



Model Robotic Hand

Objective: Construct a model robotic hand with cardboard to learn how the tendons in your hand work.

Warning: This activity is more suitable for older youth. Please do under supervision of an adult.

Materials:

- Cardboard
- Scissors
- Bendable drinking straws
- Hot glue gun and glue sticks
- String
- Pencil
- Wide rubber bands
- Utility knife

Instructions:

1. Trace your hand on cardboard with a pencil and cut it out.
 - Cut a little larger than traced hand.
2. Create joints using your pencil by marking horizontal lines in the location of where your joints and knuckles match with your real life hand. Using the utility knife score the cardboard where you marked the lines.
 - There should be 3 lines for each finger.
3. On the opposite side glue down a straw on each finger.
 - Place the bendy part at the palm of the hand.
 - Trim the straws at the end of each finger.
4. Using the utility knife slice the straws off at 45 degree angles where the joints and knuckles are located. This will also help to allow all of the fingers to bend.
5. Run a piece of string through each of the straws leaving excess at both the top and bottom.



6. Cut the rubber bands in half. At the top of each finger tie the string and rubber band together in a small knot.
7. On the back side of the hand (opposite the straws) glue the loose end of the rubber band down.
 - Run the rubber band parallel down the finger and only glue right at the end of the rubber band. Leaving the rest of the rubber band loose allows the fingers to move freely and return to their natural state once they have been curled.
8. Once complete use the strings at the bottom of the hand to move the fingers.
 - Try making sign language letters or picking up objects.