Curiosity Guide #202
Levers

Accompanies Curious Crew, Season 2, Episode 2 (#202)

Lift Your Parent

Investigation #4

Description

Use a lever to lift your parent!

Materials

- Adult
- Child
- Wooden board, 2 inches thick by 6 inches wide by 12 feet long
- Small log or wood block to use as a fulcrum

Procedure

1) Place the fulcrum on the floor in an open space.
2) Place the board with one end lying flat on the fulcrum. Start with the board overhanging the fulcrum by 5 feet.
3) Stand the adult on the end of the board nearest the fulcrum.
4) You stand or sit on the other end of the board.
5) Did you lift the adult off the ground?
6) Re-position the board so there is an overlap of 4 feet, then 3 feet, and so on.
7) At what point can you lift your adult off the ground?

My Results

Explanation

A lever is a simple machine that uses a rigid arm or beam and a pivot point to lift or move heavy objects. A load is positioned somewhere on the length of the beam while effort is applied to another part of the beam. Pivoting the beam against a pivot point, which is also called a fulcrum, can reduce the amount of effort the user must apply to get the job done.

By shifting the position of the fulcrum, the user can get an increased mechanical advantage. For example, the greater the distance the fulcrum is from the end of the effort arm, the heavier the load a user can move. The distance of the effort arm increases the effect of the force that is applied. When the lever is balanced, the distance of the effort arm will equal the load force multiplied by its distance to the fulcrum on the other end. By increasing the length of the board on the child's side, his or her effort is multiplied. This makes it possible to lift an adult off the ground!

Parents and Educators: use #CuriousCrew #CuriosityGuide to share what your Curious Crew learned!

Curious Crew is a production of Michigan State University.
Learn more at WKAR.org.