety, style, comfort, handling, and other consumer needs.

