

Klein Bagel Baby Toy

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Immersion of Klein bottles have taken hold in the popular imagination. This single sided surface appears in sculpture, jewelry, graphic art, clothing, accessories, and more. The Banchoff-Cervone bottle, shaped like an elegant crystal decanter, is the ubiquitous immersion. This pattern, however, features the elegant symmetry of the Klein Bagel immersion. The Klein Bagel immersion demonstrates that the Klein bottle is made by gluing two Möbius strips together along the central branch line.

This pattern is knit in a figure-eight shape, using stockinette on one lobe and reverse stockinette on the other. The unusual technique in the cast-on used to achieve this enables the non-orientability of the Klein bottle to show through. This pattern uses seven colours of yarn, but it can be adapted to accommodate any odd number of colours and maintain the same notion of non-orientability



Finished Measurements

Diameter: 7 inches.

Materials

7 skeins KnitPicks Comfy Worsted [75% Pima Cotton, 25% Acrylic; 109yd per 50 gram ball]; Color: Zinnia, 1 ball; Carrot, 1 ball; Semolina, 1 ball; Peapod, 1 ball; Marina, 1 ball; Marlin, 1 ball, Lilac, 1 ball

2 16-inch US #5/3.5mm circular needles

1 set US #5/3.5mm double pointed needles

stitch markers

tapestry needle

crochet hook

Gauge

20 sts and 28 rows = 4 inches in stockinette stitch.

Directions

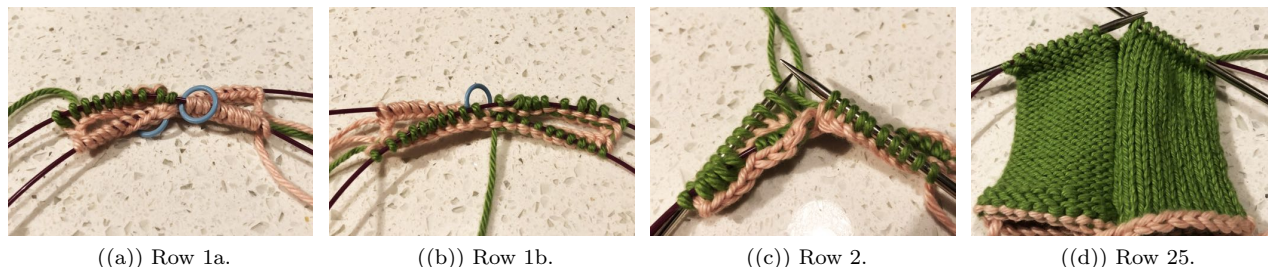
Using waste yarn CO 40 sts using a crochet cast on. Place markers between the 10th and 11th sts and the 30th and 31sts. Equally divide the sts between two needles (Fig. 2a), being careful not to twist the yarn. Cross the second needle over the first to form a figure eight (Fig. 2b). The stitch markers should meet at the intersection.

Be careful not to twist your piece at any time. It may take a few times for the piece to properly get started. You should know by the first 3-4 rows if your needles are properly crossing over one another at the centre of the figure eight.



Row 1a: in Peapod. Starting with the side of the figure-eight closest to you, sl 10. Your needle will be below the cable of the other pair of needles. Slide the needle out from this and holding the life yarn on top of the work, K 10. These 10 stitches will be on the inside of the left lobe of the figure-eight.

Row 1b: Rotating the piece clockwise from the top, switch to the other needles. K10. These 10 stitches will be on the inside back of the right lobe. When you come to the middle you will find your left needle below the cable of the



((a)) Row 1a.

((b)) Row 1b.

((c)) Row 2.

((d)) Row 25.

other needle and the last row of yarn on the previously worked side. Pull your left needle tip out from under both of these and continue working the stitches with your live yarn on top. The next 10 stitches will be on the outside front of the left lobe of the figure eight.

Row 1c: Rotating the piece clockwise from the top, switch to the other needles. K10. These 10 stitches will be on the outside front of the right lobe. When you come to the middle you will find your left needle below the cable of the other needle and the last row of yarn on the previously worked side. Pull your left needle tip out from under both of these and continue working the stitches in pattern with your live yarn on top. The next 10 stitches will be on the inside back of the left lobe of the figure eight.

Rows 2-25: Repeat rows 1b-1c 24 times. *Row 26a:* Repeat row 1b. *Row 26b:* Rotating the piece clockwise from the top, switch to the other needles. K10. These 10 stitches will be on the outside front of the right lobe. When you come to the middle you will find your left needle below the cable of the other needle and the last row of yarn on the previously worked side. Pull your left needle tip out from under both of these. You will now switch colours. (Your piece should measure about 2.75" long.)

Row 27a: in Zinnia. K 10. These 10 stitches will be on the inside of the left lobe of the figure-eight.

Row 27b: Rotating the piece clockwise from the top, switch to the other needles. P10. These 10 stitches will be on the inside back of the right lobe. When you come to the middle you will find your left needle below the cable of the other needle and the last row of yarn on the previously worked side. Pull your left needle tip out from under both of these and continue working the stitches with your live yarn on top. The next 10 stitches will be on the outside front of the left lobe of the figure eight.

Row 27c: Rotating the piece clockwise from the top, switch to the other needles. P10. These 10 stitches will be on the outside front of the right lobe. When you come to the middle you will find your left needle below the cable of the other needle and the last row of yarn on the previously worked side. Pull your left needle tip out from under both of these and continue working the stitches in pattern with your live yarn on top. The next 10 stitches will be on the inside back of the left lobe of the figure eight.

Rows 28-51: Repeat rows 27b-27c 24 times.

Row 52a: Repeat row 27b.

Row 52b: Rotating the piece clockwise from the top, switch to the other needles. P10. These 10 stitches will be on the outside front of the right lobe. When you come to the middle you will find your left needle below the cable of the other needle and the last row of yarn on the previously worked side. Pull your left needle tip out from under both of these. You will now switch colours. (Your piece should measure about 5.5" long.)

Rows 53-78: in Marlin Repeat rows 1-26.

Rows 79-104: in Semolina Repeat rows 27-52.

Rows 105-130: in Marina Repeat rows 1-26.

Rows 131-156: in Lilac Repeat rows 27-52.

Rows 105-180: in Carrot Repeat rows 1-24.

Row 181a: Repeat row 1b.

Row 181b: Repeat row 26b.

Finishing

Stuff both tubes. Remove the provisional cast on and place stitches on dpns. Add a π -twist to the piece, and use the remaining Carrot yarn to Kitchener both tubes shut in pattern. Sew in the ends.

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