3 Create a moving robot hand

Engineer a mechanical model.

What you need

- Card
- Pencil
- Scissors
- Double-sided sticky tape
- Paper drinking straws
- Needle and thread

How does it work?

Hands have lots of bones, tendons and ligaments. Tendons and ligaments are strong, flexible body parts that act like ropes. Tendons connect your muscles to your bones – letting you move your limbs – while ligaments connect bone to bone. They are made of collagen, a protein found inside the body. In the robot hand, the thread acts like your tendons and the straws like your bones. Pulling the strings makes the straws get closer together, just like when you flex your arm muscles to make your hands grab something.

THAT'S HANDY

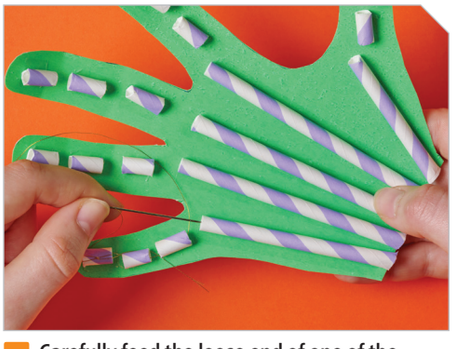
A quarter of all the bones in a human body are in the hands.

1 Trace your hand on a piece of card and cut it out. Look at where your fingers bend, then crease the card to match. Fold three joints into the four fingers and two for the thumb.

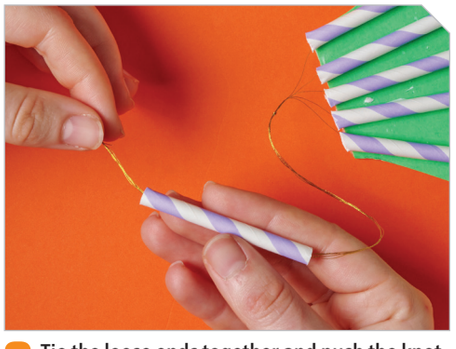
2 Cut some double-sided tape to fit in the spaces between the joints and to run down the palm of the hand. You'll need 14 small pieces and five long ones. Peel off one side and stick them on.

3 Now, cut the paper drinking straws to match the length of the double-sided sticky tape. Peel the backing off the tape and carefully attach the straws to the hand.

4 Cut five pieces of thread, each about 20cm long. Each thread needs to be attached to one fingertip – stick it on, or use the needle to push it through the straw and tie a knot.



5 Carefully feed the loose end of one of the threads down through each of the straws on the finger and hand. Repeat the process for the other four fingers.



6 Tie the loose ends together and push the knot through another 5cm length of straw. Now you can gently pull on the strings to make your robot hand move. Can you pick up any objects?

REX SHUTTERSTOCK