

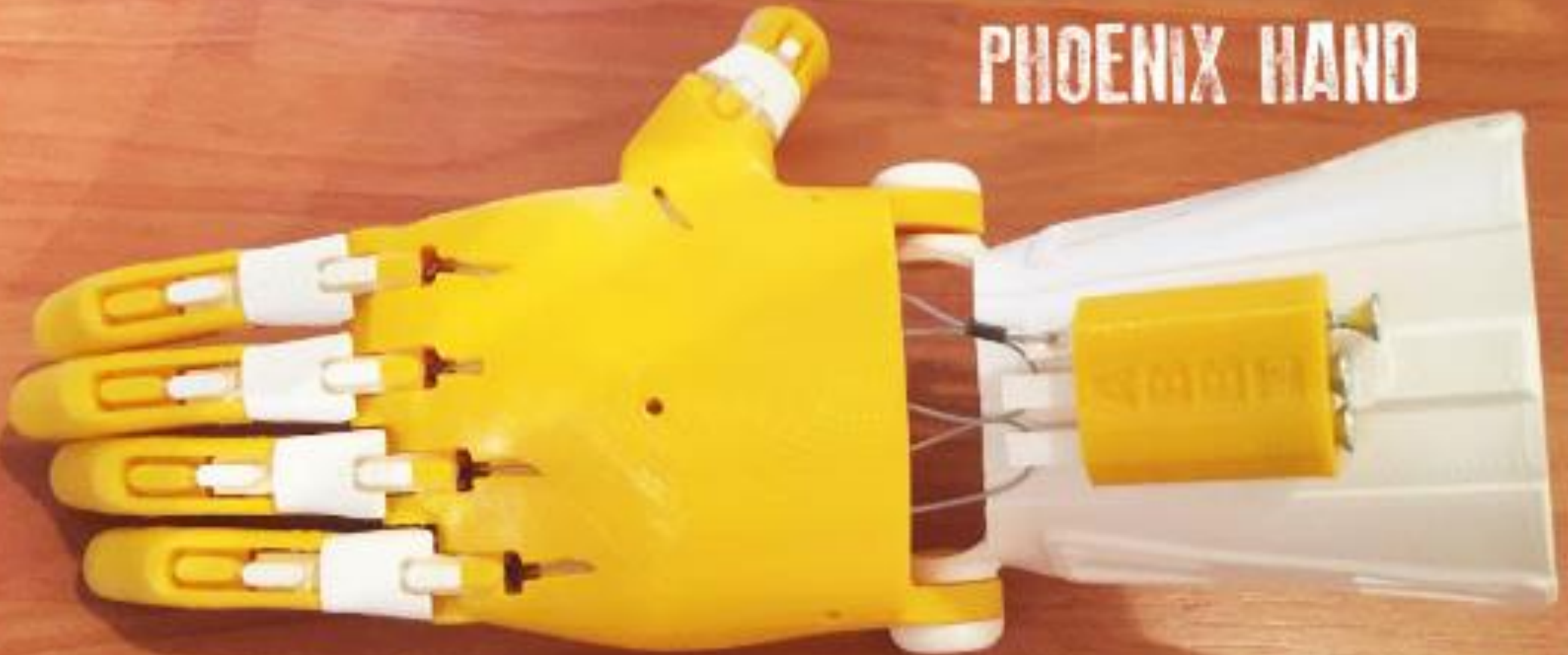


Assembling e-Nable hands

Thierry Oquidam, e-Nable France

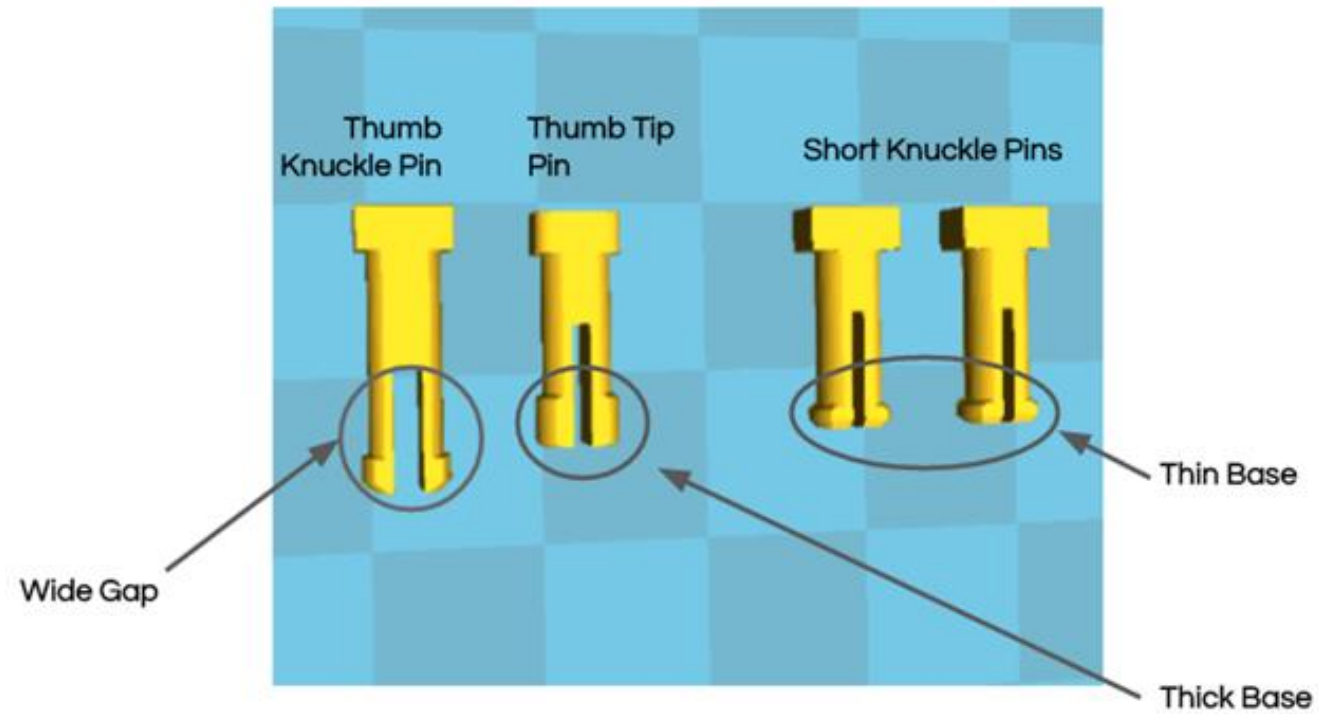
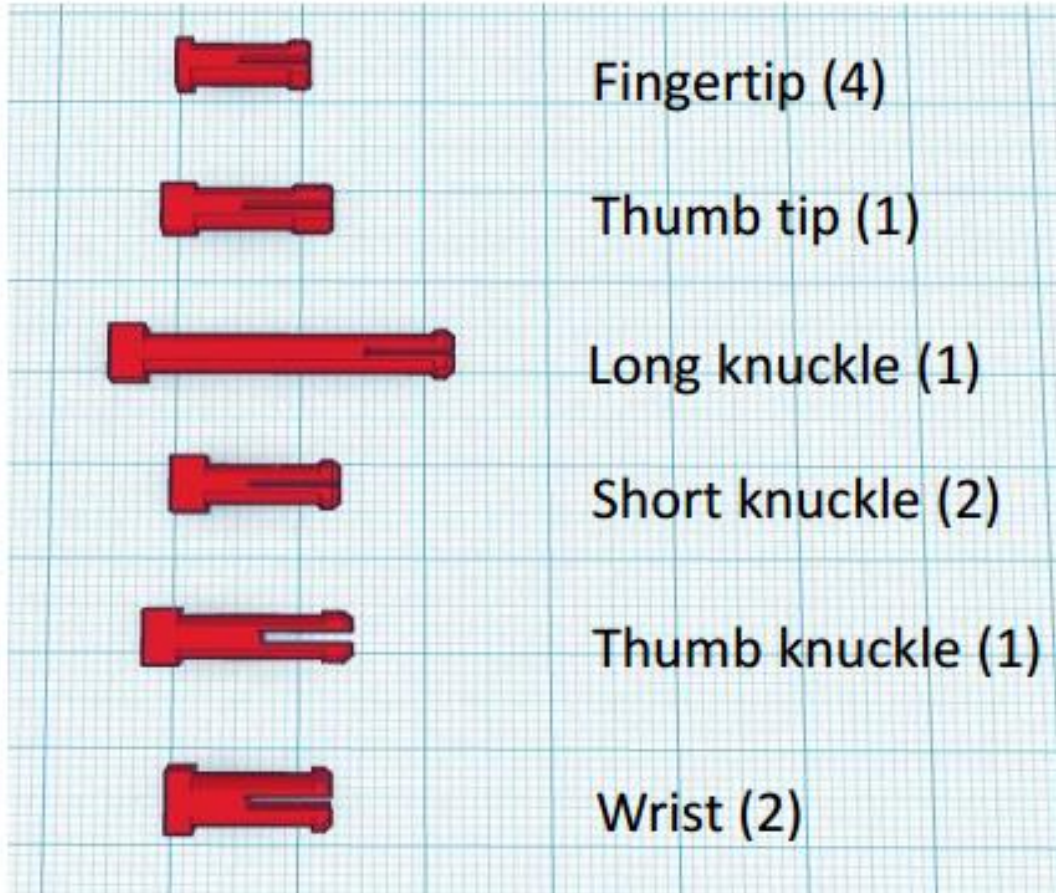


PHOENIX HAND

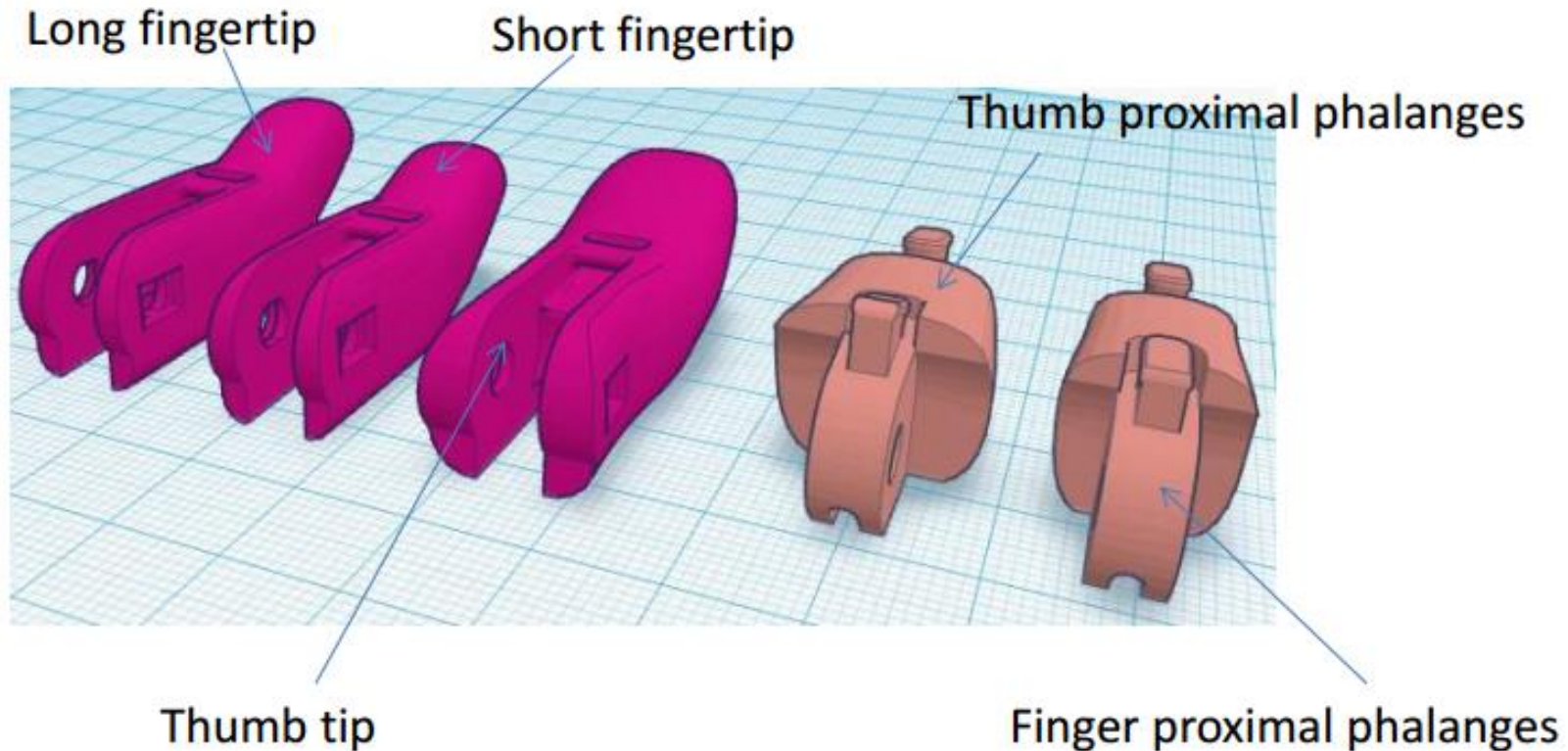




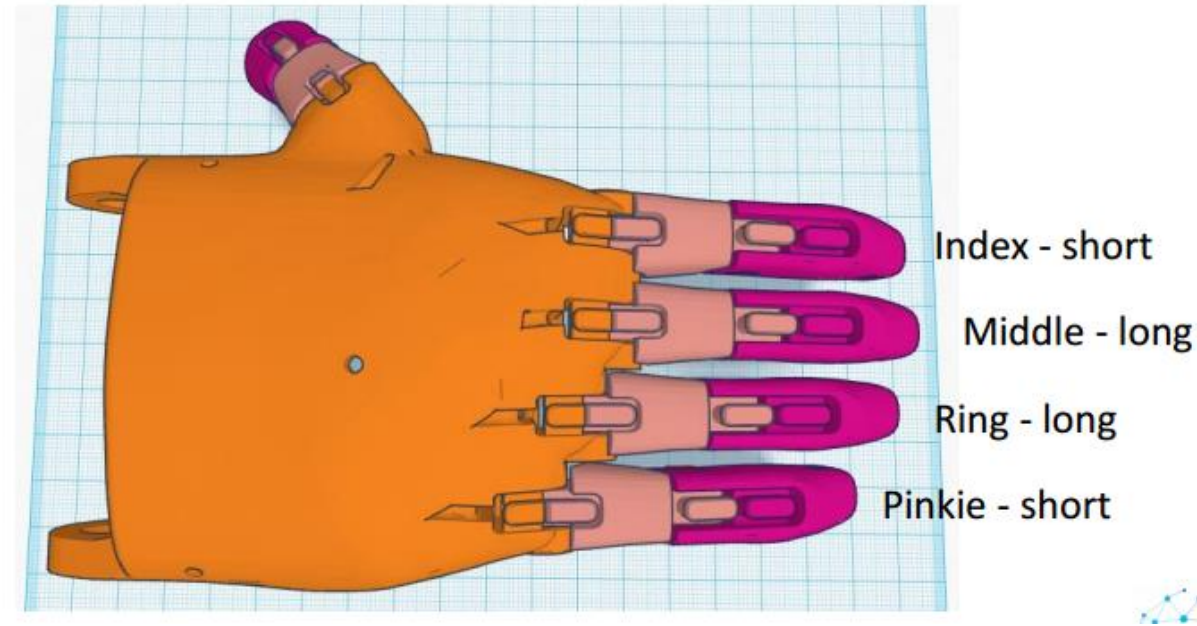
Identify your snap pins



Identify the fingers and thumb



Identify the locations of the short and long fingers

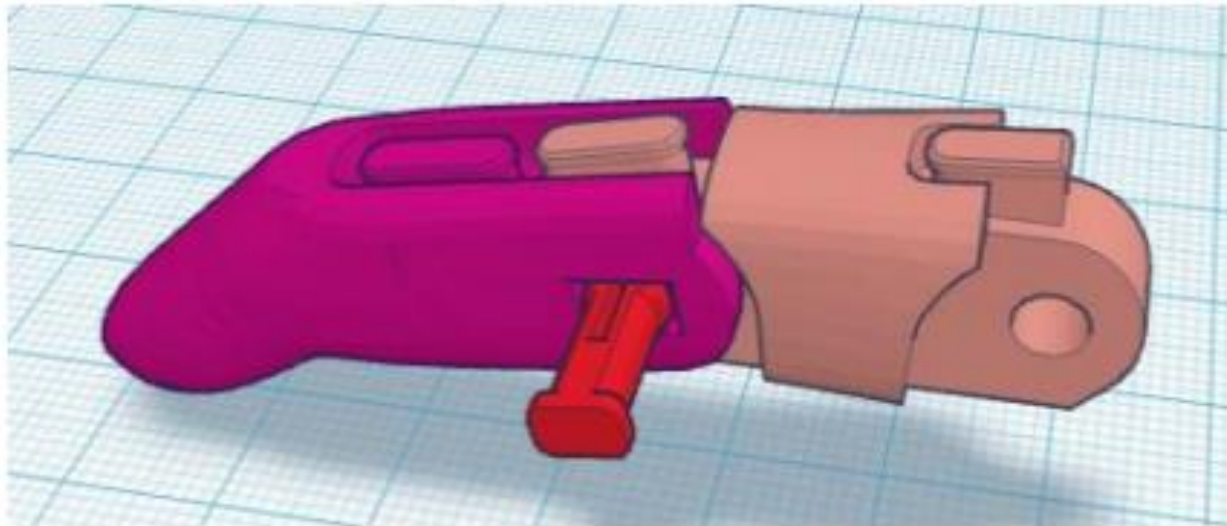


Once you have all fingers assembled, use the knuckle pins to connect them to the palm.

Remember: The index and pinky finger (First and last finger) have the short finger tips, the middle two are the long finger tips.



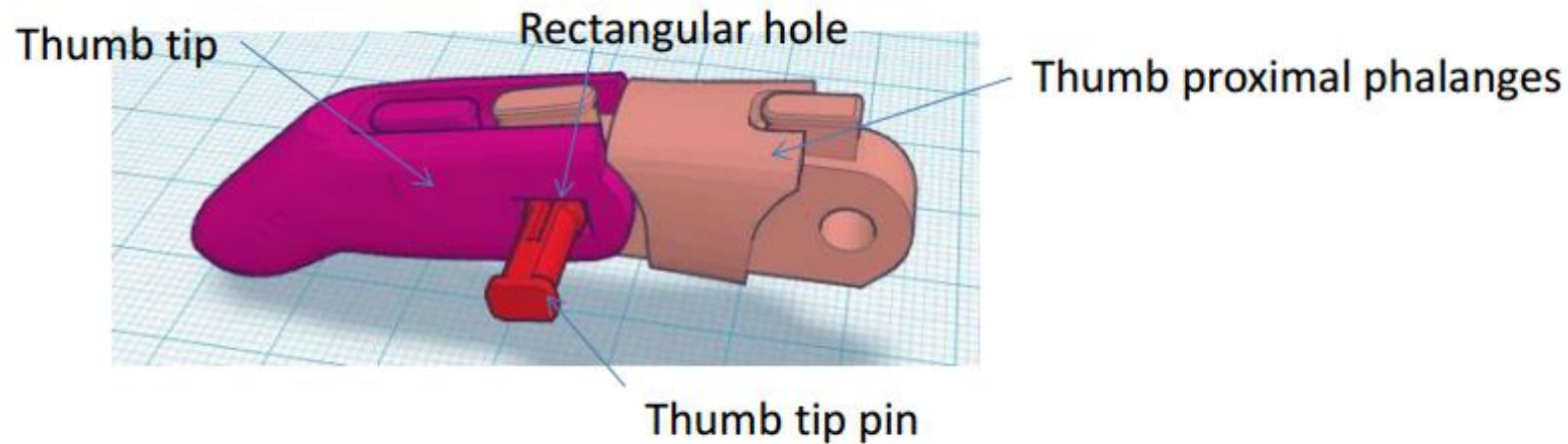
Assemble the fingers



The finger phalanx, all look the same. They have two ends. You want the fingertip connected to the smaller end.

The fingertip pin goes into the side of the finger that has a rectangular hole. After you insert them, the pins should be flush with the fingertips on both sides. Check to make sure the fingers bend fully and easily.

Assemble the thumb



With the rectangular hole on the top align the holes in the thumb tip and thumb proximal phalanges

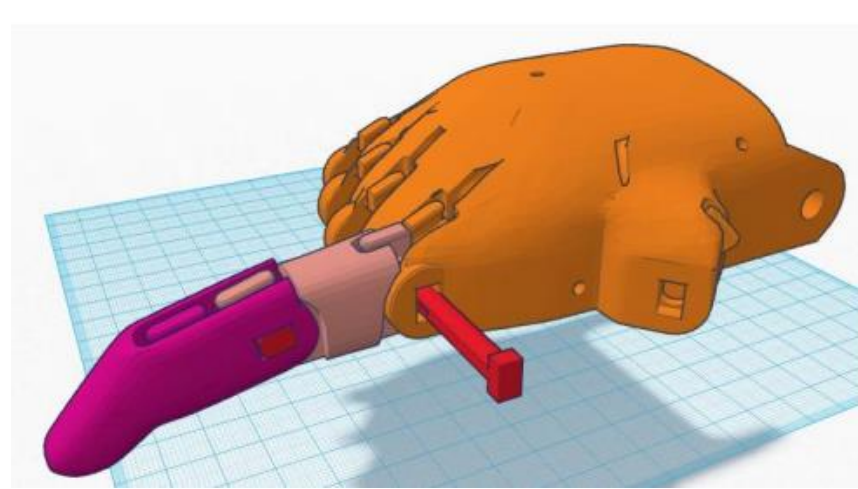
Once you've got the fingers, you can assemble the thumb. The thumb tip has its own phalanx, thumb tip pin, and knuckle pin. You will need to file the inside of the thumb phalanx so that it is round, before you put the pins in.



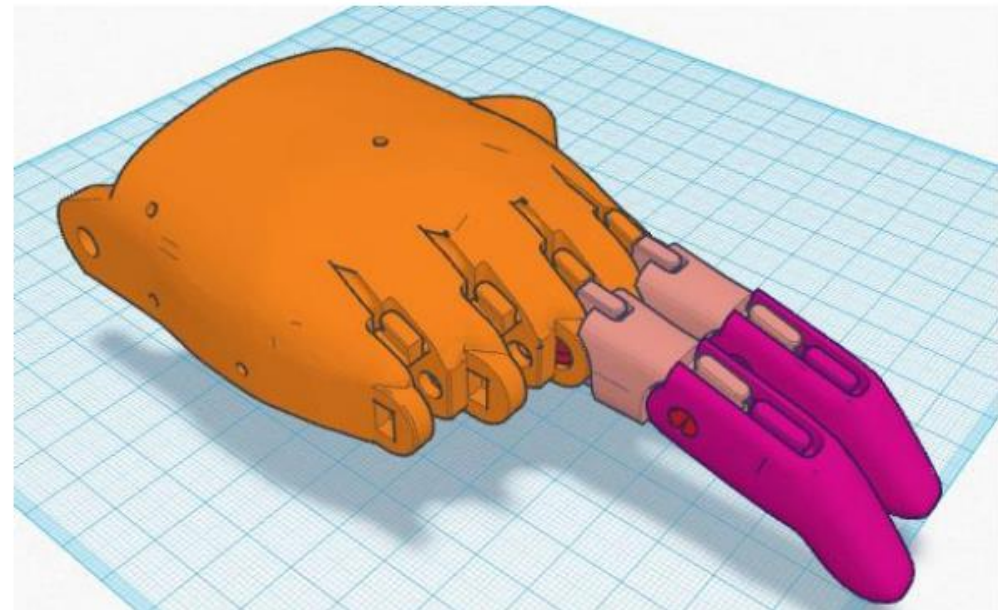
Start with the index (short) and the middle finger (long) and use the long knuckle pin to connect them to the hand.



Attach index finger

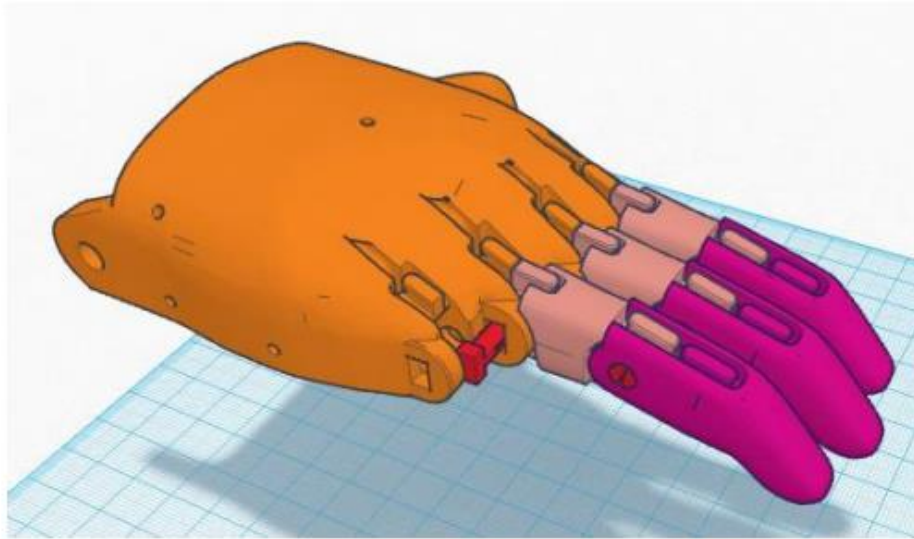


Attach middle finger

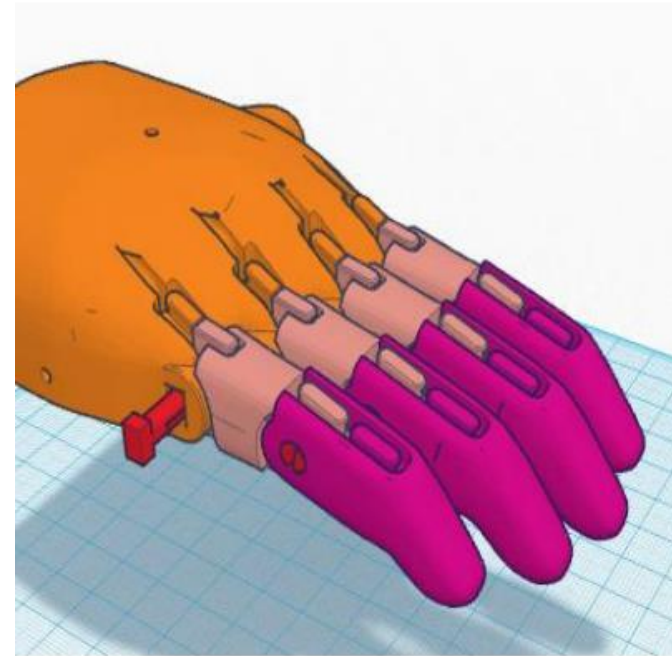


Next, insert the ring finger. Use one of the short knuckle pins to secure it into the palm. After that, you can add the pinky into the final slot with the other short knuckle pin.

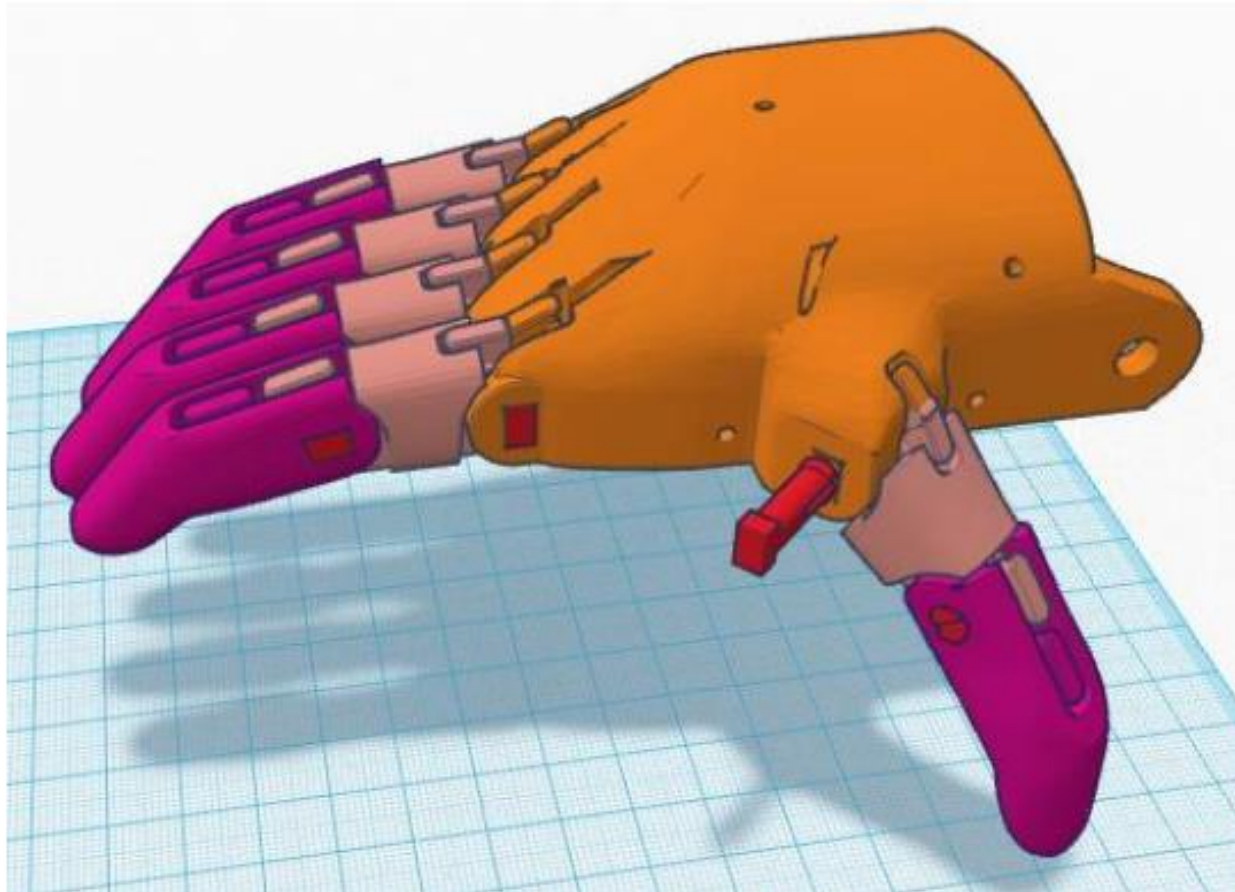
Attach ring finger



Attach the pinkie finger



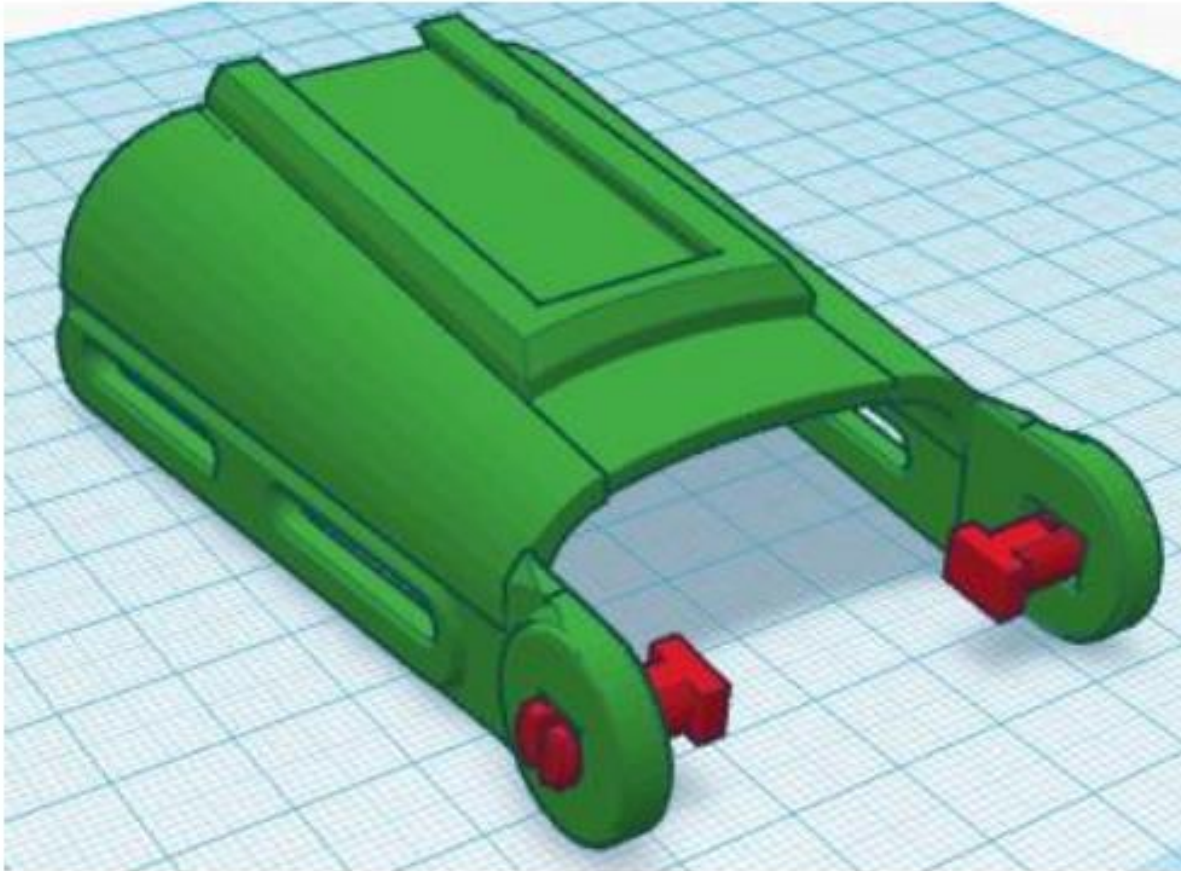
Attach the thumb



Again, make sure that it can move freely. You should be able to shake the hand back and forth and see the fingers swing.



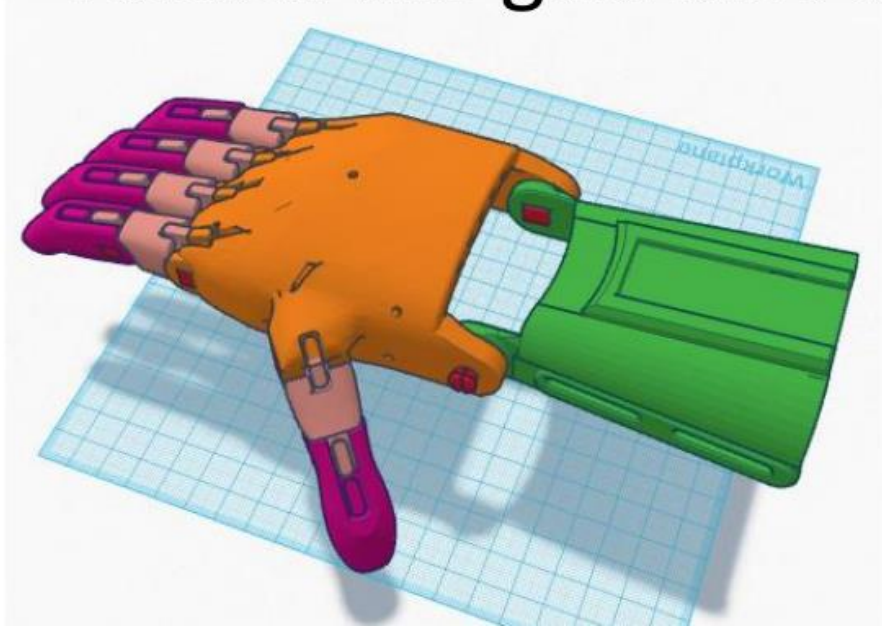
Attach the wrist pins to the gauntlet



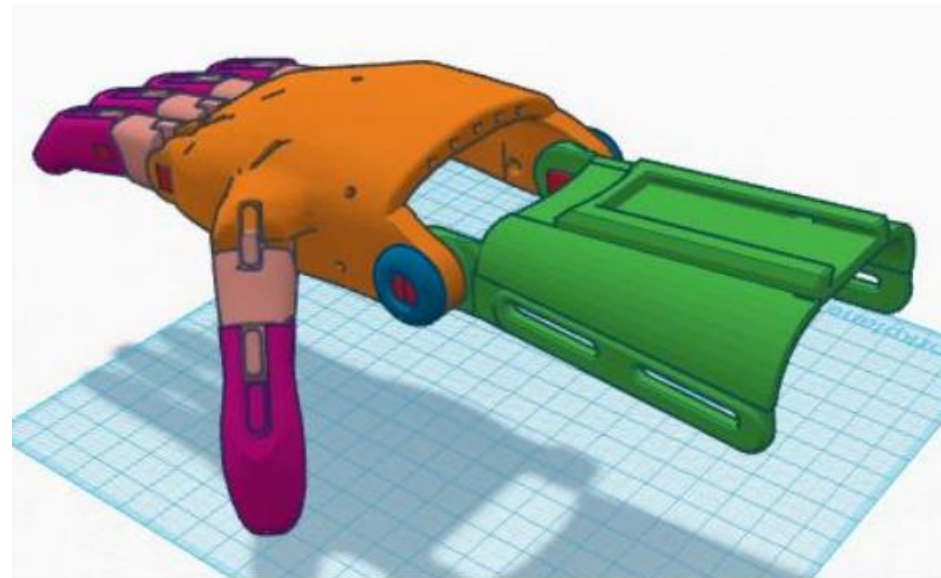
Align the holes on the gauntlet with the holes on the palm. There are two wrist pins that go through those holes. **The pins go from inside** the gauntlet, where the square holes are.

Once the pins are through, you can put the wrist pin caps on the ends of the pins.

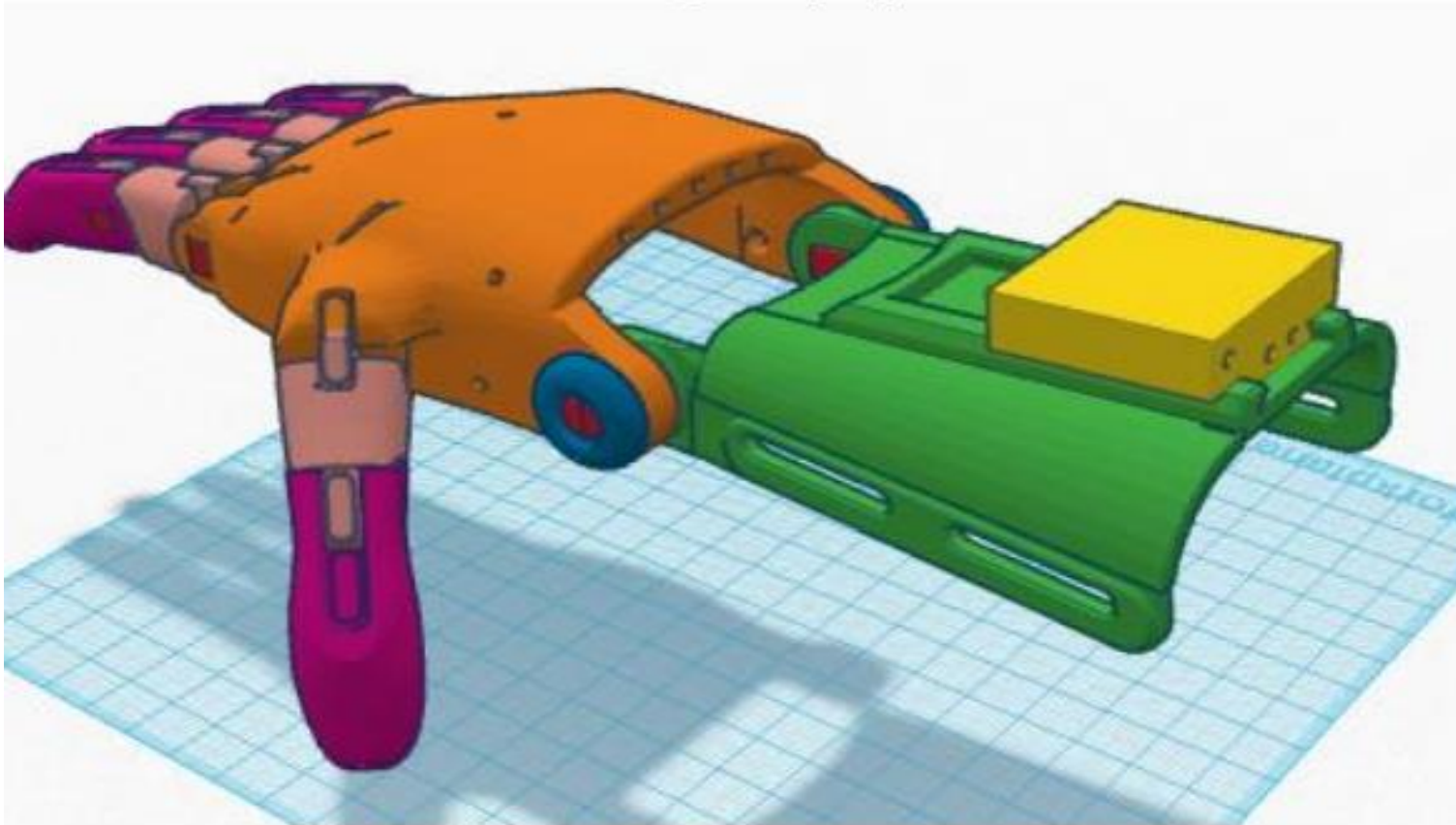
Attach the gauntlet to the palm



Attach the wrist pin caps



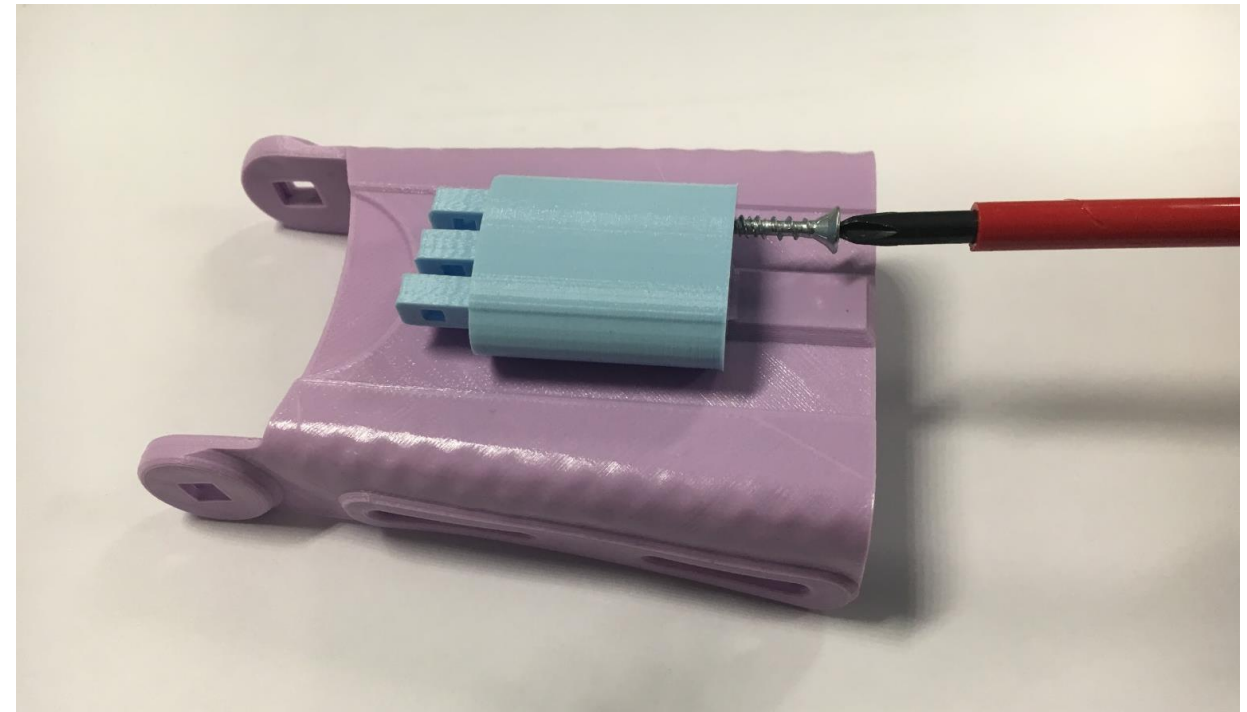
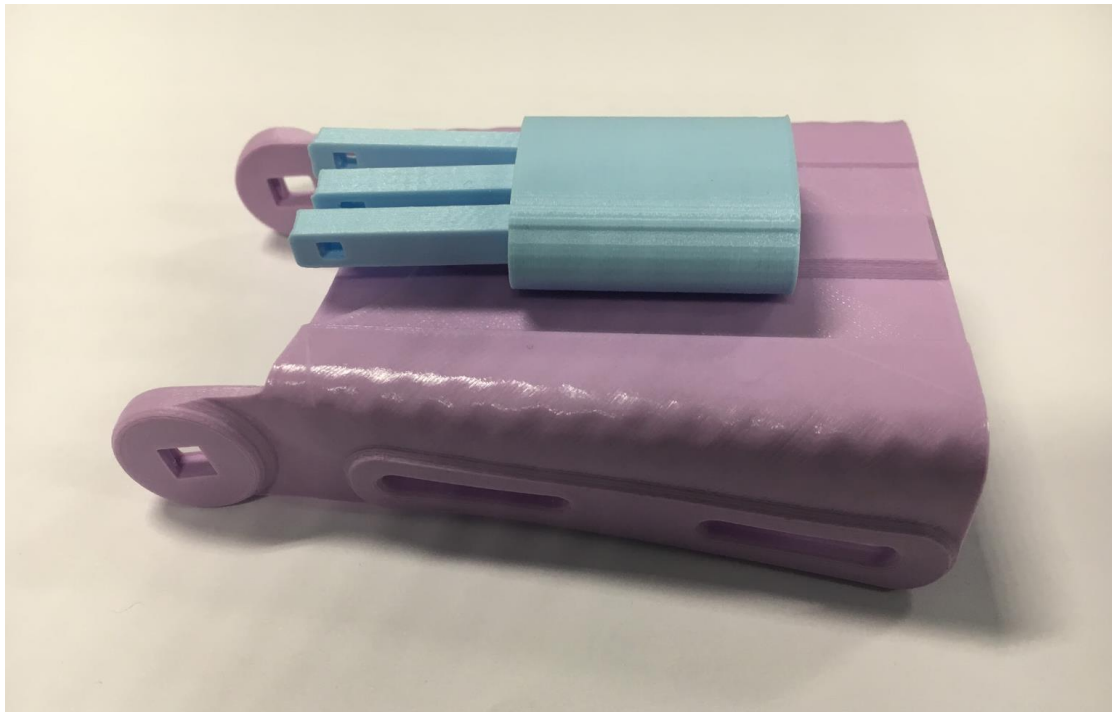
Attach the gripper box to the gauntlet



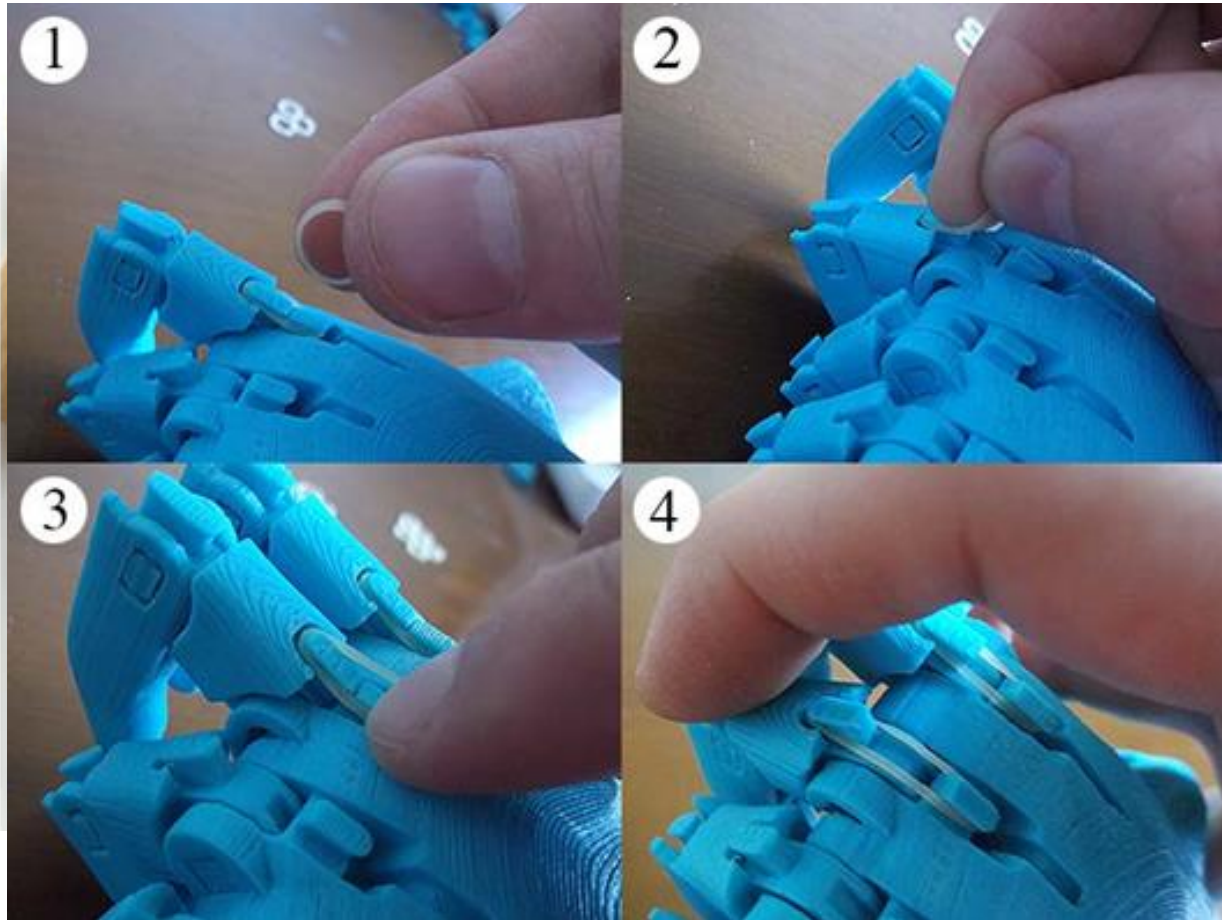
Push the gripper box into the dovetail slot on the back of the gauntlet.



There are three holes in the back of the box, and three tensioner pins. Use your screws to secure the pins in place. **Don't tighten them all the way**, that will happen later when tightening up the wires, just screw them halfway.

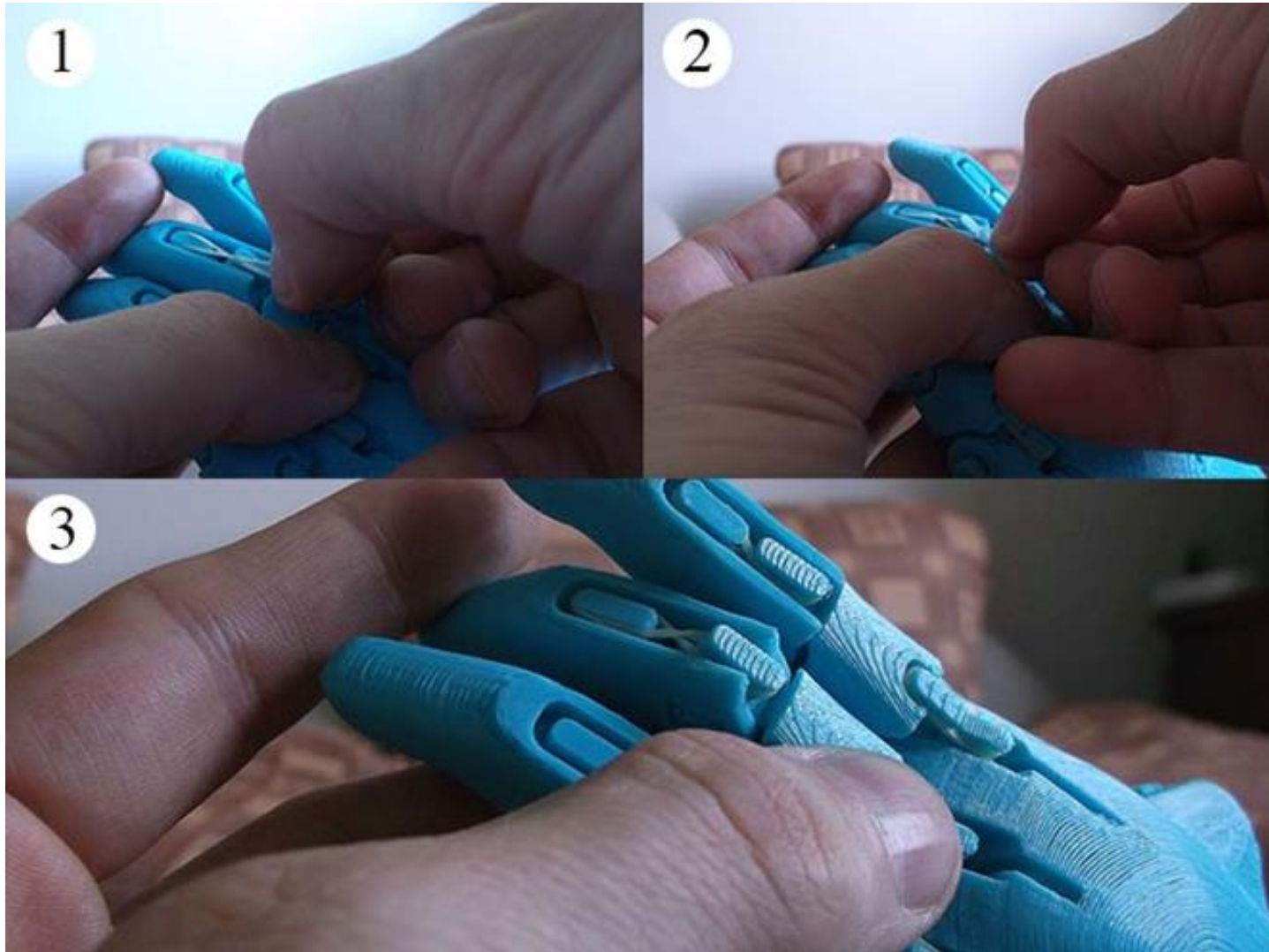


Attach the dental bands



You will need **two sizes** of bands. Putting slightly smaller bands on the fingertips and the larger ones on the palm knuckles.

Start with the palm knuckles. Put the end of one band around one stud, then pulling it over the other stud.



With the bands for the
fingertips

If you can, twist the band
from one stud to the next.
This will keep the bands
from getting pushed
down between the joints
of the fingertips and the
phalanges.



STOP & CHECK ALL IS OK

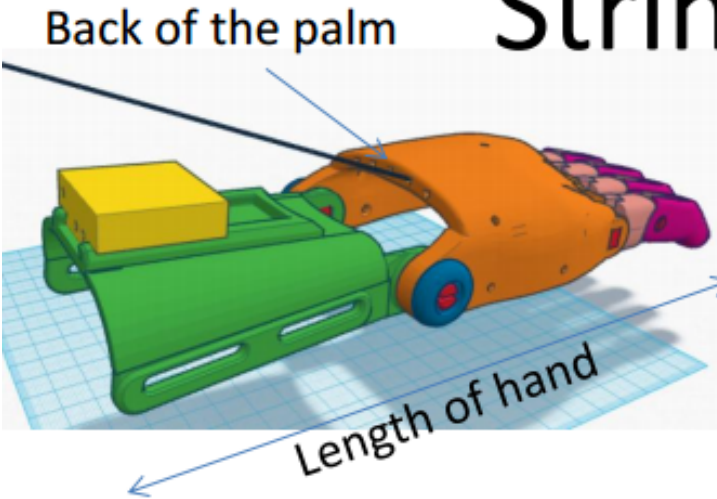


**ELASTIQUE
DENTAIRE**





Stringing the fingers



The first step for wiring up the hand is to cut the wires. Pull a length of wire that is twice the length of the full hand (fingertip to gauntlet). **You will need two of these lengths of wire.**

Each of the wires will connect to **two fingers**. Once you have cut your wire, take one of them and begin with one of the fingers.

The index finger is a good place to start. You should tie the wire to the tie-off bar on the underside of the finger. You should **triple-tie the knot**, for added strength.

Attaching strings to the tensioner pins

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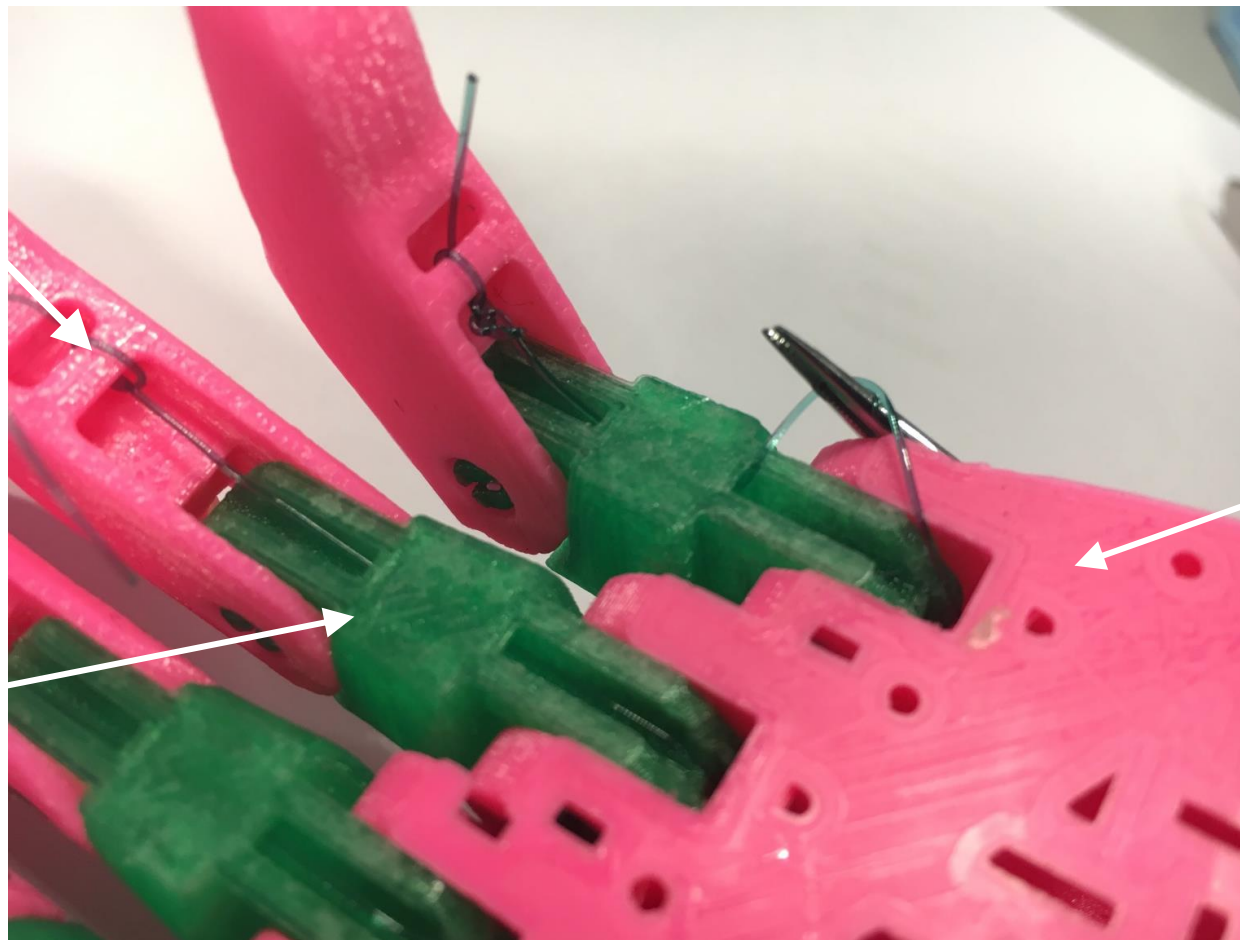


Step 1

Tie a triple knot
at the bar.

Step 2

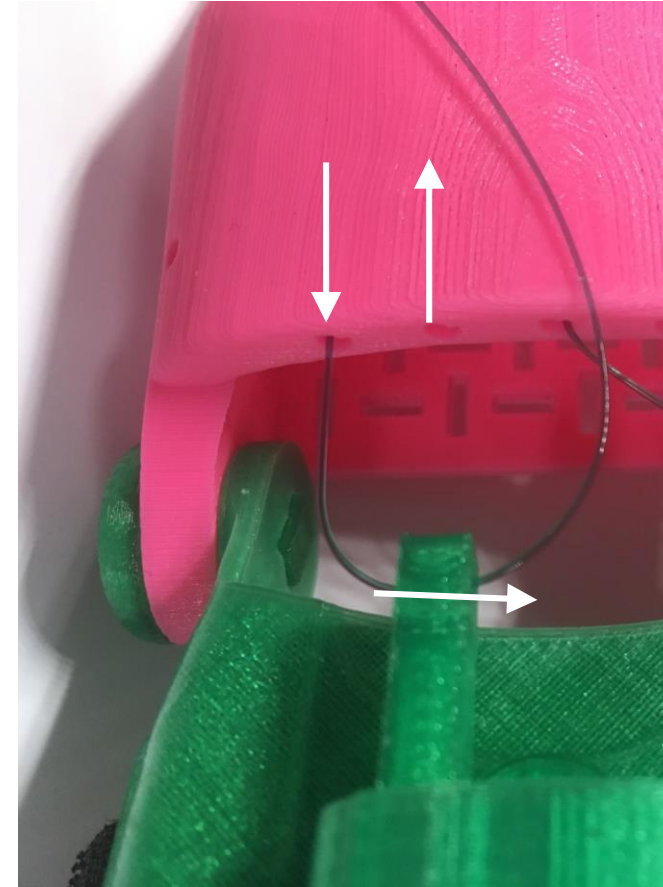
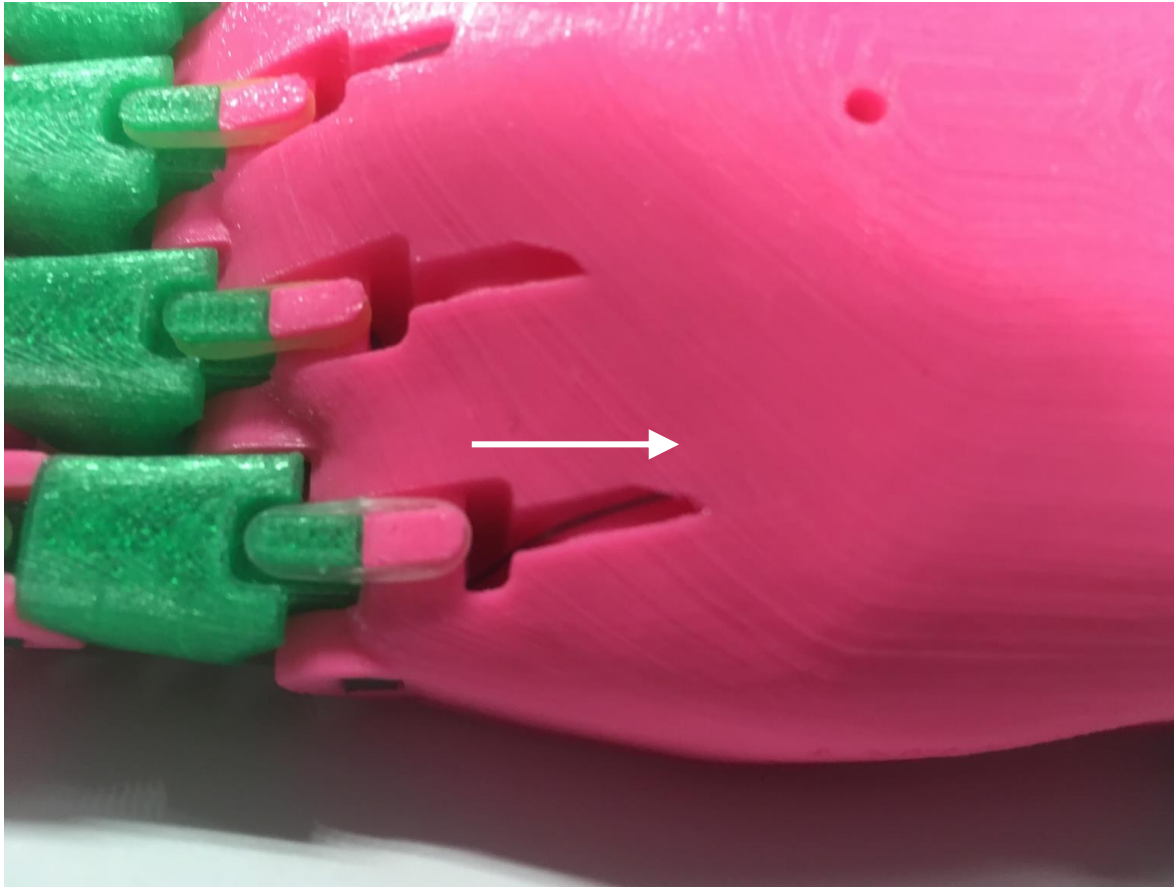
Slide the string
in the ridge.

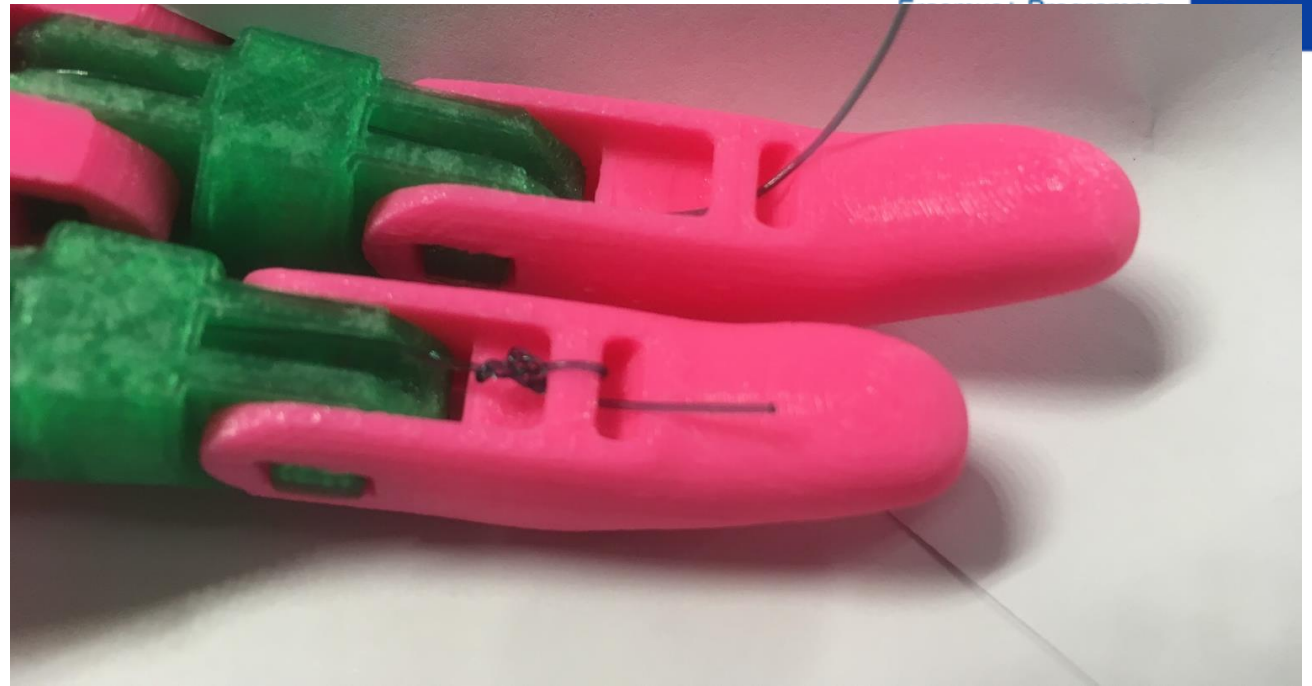


Step 3

Slide the string
into the palm.

Attaching strings to the tensioner pins





Once you've finished the first two fingers, you can do the same thing for the other two fingers. This second string will go around the second tensioner pin.

Do not secure the final knot!

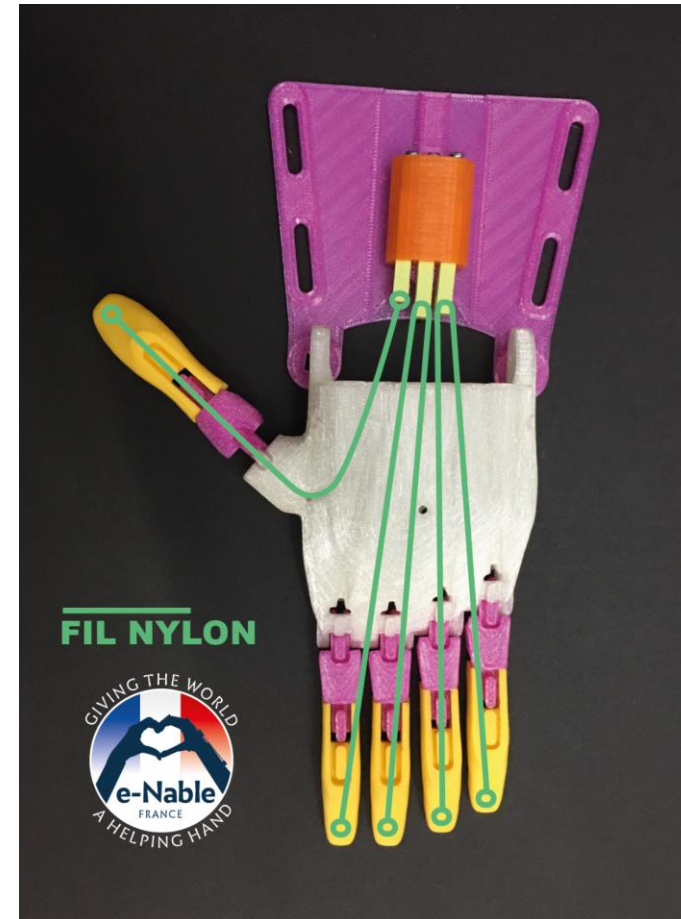


Attach the thumb tensioner pin

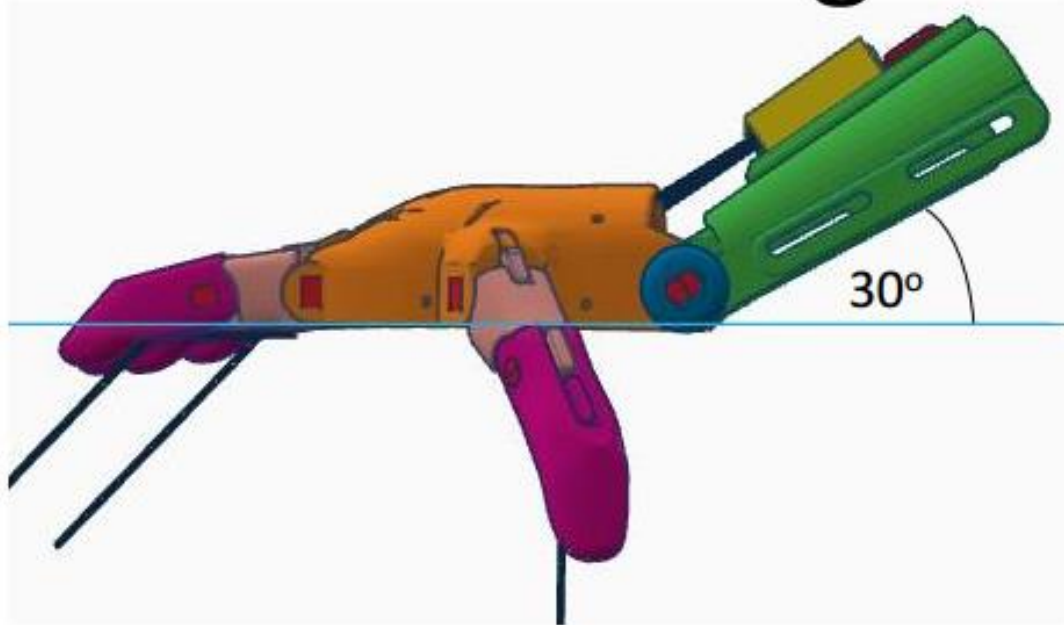
The thumb requires another piece of wire, this time just one length of the entire hand and gauntlet.

Tie it off at the fingertip like with the fingers, run it through the phalanx, and up the palm hole.

Once you get the wire out of the back of the palm, you can tie it to the end of the tensioner pin very loosely. You don't want a knot yet, just a loop to keep it roughly in place.



Securing the final knots



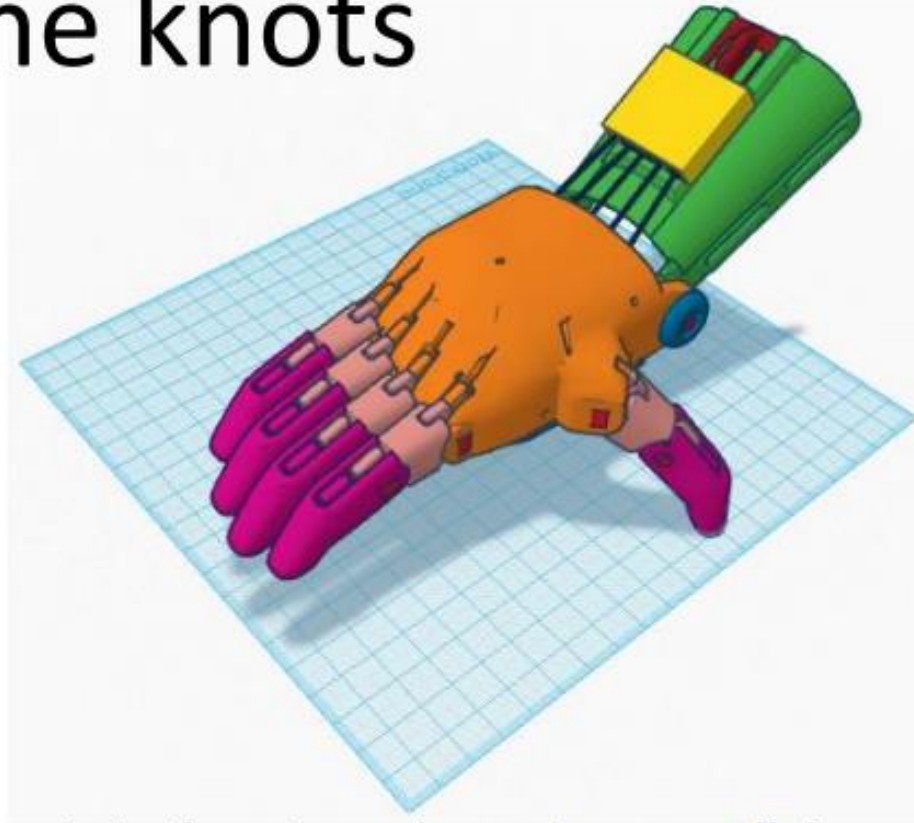
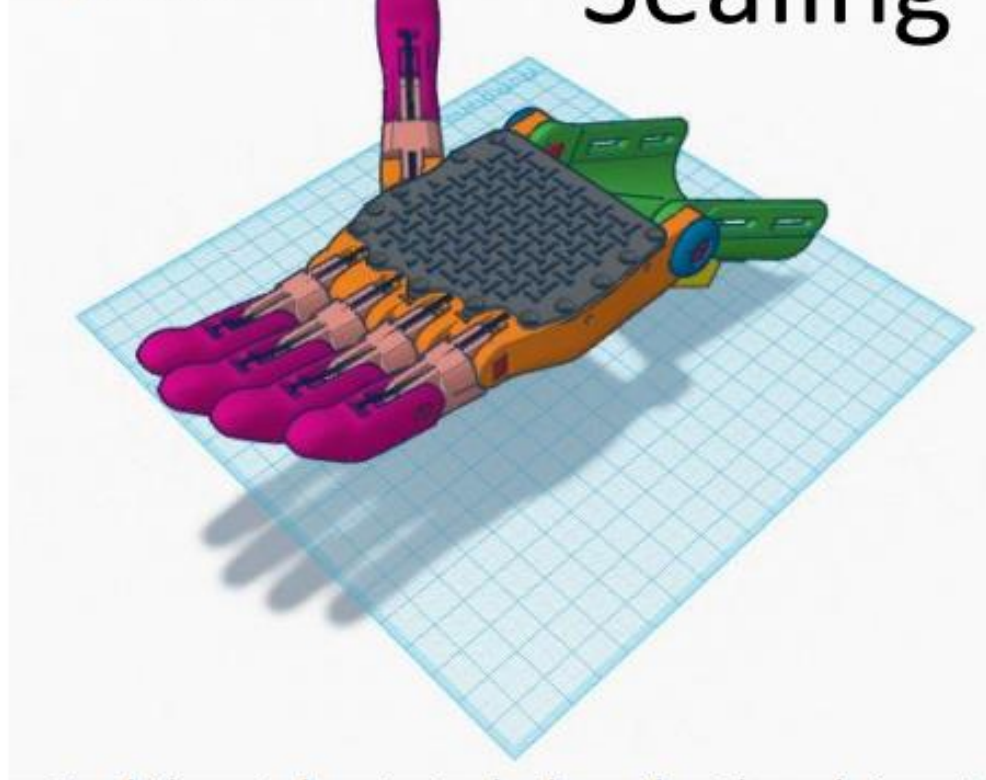
Once you've got the wires through the palm, out the bottom, and through the phalanx, it is time to tie it to the final knots.

However, make sure that the hand is in the right position. **You want the hand to be at about a 30 degree angle.**

Once you have this tie the wires securely to the tie-off bar on the fingertips and thumb.

Again, tie three knots to give it some extra strength.

Sealing the knots



Seal the six knots including the thumb tensioner pin in the gripper box using a small drop of thick CA glue (eg. Super Glue). Wait for the glue to set hard then snip off the excess thread paying careful attention not to cut into the knots or the wrong thread.



Apply the sefoam to the gauntlet

The inside of the gauntlet needs to be covered in medical padding. Cut pieces into the padding to the shape of the inside. You will need to glue this down with super glue so you can attach it to the hand.

Make sure not to cover the holes in the gauntlet



Attaching the Velcro straps



Feed a Velcro strap through a slot on the thumb side of the gauntlet from the outside with the fuzzy side upwards

Adding the Velcro to the gauntlet is fairly easy. Cut a length that is long enough to go around an arm (you will have to cut your velcro in half to make it thin enough. Thread it through the top slots, with the soft side facing away from the gauntlet. Then thread the ends back through the bottom slots. The recipient can now wrap it around an arm with the soft side of the Velcro touching the skin.



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