



Curiosity Guide #502

Simple Machines: Wedge

Accompanies Curious Crew, Season 5, Episode 2 (#502)

Log Splitter

Investigation #7

Description

How much wood could a woodchuck chuck if a woodchuck could---use a wedge?

Materials

- Ax
- Hatchet
- Wedge
- Sledgehammer
- Work gloves
- Safety glasses
- Log cutoffs
- A friend

Procedure

- 1) Put on safety glasses and work gloves.
- 2) Show your friend the ax and the hatchet. Ask him which tool he thinks would be better for splitting logs.
- 3) Try splitting a log with the back side and sharp edge of each of the tools.
- 4) How did the tools compare?
- 5) Demonstrate the use of a wedge. Place the tip of the wedge in the center of the log. Strike the wedge lightly with the sledgehammer until the wedge is slightly embedded in the log.

- 6) Use both hands and continue to strike the wedge with the sledgehammer.
- 7) Which method was easiest?

My Results

Explanation

Even though wedges have many purposes, they are most frequently used to separate things. The blunt edges of the ax and hatchet can crush the wood but won't separate it. The sharp edges separated the wood fibers enough to penetrate the wood and split the wood in two. What happened when a sharp wedge was used? The advantage is that the wedge changes the direction of the input force. When striking down on the wedge, the output force from the shape of the wedge caused the wood to move away in two directions and made the job easier.

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