

PREMIUM DIGITAL KNITTING PATTERN

Forest Green Knitted Dragon Plushie



PATTERN LEVEL

Intermediate

FINISHED HEIGHT

29.5-31 cm

PRIMARY TECHNIQUE

Knitting in the round

FORMAT

Step-by-step written instructions

DIGITAL KNITTING PATTERN

Forest Green Knitted Dragon Plushie

Complete premium construction guide

PATTERN LEVEL Intermediate	FINISHED HEIGHT Approximately 29.5-31 cm
CONSTRUCTION Knitted in the round with carefully shaped flat components	REQUIRED GAUGES Circular stockinette, flat stockinette, and garter stitch

Before beginning: Work and finish all gauge swatches. The measurements, attachment coordinates, stuffing targets, and bilateral symmetry checks depend on matching the stated gauges.

This edition includes complete knitting, stuffing, shaping, attachment, wing-support, tail-curve, and final inspection instructions. Read the full component section before beginning each piece.

Contents

PATTERN ESSENTIALS	HORNS, SPINES, FINS, AND BELLY
----------------------------------	--

1	Finished Design
2	Finished Measurements
3	Materials
4	Gauge
5	Abbreviations
6	Stitch Definitions
7	Cast-On Methods
8	Joining In The Round
9	Measurement Rules
10	Attachment Systems
11	Persistent Orientation Guides
12	Generic Cardinal Shaping

BODY AND FACIAL CONSTRUCTION

13	Body Base
14	Body
15	Head
16	Safety-Eye Option
17	Embroidered-Eye Option
18	Full Provisional Head Stuffing
19	Muzzle
20	Facial Embroidery

WING CONSTRUCTION

44	Wing Panels
45	Wing Blocking And Panel-Pair Compatibility
46	Wing Veins
47	I-Cord Spars
48	Wing Pairing, I-Cord Tacking, Perimeter, And Quilting
49	Wing Roots And Three-Dimensional Attachment

21	Horns
22	Dorsal-Spine Orientation
23	Spine Dimensions And Exact Base Boundary Map
24	Large Spines
25	Medium Spines
26	Small Spines
27	Tiny Spines
28	Spine-Anchor Distances
29	Head Spines
30	Cheek Fins
31	Belly Panel
32	Neck Adjustment
33	Circular Kitchener Graft

LIMBS AND TAIL

34	Arms
35	Hind Thighs
36	Feet
37	Foot-To-Thigh Join
38	Toe Nubs
39	Tail
40	Tail Drawcord
41	Tail-Root Map, Visible Datum Level, And Initial Attachment
42	Body Spines
43	Head-To-Body Final Gap

TAIL FINISHING AND FINAL CHECKS

50	Preliminary Tail Curve
51	Tail Spines
52	Final Post-Spine Tail Adjustment
53	Final Tail-Root Closure
54	Final Body-To-Tail Gap
55	Complete Assembly Order
56	Component Check
57	Final Stability Test
58	Six-View Inspection
59	Final Checklist

1 FINISHED DESIGN

The completed dragon has:

- Two short crown horns
- Six graded head spines
- Three narrow graded cheek fins on each side
- Two tapered, internally curved arms
- Two shaped hind thighs
- Two elongated feet with felt-supported flat soles
- Three knitted toe nubs on each foot
- Two double-layered wings with measured knitted I-cord spars
- Four graded body spines
- Seven graded tail spines
- One broad, shallow muzzle
- One light-sage belly panel with four divider ridges
- A stable sitting stance supported by the body base, both soles, and the lower tail

2 FINISHED MEASUREMENTS

- Complete vertical height including tilted horns: approximately 29.5-31 cm
- Height to crown excluding horns: approximately 26.5-27.5 cm
- Head width: 12.5-13 cm
- Head crown-to-neck height: 12.5-13 cm
- Head depth before muzzle projection: 11.5-12 cm
- Head circumference at the widest level: approximately 38-39.5 cm
- Body base-to-neck height: 14-14.5 cm
- Maximum body width: 11.5-12 cm
- Maximum body depth: 10.5-11 cm
- Body circumference at the widest level: approximately 35-36 cm
- Muzzle width: 8.8-9.3 cm
- Muzzle height: 4.3-5 cm
- Muzzle root circumference: approximately 22-22.3 cm
- Muzzle forward projection: 4-4.5 cm
- Arm material-axis length: approximately 8-8.8 cm
- Thigh material-axis length: approximately 7.5 cm
- Thigh maximum width: 5.2-5.8 cm
- Foot material-axis length: approximately 8.8-9 cm
- Tail dorsal length: 19-20.5 cm
- Wing straight root-midpoint-to-tip distance: 12-12.5 cm
- Wing maximum membrane height: 8-8.5 cm
- Visible neck height: approximately 13-16 mm
- Exposed horn length: approximately 3-3.5 cm

Because the horns tilt outward and backward, their 3-3.5 cm physical length contributes approximately 2.9-3.4 cm to the complete vertical height.

Do not stretch the thighs or feet longitudinally beyond their gauge-derived material-axis lengths.

MATERIALS

Yarn

Use smooth worsted-weight or light aran-weight yarn.

- Forest green: 240-280 g
- Light sage green: 30-40 g
- Optional darker green for toe nubs: approximately 5 g
- Black embroidery yarn or six-strand embroidery floss: approximately 2 m
- Four colours of smooth contrasting waste yarn

Recommended yarn characteristics:

- Approximately 180-210 m per 100 g
- Smooth and tightly spun
- Low halo
- Moderate resilience
- No chenille, boucle, eyelash, or heavily brushed texture

Colour rule

Unless a section explicitly specifies light sage or optional darker green, work every knitted component, I-cord, structural embroidered line, and visible sewing strand in forest green.

Use:

- Light sage only for the belly panel
- Optional darker green only for the toe nubs
- Black only for facial embroidery

Needles

Use the needle sizes required to obtain all three stated gauges.

Suggested starting sizes:

- Approximately 4 mm for circular stockinette
- Approximately 4 mm for flat stockinette
- Approximately 3.75-4 mm for garter stitch
- DPNs or a circular needle suitable for magic loop
- DPNs or a circular needle for three-stitch I-cord

The three gauges may require different needle sizes.

Additional materials

- Two 12 mm black safety eyes with mechanically locking washers no larger than approximately 22 mm in outside diameter
- Polyester toy stuffing, approximately 280-340 g
- Firm washable polyester craft felt, 1.5-2 mm thick per layer
- Locking stitch markers

- Removable fabric markers
- Tapestry needle
- Curved upholstery needle
- Pins
- Row counter
- Flexible measuring tape
- Rigid ruler
- Blunt forceps or stuffing tool
- Optional washable, toy-suitable fabric adhesive for supplementary stabilization around an already locked washer

Adhesive must never:

- Replace the locking washer
- Be used as the primary eye-retention method
- Hold an unlocked eye post
- Contact the visible eye surface
- Soak through the knitted fabric

Install and fully lock each washer mechanically before applying optional adhesive.

Keep stuffing away from the adhesive until it has fully cured.

Use:

- Two felt layers for the body base
- Two felt layers for each foot sole

Each completed felt support is approximately 3-4 mm thick.

For a toy intended for a child younger than three years old, use the embroidered-eye option.

Do not use wire, pipe cleaners, wooden sticks, or metal supports.

4 GAUGE

Wash and dry every swatch in the same manner intended for the completed plushie.

Circular stockinette

20 stitches x 28 rounds = 10 x 10 cm

- One stitch measures approximately 5 mm.
- One round measures approximately 3.57 mm.

Flat stockinette

20 stitches x 28 rows = 10 x 10 cm

Garter stitch

20 stitches x 38 rows = 10 x 10 cm

Nineteen visible garter ridges measure approximately 10 cm.

All three gauges are required.

5

ABBREVIATIONS

- **BOR:** beginning of round
- **CO:** cast on
- **BO:** bind off
- **k:** knit
- **p:** purl
- **st/sts:** stitch/stitches
- **rnd/rnds:** round/rounds
- **RS:** right side
- **WS:** wrong side
- **PM:** place marker
- **SM:** slip marker
- **M1L:** make one left
- **M1R:** make one right
- **ssk:** slip, slip, knit
- **k2tog:** knit two stitches together
- **kfb:** knit into the front and back of one stitch
- **CDD:** centred double decrease

6

STITCH DEFINITIONS

kfb

Knit into the front loop of the next stitch without dropping it from the left needle. Knit into the back loop of the same stitch, then drop the original stitch.

One stitch increased.

M1L

Lift the strand between the needles from front to back with the left needle. Knit through the back loop.

One left-leaning stitch increased.

M1R

Lift the strand between the needles from back to front with the left needle. Knit through the front loop.

One right-leaning stitch increased.

ssk

Slip the next two stitches separately knitwise. Return them to the left needle without twisting them further. Knit them together through the back loops.

One left-leaning stitch decreased.

k2tog

Knit the next two stitches together.

One right-leaning stitch decreased.

CDD

Slip the next two stitches together knitwise. Knit the following stitch. Pass both slipped stitches together over the knitted stitch.

Two stitches decreased with the remaining stitch centred.

7 CAST-ON METHODS

Closed eight-stitch polar starts

Use a standard long-tail cast-on, leaving a **20-25 cm cast-on tail**.

Keep this tail outside the work and available until the eight-stitch polar opening has been gathered and secured.

Do not:

- Trim the cast-on tail
- Weave it into the first rounds
- Use it for marker placement
- Trap it beneath stuffing
- Substitute the working yarn for the final polar closure

After working at least three rounds:

1. Thread the original 20-25 cm cast-on tail onto a tapestry needle.
2. Pass through the lower cast-on loop of all eight stitches in their original order.
3. Pull the opening completely closed.
4. Pass through the gathered centre once more.
5. Secure the tail against the interior knitted fabric.
6. Bury the remaining tail through at least two internal stitch paths.

This method applies automatically to:

- Head
- Right thigh
- Left thigh
- Right foot
- Left foot

Open circular attachment edges

Use a cable cast-on for:

- Arms
- Tail
- Horns
- Dorsal spines
- Toe nubs

The cable-cast-on edge remains open for attachment.

Flat pieces

Use a standard long-tail cast-on for:

- Body base
- Belly panel
- Cheek fins

- Wing panels

Muzzle

Use a Turkish cast-on.

8

JOINING IN THE ROUND

Whenever a section instructs you to join:

1. Arrange the cast-on edge so all cast-on bumps face the same direction.
2. Confirm that no stitch or section is twisted.
3. Join the first and final cast-on stitches.
4. Place the BOR marker.
5. Establish every stated orientation marker before Round 1.

9

MEASUREMENT RULES

Unless explicitly labelled as a surface or curved-edge measurement, all widths, heights, depths, projections, diameters, and base dimensions are straight-line distances.

Straight-line measurements

Use a rigid ruler or equivalent method for:

- Complete vertical height
- Height to crown
- Head width, height, and depth
- Body height, width, and depth
- Muzzle width, height, and forward projection
- Thigh maximum width
- Wing root-midpoint-to-tip distance
- Wingtip outward, upward, and backward projections
- Tail-root height H
- Felt-template dimensions
- Horn, spine, fin, and attachment-base dimensions

The head and body width and depth values used in circumference checks are straight ellipse-axis measurements.

Surface and curved-edge measurements

Use a flexible tape laid directly against the supported knitted surface for:

- Attachment offsets
- Spine-anchor distances
- Horn distance from the crown centreline
- Muzzle root circumference
- Tail dorsal and ventral lengths
- Curved upper-wing-edge length
- Belly side-checkpoint distances
- Distance from front centre to side anchors
- Distance from a side guide to lateral arm or thigh anchors
- Tail-datum witness offsets

Do not pull the tape tightly enough to indent the stuffing.

Material-axis measurements

Thigh

Measure along the long-axis guide from the outer cast-on pole to the gathered Round-21 body-facing pole.

Target:

- Approximately 7.5 cm

Foot

Measure along the dorsal guide from the toe pole to the gathered Round-25 heel pole.

Target:

- Approximately 8.8-9 cm

Arm

Measure along the outer long-axis surface from the shoulder edge to the gathered hand.

Target:

- Approximately 8-8.8 cm

10

ATTACHMENT SYSTEMS

Use the open-edge method when the component has an exposed cast-on or bound-off edge.

Use the closed-surface ladder join when both components are already closed and stuffed.

The separately written belly-panel and wing-root techniques remain unchanged.

Open-edge attachment system

Use for:

- Muzzle
- Horns
- Dorsal spines
- Arm shoulders
- Tail root
- Toe-nub roots
- Cheek-fin roots

Boundary markers lie in the gaps between stitch groups.

Anchor pins are quarter boundaries, not sewing bites.

For a group containing N component-edge stitches:

1. Pin the stated component boundaries to their receiving anchors.
2. Mark exactly N unique receiving bites between them.
3. Do not count either boundary pin.
4. Do not reuse a bite in the next group.
5. Match component stitches consecutively to receiving bites.

Canonical open-edge attachment stitch

At each position:

1. Pass the needle beneath both legs of the cast-on or bound-off edge stitch.
2. Do not split the component yarn.
3. Catch one horizontal receiving bar, or approximately half of one knit stitch.
4. Move directly to the next component-edge stitch.
5. Keep every pass parallel to its neighbours.

Place one complete quarter loosely before tightening it.

Tighten gradually and evenly.

The seam must:

- Close the opening
- Keep the edge turned inward
- Avoid rolling the component edge outward
- Avoid sinking the receiving surface
- Avoid a raised whipstitched ridge

- Preserve the pinned angle and rotation

Do not stab through the full stuffed depth.

Flat cheek-fin root exception

A cheek-fin root is a flat attachment edge, not a tubular opening.

For every cheek fin:

1. Lay the complete three-stitch cast-on edge flat along the marked 15 mm root line.
2. Do not fold, roll, or turn the cast-on edge inward.
3. Pass beneath both legs of the first cast-on stitch without splitting the yarn.
4. Catch the corresponding first receiving bite.
5. Repeat for the second and third cast-on stitches.
6. Keep all three attachment passes perpendicular to the root line.
7. Tighten only until the root lies flush against the supported head surface.

The completed root must:

- Remain approximately 15 mm wide
- Lie flat against the head
- Retain the stated fin angle
- Avoid curling
- Avoid folding
- Avoid narrowing
- Avoid sinking into the head

The general instruction to close an opening or turn an edge inward does not apply to cheek-fin roots.

Closed-surface ladder join

Use for:

- Thigh to body
- Foot to thigh
- Any other attachment between two closed stuffed surfaces

The four anchor pins are quarter boundaries, not sewing bites.

For each quarter:

1. Mark the stated number of unique bites on the first component.
2. Mark the same number on the receiving component.
3. Pair the bites consecutively.
4. Catch one horizontal fabric bar on the first component.
5. Catch the corresponding horizontal bar on the receiving component.
6. Continue alternating between the two surfaces.
7. Do not pass through stuffing, felt, guide yarn, or unrelated seams.
8. Place the entire seam loosely before tightening.
9. Tighten gradually around all four quarters.

The seam must not:

- Pucker
- Recess either surface
- Twist either component
- Disturb the anchor correspondence

11

PERSISTENT ORIENTATION GUIDES

Major components use four removable guide lines:

- Back or underside
- Plush's right
- Front or upper side
- Plush's left

At each guide:

1. Place a removable marker every four to six rounds.
2. Thread smooth waste yarn loosely through the markers.
3. Do not sew through the guide yarn.
4. Retain the guides until all related assembly is complete.
5. Remove them only during final finishing.

12

GENERIC CARDINAL SHAPING

Use when four markers divide a round equally.

Eight-stitch increase round

1. M1L immediately after BOR.
2. Knit to the next marker.
3. M1R, SM, M1L.
4. Repeat Step 3 at the next two markers.
5. Knit to BOR.
6. M1R immediately before BOR.

Eight stitches increased.

Eight-stitch decrease round

1. ssk immediately after BOR.
2. Knit to two stitches before the next marker.
3. k2tog, SM, ssk.
4. Repeat Step 3 at the next two markers.
5. Knit to the final two stitches.
6. k2tog.

Eight stitches decreased.

13

BODY BASE

Use forest green and the flat-stockinette gauge needle.

CO 18 sts.

- **Row 1, RS:** knit.
- **Row 2, WS:** purl.
- **Row 3:** k1, M1L, knit to last stitch, M1R, k1. **20 sts**
- **Row 4:** purl.
- **Row 5:** repeat Row 3. **22 sts**
- **Row 6:** purl.
- **Rows 7-14:** stockinette.
- **Row 15:** k1, ssk, knit to last 3 sts, k2tog, k1. **20 sts**
- **Row 16:** purl.
- **Row 17:** repeat Row 15. **18 sts**
- **Row 18:** purl.
- **Row 19:** knit.
- **Row 20:** purl.

BO knitwise.

Block to approximately:

- 11 cm wide
- 7-7.5 cm front to back

Felt body support

Cut two matching felt ovals:

- 10 cm wide
- 6-6.5 cm front to back
- 1.5-2 mm thick per layer

Stack and tack them together around the perimeter.

14

BODY

Place the base RS upward with the bound-off edge at the back.

The back-centre starting point is the gap between the ninth and tenth bound-off stitches.

Work first toward the plush's right.

First half of bound-off edge

Pick up 9 sts.

Plush's-right side

Number the 20 row-end bars from the bound-off edge toward the cast-on edge.

Pick up through:

1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 19, 20

14 sts

Cast-on edge

Pick up all 18 sts.

Plush's-left side

Number the bars from the bound-off edge toward the cast-on edge.

Because this side is traversed in the opposite physical direction, pick up through:

20, 19, 17, 16, 14, 13, 11, 10, 8, 7, 5, 4, 2, 1

14 sts

Remaining bound-off edge

Pick up the final 9 sts.

64 sts total

Place:

- BOR: back centre
- Marker after 16 sts: plush's right
- Marker after 32 sts: front centre
- Marker after 48 sts: plush's left

Install persistent guides.

- **Rnds 1-4:** knit. **64 sts**
- **Rnd 5:** eight-stitch increase round. **72 sts**
- **Rnds 6-15:** knit. **72 sts**

Insert body support after Round 15

1. Roll the double felt oval gently.
2. Insert it through the opening.
3. Unroll it against the base.
4. Align its cardinal points with the guides.
5. Secure through the felt and interior knitted bars at all four points.
6. Confirm it cannot rotate.
7. Add a thin stuffing layer above it.

Side decrease round

At the right and left markers:

- k2tog immediately before the marker
- SM
- ssk immediately after the marker

Four stitches decreased.

Centre decrease round

- ssk immediately after BOR
- knit to two stitches before the front marker
- k2tog
- SM
- ssk
- knit to the final two stitches
- k2tog

Four stitches decreased.

Continue:

- **Rnd 16:** side decrease round. **68 sts**
- **Rnd 17:** knit.
- **Rnd 18:** centre decrease round. **64 sts**
- **Rnd 19:** knit.
- **Rnd 20:** side decrease round. **60 sts**
- **Rnd 21:** knit.
- **Rnd 22:** centre decrease round. **56 sts**
- **Rnd 23:** knit.
- **Rnd 24:** side decrease round. **52 sts**
- **Rnd 25:** knit.
- **Rnd 26:** centre decrease round. **48 sts**
- **Rnd 27:** knit.
- **Rnd 28:** side decrease round. **44 sts**
- **Rnd 29:** knit.
- **Rnd 30:** centre decrease round. **40 sts**
- **Rnd 31:** knit.
- **Rnd 32:** side decrease round. **36 sts**
- **Rnd 33:** knit.
- **Rnd 34:** centre decrease round. **32 sts**
- **Rnd 35:** knit.
- **Rnd 36:** side decrease round. **28 sts**
- **Rnd 37:** knit.
- **Rnd 38:** centre decrease round. **24 sts**
- **Rnds 39-40:** knit. **24 sts**

Cut the yarn, leaving 30 cm.

Transfer the live stitches to waste yarn.

Stuffing targets

- Height: 14-14.5 cm
- Width: 11.5-12 cm
- Depth: 10.5-11 cm
- Circumference: 35-36 cm
- Neck diameter: 3.8-4 cm

Width, depth, and circumference must pass simultaneously.

- At 11.5 cm width, use at least approximately 10.8 cm depth.
- At 10.5 cm depth, use at least approximately 11.8 cm width.
- Do not use both minimum axes together.

Leave the final 1 cm beneath the neck moderately flexible.

15 HEAD

Use forest green.

Long-tail CO 8 sts, leaving the required 20-25 cm polar-closure tail.

Arrange without twisting and join.

Place:

- BOR: back centre
- Marker after Stitch 2: plush's right
- Marker after Stitch 4: front centre
- Marker after Stitch 6: plush's left

Install persistent guides.

- **Rnd 1:** eight-stitch increase round. **16 sts**
- **Rnd 2:** knit.
- **Rnd 3:** eight-stitch increase round. **24 sts**

Close the eight-stitch crown opening with the original 20-25 cm cast-on tail.

- **Rnd 4:** knit.
- **Rnd 5:** eight-stitch increase round. **32 sts**
- **Rnd 6:** knit.
- **Rnd 7:** eight-stitch increase round. **40 sts**
- **Rnd 8:** knit.
- **Rnd 9:** eight-stitch increase round. **48 sts**
- **Rnd 10:** knit.
- **Rnd 11:** eight-stitch increase round. **56 sts**
- **Rnd 12:** knit.
- **Rnd 13:** eight-stitch increase round. **64 sts**
- **Rnd 14:** knit.
- **Rnd 15:** eight-stitch increase round. **72 sts**
- **Rnd 16:** knit.
- **Rnd 17:** eight-stitch increase round. **80 sts**
- **Rnds 18-22:** knit. **80 sts**
- **Rnd 23:** eight-stitch decrease round. **72 sts**
- **Rnd 24:** knit.
- **Rnd 25:** eight-stitch decrease round. **64 sts**
- **Rnd 26:** knit.
- **Rnd 27:** eight-stitch decrease round. **56 sts**
- **Rnd 28:** knit.
- **Rnd 29:** eight-stitch decrease round. **48 sts**
- **Rnd 30:** eight-stitch decrease round. **40 sts**
- **Rnd 31:** knit.
- **Rnd 32:** eight-stitch decrease round. **32 sts**
- **Rnd 33:** eight-stitch decrease round. **24 sts**
- **Rnds 34-35:** knit. **24 sts**

Cut the yarn, leaving approximately 150 cm for grafting.

Transfer the 24 live stitches to waste yarn.

16

SAFETY-EYE OPTION

Use two 12 mm eyes with washers no larger than approximately 22 mm.

Eye centres:

- Between Head Rounds 17 and 18
- At Columns 35 and 46

On the 80-stitch level:

- BOR lies between Columns 80 and 1.
- Front centre lies between Columns 40 and 41.
- Right guide lies between Columns 20 and 21.
- Left guide lies between Columns 60 and 61.

Installation sequence

1. Measure both washer diameters.
2. Add temporary loose stuffing to establish the intended skull shape.
3. Mark both eye centres.
4. Mark the future muzzle top between Head Rounds 21 and 22.
5. Confirm equal height, equal distance from front centre, and correct side rotation.
6. Confirm at least 3 mm theoretical clearance between each washer edge and the future muzzle seam.
7. Remove temporary stuffing from directly behind both washer zones.
8. Insert the eye posts.
9. Mechanically lock both washers against bare knitted fabric.
10. Confirm that no stuffing is trapped beneath either washer.

Optional supplementary adhesive

Only after mechanical locking:

1. Apply a minimal amount of toy-suitable adhesive around the washer.
2. Keep it away from the locking mechanism.
3. Do not allow it to soak through the fabric.
4. Keep stuffing away until fully cured.
5. Restore the stuffing only after curing.

Adhesive never replaces the locking washer.

17

EMBROIDERED-EYE OPTION

Use when:

- The toy is intended for a child younger than three; or
- Suitable safety eyes are unavailable.

Mark centres:

- Between Head Rounds 17 and 18
- At Columns 35 and 46

Using black embroidery yarn:

1. Mark an 11-12 mm circular outline around each centre.
2. Fill with closely packed satin or duplicate stitches.
3. Keep both eyes smooth, circular, level, and identical.
4. Use equal stitch counts and passes.
5. Carry yarn internally between securing points.
6. Secure each end through multiple internal paths.
7. Leave no loose loops, floats, knots, or exposed ends.

18

FULL PROVISIONAL HEAD STUFFING

Target:

- Width: 12.5-13 cm
- Crown-to-neck height: 12.5-13 cm
- Depth before muzzle: 11.5-12 cm
- Circumference: 38-39.5 cm

All measurements must pass simultaneously.

- At 12.5 cm width, use at least approximately 11.7 cm depth.
- Do not combine 12.5 cm width with 11.5 cm depth if circumference is below 38 cm.
- Add volume through the rear and side skull, not the facial plane.

Keep the final 1-1.5 cm near the neck moderately flexible.

19

MUZZLE

Use forest green.

Turkish CO 12 sts on each needle.

24 sts

Establish:

- BOR: plush's right-side boundary
- After six upper stitches: upper centre
- Opposite transition: plush's left side
- After six lower stitches: lower centre

Persistent centre guides

Before Round 1:

1. Place markers at upper and lower centre.
2. Add another marker to each centre line every two rounds.
3. Keep both lines midway between the side markers.
4. Retain them through stuffing, sculpting, attachment, and embroidery.

Side increase round

At both side markers:

- M1R immediately before the marker
- SM
- M1L immediately after the marker

Work:

- **Rnd 1:** knit. **24 sts**
- **Rnd 2:** side increase round. **28 sts**
- **Rnd 3:** knit.
- **Rnd 4:** side increase round. **32 sts**
- **Rnd 5:** knit.
- **Rnd 6:** side increase round. **36 sts**
- **Rnd 7:** knit.
- **Rnd 8:** side increase round. **40 sts**
- **Rnd 9:** knit.
- **Rnd 10:** side increase round. **44 sts**
- **Rnds 11-12:** knit. **44 sts**

BO loosely, leaving a 100 cm attachment tail.

Stuffing and dimensional check

Stuff the muzzle broadly and shallowly.

Target dimensions:

- Width: 8.8-9.3 cm
- Height: 4.3-5 cm
- Circumference at the widest root level: approximately 22-22.3 cm
- Forward projection: 4-4.5 cm

The 44-stitch root has the nominal knitted circumference:

44 stitches x 5 mm = 22 cm

Width, height, and root circumference must pass simultaneously.

Use the width and height as inverse paired dimensions:

- At 8.8 cm width, use approximately 4.9-5 cm height.
- At 9 cm width, use approximately 4.6-4.8 cm height.
- At 9.3 cm width, use approximately 4.3-4.5 cm height.

Do not combine:

- Maximum width with maximum height
- Minimum width with minimum height

Measure the circumference immediately beside the bound-off root edge before attachment.

The measuring tape must:

- Lie flat against the supported knitted surface
- Pass around the widest root level
- Remain immediately beside the bound-off edge
- Avoid compressing the stuffing
- Return to its starting point without crossing itself

Adjust the stuffing until:

- Width passes
- Height passes
- Root circumference is approximately 22-22.3 cm
- The upper- and lower-centre guides remain straight
- Both side boundaries remain level
- The root edge lies flat without stretching or easing

Forward projection

The 4-4.5 cm forward projection is a separate straight-line measurement.

1. Identify the midpoint of the muzzle attachment plane.
2. Hold the ruler perpendicular to that plane.
3. Measure directly from the attachment-plane midpoint to the foremost point of the stuffed muzzle.

Do not measure:

- Along the curved upper surface
- Along the curved lower surface
- Along either curved side surface

- From the upper or lower root boundary
- From the underside sculpting bite

The measured projection must remain 4-4.5 cm while the width, height, and root circumference pass simultaneously.

Underside sculpting

Use a separate 50 cm forest-green strand.

1. Enter through the lower-centre point of the bound-off root edge.
2. Travel internally through the stuffing to the underside near Muzzle Round 2.
3. Take one two-stitch horizontal bite centred across the persistent lower-centre guide.
4. Return internally to the lower-centre root point.
5. Tighten gradually until the underside shortens by approximately 5 mm.
6. Confirm that the upper-centre guide remains straight.
7. Confirm that the muzzle has not rotated.
8. Confirm that the muzzle remains broad and shallow.
9. Secure the strand inside the muzzle.
10. Bury both ends through separate internal stitch paths.

Head anchors

- Top: front-centre guide between Head Rounds 21 and 22
- Bottom: front-centre guide between Head Rounds 33 and 34
- Right: between Head Rounds 27 and 28, 4.65 cm from front centre
- Left: exact mirror

Boundary map

- Upper centre -> head top
- Left side -> head left
- Lower centre -> head bottom
- Right side/BOR -> head right

Starting at BOR:

- First 11 stitches end at upper centre.
- Second 11 end at left side.
- Third 11 end at lower centre.
- Fourth 11 return to BOR.

Use 11 unique receiving bites per quarter and the canonical open-edge attachment stitch.

No head dimension may change by more than 2 mm.

20

FACIAL EMBROIDERY

Nostrils

Place on Muzzle Round 4:

- Three stitches right of upper centre
- Three stitches left of upper centre

Use two or three satin stitches per nostril.

Smile

Place the corners on Muzzle Round 7:

- Seven stitches to either side of lower centre

Place the lowest point 8-10 mm beneath the corner line.

Work seven to nine small backstitches.

21

HORNS

Make two.

For each horn:

1. Cable CO 12 sts, leaving a 45 cm attachment tail.
2. Arrange without twisting.
3. Join in the round.
4. Place BOR at the back boundary.

Markers:

- After Stitch 3: right
- After Stitch 6: front
- After Stitch 9: left
- **Rnds 1-4:** knit. **12 sts**
- **Rnd 5:** At both the right and left markers, work k2tog immediately before the marker, SM, then ssk immediately after the marker. **8 sts**
- **Rnds 6-8:** knit.
- **Rnd 9:** (ssk, k2tog) twice. **4 sts**

Cut the working yarn, leaving approximately 15 cm.

Gather the four tip stitches and bury the tip tail.

Stuff only the lower 1.5-2 cm.

Placement

Base centre:

- 2.8-3 cm from crown centreline
- 6-8 mm forward of highest crown point

Receiving anchors:

- Front: 1 cm toward face
- Back: 1 cm toward rear skull
- Right: 0.9 cm toward plush's right
- Left: 0.9 cm toward plush's left

Boundary map:

- Front marker -> front anchor
- Right marker -> right anchor
- BOR/back -> back anchor
- Left marker -> left anchor

Use three receiving bites per quarter.

After all boundaries are pinned:

- Tilt 12-15 degrees outward.
- Tilt approximately 8 degrees backward.

Attach with the 45 cm cast-on tail.

22

DORSAL-SPINE ORIENTATION

For every spine, BOR is the tailward base boundary.

Head

- Rootward: toward crown and lower round numbers
- Tailward: toward nape and higher round numbers

Body

- Rootward: toward neck and higher round numbers
- Tailward: toward tail and lower round numbers

Tail

- Rootward: toward body and lower round numbers
- Tailward: toward tip and higher round numbers

23

SPINE DIMENSIONS AND EXACT BASE BOUNDARY MAP

Size	Height	Across dorsal line	Along dorsal line
Large	1.4-1.6 cm	2 cm	1.8 cm
Medium	1.1-1.3 cm	1.7 cm	1.5 cm
Small	Approximately 1 cm	1.4 cm	1.15 cm
Tiny	6-8 mm	1 cm	0.9 cm

Exact spine-base boundary map

For every spine, BOR is the tailward boundary.

Beginning with the first cast-on stitch immediately after BOR:

1. Work the stated right-transverse allocation, then place the right boundary marker.
2. Work the stated rootward allocation, then place the rootward boundary marker.
3. Work the stated left-transverse allocation, then place the left boundary marker.
4. Work the stated tailward allocation back to BOR.

During attachment, match:

- Right boundary -> right receiving anchor
- Rootward boundary -> rootward receiving anchor
- Left boundary -> left receiving anchor
- BOR/tailward boundary -> tailward receiving anchor

The boundary markers lie in gaps between cast-on stitch groups.

They are not sewing bites.

Using the assigned cast-on attachment tail:

1. Sew every cast-on stitch exactly once.
2. Follow the stated allocation consecutively from BOR.
3. Do not reverse the right and left allocations.
4. Do not rotate the spine after attachment begins.
5. Retain the established rotation until the complete base has been sewn.

24

LARGE SPINES

Make three.

For each:

1. Cable CO 12 sts, leaving a 35 cm attachment tail.
2. Arrange without twisting.
3. Join in the round.
4. Place BOR at the tailward boundary.

- **Rnds 1-3:** knit.
- **Rnd 4:** (ssk, k2tog) three times. **6 sts**

Cut a 15 cm working tail.

Gather the six tip stitches and bury the tip tail.

Add one small fibre wisp.

Base allocation:

- Right transverse: 3
- Rootward: 3
- Left transverse: 3
- Tailward: 3

25

MEDIUM SPINES

Make six:

- Three Medium A
- Three Medium B

Use one Medium A and one Medium B on each of the head, body, and tail.

For each:

1. Cable CO 10 sts, leaving a 35 cm attachment tail.
2. Arrange without twisting.
3. Join in the round.
4. Place BOR at the tailward boundary.

Medium A

- **Rnds 1-2:** knit.
- **Rnd 3:** (ssk, k2tog) twice, k2tog. **5 sts**

Medium B

- **Rnds 1-2:** knit.
- **Rnd 3:** (k2tog, ssk) twice, ssk. **5 sts**

Cut a 15 cm working tail.

Gather the five tip stitches and bury the tip tail.

Add one small fibre wisp.

Base allocation:

- Right transverse: 3
- Rootward: 2
- Left transverse: 3
- Tailward: 2

26

SMALL SPINES

Make six:

- One head
- Two body
- Three tail

For each:

1. Cable CO 8 sts, leaving a 25-30 cm attachment tail.
2. Arrange without twisting.
3. Join in the round.
4. Place BOR at the tailward boundary.

- **Rnds 1-2:** knit.
- **Rnd 3:** (ssk, k2tog) twice. **4 sts**

Cut a 15 cm working tail.

Gather the tip and bury the tip tail.

Do not stuff.

Base allocation:

- Right transverse: 2
- Rootward: 2
- Left transverse: 2
- Tailward: 2

27

TINY SPINES

Make one Tiny A and one Tiny B.

For each:

1. Cable CO 6 sts, leaving a 25 cm attachment tail.
2. Arrange without twisting.
3. Join in the round.
4. Place BOR at the tailward boundary.

Tiny A

- **Rnd 1:** knit.
- **Rnd 2:** ssk, k2tog, ssk. **3 sts**

Tiny B

- **Rnd 1:** knit.
- **Rnd 2:** k2tog, ssk, k2tog. **3 sts**

Cut a 15 cm working tail.

Gather the three tip stitches and bury the tip tail.

Do not stuff.

Base allocation:

- Right transverse: 2
- Rootward: 1
- Left transverse: 2
- Tailward: 1

28

SPINE-ANCHOR DISTANCES

Measure along the stuffed surface from each spine centre.

Size	Right	Left	Rootward	Tailward
Large	1 cm	1 cm	0.9 cm	0.9 cm
Medium	0.85 cm	0.85 cm	0.75 cm	0.75 cm
Small	0.7 cm	0.7 cm	0.575 cm	0.575 cm
Tiny	0.5 cm	0.5 cm	0.45 cm	0.45 cm

Use the canonical open-edge attachment stitch.

29

HEAD SPINES

Position	Head round	Size
1	3	Large
2	8	Large
3	13	Large
4	19	Medium A
5	25	Medium B
6	31	Small

Attach from Position 6 toward Position 1.

Keep every centre directly on the head dorsal guide.

CHEEK FINS

Make six:

- Two upper
- Two middle
- Two lower

Use forest green and the needle size that produced the garter-stitch gauge.

For every fin, leave a 35 cm cast-on attachment tail.

Upper fins

Make two.

CO 3 sts.

- **Row 1:** kfb, k1, kfb. **5 sts**
- **Rows 2-9:** knit.
- **Row 10:** ssk, k1, k2tog. **3 sts**
- **Rows 11-13:** knit.
- **Row 14:** CDD. **1 st**

Cut the working yarn, leaving approximately 15 cm.

Draw it through the final stitch, secure the tip, and bury the tip tail.

Target blocked size:

- Approximately 2.5 cm wide
- Approximately 3.7 cm long

Middle fins

Make two.

CO 3 sts.

- **Row 1:** kfb, k1, kfb. **5 sts**
- **Rows 2-6:** knit.
- **Row 7:** ssk, k1, k2tog. **3 sts**
- **Rows 8-10:** knit.
- **Row 11:** CDD. **1 st**

Secure the tip as above.

Target blocked size:

- Approximately 2.5 cm wide
- Approximately 2.9 cm long

Lower fins

Make two.

CO 3 sts.

- **Rows 1-7:** knit.
- **Row 8:** CDD. **1 st**

Secure the tip as above.

Target blocked size:

- Approximately 1.5 cm wide
- Approximately 2.1 cm long

Blocking

Wet-block the six fins as three mirrored pairs:

- Both upper fins together
- Both middle fins together
- Both lower fins together

For each pair:

1. Soak both fins equally.
2. Remove excess water without twisting.
3. Place the pair side by side.
4. Match the three-stitch root edges.
5. Match the centre axes.
6. Shape the tips as exact mirrors.
7. Pin both pieces to the stated dimensions.
8. Confirm that neither root is stretched wider than its mirror.
9. Allow both fins to dry completely.

Maximum permitted difference within each pair:

- 2 mm in length
- 1 mm in width

Do not mark the head attachment centres until all six fins are completely dry.

Exterior-face selection

Garner stitch is reversible, so either face may serve as the exterior.

After blocking each fin pair:

1. Inspect both faces of the first fin.
2. Select the face with the cleanest visible decrease line as the exterior.
3. Turn or flip the corresponding opposite-side fin so its visible decrease line forms an exact mirror.
4. Mark each selected exterior face temporarily before attachment.
5. Attach both fins with their selected exterior faces visible.

Apply this separately to:

- The upper-fin pair
- The middle-fin pair
- The lower-fin pair

Do not change the written decrease rows.

Do not redistribute the plain garter rows.

Placement

Right-side centres lie directly on the right persistent guide.

Left-side centres lie directly on the left persistent guide.

Maximum deviation toward the face or rear skull:

- 2 mm

Vertical positions:

- Upper: between Head Rounds 18 and 19
- Middle: Head Round 22
- Lower: between Head Rounds 25 and 26

Measure 12-12.5 mm centre spacing along the corresponding side guide.

Angles:

- Upper: 30 degrees upward
- Middle: horizontal
- Lower: 30 degrees downward

Root footprint

For every fin:

1. Mark a 15 mm root line perpendicular to the fin centreline.
2. Place one receiving bite at the centre.
3. Place one receiving bite 5 mm to the right.
4. Place one receiving bite 5 mm to the left.
5. Match the three cast-on stitches consecutively to the three bites.
6. Use the flat cheek-fin root exception.
7. Attach with the 35 cm cast-on tail.
8. Keep the selected exterior face visible.

Mirror the opposite side exactly.

Remove the temporary exterior-face markers only after the full upper, middle, and lower pairs have been attached and checked as mirrors.

31

BELLY PANEL

Use light sage yarn.

Use the flat-stockinette gauge needle for stockinette rows.

Use the garter-gauge needle for:

- Rows 9-10
- Rows 17-18
- Rows 25-26
- Rows 33-34

Return to the flat-stockinette needle after each ridge pair.

CO 12 sts, leaving a 20 cm starting tail.

- **Row 1:** knit.
- **Row 2:** purl.
- **Row 3:** k1, M1L, knit to last stitch, M1R, k1. **14 sts**
- **Row 4:** purl.
- **Row 5:** repeat Row 3. **16 sts**
- **Row 6:** purl.
- **Rows 7-8:** stockinette.
- **Rows 9-10:** knit with garter-gauge needle.
- **Rows 11-16:** stockinette.
- **Rows 17-18:** knit with garter-gauge needle.
- **Rows 19-24:** stockinette.
- **Rows 25-26:** knit with garter-gauge needle.
- **Rows 27-30:** stockinette.
- **Row 31:** k1, ssk, knit to last 3 sts, k2tog, k1. **14 sts**
- **Row 32:** purl.
- **Rows 33-34:** knit with garter-gauge needle.
- **Row 35:** k1, ssk, knit to last 3 sts, k2tog, k1. **12 sts**
- **Row 36:** purl.
- **Row 37:** k1, ssk, knit to last 3 sts, k2tog, k1. **10 sts**
- **Row 38:** purl.
- **Row 39:** knit.
- **Row 40:** purl.

BO knitwise, leaving a 100 cm attachment tail.

Block to:

- Lower width: 5.5-6.5 cm
- Maximum width: 7-8 cm
- Upper width: 4.5-5.5 cm
- Length: 13.4-13.8 cm

Belly centreline

Run a removable centre guide from the centre of Belly Row 1 to the centre of Belly Row 40.

Align this guide directly over the body front-centre guide.

Every tabled centre-to-edge distance is measured from this shared centreline.

Checkpoints

Belly row	Body position	Centre-to-edge distance
Row 1	Front body-base seam	3 cm
Row 10	Between Body Rounds 9 and 10	4 cm
Row 18	Body Round 17	4 cm
Row 26	Between Body Rounds 24 and 25	4 cm

Row 34	Body Round 32	3.5 cm
Row 40	Body Round 38	2.5 cm

At every listed row:

1. Identify the belly centre point.
2. Measure the stated distance toward the plush's right edge.
3. Pin the right edge.
4. Measure the same distance toward the plush's left edge.
5. Pin the left edge.
6. Confirm the row remains horizontal.

The belly centreline may not deviate more than 2 mm from the body front-centre guide.

Confirm:

- Row 1 is centred on the front body-base seam.
- Row 40 is centred at Body Round 38.
- All four ridges remain horizontal.
- Two green body rounds remain visible below the neck.
- No easing, gathering, pleating, or vertical stretching is present.

Sewing

Using the 100 cm attachment tail:

1. Work small ladder stitches around the complete perimeter.
2. Space the bites approximately 4-5 mm apart.
3. Catch one belly edge bar and approximately half of one body stitch per bite.
4. Alternate between right and left edges every few centimetres.
5. Do not tighten one entire side before sewing the opposite side.
6. Retain the belly centre guide until the seam is complete and inspected.
7. Secure and bury the tail inside the body.

32

NECK ADJUSTMENT

Adjust only the final 1-1.5 cm around the neck opening.

No head dimension may change by more than 2 mm.

33

CIRCULAR KITCHENER GRAFT

The head and body each have 24 live stitches.

Use the approximately 150 cm working tail left on the head.

Hold:

- Body stitches on the front needle
- Head stitches on the rear needle
- Wrong sides inward

Match all four orientation guides and begin at back centre.

Setup

- Enter the first body stitch purlwise and leave it on the needle.
- Enter the first head stitch knitwise and leave it on the needle.

Established sequence

Body needle

1. Enter the first body stitch knitwise and remove it.
2. Enter the next body stitch purlwise and leave it on the needle.

Head needle

3. Enter the first head stitch purlwise and remove it.
4. Enter the next head stitch knitwise and leave it on the needle.

Repeat the sequence.

Leave the final four to six stitch pairs temporarily open.

Make only the permitted neck-support adjustment.

Resume the established sequence.

After all 24 head stitches and all 24 body stitches have been grafted:

1. Duplicate the first body-side graft path.
2. Duplicate the first head-side graft path.
3. Adjust the graft so every stitch matches the surrounding gauge.
4. Confirm the back-centre guides remain aligned.
5. Confirm no opening remains at back centre.
6. Confirm the visible neck remains 13-16 mm high.
7. Secure and bury the grafting tail inside the neck.

Do not tighten the graft into a recessed seam.

34

ARMS

Make two.

For each:

1. Cable CO 24 sts, leaving a 90 cm shoulder attachment tail.
2. Arrange without twisting.
3. Join in the round.
4. Place BOR at the inner side.

Right markers

- After Stitch 6: front
- After Stitch 12: outer
- After Stitch 18: back
- Inner-front diagonal starting marker after Stitch 3

Left markers

- After Stitch 6: back
- After Stitch 12: outer
- After Stitch 18: front
- Inner-front diagonal starting marker after Stitch 21

Persistent arm guides

Install persistent guide yarn at the:

- Inner guide
- Front guide
- Outer guide
- Back guide

Begin each guide at its shoulder cast-on boundary.

Carry each guide toward the gathered hand, placing a marker every four to six rounds.

Retain all four guides through:

- Stuffing
- Sculpting
- Shoulder pinning
- Attachment
- Final symmetry checks

Retain shoulder boundary markers at:

- Inner/BOR
- Front
- Outer
- Back

The separate inner-front diagonal sculpting line remains in addition to the four cardinal guides.

- **Rnds 1-6:** knit. **24 sts**
- **Rnd 7:** At both the front and back markers, work k2tog immediately before the marker, SM, then ssk immediately after the marker. **20 sts**
- **Rnds 8-14:** knit.
- **Rnd 15:** At both the inner and outer markers, work k2tog immediately before the marker, SM, then ssk immediately after the marker. **16 sts**
- **Rnds 16-22:** knit.
- **Rnd 23:** (ssk, k2tog) four times. **8 sts**
- **Rnd 24:** knit. **8 sts**

Hand closure

Cut a 20-25 cm ending tail.

1. Thread it through all eight remaining stitches.
2. Pull the hand opening completely closed.
3. Pass through the gathered centre once.
4. Secure the tail against the interior hand fabric.
5. Leave the remaining length inside the unstuffed arm.

After stuffing, bury it fully into the hand filling.

Retain the 90 cm shoulder tail.

Inner-front sculpting guide

Run a separate waste-yarn line from the inner-front shoulder marker to the gathered hand.

Mark crossings at Arm Rounds:

- 4
- 11
- 18
- 23

Stuffing

- Shoulder and upper third: moderate
- Middle: light
- Hand: soft
- Final 8-10 mm at shoulder: flexible

Sculpting

Using a separate matching strand:

1. Take an internal bite beneath each diagonal marker.
2. Travel through the stuffing between bites.
3. Tighten gradually.
4. Shorten the inner-front line by approximately 8 mm.
5. Confirm both arms curve forward and inward equally.

Rear-shifted body anchors

Measure every offset from the original body side guide.

- **Top:** Body Round 34, 6 mm behind the side guide
- **Bottom:** Body Round 24, 6 mm behind the side guide
- **Front:** Body Round 29, 1.3 cm toward the front
- **Back:** Body Round 29, 2.5 cm toward the back

The front-to-back shoulder-patch width remains:

$$1.3 \text{ cm} + 2.5 \text{ cm} = 3.8 \text{ cm}$$

Boundary map

- Outer shoulder boundary -> body top
- Front shoulder boundary -> body front
- Inner/BOR shoulder boundary -> body bottom
- Back shoulder boundary -> body back

Use six unique receiving bites per quarter and the canonical open-edge attachment stitch.

Before sewing:

1. Pin all four shoulder boundaries.
2. Pin the complete belly panel.
3. Mark the complete revised wing-root path.
4. Confirm at least approximately 5 mm clearance between the arm seam and belly edge.
5. Confirm at least approximately 5 mm clearance between the arm seam and wing-root path.
6. Confirm the complete 3.8 cm shoulder patch remains correctly oriented.

Final projection

Before final tightening:

1. Angle each arm approximately 15 degrees forward from the body's vertical side plane.
2. Keep the diagonal sculpting line facing forward and inward.
3. Match hand centres in height.
4. Match hand centres in distance from the belly centreline.
5. Tighten the two shoulder seams alternately.

Recheck:

- Equal forward angles
- Equal hand heights
- Equal belly-centreline distances
- At least approximately 5 mm belly clearance
- At least approximately 5 mm wing-root clearance

Remove the arm guides only after all symmetry checks pass.

35 HIND THIGHS

Make two.

Long-tail CO 8 sts, leaving a 20-25 cm polar-closure tail.

Arrange without twisting and join.

BOR is the inner side.

Right markers

- After Stitch 2: front
- After Stitch 4: outer
- After Stitch 6: back

Left markers

- After Stitch 2: back
- After Stitch 4: outer
- After Stitch 6: front

Install persistent guide yarn at the inner, front, outer, and back guides.

- **Rnd 1:** eight-stitch increase round. **16 sts**
- **Rnd 2:** knit.
- **Rnd 3:** eight-stitch increase round. **24 sts**

After Round 3, gather and secure the original eight-stitch cast-on opening with the 20-25 cm cast-on tail.

- **Rnd 4:** knit.
- **Rnd 5:** M1L immediately after BOR, knit to the outer marker, M1R, SM, M1L, knit to BOR, M1R immediately before BOR. **28 sts**
- **Rnds 6-16:** knit. **28 sts**
- **Rnd 17:** ssk immediately after BOR, knit to two stitches before the outer marker, k2tog, SM, ssk, knit to the final two stitches, k2tog. **24 sts**
- **Rnd 18:** knit. **24 sts**

Preliminary stuffing

After Round 18:

1. Partially stuff the outer two-thirds of the thigh.
2. Keep the body-facing end unstuffed so the final decreases remain easy to work.
3. Distribute the stuffing evenly around the persistent guides.
4. Do not hard-pack the outer pole.
5. Keep the right and left preliminary stuffing amounts equal.

Continue:

- **Rnd 19:** eight-stitch decrease round. **16 sts**
- **Rnd 20:** knit. **16 sts**
- **Rnd 21:** eight-stitch decrease round. **8 sts**

Keep the eight live stitches on the needle.

Final stuffing through the live opening

Through the eight-stitch opening:

1. Complete the stuffing with blunt forceps.
2. Confirm the material-axis length is approximately 7.5 cm.
3. Confirm the maximum width is 5.2-5.8 cm.
4. Keep the final 8-10 mm at the body-facing pole slightly flexible.
5. Match the right and left thigh weight.
6. Match the right and left thigh width.
7. Match the right and left thigh firmness.
8. Confirm the persistent inner, front, outer, and back guides have not rotated.

Cut the working yarn, leaving a **90 cm attachment tail**.

1. Thread the 90 cm tail through all eight live stitches in their knitted order.
2. Pull the body-facing pole completely closed.
3. Pass through the gathered centre once more.
4. Make two securing passes against the interior fabric.

Do not bury or trim the 90 cm tail.

Retain it for the 20-position thigh-to-body closed-surface ladder join.

Body anchors

Place the attachment centreline 8 mm toward body front from the original body side guide.

From this shifted centreline:

- Top: Body Round 20
- Bottom: Body Round 7
- Front: between Body Rounds 13 and 14, 1.75 cm toward front
- Back: between Body Rounds 13 and 14, 1.75 cm toward back

Thigh anchors

Measured from the inner guide:

- Upper: gathered Round-21 pole
- Lower: inner guide between Rounds 8 and 9
- Front: between Rounds 14 and 15, 1.75 cm toward front
- Back: between Rounds 14 and 15, 1.75 cm toward back

Correspondence

- Thigh upper -> body top
- Thigh lower -> body bottom
- Thigh front -> body front
- Thigh back -> body back

Mark five unique bites on each surface per quarter.

Work 20 paired closed-surface ladder positions using the retained 90 cm attachment tail.

Place the complete seam loosely before tightening.

Confirm:

- The thigh does not rotate.
- The front and back anchors remain aligned.
- The body surface does not recess.
- Both thighs remain exact mirrors.

36

FEET

Make two.

Long-tail CO 8 sts, leaving a 20-25 cm polar-closure tail.

Arrange without twisting and join.

BOR is the sole-centre guide.

Right markers

- After Stitch 2: outer
- After Stitch 4: dorsal
- After Stitch 6: inner

Left markers

- After Stitch 2: inner
- After Stitch 4: dorsal
- After Stitch 6: outer

Install persistent guide yarn at sole centre, dorsal, inner, and outer guides.

- **Rnd 1:** eight-stitch increase round. **16 sts**
- **Rnd 2:** knit.
- **Rnd 3:** eight-stitch increase round. **24 sts**

After Round 3, gather and secure the original eight-stitch cast-on opening with the 20-25 cm cast-on tail.

- **Rnd 4:** knit.
- **Rnd 5:** eight-stitch increase round. **32 sts**
- **Rnds 6-20:** knit. **32 sts**
- **Rnd 21:** eight-stitch decrease round. **24 sts**
- **Rnd 22:** knit. **24 sts**

Felt soles

Cut two felt ovals per foot:

- 7 cm long
- 3.5 cm wide
- Two layers per foot

Insert after Round 22.

1. Partially stuff the rounded toe.
2. Roll the felt gently along its long axis.
3. Insert it through the 24-stitch opening.
4. Unroll it completely.
5. Align its long axis with the dorsal and sole-centre guides.
6. Centre it laterally on the sole guide.
7. Position the front edge 4-5 mm behind the extreme toe pole.
8. Keep the rear edge fully inside the Round-22 opening.
9. Confirm equal clearance at the inner and outer sides.
10. Confirm the felt lies flat without buckling.
11. Mark 16 evenly distributed securing points around the felt perimeter.
12. Pass the securing needle through the felt and catch only interior purl bars.
13. Confirm the felt cannot rotate or move longitudinally.
14. Add stuffing around and above the felt.
15. Place no stuffing beneath it.

Continue:

- **Rnd 23:** eight-stitch decrease round. **16 sts**
- **Rnd 24:** knit. **16 sts**
- **Rnd 25:** eight-stitch decrease round. **8 sts**

Keep the eight live stitches on the needle.

Final stuffing through the heel opening

Before cutting the yarn, use blunt forceps through the eight-stitch opening to make the final stuffing adjustment.

Confirm:

- Material-axis length: approximately 8.8-9 cm
- Felt remains flat and centred
- No stuffing lies beneath the felt
- Heel is filled without becoming hard
- Sole remains horizontal
- Dorsal guide remains centred
- Right and left feet match in length
- Right and left feet match in width
- Right and left feet match in weight
- Right and left feet match in firmness

Cut the yarn, leaving a **70 cm heel-attachment tail**.

1. Thread the 70 cm tail through all eight live stitches in their knitted order.
2. Gather the heel pole completely.
3. Pass through the gathered centre once more.
4. Make two securing passes against the interior heel fabric.

Do not bury or trim the 70 cm tail.

Retain it for the 16-position foot-to-thigh closed-surface ladder join.

37

FOOT-TO-THIGH JOIN

Foot anchors

- Heelward: gathered Round-25 heel pole
- Toeward: dorsal guide between Foot Rounds 18 and 19
- Inner: between Foot Rounds 21 and 22, 1.3 cm from the dorsal guide toward the inner side
- Outer: between Foot Rounds 21 and 22, 1.3 cm from the dorsal guide toward the outer side

Thigh anchors

- Upper: front guide between Thigh Rounds 14 and 15
- Lower: front guide between Thigh Rounds 7 and 8
- Inner: between Thigh Rounds 10 and 11, 1.3 cm from the front guide toward the body-facing side
- Outer: between Thigh Rounds 10 and 11, 1.3 cm from the front guide toward the outer side

Correspondence

- Foot heelward -> thigh upper
- Foot toeward -> thigh lower
- Foot inner -> thigh inner
- Foot outer -> thigh outer

Mark four unique bites on each surface per quarter.

Work **16 paired closed-surface ladder positions** using the retained 70 cm heel tail.

Place the complete seam loosely before tightening.

Confirm:

- Sole guide points downward.
- Dorsal guide points upward.
- Inner guide faces the body.
- Outer guide faces away from the body.
- Toe rotates approximately 10 degrees outward.
- Sole remains horizontal.
- Neither surface puckers or recesses.

38

TOE NUBS

Make six.

For each:

1. Cable CO 6 sts, leaving a 25 cm attachment tail.
2. Arrange without twisting.
3. Join in the round.
4. Keep the cast-on edge open.

Closure A

- **Rnd 1:** knit.
- **Rnd 2:** ssk, k2tog, ssk. **3 sts**

Closure B

- **Rnd 1:** knit.
- **Rnd 2:** k2tog, ssk, k2tog. **3 sts**

Cut a 15 cm working tail.

Gather the three stitches and bury the tip tail.

Make three of each closure.

Place centres on Foot Round 8:

- Centre: dorsal guide
- Outer: three stitches toward outer side
- Inner: three stitches toward inner side

Right foot, outer to inner:

- A-B-A

Left foot:

- B-A-B

Mark a 9-10 mm circular root with six unique receiving bites.

Place BOR heelward.

Attach with the 25 cm cast-on tail.

39

TAIL

Cable CO 32 sts, leaving a 100 cm root-attachment tail.

Arrange without twisting and join.

Place:

- BOR: ventral
- Marker after Stitch 8: right
- Marker after Stitch 16: dorsal
- Marker after Stitch 24: left

Install persistent guides at ventral, right, dorsal, and left.

- **Rnds 1-10:** knit. **32 sts**

Tail side-decrease round

At both the right and left markers:

- k2tog immediately before the marker
- SM
- skk immediately after the marker

Four stitches decreased.

- **Rnd 11:** side-decrease round. **28 sts**
- **Rnds 12-19:** knit.
- **Rnd 20:** side-decrease round. **24 sts**
- **Rnds 21-28:** knit.
- **Rnd 29:** side-decrease round. **20 sts**
- **Rnds 30-37:** knit.
- **Rnd 38:** side-decrease round. **16 sts**
- **Rnds 39-46:** knit.
- **Rnd 47:** side-decrease round. **12 sts**
- **Rnds 48-53:** knit.
- **Rnd 54:** side-decrease round. **8 sts**
- **Rnds 55-57:** knit. **8 sts**

Cut a 20 cm working tail.

Gather and close the tip.

Stuff:

- Root 6-7 cm firmly
- Middle progressively softer
- Final 2-3 cm lightly

40

TAIL DRAWCORD

Use a separate 110-120 cm forest-green strand.

Leave a 20 cm starting end outside:

- Approximately 5 mm inside the cast-on edge
- One stitch to the plush's right of the ventral guide

At Tail Rounds 8, 16, 24, 32, 40, 48, and 55:

1. Emerge one stitch right of the ventral guide.
2. Pass beneath two centred horizontal bars.
3. Reinsert one stitch left of the ventral guide.
4. Travel internally to the next checkpoint.

After completing the Round-55 checkpoint:

1. Return through the centre of the stuffing without another fabric bite.
2. Bring the working end out approximately 5 mm inside the cast-on edge.
3. Position it one stitch to the plush's left of the ventral guide.
4. Leave at least 20 cm outside.

Both ends therefore emerge:

- At the same longitudinal distance from the root edge
- On opposite sides of the ventral guide

Keep the drawcord loose.

41

TAIL-ROOT MAP, VISIBLE DATUM LEVEL, AND INITIAL ATTACHMENT

Number root stitches beginning immediately after BOR.

Boundaries:

- Ventral: between Root Stitches 32 and 1
- Right: between Root Stitches 8 and 9
- Dorsal: between Root Stitches 16 and 17
- Left: between Root Stitches 24 and 25

Body anchors:

- Ventral: Body Round 11
- Dorsal: Body Round 24
- Right and left: between Body Rounds 17 and 18, 2.8 cm from back centre

Visible tail-root datum level

Before attaching the tail, place two removable witness markers between Body Rounds 17 and 18.

Right witness marker

Place:

- Between Body Rounds 17 and 18
- 3.3 cm along the body surface from back centre toward the plush's right

Left witness marker

Place:

- Between Body Rounds 17 and 18
- 3.3 cm along the body surface from back centre toward the plush's left

Each witness lies approximately 5 mm outside its corresponding tail-root side anchor.

Both witnesses must remain visible and accessible after the root is attached.

Confirm before attachment:

- Both witnesses lie on the same round level.
- Their vertical heights differ by no more than 2 mm.
- They are exact mirrors.
- Neither lies beneath the future tail-root seam.

Authoritative H datum

For every H measurement:

- **Hright** = vertical distance from the supporting surface to the centre of the right witness
- **Hleft** = vertical distance from the supporting surface to the centre of the left witness

Calculate:

$$H = (H_{\text{right}} + H_{\text{left}}) / 2$$

If the two witness heights differ by more than 2 mm, correct body or tail-root rotation before adjusting the drawcord.

Retain both witnesses through:

- Initial root attachment
- Preliminary curve adjustment
- Tail-spine attachment
- Permanent attachment of all root stitches
- Final drawcord adjustment
- Final seam closure
- Final stability test
- Complete six-view inspection
- Final witness-height verification

Initial receiving bites

Mark eight unique receiving bites in each quarter.

Initial sewing strand

Use the original 100 cm root-attachment tail.

Do not use either drawcord end.

Ventral-to-right quarter

Leave Root Stitches 1-2 open.
Attach Root Stitches 3-8 to Bites 3-8.

Right-to-dorsal quarter

Attach Root Stitches 9-16 to Bites 1-8.

Dorsal-to-left quarter

Attach Root Stitches 17-24 to Bites 1-8.

Left-to-ventral quarter

Attach Root Stitches 25-30 to Bites 1-6.
Leave Root Stitches 31-32 open.
Keep both drawcord ends accessible.

42 BODY SPINES

Position	Body round	Size
1	37	Medium A
2	33	Medium B
3	30	Small
4	27	Small

Keep every centre directly on the body dorsal guide.
Attach Positions 4, 3, and 2 first.
Before sewing Position 1:
1. Pin the Body Round-37 Medium A spine.
2. Pin all four boundaries.
3. Measure between its headward edge and the neckward edge of the Head Round-31 small spine.

Required gap:
• 8-12 mm

Correct stuffing, graft tension, base dimensions, or orientation without moving the written centres.

43 HEAD-TO-BODY FINAL GAP

After permanent attachment, verify:
• 8-12 mm

WING PANELS

Make two right panels and two left panels.

Use the flat-stockinette gauge needle.

Established WS row

k1, purl to the final stitch, k1.

Every even-numbered row in the right- and left-panel instructions works this complete established WS row.

Orientation

Right panel:

- Upper root is where Row 1 begins.

Left panel:

- Upper root is where Row 1 ends.

Right panel

CO 12 sts.

- **Row 1:** knit.
- **Row 2:** k1, purl to the final stitch, k1.
- **Row 3:** kfb, knit to the final stitch, kfb. **14 sts**
- **Row 4:** k1, purl to the final stitch, k1.
- **Row 5:** kfb, knit to the final stitch, kfb. **16 sts**
- **Row 6:** k1, purl to the final stitch, k1.
- **Row 7:** kfb, knit to end. **17 sts**
- **Row 8:** k1, purl to the final stitch, k1.
- **Row 9:** knit to the final 3 sts, CDD. **15 sts**
- **Row 10:** k1, purl to the final stitch, k1.
- **Row 11:** knit to the final stitch, M1L, kfb. **17 sts**
- **Row 12:** k1, purl to the final stitch, k1.
- **Row 13:** knit to the final 3 sts, CDD. **15 sts**
- **Row 14:** k1, purl to the final stitch, k1.
- **Row 15:** knit to the final stitch, M1L, kfb. **17 sts**
- **Row 16:** k1, purl to the final stitch, k1.
- **Row 17:** knit to the final 3 sts, CDD. **15 sts**
- **Row 18:** k1, purl to the final stitch, k1.
- **Row 19:** knit to the final stitch, M1L, kfb. **17 sts**
- **Row 20:** k1, purl to the final stitch, k1.
- **Row 21:** ssk, knit to the final 2 sts, k2tog. **15 sts**
- **Row 22:** k1, purl to the final stitch, k1.
- **Row 23:** ssk, knit to the final 2 sts, k2tog. **13 sts**

- **Row 24:** k1, purl to the final stitch, k1.
- **Row 25:** ssk, knit to the final 2 sts, k2tog. **11 sts**
- **Row 26:** k1, purl to the final stitch, k1.
- **Row 27:** ssk, knit to the final 2 sts, k2tog. **9 sts**
- **Row 28:** k1, purl to the final stitch, k1.
- **Row 29:** ssk, knit to the final 2 sts, k2tog. **7 sts**
- **Row 30:** k1, purl to the final stitch, k1.
- **Row 31:** ssk, knit to the final 2 sts, k2tog. **5 sts**
- **Row 32:** k1, purl to the final stitch, k1.
- **Row 33:** ssk, k1, k2tog. **3 sts**
- **Row 34:** k1, p1, k1.
- **Row 35:** CDD. **1 st**

Cut a 15 cm tip tail and draw it through the final stitch.

Retain it for internal securing during wing assembly.

Left panel

CO 12 sts.

- **Row 1:** knit.
- **Row 2:** k1, purl to the final stitch, k1.
- **Row 3:** kfb, knit to the final stitch, kfb. **14 sts**
- **Row 4:** k1, purl to the final stitch, k1.
- **Row 5:** kfb, knit to the final stitch, kfb. **16 sts**
- **Row 6:** k1, purl to the final stitch, k1.
- **Row 7:** knit to the final stitch, kfb. **17 sts**
- **Row 8:** k1, purl to the final stitch, k1.
- **Row 9:** CDD, knit to end. **15 sts**
- **Row 10:** k1, purl to the final stitch, k1.
- **Row 11:** kfb, M1R, knit to end. **17 sts**
- **Row 12:** k1, purl to the final stitch, k1.
- **Row 13:** CDD, knit to end. **15 sts**
- **Row 14:** k1, purl to the final stitch, k1.
- **Row 15:** kfb, M1R, knit to end. **17 sts**
- **Row 16:** k1, purl to the final stitch, k1.
- **Row 17:** CDD, knit to end. **15 sts**
- **Row 18:** k1, purl to the final stitch, k1.
- **Row 19:** kfb, M1R, knit to end. **17 sts**
- **Row 20:** k1, purl to the final stitch, k1.
- **Row 21:** ssk, knit to the final 2 sts, k2tog. **15 sts**
- **Row 22:** k1, purl to the final stitch, k1.
- **Row 23:** ssk, knit to the final 2 sts, k2tog. **13 sts**
- **Row 24:** k1, purl to the final stitch, k1.
- **Row 25:** ssk, knit to the final 2 sts, k2tog. **11 sts**

- **Row 26:** k1, purl to the final stitch, k1.
- **Row 27:** ssk, knit to the final 2 sts, k2tog. **9 sts**
- **Row 28:** k1, purl to the final stitch, k1.
- **Row 29:** ssk, knit to the final 2 sts, k2tog. **7 sts**
- **Row 30:** k1, purl to the final stitch, k1.
- **Row 31:** ssk, knit to the final 2 sts, k2tog. **5 sts**
- **Row 32:** k1, purl to the final stitch, k1.
- **Row 33:** ssk, k1, k2tog. **3 sts**
- **Row 34:** k1, p1, k1.
- **Row 35:** CDD. **1 st**

Cut a 15 cm tip tail and draw it through the final stitch.

Retain it for internal securing during wing assembly.

45

WING BLOCKING AND PANEL-PAIR COMPATIBILITY

Block each panel to:

- Root edge: approximately 6 cm
- Maximum height: 8-8.5 cm
- Straight root-midpoint-to-tip distance: 12-12.5 cm

Pin:

- Upper root
- Lower root
- Row-9 valley
- Row-13 valley
- Row-17 valley
- Row-35 tip

Mark the root midpoint between Root Positions 6 and 7.

Measure the straight span from this midpoint to the Row-35 tip.

Allow every panel to dry completely before removing its blocking pins.

Form the future panel pairs

Right wing:

- Right exterior panel
- Left interior panel

Left wing:

- Left exterior panel
- Right interior panel

Place each future pair wrong sides together.

Without stretching, confirm:

- Both upper-root corners align.
- Both lower-root corners align.
- Row-9 valleys align.
- Row-13 valleys align.
- Row-17 valleys align.
- Row-35 tips align.
- The complete lower perimeters differ by no more than 2 mm.
- The complete upper perimeters differ by no more than 2 mm.
- The paired root edges remain approximately 6 cm.
- The straight root-midpoint-to-tip distances agree within 2 mm.

Reblock any pair that does not pass.

Do not compensate during perimeter sewing by:

- Gathering one panel
- Stretching one panel
- Pulling one valley out of position
- Shortening one tip
- Easing excess length into the seam

46

WING VEINS

Work all four vein paths on **each of the four blocked panels** before pairing the wings.

For each vein, use a separate forest-green strand measuring approximately:

3 x the measured vein length + 20 cm

Measure the vein path on the blocked panel before cutting the strand.

Begin and end every vein on the panel's wrong side.

Work:

- **Vein 1:** Root Position 1 to the Row-35 tip
- **Vein 2:** Root Position 4 to the Row-9 valley
- **Vein 3:** Root Position 7 to the Row-13 valley
- **Vein 4:** Root Position 10 to the Row-17 valley

Use small, evenly spaced backstitches without gathering.

At the beginning of every vein:

1. Bring the strand from the wrong side.
2. Make two locking passes on the wrong side.
3. Begin the visible backstitch path only after the strand is secure.

At the end of every vein:

1. Return to the wrong side.
2. Make two locking passes.
3. Bury the end through at least two wrong-side stitch paths.
4. Keep the buried end clear of:
 - Root loops
 - Outer perimeter
 - I-cord position
 - Other vein starts or ends

Do not:

- Carry a long exposed float from one vein to another
- Use one continuous strand for multiple veins
- Gather the panel
- Shorten the measured vein path
- Distort the Row-9, Row-13, or Row-17 valley

After embroidering all four veins on all four panels, repeat the compatibility check from Section 45.

The paired panels must still align within 2 mm around their complete upper and lower perimeters.

47

I-CORD SPARS

For each future wing, align its exterior and interior blocked panels with wrong sides together.

Measure both curved upper edges separately from upper root to Row-35 tip.

The two measurements may differ by no more than 2 mm.

When the difference exceeds 2 mm, reblock the pair.

Calculate:

Target I-cord length = average of the two accepted edge measurements

The completed I-cord must be:

- Within 1 mm of the average
- Within 2 mm of each panel edge

Repeat independently for the opposite wing.

Knit each spar

1. CO 3 sts, leaving a 15 cm starting tail.
2. Knit all 3 sts.
3. Do not turn.
4. Slide the stitches to the opposite needle end.
5. Pull the yarn firmly across the back.
6. Knit all 3 sts.
7. Repeat until the target length is reached.
8. Cut the yarn, leaving a 15 cm ending tail.
9. Draw the tail through all three stitches and secure.

Mark:

- Root
- 25%
- 50%
- 75%
- Tip

Retain the starting and ending tails for internal root and tip stabilization.

48

WING PAIRING, I-CORD TACKING, PERIMETER, AND QUILTING

Right wing:

- Exterior: right panel
- Interior: left panel

Left wing:

- Exterior: left panel
- Interior: right panel

Place the paired panels wrong sides together.

Sewing strands for each wing

Prepare:

- One separate approximately 60 cm forest-green strand for the three intermediate I-cord tacks
- One separate approximately 120 cm forest-green strand for the outer perimeter
- One separate approximately 100 cm forest-green strand for quilting
- One separate approximately 80 cm forest-green strand for the wing-root attachment

These are additional to:

- The two Row-35 panel-tip tails
- The I-cord starting tail
- The I-cord ending tail
- The separately secured vein strands already buried in each panel

Panel-tip tails

Before inserting the I-cord:

1. Move both Row-35 panel-tip tails to the wrong side.
2. Secure each tip tail separately against its own panel.
3. Bury each tail through at least two wrong-side stitch paths.
4. Leave both tails enclosed between the wing layers.
5. Confirm neither tail is visible.

I-cord insertion and internal tacking

Position the I-cord against the complete curved upper edge.

Align:

- I-cord root -> upper-root marker
- I-cord 25% mark -> corresponding 25% point
- I-cord 50% mark -> corresponding midpoint
- I-cord 75% mark -> corresponding 75% point
- I-cord tip -> Row-35 tip

Use:

- I-cord starting tail for the root
- Separate 60 cm strand for 25%, 50%, and 75%
- I-cord ending tail for the tip

At every tack:

1. Catch one internal panel-edge bar.
2. Pass through the I-cord without piercing the visible outer faces.
3. Catch the corresponding internal bar on the second panel.
4. Repeat once at the same point.

After the three intermediate tacks:

1. Make two internal locking passes.
2. Bury one strand end toward the root.
3. Bury the other toward the tip.

Secure and bury the I-cord root and tip tails with two internal locking passes each.

Outer perimeter

Using the 120 cm perimeter strand:

1. Secure the strand at the lower-root corner with two internal locking passes.
2. Catch corresponding edge bars from both panels.
3. Work around:
 - Lower scalloped edge
 - Row-35 tip
 - Upper I-cord-supported edge
4. Finish at the upper-root corner.
5. Space bites approximately 3-4 mm apart.
6. Leave both complete root edges open.

At the upper-root finish:

1. Make two internal locking passes.
2. Bury both perimeter-strand ends through separate internal paths.
3. Complete the burial before pairing the root loops.

Stuffing

Add a thin, even stuffing layer.

Keep it:

- Clear of the root opening
- Even across the membrane
- Thin enough for the veins to remain visible
- Away from the I-cord tacks

Quilting

Using the 100 cm quilting strand:

1. Secure the strand internally with two locking passes before Vein 1.
2. Join both panels along all four previously embroidered vein paths.
3. Place quilting bites approximately 5-7 mm apart.
4. Tighten only until the layers touch.

After Vein 4:

1. Make two internal locking passes.
2. Bury both ends through separate internal paths.
3. Keep all buried ends enclosed between the layers.

Pair the root loops only after:

- Panel compatibility has passed
- All panel veins are complete
- I-cord tacking is complete
- Perimeter sewing is complete
- Stuffing is complete
- Quilting is complete
- All internal strands are secured and buried

49

WING ROOTS AND THREE-DIMENSIONAL ATTACHMENT

Pair the two 12-stitch root edges into 12 paired positions.

Boundaries:

- Before Position 1: upper
- Between Positions 6 and 7: midpoint
- After Position 12: lower

Revised right-wing body path

- **Top:** Body Round 38, 1.5 cm toward the plush's right from back centre
- **Midpoint:** Body Round 30, 2.3 cm toward the plush's right from back centre
- **Bottom:** Body Round 22, 3.3 cm toward the plush's right from back centre

Mirror for the left wing.

Root-path length check

Eight body rounds measure approximately 2.856 cm.

Upper segment:

$\text{sqrt}(2.856^2 + 0.8^2) = \text{approximately } 2.97 \text{ cm}$

Lower segment:

$\text{sqrt}(2.856^2 + 1^2) = \text{approximately } 3.03 \text{ cm}$

Total:

Approximately 5.99 cm

Body receiving bites

Between top and midpoint:

- Mark six unique bites.
- Match Paired Root Positions 1-6 in order.

Between midpoint and bottom:

- Mark six unique bites.
- Match Paired Root Positions 7-12 in order.

Do not count anchor pins as bites.

Simultaneous wing-coordinate system

Let:

- **S** = straight root-midpoint-to-tip distance
- **O** = outward projection
- **U** = upward projection
- **B** = backward projection

Required:

- **S = 12-12.5 cm**
- **U = 2-2.5 cm**
- **B = 0.5-1 cm**

Calculate:

$O = \text{sqrt}(S^2 - U^2 - B^2)$

O will normally be approximately 11.7-12.3 cm.

Bilateral wing pinning

Pin both wings before permanently sewing either root.

With both wings and arms pinned, confirm:

- Right and left S values match within 2 mm.
- Right and left O values match within 2 mm.
- Right and left U values match within 2 mm.
- Right and left B values match within 2 mm.
- Root paths are mirrored.
- Root rotations match.
- Each wing clears its arm seam by at least approximately 5 mm.
- No root stitch crosses an arm-attachment stitch.
- Neither leading edge is twisted.

Permanent attachment

Using one separate 80 cm strand per wing:

1. Pass through the exterior root loop.
2. Pass through the corresponding interior root loop.
3. Catch the assigned body bite.
4. Return through both paired loops.
5. Place both complete seams loosely.
6. Tighten right and left roots alternately.
7. Recheck coordinates and clearances after every few positions.

When both wings pass:

1. Secure each 80 cm strand independently with two locking passes through interior body bars.
2. Bury each through at least three internal body paths.
3. Do not knot the right and left strands together.
4. Recheck S, O, U, B, root rotation, and arm clearance after burial.

50

PRELIMINARY TAIL CURVE

Measure:

- Hright
- Hleft

Calculate:

$H = (H_{right} + H_{left}) / 2$

The two witness heights must agree within 2 mm.

Required drop:

$H - 5-7\text{ mm}$

1. Place the dragon on a level surface.
2. Confirm both soles are horizontal.
3. Measure both witnesses.
4. Calculate H.
5. Tighten the drawcord gradually.
6. Form one smooth curve.
7. Bring the tip centre to approximately 4-9 mm above the surface.
8. Keep preliminary compression below approximately 3 mm.
9. Hold the drawcord with a removable knot.

Temporary root basting

Use separate contrasting waste yarn.

Baste:

- Root Stitches 1-2 toward reserved Bites 1-2
- Root Stitches 31-32 toward reserved Bites 7-8

Reduce the opening to approximately 5 mm.

Keep both drawcord ends accessible.

51 TAIL SPINES

Position		Tail round	Size
1		3	Medium A
2		11	Medium B
3		20	Small
4		29	Small
5		38	Small
6		47	Tiny A
7		54	Tiny B

Attach from Position 7 toward Position 1.

Keep every centre on the tail dorsal guide.

Do not catch the drawcord or temporary basting.

52

FINAL POST-SPINE TAIL ADJUSTMENT

Measure Hright and Hleft.

Confirm:

$|H_{\text{right}} - H_{\text{left}}| \leq 2 \text{ mm}$

Calculate:

$H = (H_{\text{right}} + H_{\text{left}}) / 2$

Required drop:

$H - 5-7 \text{ mm}$

Final requirements:

- Tip centre: 5-7 mm above surface
- Compression: no more than 2-3 mm
- Dorsal length: 19-20.5 cm
- Ventral length: 17-18.5 cm
- Drop at 10 cm from root: 2.5-3.5 cm
- No hinge in first 3 cm
- No hinge at drawcord checkpoints
- Dorsal guide centred
- Spine bases unbuckled

Pre-closure gap

Measure between:

- Tailward edge of Body Round-27 small spine
- Rootward edge of Tail Round-3 medium spine

Required:

- 6-10 mm

53

FINAL TAIL-ROOT CLOSURE

1. Tie the drawcord ends temporarily.
2. Remove the contrasting basting.
3. Using the original 100 cm root tail, permanently attach:
 - Root Stitches 1-2 to Bites 1-2
 - Root Stitches 31-32 to Bites 7-8

All 32 root stitches are now attached.

Exact correction opening

Leave only an approximately 5 mm seam bridge open at the ventral BOR boundary between Root Stitches 32 and 1.

Both drawcord ends must remain accessible through this exact gap.

Permanent-seam test

Recheck:

- Hright
- Hleft
- Averaged H
- Tail-tip height
- Compression
- Dorsal alignment
- Body stability
- First 3 cm of tail
- 6-10 mm spine gap

Adjust the drawcord only after the witness heights agree within 2 mm.

Final securing

When all checks pass:

1. Replace the temporary knot with a square knot.
2. Add a second securing knot.
3. Bury one drawcord end toward the right.
4. Bury the other toward the left.
5. Pass each through at least three internal paths.
6. Close the final seam bridge with the original root tail.
7. Secure and bury the root tail.

Retain both datum witnesses through the final stability test and complete six-view inspection.

54

FINAL BODY-TO-TAIL GAP

After closure, verify:

- 6-10 mm

COMPLETE ASSEMBLY ORDER

1. Knit and block the body base.
2. Knit and stuff the body.
3. Knit the head and close its polar opening.
4. Install or embroider the eyes.
5. Stuff the head.
6. Knit, measure, sculpt, and attach the muzzle.
7. Embroider the face.
8. Attach horns and head spines.
9. Knit and block the cheek fins.
10. Select and mark mirrored exterior faces for all three cheek-fin pairs.
11. Attach the cheek fins with the selected exterior faces visible.
12. Knit and attach the belly.
13. Graft the head to the body.
14. Attach body spines.
15. Knit and stuff the tail.
16. Install the drawcord.
17. Place both datum witnesses.
18. Attach the tail with four root stitches temporarily open.
19. Knit each thigh through Round 18.
20. Partially stuff each thigh.
21. Complete Rounds 19-21.
22. Finish stuffing through the eight-stitch opening.
23. Gather the body-facing pole with the retained 90 cm tail.
24. Attach thighs using the retained 90 cm tails.
25. Knit each foot through Round 22.
26. Insert felt soles and most stuffing.
27. Complete Rounds 23-25.
28. Make the final stuffing adjustment through the eight-stitch opening.
29. Gather each heel with the retained 70 cm tail.
30. Attach feet using the retained 70 cm tails.
31. Attach toe nubs.
32. Knit, sculpt, and attach arms.
33. Knit all four wing panels.
34. Block every panel completely.
35. Form both future panel pairs and verify full-perimeter compatibility.
36. Embroider all four vein paths on all four panels.
37. Secure and bury every vein end.
38. Recheck panel-pair compatibility.
39. Measure both curved upper edges in each pair.
40. Knit the averaged I-cords.

41. Assemble, tack, perimeter-sew, stuff, and quilt the wings.
42. Pin and attach both wings.
43. Form the preliminary tail curve.
44. Baste the root temporarily.
45. Attach tail spines.
46. Complete the post-spine adjustment.
47. Attach the four reserved root stitches.
48. Leave the exact 5 mm correction bridge.
49. Finalize and bury the drawcord.
50. Close the final root bridge.
51. Complete stability and six-view inspections.
52. Remove datum witnesses and remaining guides.
53. Bury and secure every remaining yarn tail.

56

COMPONENT CHECK

Thighs

Each thigh:

- 8 -> 16 -> 24 -> 28 -> 24 -> 16 -> 8
- Outer two-thirds partially stuffed after Round 18
- Final stuffing completed through the live eight-stitch opening
- Body-facing pole closed only after stuffing passes
- Retained 90 cm tail used for the 20-position body join

Feet

Each foot:

- 8 -> 16 -> 24 -> 32 -> 24 -> 16 -> 8
- Felt inserted after Round 22
- Final stuffing checked through the live eight-stitch heel opening
- Retained 70 cm tail used for the 16-position thigh join

Cheek fins

- Two upper
- Two middle
- Two lower
- All written rows and dimensions unchanged
- One exterior face selected after blocking for each fin
- Opposite fin flipped to form a mirrored visible decrease line
- Exterior faces marked temporarily before attachment
- Selected exterior faces remain visible after attachment

Wing panels

- Two right panels
- Two left panels
- Every even-numbered row is fully executable
- Every future pair matches within 2 mm around complete upper and lower perimeters

Wing veins

- Four veins on each of four panels
- Sixteen embroidered panel veins total
- One separate strand per vein
- Strand length approximately three times the vein length plus 20 cm
- Two locking passes at both ends
- Every end buried through at least two wrong-side paths

57

FINAL STABILITY TEST

The dragon must contact the surface at:

- Body base
- Right sole
- Left sole
- Lower tail

Confirm:

- Body does not rock.
- Soles remain horizontal.
- Feet do not roll.
- Head remains centred.
- Tail supports lightly.
- Tail compression is no more than 2-3 mm.
- Wings do not pull the body backward or sideways.
- Dragon remains seated when released.

Do not remove either datum witness after the stability test.

Retain both through Section 58.

SIX-VIEW INSPECTION

Front

Confirm:

- Horns mirrored
- Eyes level
- Muzzle centred
- Belly centred
- Arms equal
- Hands level
- Soles horizontal
- Wingtips level

Front three-quarter right

Confirm:

- Right cheek fins display their selected exterior faces.
- Right cheek-fin decrease lines are clean and consistent.
- Right arm curves forward and inward.
- Belly clearance passes.
- Wing clearance passes.

Right side

Confirm:

- Upper, middle, and lower cheek-fin profiles are correctly graded.
- Neck height passes.
- Arm angle passes.
- Tail curve passes.
- Right S, O, U, and B pass.

Rear

Confirm:

- Dorsal guides align.
- Spine gaps pass.
- Wing roots mirror.
- Datum witnesses agree within 2 mm.

Left side

Repeat the right-side checks as exact mirrors.

Confirm that the visible decrease lines on the left cheek fins mirror those on the right.

Front three-quarter left

Repeat the right three-quarter checks as exact mirrors.

Final datum removal

After all six views pass:

1. Record Hright.
2. Record Hleft.
3. Confirm the difference is no more than 2 mm.
4. Calculate final H.
5. Remove both witnesses.
6. Smooth the fabric without changing the root orientation.

FINAL CHECKLIST

Confirm:

- Every thigh was partially stuffed before its final decreases.
- Every thigh remained open through eight live stitches for final stuffing.
- Each thigh reached approximately 7.5 cm material-axis length.
- Each thigh reached 5.2-5.8 cm maximum width.
- Each body-facing thigh pole retained 8-10 mm flexibility.
- Right and left thigh weight and firmness match.
- Each 90 cm thigh tail remained available for attachment.
- Every foot received a final stuffing check through the live heel opening.
- Each foot measures approximately 8.8-9 cm.
- Felt remains flat and centred.
- No stuffing lies beneath the felt.
- Right and left feet match in weight and firmness.
- Each 70 cm heel tail remained available for attachment.
- Every foot-to-thigh join used its retained 70 cm tail.
- The cheek-fin rows and dimensions were not changed.
- Each fin pair was blocked together.
- Both faces of each fin were inspected.
- One clean exterior face was selected for every fin.
- The opposite-side fin was flipped to create a mirrored decrease line.
- The upper-fin pair displays mirrored exterior faces.
- The middle-fin pair displays mirrored exterior faces.
- The lower-fin pair displays mirrored exterior faces.
- Exterior-face markers remained in place until the pairs were attached and inspected.
- Every wing even row contains a complete executable instruction.
- All four panels dried fully before compatibility checking.
- Both future panel pairs align at root corners, valleys, and tips.
- Upper and lower perimeter differences do not exceed 2 mm.
- No panel was stretched or gathered during sewing.
- All four vein paths were embroidered on all four panels.
- Every vein used a separate measured strand.
- Every vein began and ended on the wrong side.
- Every vein end received two locking passes.
- Every vein end was buried clear of roots and perimeter seams.
- No exposed float connects separate veins.
- Every previous muzzle, arm, wing, spine, tail, datum, graft, belly, fin, and closure check still passes.