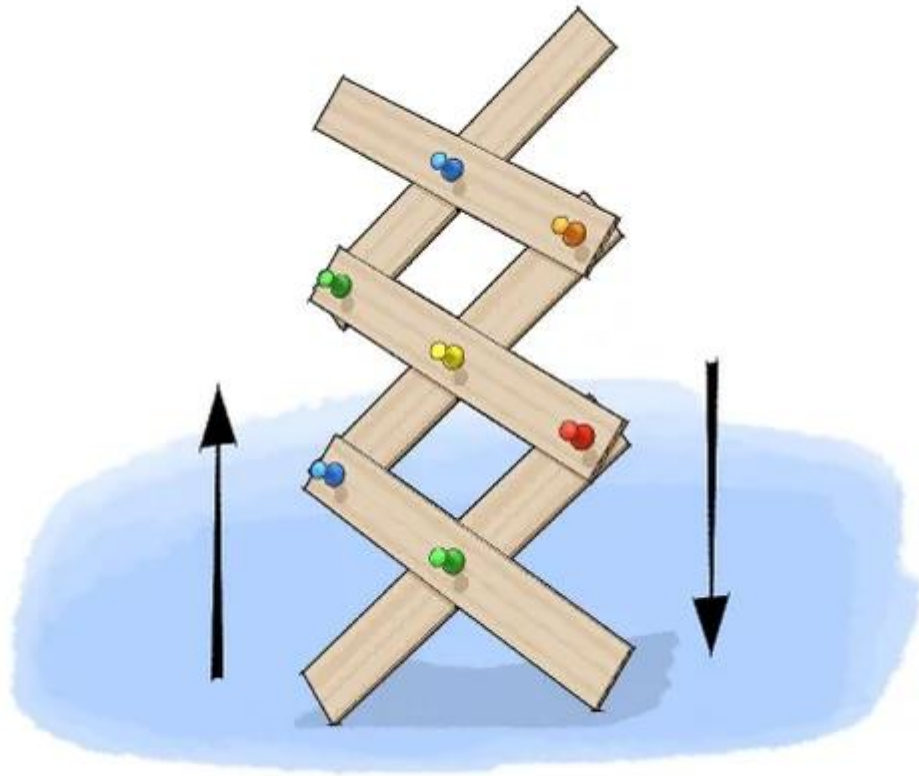


Build a Cardboard Scissor Lift



Have you ever wanted to reach something way up high on a shelf? Have you ever watched construction workers who need to reach up a tall utility pole? A scissor lift is a device that can extend to a great length but also fold up very compactly. In this project you will build your own scissor lift from common household materials!

Materials

-Cardboard -Pushpins or thumbtacks -Modeling clay or Play-Doh -Scissors - Ruler (optional)

Preparation

Cut the cardboard into at least six equal-size strips. The exact dimensions do not matter but roughly one inch wide and 4 inches long is a good start.

Procedure

Carefully use pushpins to poke through the center of two strips and join them to form an "X."

Form an X with a pushpin and each remaining pair of cardboard strips.

Now, use pushpins to join the top of one X to the bottom of another X. It is important that the pushpins be in about the same location on each strip. (For example, don't put one right in the middle and another one close to the edge.)

Continue joining the top of one X to the bottom of the next X with pushpins. Make sure you alternate left to right which piece of cardboard is on top and which is on the bottom—this will keep your mechanism flat.

Use small bits of modeling clay or Play-Doh to cover the points of the pushpins sticking through the back of the cardboard.

Now, lay your entire scissor lift flat on a table. Gently hold the free ends of one X with your fingers. Try lightly pulling them away from each other.

What happens?

Now try gently pushing them toward each other.

What happens?

Use a ruler or tape measure (if you have one) to measure the total length of your scissor lift when it is contracted all the way and when it is extended all the way.

How much can it change its length?

Optional: Your cardboard scissor lift is a nice example of how the mechanism works, but it is not very sturdy. Can you build a sturdier scissor lift out of different materials? Can you put a "claw" on the end so you can use it to reach and grab for things.