

How an arm works



Build an arm model: Student sheet



Equipment

- Split pin
- Tape
- Balls of string
- 2x straws of any type
- 2x balloons (two per group of four)
- One sheet of A2 card



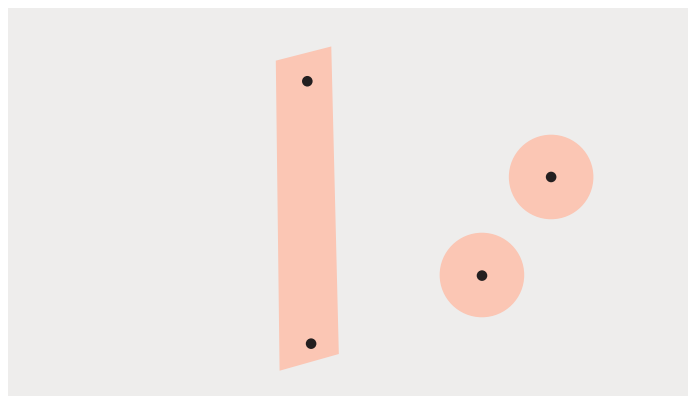
Method



1. Collect your materials together



2. Cut out two circles and four strips of cardboard. Two of the strips of cardboard should be slightly smaller in length than the other two (the size should be roughly the same as your own arm and elbow)



3. Punch holes in the circles and at the ends of one of the shorter cardboard strips

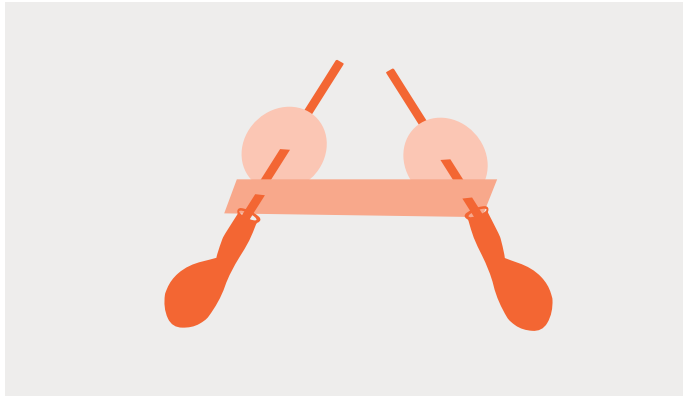


Remember! For hygiene reasons only one person in your group should be in charge of blowing up the balloons.

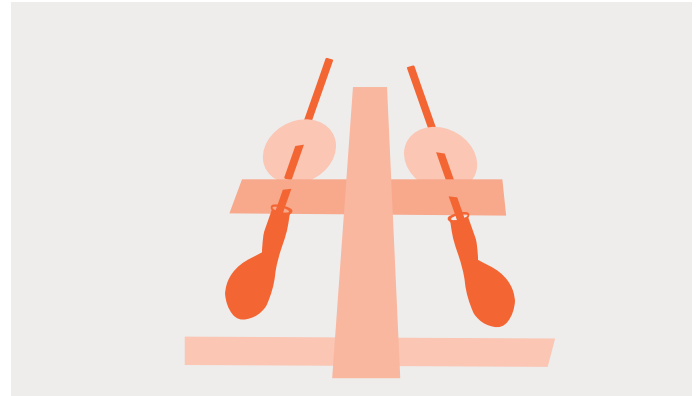
4. Sellotape each balloon to a straw, making sure you can still blow up the balloons through the straws

How an arm works

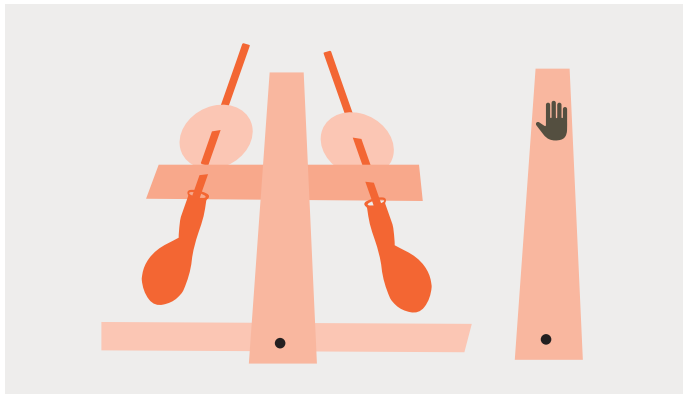
Build an arm model: Student sheet



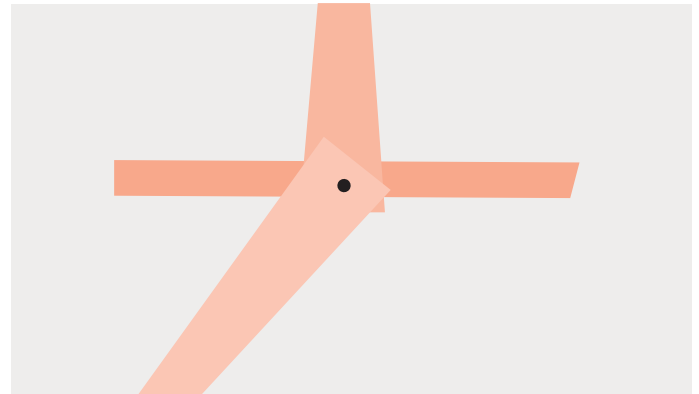
5. Slot the straws through the holes in the longer cardboard strip and then the circles



6. Tape the other longer cardboard strips in place as shown in the picture. This section of the model is the arm



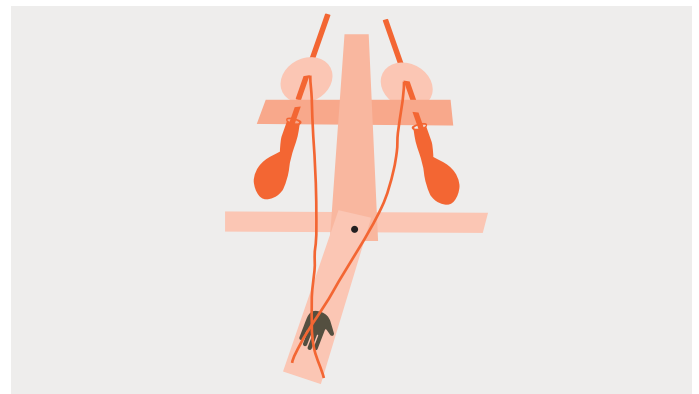
7. Punch a hole in the bottom end of the cardboard strip on your model, and at one end of the remaining shorter cardboard strip and draw a hand on the other end of it. This will be your elbow joint



8. Use a split pin through the two holes you made in step 7 to create an elbow joint. Make sure the joint can move freely



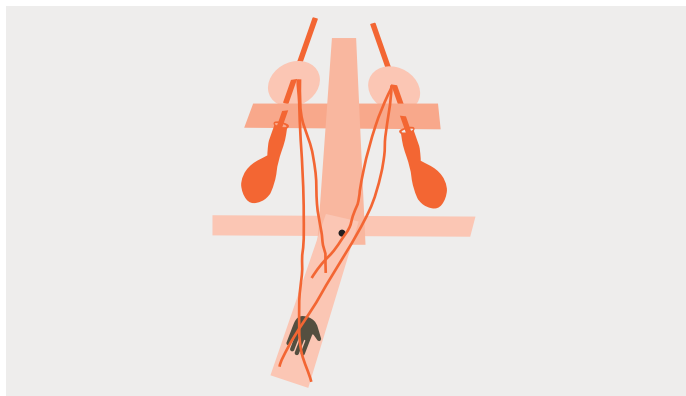
9. Cut 14 pieces of string, long enough to reach from the top to the bottom of your model



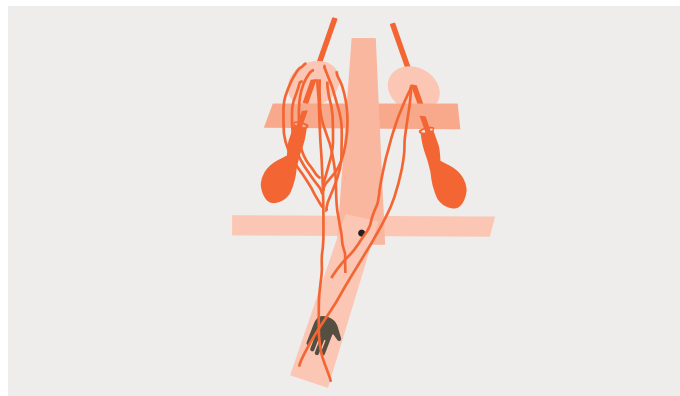
10. Secure two long pieces of string from the cardboard circles to near the bottom (hand) of your arm

How an arm works

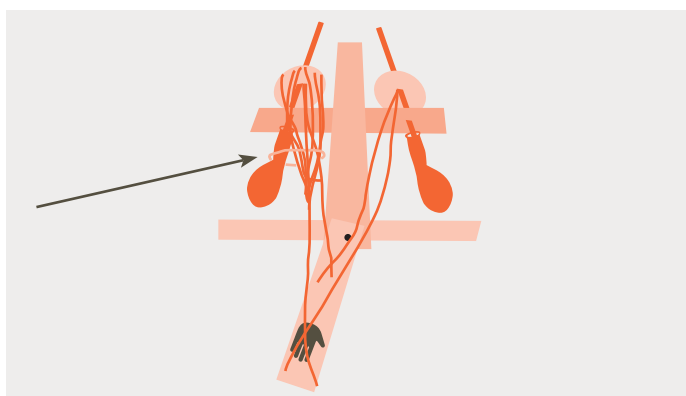
Build an arm model: Student sheet



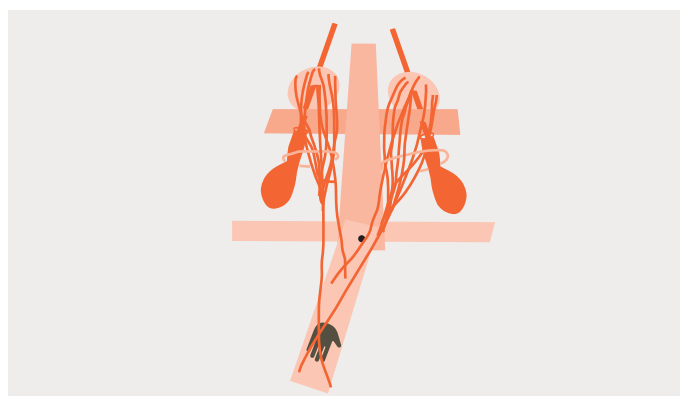
- 11.** Secure two more pieces of string from the cardboard circles to just beneath the elbow joint. These four strings represent tendons which connect the muscles to the bones



- 12.** Connect six more strings to a cardboard circle, and secure together with the existing two strings, underneath the balloon



- 13.** Now tie a string around all the strings, creating an enclosure around the middle of the balloon



- 14.** Repeat for the other side. Your model is complete

Well done on completing your model! Some questions for you to consider:

- Which balloon is the tricep?
- Which balloon is the bicep?
- What happens when you blow them up?