



ACTIVITY BOX - YOUTH MANUFACTURING HYDRAULIC SCISSOR LIFT

OVERVIEW

You work for Lyfdit Flinglt & Tozz Manufacturing as a skilled Tradesperson. As an essential employee in the company, you are responsible for analyzing, assembling and implementing new workflow processes through simulation and observation. LF&T Manufacturing manufactures construction lift and demolition equipment.

PROBLEM

As LF&T Manufacturing grows there are more materials need to be stored. A large shelving unit has been created and a new scissor hydraulic lift is needed to lift the large and heavy objects onto the vertical shelving units.

It is your job to design, create and build the new scissor lift.

It must be able to lift different objects of various weights and be made with the materials provided. You should also include a blueprint drawing of the design before you begin assembly.

MATERIALS

- Pre-drilled popsicle sticks (8)
- Regular popsicle sticks (2)
- Skewer (1)
- Paper clips (4)
- Tubing (1)
- Syringes (2)
- Rubber duck (1)
- Red plane (1)

DIRECTIONS

Step 1

Make sure you have all items needed before you assemble your lift.

Step 2

Cut the skewer into four (4) equal pieces (you may want to remove the pointy end for safety)

Step 3

On each pre-drilled popsicle stick, find the hole at the end and center of each stick.



Step 4

Straighten out each paper clip and cut or slowly bend the paper clip back and forth until it breaks to make two equal pieces. You should now have eight (8) pieces of paper clip.

Step 5

Using the paper clip piece, connect two popsicle sticks by the middle hole. The popsicle sticks should cross like an X. The sticks should be able to move or pivot. Repeat this four times.

Step 6

Using more paper clip pieces, connect two of your X's by the holes at the end on the popsicle stick. This should connect the X's. Wrap the paper clip piece around the stick to secure. Do this twice. You should end up with two pieces that resemble "XX."

Step 7

At the top and bottom of the "XX," attach both structures together with the four pieces of the skewer. You will be left with an accordion-like mechanism. Tip: You may wish to tape the ends of the skewers to prevent them from sliding around.

Step 8

Place the two remaining popsicle sticks on and across and on top of the top skewers, taping them down only on one side.

Step 9

Pull the plunger out of the first syringe as far as it will go. With the other syringe, push the plunger in as far as it will go. Then, tape (or glue) each end of the tubing to the tip of each syringe without changing the position of the plungers.

Step 10

Place the syringe with the extended plunger inside the bottom of your lift. It should sit in between two skewer pieces. Tape the plunger of the extended syringe to the inner bottom skewer and the tip of the same syringe to the top of the opposite skewer along the bottom securing it in place with tape (or glue).

Step 11

Pull the plunger of the compressed syringe out to extend and lower the lift.

Congratulations!

Because of your hard work and skill in assembling and testing, LF&T has been able to increase and streamline its storage of materials and therefore double its production!

Combine your lift with your classmates or see who can more accurately reach a specific height in one go....