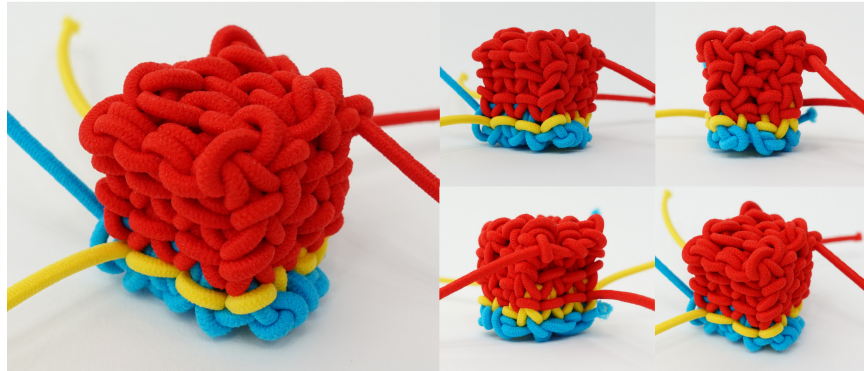# Solid Knitting by Hand

Supplemental material for *Solid Knitting* by Yuichi Hirose, Mark Gillespie, Angelica M. Bonilla Fominaya, and James McCann
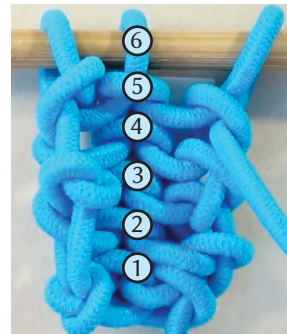

In this tutorial, we give instructions for solid knitting a $3 \times 4 \times 8$ cuboid (*i.e.* a block which is three stitches wide, four rows deep, and eight layers tall).

Materials: two knitting needles, one latch hook, and yarn

1 THE FIRST LAYER

For the first layer, start by using your knitting needles to knit a rectangle in standard stockinette stitch which is three stitches wide and six rows tall. Even though our final cube will only have four rows, we need to make six in the first layer—the last two rows will get "used up" as we start making the second row. At the end, you should see six loops in each column, as labeled in the image. Note that our layer is held purl side up, with the yarn coming off to the right.
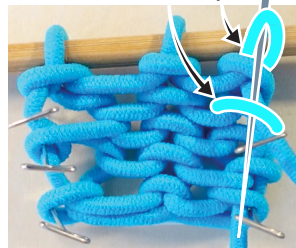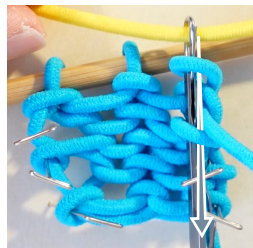

2 THE SECOND LAYER

Now, you're ready to start knitting the second layer. To make it easier to see the new stitches, we've pinned our sample swatch to the table and switched to using a yellow yarn, but you don't have to do either.

From now on, each time you make a stitch you have to knit through two loops—one from your knitting needle, and one picked up from the last layer. To start, hold your fabric purl-side up, and stick your latch hook through the rightmost loop of the top row, as well as the rightmost loop of the row two down from the top. Then use the latch hook to pull a new loop of yarn down through both existing loops.
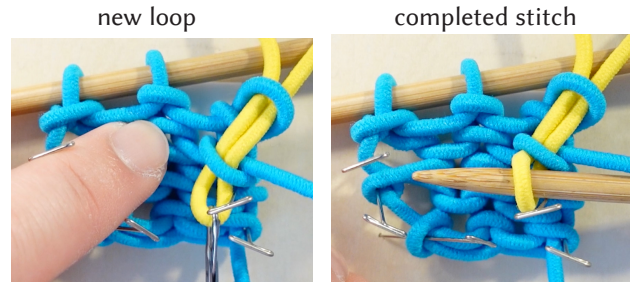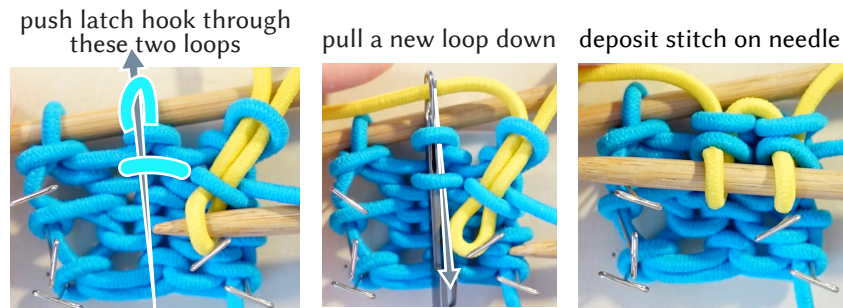
push latch hook through these two loops
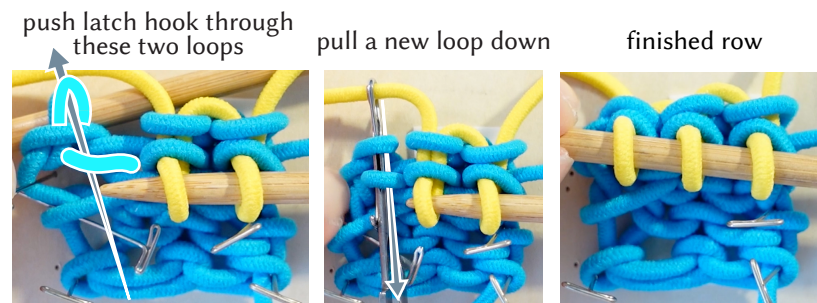
pull a new loop down

Now deposit the new loop on your second knitting needle.
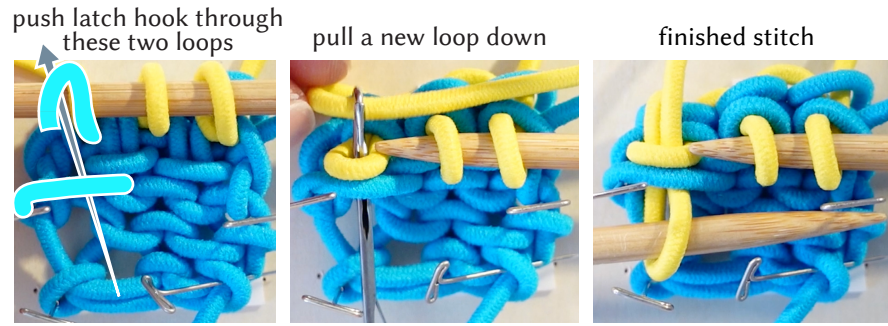
new loop   completed stitch

Next, repeat to make the next stitch: stick your latch hook thorough the middle loop of the top row, as well as the middle loop two rows down. Then use the latch hook to pull a new loop of yarn through these two loops, and deposit the new loop on your needle. While you're doing this, the first loop that you just made might fall off of your needle—that's okay! Just pick it back up when you're putting the new loop on your needle too.

push latch hook through   pull a new loop down   deposit stitch on needle
these two loops

Do the same thing to make the last stitch in this row. It's usually a little trickier to find the loops that you're supposed to pick up for the last stitch in a row, since the loops along the edges can get stretched in weird ways. But after you pick up the two loops to knit through, everything else is the same as before.

push latch hook through   pull a new loop down   finished row
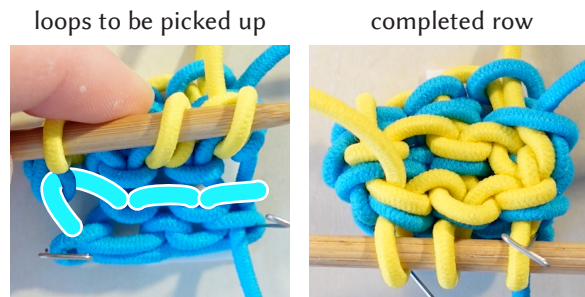these two loops

Now you've finished a row! The next row is basically the same, except that now you start picking up loops from the previous layer that are right below the new loops on your needle, rather than picking up loops from one row lower.

push latch hook through
these two loops

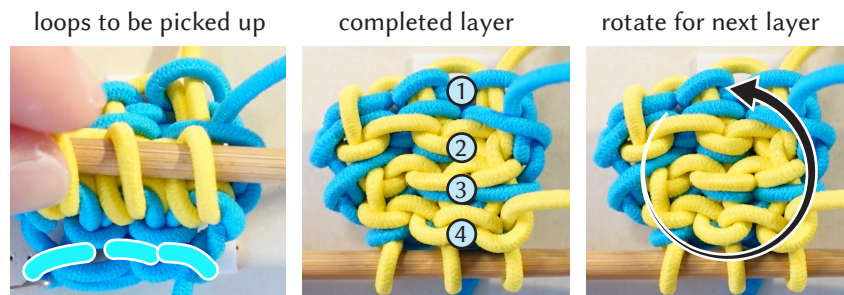pull a new loop down

finished stitch

Make the next two stitches of this row in the same way. After finishing the current row, your cuboid should look like this:

By now you know the drill. To make the next row, you need to make three new stitches, each of which passes through one loop on your needle and one loop picked up from the previous layer. This time, we'll just mark the three loops that you have to pick up from the previous layer.
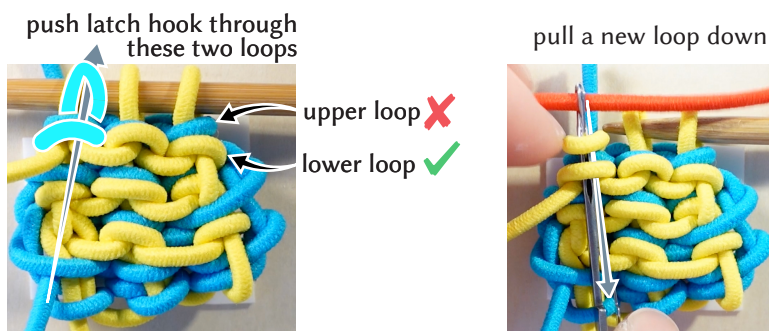
loops to be picked up

completed row

Now, it's time for the final row of this layer. It's exactly the same as the previous two, so again we'll just mark the three loops that you have to pick up from the previous layer. After completing this row, you've finished the second layer! You can see that you've made four rows, so your cuboid will be four rows deep. To get ready to make the next layer, rotate your piece 180 degrees so that the needle is at the top instead of at the bottom.

loops to be picked up

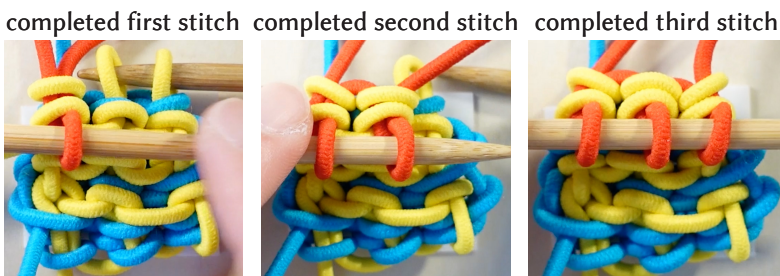completed layer

rotate for next layer
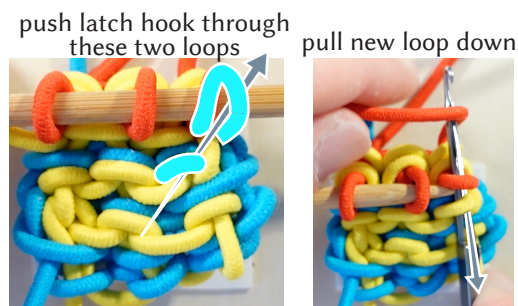
3 THE THIRD LAYER, AND BEYOND

It's time to start on the third layer. In the pictures, we'll switch to using red yarn this time, but you can still keep using the same color of yarn if you want. As usual, for each stitch you have to pick up one loop from the previous layer and one loop from your needle. But this time, there are two options to choose from (since we knit through two loops to make each stitch in the last layer). You should try to pick up the lower loops, since those are the ones we made in the last layer[1]. Once you've picked up your two loops, you can make a new stitch by pulling a new loop through them, as usual. Note also that even in the first row here, you should pick up loops from right below the current stitch. When making the second layer you had to do something slightly different for the first row[2], but from the third layer onwards, you can always pick up loops right below the current stitch.

push latch hook through these two loops

pull a new loop down

upper loop ❌

lower loop ✅

Continue onwards to make three more stitches in this row:

completed first stitch   completed second stitch   completed third stitch
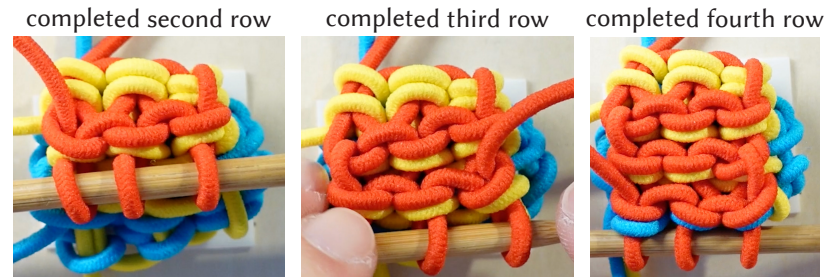
And now proceed in the same way to make three more rows in this layer. Below, we highlight the loops that you need to pick up for the first stitch of the next row.
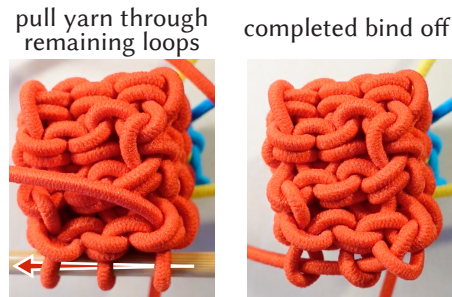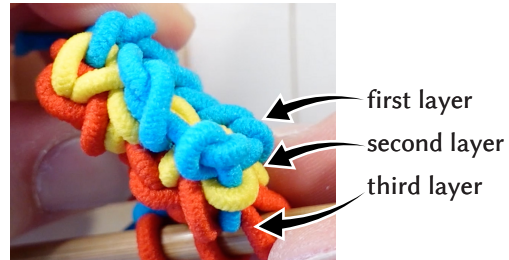

push latch hook through these two loops

pull new loop down

---

[1]you can tell since they're yellow, rather than blue, in our swatch

[2]the reason has to do with the stability of solid knit stitches. Briefly, while knitting the third layer and beyond, you're always picking up stitches from a solid-knit layer, which are intertwined with loops from the layer below themselves. But while knitting the second layer, you're picking up stitches from the first layer, which doesn't have another layer underneath it to stabilize the solid knit stitches.

And here's how everything should look as you finish each row:

completed second row	completed third row	completed fourth row

Now if you look at your cuboid from the side, you should be able to see three layers (but if you've been using the same color yarn for each layer, it can be pretty hard to tell them apart). You can now knit as many more layers as you want by repeating the instructions for the third layer. We knit five more layers on our example piece to get a cuboid which is eight layers tall. The final step is to bind off the three loops on your knitting needle. You can use any bind off, but we find that a simple and effective option is to simply pull your yarn tail through each of the loops.

first layer
second layer
third layer

pull yarn through remaining loops	completed bind off

And that's it! Here's a picture of the completed cuboid: