Machines in the Workforce	Grade 4 Machines and Their Mechanisms

Linkages: Scissor Lifts

Background

Linkages are found in any number of machines and tools. They are used to provide suspension in cars, are components of robotic limbs, provide the movement for windshield washers and apply force in bolt cutters. One common application of linkages in the workforce is in a scissor lift.

Scissor lifts are platforms that move vertically using linked folding supports that cross in a X-pattern. The platform is lifted by the application of pressure to the outside of the lowest supports using hydraulic, pneumatic or mechanical systems. Releasing the pressure allows the lift to come back down which makes scissor lifts a safer platform system as there's always a fail-safe for getting workers back to the ground.

Many jobs use scissor lifts or other lifting machines to get workers to height. Some examples are:

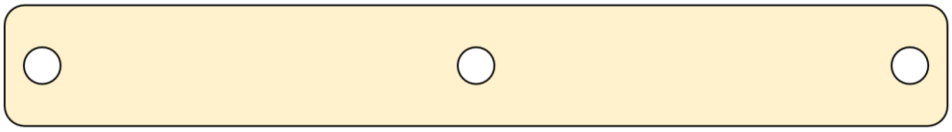
- Construction and contracting
- Outdoor signage
- Painting and cleaning
- Large Retail and Warehousing
- Manufacturing

Materials

- 6 Popsicle sticks
- Drill
- Skewers
- Beads
- Hot glue gun
- Wire cutters/garden sheers

Procedure

1. Drill a hole into the centre and into the ends of each of the popsicle sticks (This can be done ahead of time for the students.)



2. Cut the skewers into inch long pieces
3. Combine the pieces using the dowels to make a scissor lift
4. Beads can be glued to the ends of the skewers to keep everything in place

5. Push the bottom two pieces to extend the mechanism

Sources

Scissor Lift Picture: https://dozr.com/blog/scissor-lift