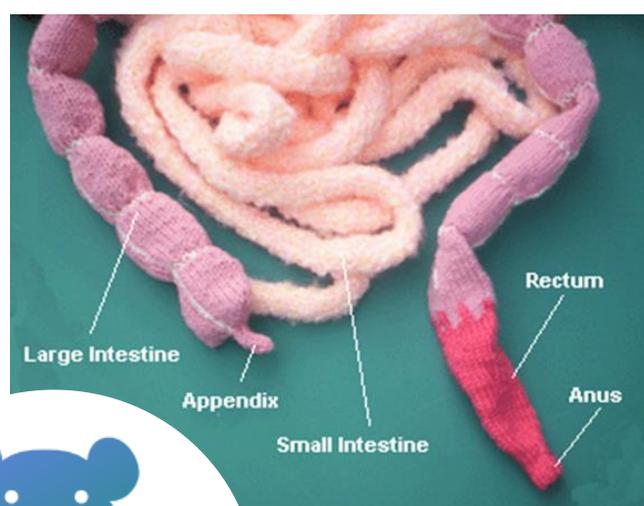
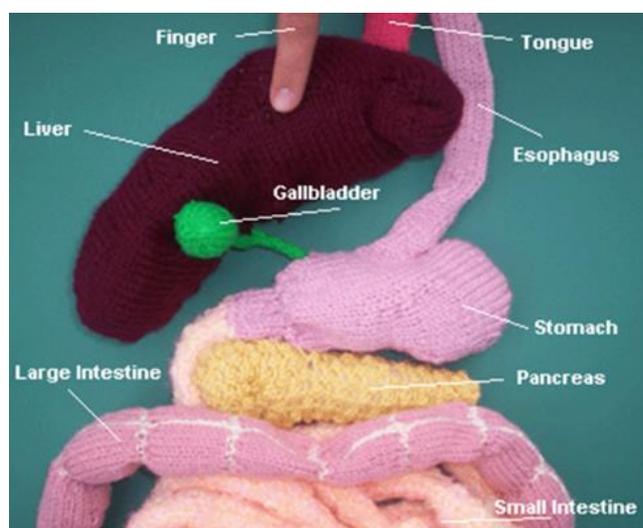


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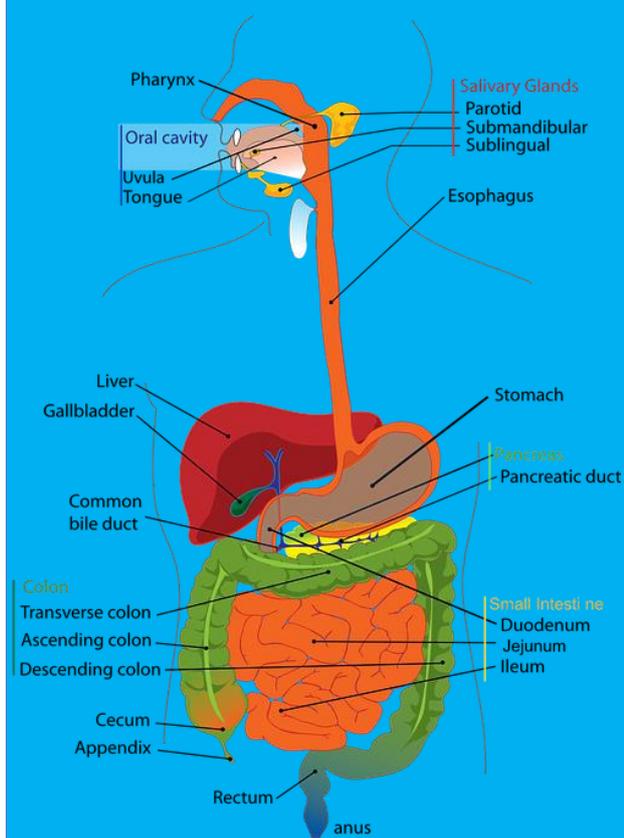
Knitted Digestive System

Pattern



NEC UK

Because Tiny Bowels Matter!



NEC UK

Registered Charity number: 1181026

Website: www.necuk.org.uk

Email: info@necuk.org.uk

Enquiries: 07375813907

New Address: 42 Long hill Rise, Annesley,
Nottingham, NG17 9FG



How to Get Involved

NEC UK is looking for enthusiastic knitters to produce replications of our 'insides' to use as part of the NEC Awareness Campaign. Our aim is to help educate and raise awareness about the digestive health and how Necrotizing Enterocolitis can affect multiple sections of the bowel. Here at NEC UK we believe in embracing opportunities to learn, how do we do this you say? Well to combine our love of science with the fibre of arts, and what better way to do that than make a full-sized visual representation that can be both interactive and informative.

One of the biggest struggles facing digestive health is a lack of understanding and information. These knitted digestive systems present an issue we may not often want to speak about in a funky and fascinating way. This will help to remove stigma and encourage open conversations without fear, shame or embarrassment.

Following our pattern, you can craft a full replica of the human gut complete with gall bladder, pancreas, metres of small intestine and an appendix. We would love for you to send us your knitted creations to use as a teaching aid in the community when we attend seminars and conferences.



“The knitted digestive system is not only an eye-catching and thought-provoking sight but are also such a great way to explain how NEC Affects the bowel”

Please send your completed knits into **NEC UK 42 Longhill Rise, Annesley, Nottingham, NG17 9FG.**

Visit NEC UK'S Website to see how you can support us and make a difference: www.necuk.org.uk If you have any inquiries or wish to introduce yourself, please contact: Enquiries: **07375813907**



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Part One: Materials

You will need:

- 1 set U.S. size 6 (4.0 mm) d.p.n.s
- 1 set U.S. size 8 (5.0 mm) d.p.n.s
- 1 set U.S. size 10.5 (6.5 mm) d.p.n.s
- a tapestry needle
- waste yarn for temporary cast-ons
- stitch markers (or more waste yarn)
- a stitch holder
- polyester stuffing

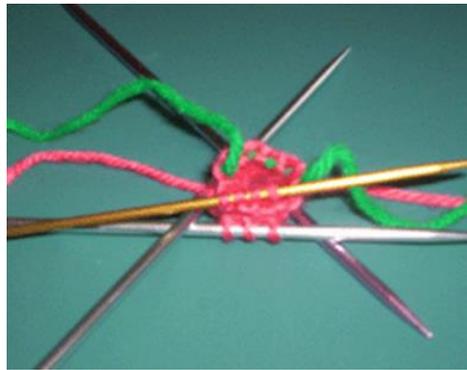


Yarn (what I'm using is in parentheses)

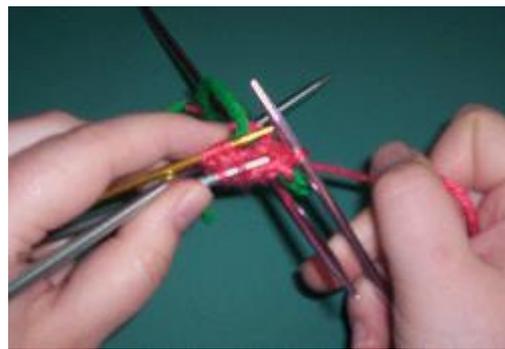
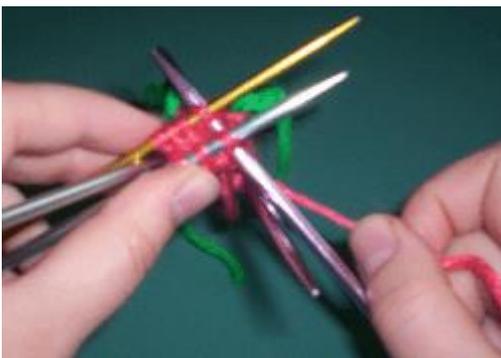
- Angry Pink: Worsted Weight, 1/2 oz. (Caron Simply Soft Brites: Papaya)
- Mellow Pink: Worsted Weight, 2 oz. (Red Heart Super Saver: Rose Pink)
- Shiny White: Sport Weight, 1/4 oz. (Bernat Baby Coordinates: Natural)
- Yellow-Pink: Super Bulky Weight, 6 oz. (Red Heart Baby Clouds: Creamsickle)
- Soft Pink: Bulky Weight, 1 oz. (Bernat Softee Chunky: Pale Antique Rose)
- Burgundy: Worsted Weight, 1 oz. (Red Heart Super Saver: Burgundy)
- Green: Worsted Weight, 1/4 oz. (Red Heart 4 ply: Emerald)

Part Two: Anus & Rectum

1. With size 6 dpns and Angry Pink, cast on 10 sts using a temporary cast-on, join. (If you don't know how to do a temporary cast-on, just cast on normally using waste yarn then knit 1 row with Angry Pink).
2. Knit 8 rows.
3. Pull cast-on edge up through the middle of the dpns. Slip a few stitches off the waste yarn and onto a spare dpn (I find it helps to use a smaller size). Next knit every stitch together with a stitch from the cast-on edge, slipping cast-on stitches from waste yarn onto the spare dpn as needed. Place a stitch marker to mark the beginning of the row.
4. Cast-on edge slipped onto small needle, ready to knit together.



5. Insert needle through one working stitch and one cast-on stitch then knit



Rectum

1. M1 = make one stitch by lifting the running thread between the stitches and knitting into the back of this loop.
2. K3 rows plain.
3. K3,M1,K3,M1,K3,M1,K1 (13 sts)
4. K2 rows plain.
5. K4,M1,K4,M1,K4,M1,K1 (16 sts)
6. K2 rows plain.
7. K4,M1,K4,M1,K4,M1,K4,M1 (20 sts)
8. K12 rows plain.
9. K5,M1,K5,M1,K5,M1,K5,M1 (24 sts)
10. K6 rows plain.
11. Next row: *K12, wrap and turn, P10, w&t, K8, w&t, P6, w&t, knit to end of row, picking up wraps.*
12. K5, picking up wraps, and repeat from * to *.
13. K2 rows.
14. Switch from Angry Pink to Placid Pink by following the fair isle chart, carrying both colours behind the work.
15. Row 5: Break Angry Pink and knit all stitches with Placid Pink.
16. K4 more rows with Placid Pink.

The finished Rectum



Notice how the short rows cause the top to bend slightly.



Part Three: Large Intestine & Appendix

1. Remove stitch marker, K5, replace marker.
2. *K1 Shiny White, K11 Placid Pink, K1 Shiny White (FROM THE OTHER END OF THE SKEIN - DO NOT CARRY THE WHITE YARN BEHIND THE PINK STITCHES), K11 Placid Pink* *-* = "base row"
Repeat base row 13 times.
**
Working exclusively with white, *K1, K2tog 5 times, K1.*
3. Pick up the unworked white strand and work * to * again, then K7.
4. Pick up the first white strand and K7.
5. *With pink, K in front and back of next five stitches, K1 pink, K1 white, repeat from * once more. (this will make a lot more sense after you've done it a couple of times. Basically, you're doing a decrease row with white, knitting one row, then doing an increase row with pink to get back to the regular number of stitches.)
6. Knit base row 13 times.
7. Repeat from ** 11 more times, pausing occasionally to lightly stuff the intestine with polyfil. Switch to size 8 needles and knit another 5 repeats, for a total of 17 sections.
8. K 8 basic rows,
9. K1 white, K8 pink, K3 sts onto waste yarn, slip these sts back to the left needle and knit again with pink, finish as per basic row and K 4 more basic rows.



Appendix

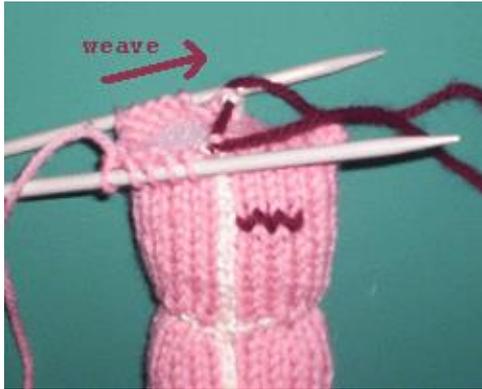
1. Knit 1 white, K5 pink. Cut white yarns leaving two short tails. Finish stuffing the colon, tie the two white ends together and tuck inside. Cut the pink yarn, leaving about a 5' tail and thread onto a tapestry needle. Fold the tube so that the yarn tail comes out the right edge and the dpns are parallel. Weave together ten stitches (five from the needle in front and five from the needle in back, 14 sts remaining).



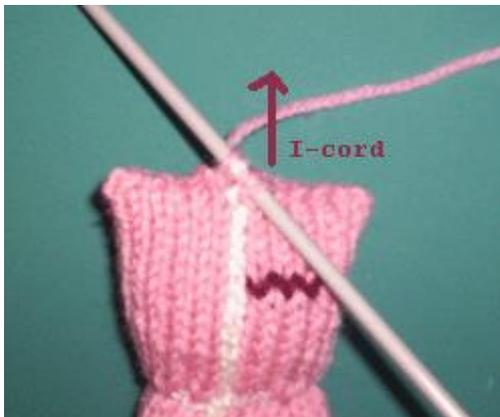
2. Knit the next two stitches on the front needle (one of these should be the central white stitch), then place them on a stitch holder. Place the next two stitches from the back needle (including the other white stitch) on the holder as well. Knit five stitches.



3. Weave together the remaining stitches as before.



4. Transfer the four stitches on the stitch holder to a dpn and knit 1 1/2" of I-cord (still using the cut yarn tail).

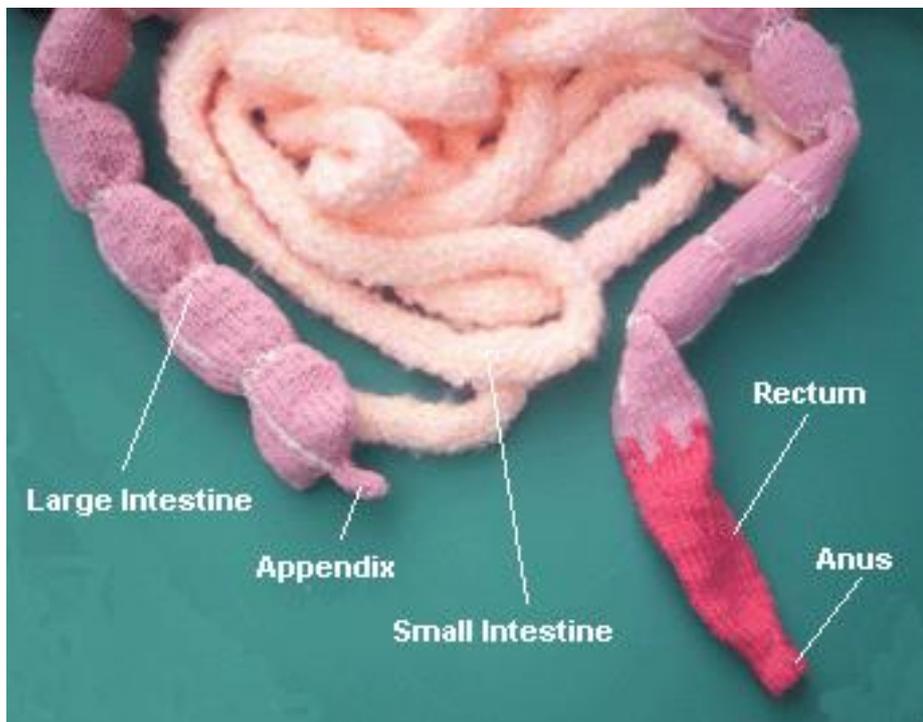
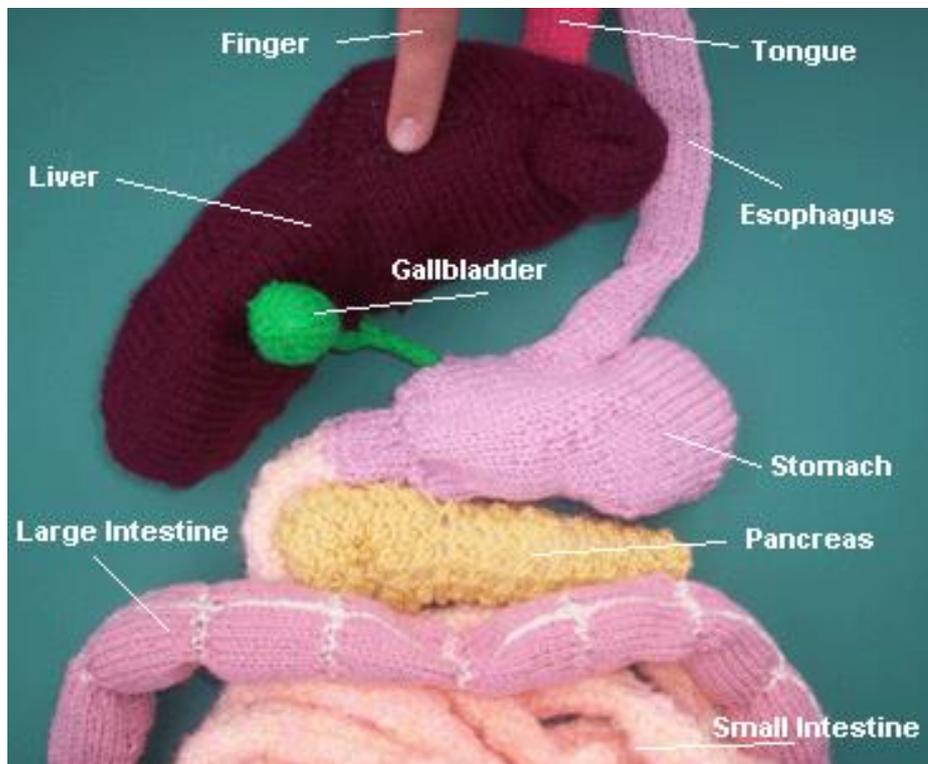


5. K2tog twice, slide sts to other end of needle, K2tog, thread the yarn end through the last loop, pull it tight and use the tapestry needle to thread the tail back through the I-cord, hiding it and softening the point of the appendix. Trim the yarn end.

The finished appendix.



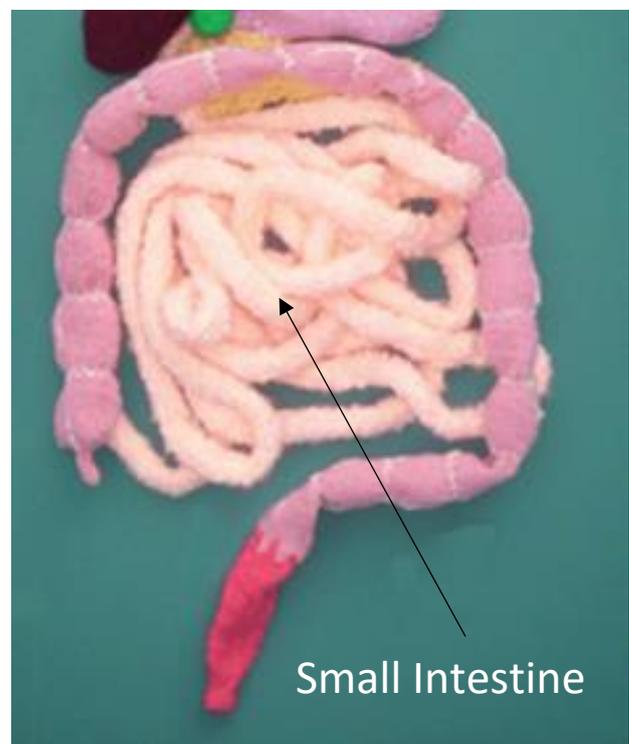
Image of Large & Small Intestine





Part Four: Small Intestine

1. Remove the waste yarn from the last segment of the large intestine and place these six sts on two size 10.5 dpns (if there isn't enough slack put the stitches on a smaller pair of needles and knit the next row with the 10.5s).
2. Using the bulky yellow-pink yarn, knit across one needle, rotate the work 180 degrees and knit across the other needle. Rotate 180 degrees again (if you're smart you'll rotate it the opposite direction so that you untwist the twist you made with the last rotation. If you can't manage this you'll just need to untwist your work every dozen or so rows.) and knit across the first needle. This technique is a cross between I-cord and working on four dpns. I find it very suitable as trying to make I-cord with six stitches (rather than the usual three or four) leaves a ladder up one side of the tube, and trying to work with four dpns leaves you with two stitches per needle, an invitation for slipping needles and dropped stitches, at least if you're me. The two parallel needles are also very easy to hold on to, so that knitting this way requires less coordination and concentration, making it simpler to work while paying attention to something else.
3. Knit until the small intestine measures 21 feet (yes, the human small intestine is 7 yards long. You don't have to make yours quite this long, trust me no one's going to measure, but you need at least 15 feet of innards for them to look authentic and the more the better). This takes me close enough to 1 skein of Red Heart Baby Clouds that I just knit to the end of the skein.





Some Tips:

- 21 feet may seem daunting, I find it helps to set myself a quota, say 5 feet a night or 2 feet per movie. Depending on how much TV you watch this is very doable.
- It only took me about 8 hours each time to knit this section. It's very mindless work and after the first couple of feet your hands will know what to do and you won't need your eyes. Just pick up the knitting whenever you're watching TV, or your kids playing, or your dinner burning and you should be done in just a few days.
- (And if you start to feel yourself cursing me for writing this pattern, just remember that I've made three of these so far, that's 63 feet on six stitches and some very calloused fingers.)



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Part Five: The Stomach

1. With Stomach pink and size 6 dpns, knit into the front and back of each stitch, place marker (12 sts). Redistribute the stitches onto three needles and knit one row.
2. KF&B, K2 across (18 sts)
3. Knit 5 rows plain.
4. K2tog, K3 across (12 sts)
5. K2 tog, K4 across (10 sts)
6. Knit 1 row#KF&B across (20 sts)
7. Knit 1 row
8. KF&B, K1 across (30 sts)
9. K 16 rows
10. K11, wrap and turn, P10, w&t, K across
11. Knit 2 rows
12. K11, w&t, P10, w&t, K across
13. Knit 1 row
14. K5, M1, K2, M1, K across (32 sts)
15. K13, w&t, P12, w&t, K across
16. Knit 1 row
17. K1, M1, K3, M1, K6, M1, K3, M1, K across (36 sts)
18. K17, w&t, P16, w&t, K across
19. Knit 1 row
20. K5, M1, K2, M1, K4, M1, K2, M1, K across (40 sts)
21. K21, w&t, P20, w&t, K across
22. Knit 4 rows
23. K9, SSK, K2tog, K across (38 sts)



24. Knit 1 row
25. K8, SSK, K2tog, K across (36 sts)
26. Knit 1 row
27. K 8, w&t, P13, w&t. The next section is worked only on these 15 sts. Place the next 6 sts on a stitch holder or waste yarn and leave the remaining 15 sts on a spare dpn.
28. K12, w&t, P11, w&t, K10, w&t, P9, w&t, K7, w&t, P5, w&t.
(We will now work this same section in reverse, picking up the wrapped stitches. This is just like working the toe of a sock.)
29. K5, w&t, P5, w&t, K7 (picking up the two wraps when knitting the wrapped stitch), w&t, P9, w&t, K10, w&t, P11, w&t, K12, w&t, P13, w&t, K14. Cut the yarn, leaving a tail a couple of feet long. At this point you may wish to place a few lumps of stuffing in the stomach to represent partially digested food. Weave stitches together.
30. The "toe" of the stomach, about to be woven –



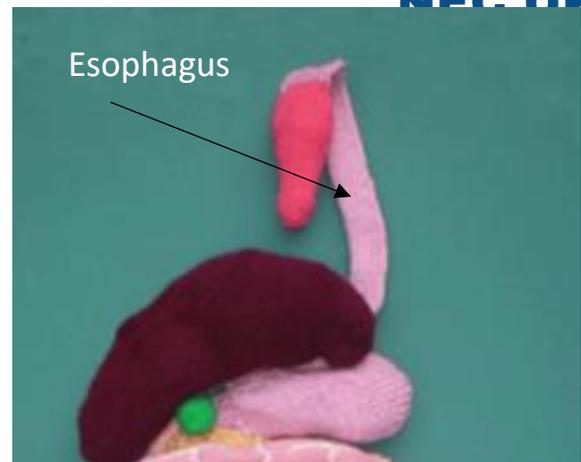
The finished stomach.





Part Six: The Esophagus

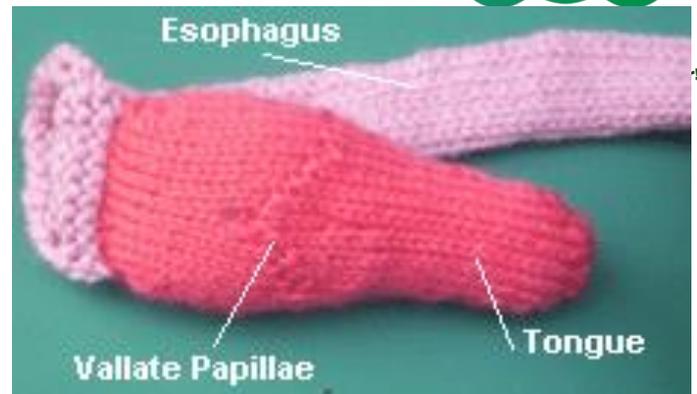
1. Place the 6 stitches from the stitch holder on a dpn.
2. Pick up 6 stitches from the stomach, a little above the opening.
3. Knit these 12 stitches on three dpns until the esophagus measures 12".
4. K3, M1 across (16 sts)
5. Knit 1 row
6. K4, M1 across (20 sts)
7. Knit 2 rows.
8. Lay out stomach and esophagus, mark front and back halves of esophageal opening.
9. Knit to beginning of back half of esophagus, cast off next 10 sts as follows:
Knit stitch, place knitted stitch back on left needle. *Knit 2, pass 1st knitted stitch over 2nd, place 2nd stitch back on left needle, repeat from *.
10. Cut yarn and weave in end.





Part Severn: The Tongue

1. With Angry pink yarn, knit remaining stitches, Place marker (10 sts). Turn work, and knit again in same esophagus stitches (20 sts) place marker and join.
2. *Knit 1 row increasing before each marker.
3. Knit 1 row increasing after each marker.
4. Repeat from * 2 more times (32 sts)
5. Knit 5 rows.
6. Knit to 2nd marker, K8, M1, K to end
7. Knit to 2nd marker, K8, P1, K to end
8. Knit 1 row
9. Knit to 2nd marker, K7, P1, K1, P1, K to end
10. Knit to 2nd marker, K6, P1, K3, P1, K to end
11. K2 tog after each marker, jnit to 2nd marker, K5, P1, K5, P1, K to end
12. Knit to 2nd marker, K4, P1, K7, P1, K to end
13. Knit to 2nd marker, K7, P1, K to end. Purl this one stitch in all subsequent rows (this is the crease down the center of the tongue).
14. *K1 row SSK before each marker
15. K2 rows
16. K1 row K2tog after each marker
17. K2 rows
18. Repeat from * 2 more times (21 sts)
19. K 6 rows
20. Stuff tongue with polyfil
21. K1 row K2tog after each marker
22. *K1 row SSK before each marker
23. K1 row K2tog after each marker
24. Repeat from * 1 more time (11 sts)



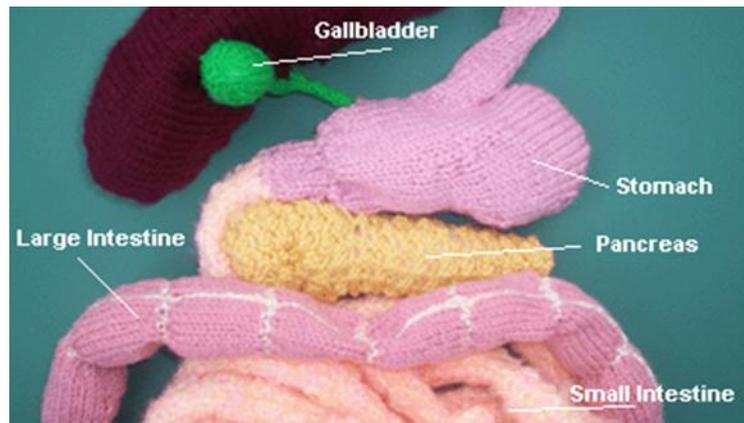
Weave remaining stitches together, adding more stuffing if necessary. Weave in end.

Part Eight: The Pancreas

1. With dull yellow, temporarily cast on 4 sts. Knit across. Remove waste yarn and place cast-on stitches on a dpn. Knit across these stitches, place marker and join.

2. K1, KF, B&F of next stitch across

3. Knit 1 row



Pancreas stitch:

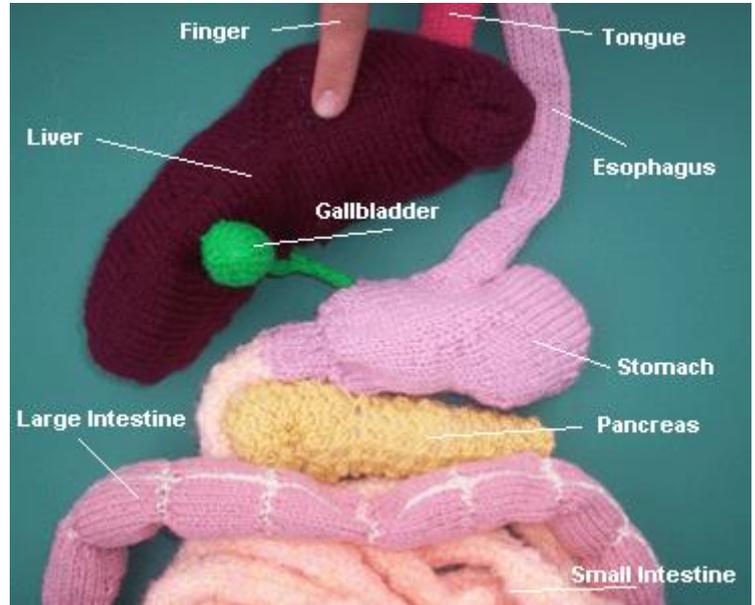
4. *KF, B&F, P3tog across
5. Knit 1 row
6. P3tog, KF, B&F across
7. Knit 1 row
8. Repeat from * 4 more times
9. Increase row: M4 (KF, B, F&B in space between stitches), work in pattern to middle of row, M4, work in pattern to end of row
10. Work Pancreas stitch five more times, work increase row again and work pancreas stitch another five times.
11. K1, P3 tog across
12. Knit 1 row
13. Turn pancreas inside out and stuff. Continue to work stitches with work inside out.
14. P3 tog, K1 across.
15. Cut yarn, leaving a long tail. Weave stitches together and use remaining yarn tail to sew pancreas in place under stomach.



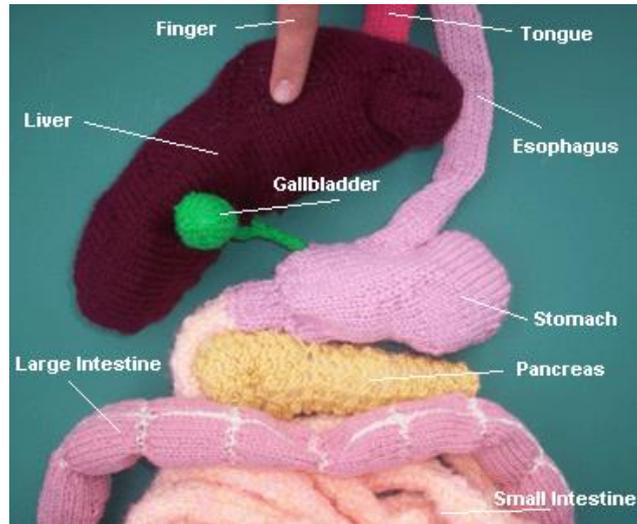
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Part Nine: The Liver

1. With Burgundy and size 6 dpns, make a slip knot, KF,B&F in knot. Slide 6 stitches to other end of needle and KF&B in each stitch (6 sts).
2. KF&B, K1 across (9 sts)
3. Knit 1 row
4. KF&B, K2 across (12 sts)
5. Knit 1 row
6. KF&B, K1 across (18 sts)
7. Knit 1 row
8. KF&B, K2 across (24 sts)
9. Knit 1 row
10. KF&B, K3 across (30 sts)
11. Knit 1 row
12. continue in this way until you reach
13. KF&B, K10 across (72 sts)
14. Knit 1 row
15. [KF&B, K1, KF&B, KF&B, K1, KF&B, K1, KF&B] 3 times, KF&B, K11 across (91 sts)
16. Knit 1 row
17. KF&B, K12 across (98 sts)
18. Knit 1 row
19. Continue as above until you reach
20. KF&B, K15 across (119 sts)
21. Knit 1 row
22. K24, turn, K48, turn, K47, w&t, K46, w&t, K45, w&t, P44, w&t, K43, w&t, continue as above, working in stockinette stitch and wrapping 1 stitch every row until you have 10 sts wrapped on each end.
23. K26, w&t, P24, w&t, K22, w&t, P20, w&t, K18, w&t, P16, w&t, K16, w&t, P16, w&t, K15, w&t, P14, w&t, K14, w&t, P14, w&t, K13, w&t, P12, w&t, K12, w&t, P12, w&t,
24. continue, wrapping one stitch every row as before, until 4 sts remain.
25. K58, picking up wraps as necessary. Turn, P53
26. Work back and forth over 53 sts, K/P2tog with next unworked stitch at the end of each row. After 12 rows You should have 53 remaining unworked stitches. Cut yarn, stuff liver and weave stitches together.

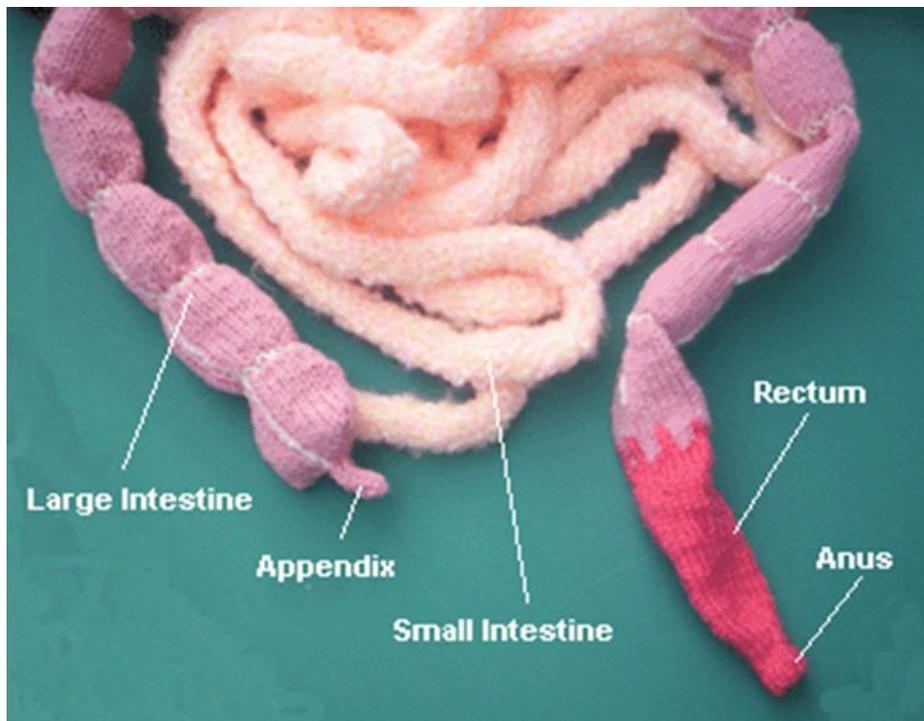
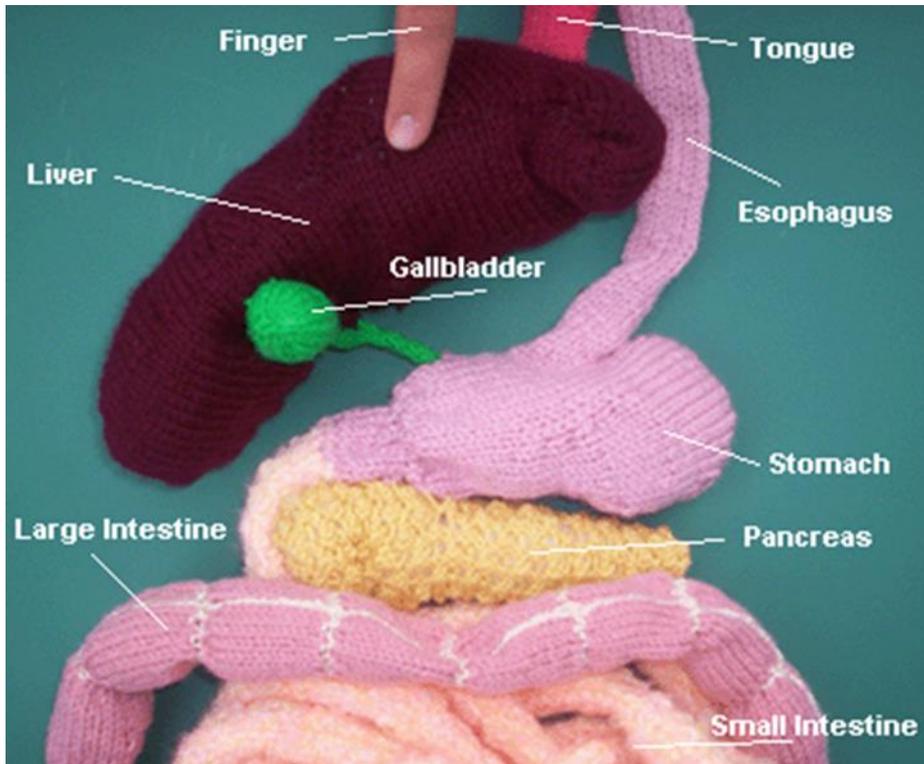


Part Ten: The Gallbladder

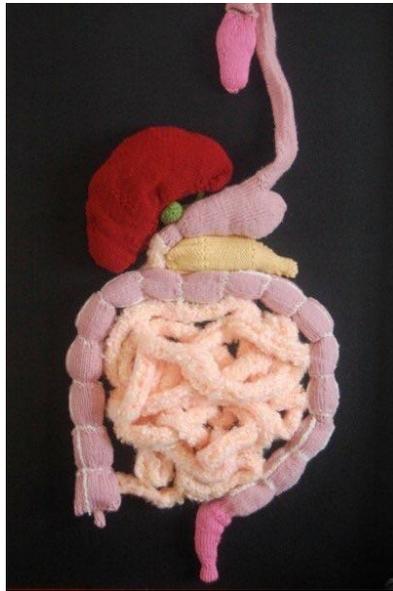


1. With Green and size 6 dpns, pick up 3 sts from the duodenum. Leave a long tail and you can use it to attach the bile duct to the stomach and liver. Sewing as you go, make enough I-cord to go across the pancreas and the stomach, Up from the stomach about 1 1/2 inches and down the back of the liver another 2 inches.
2. KF&B of each stitch (6 sts).
3. Knit 3 rows.
4. KF&B of each stitch (12 sts).
5. Knit 6 rows.
6. KF&B, K1 across (18 sts).
7. Knit 5 rows.
8. Stuff Gallbladder.
9. K2tog until 1 stitch remains, cut end and thread through loop. Sew Gallbladder to underside of liver.

Well-done you have finished!



Here are some examples from the pattern publisher:



One has even been box framed as a present to their team as a thank you for their continued support!
“What a fabulous way to share your work”

Please note that if there is any way in which you’d like to simplify the pattern, feel free to! This is a rough guide – we only ask that the sizes are the same (e.g. 21 feet for the small intestine, believe it or not!)

Enjoy!

Knitting Pattern by Matie Trewé. Available at:
<https://www.ravelry.com/patterns/library/knitted-digestive-system>