

Dr Mae Jemison

Amigurumi Astronaut Crochet Pattern



Ada Lovelace Day



Dr Mae Jemison

Dr Mae Jemison became the first woman of colour in space on 12 September 1992, going into orbit on the Space Shuttle Endeavour.

Graduating from Stanford with a BSc in chemical engineering, Jemison went on to become a medical doctor, getting her degree from Cornell Medical College. She worked as a general practitioner before joining the Peace Corps and working in Liberia and Sierra Leone for two years.

In 1987, Jemison applied to Nasa to become an astronaut, initially working at the Kennedy Space Centre on the Shuttle's computer software. Whilst in space on Mission STS-47, Jemison worked on two bone cell experiments, as well as experiments on weightlessness and motion sickness. She worked at Nasa for six years, and spent over 190 hours in space.

Having left Nasa, [Jemison](#) maintains an interest in space travel, and now runs the [100 Year Starship](#) project investigating the kinds of technologies that would be required for interstellar travel. She has founded two technology companies, and the [Dorothy Jemison Foundation for Excellence](#) which promotes STEM education.



Terminology, techniques and materials

Terminology: Pattern uses UK terminology.

Techniques: Magic ring, double crochet (US: single crochet), increase, decrease, [jogless colour change](#).

Finished size: 25cm tall.

Yarn: Aran/DK or worsted yarn. The sample uses KnitPicks Brava worsted, but you can substitute any similar yarn, though your end size may change.

Colours: Orange, black, white, mid-brown, mid-grey.

Hook: 3.75mm, or appropriate hook for your yarn, but use a smaller size than your yarn usually demands.

Gauge/tension: No specific gauge/tension.

Notions: Embroidery flosses in blue, white, red, gold, black, and deep plum or raspberry (eg DMC 1006). A small amount of lightweight white cotton lawn or similar OR white, black, blue and gold felt. Safety eyes, brown, 12mm. Stuffing.

Additional tools: Tapestry needle, embroidery hoop, fabric glue. Optional: thin knitting needle.

Abbreviations

DC	Double crochet
INC	Increase: Two DC in one stitch
DEC	Decrease: DC two stitches together
ST(S)	Stitch(es)
SS	Slip stitch

Tips

It is much easier to stuff as you go along, especially with the legs and arms, than it is to try to stuff through a small hole at the end. Start stuffing the legs and arms when you're about 5 or 6 rows in; start stuffing the body and head around row 10. Don't stuff all the way up to your current row as you'll risk pulling bits of stuffing through with your hook as you work.

For each part, end the final row with a slip stitch, and leave a long tail for sewing on both arms, one leg, and either the body or the head.

Every body part uses a spiral, started with a magic ring (or sliding loop), rather than rounds finished with a slipstitch.

Body

Size: 7cm tall.

Using orange yarn:

Round 1: Magic ring with 6 dc (6 st)

Round 2: Inc in each st (12)

Round 3: * Inc, dc in next 1 st, repeat from * 5 times (18)

Round 4: * Inc, dc in next 2 sts, repeat from * 5 times (24)

Round 5: * Inc, dc in next 3 sts, repeat from * 5 times (30)

Round 6: * Inc, dc in next 4 sts, repeat from * 5 times (36)

Rounds 7-10: Dc in each st (36)

Round 11: * Dec, dc in next 10 sts, repeat from * twice (33)

Round 12: Dc x 5, dec, dc x 9, dec, dc x 9, dec, dc x 4 (30)

Round 13: * Dec, dc in next 8 sts, repeat from * twice (27)

Round 14: Dc x 4, dec, dc x 7, dec, dc x 7, dec, dc x 3 (24)

Round 15: * Dec, dc in next 6 sts, repeat from * twice (21)

Round 16: Dc in each st (21)

Collar and neck

The collar should stand proud, outside of the neck, so you are essentially creating two rows of crochet from a single row, Round 16.

There are two ways to do this collar: Method 1 is, easier but will give you a slightly odd 'kink' in the row, which you can put at the back of the doll. Method 2 creates a smooth collar and neck, but requires starting a new piece of yarn.

Both methods rely on crocheting into every stitch twice, so instead of picking up both loops of the stitch, pick up only the outside loop for the Round 17, and then at the end of that round, continue by picking up only the inside loop of the same stitches you have just crocheted into for Round 18. On the next round, pick up both loops of the stitch, as normal.

Method 1

Change to black yarn:

Round 17, in the OUTSIDE loop only: Dc, * inc, dc in next 1 st *, repeat from * to * 10 times
(31)

Round 18, in the INSIDE loop only: Dc in each st (21)

Round 19, in the INSIDE ring only: * Dec, dc in next 5 st, repeat from * 2 times (18)

Round 20: Dc in each st (18). Finish with ss and cut yarn, leaving a tail for sewing.

Method 2

Change to black yarn:

Round 17, in the OUTSIDE loop only: Dc, * inc, dc in next 1 st *, repeat from * to * 10 times
(31). Finish with ss and cut yarn, leaving a tail for sewing.

Round 18, in the INSIDE loop only, with new black yarn: Dc in each st (21)

Round 19, in the INSIDE ring only: * Dec, dc in next 5 st, repeat from * 2 times (18)

Round 20: Dc in each st (18). Finish with ss and cut yarn, leaving a tail for sewing.

Stuff as you go along. Do not close up.

Legs

Size: 9.5 - 10cm long. Make two.

Using black yarn:

Round 1: Magic ring with 4 dc (4)

Round 2: Inc in each dc (8)

Round 3: * Inc in first st, dc in next st, repeat from * 3 times (12)

Round 4: * Inc in first st, dc in next 2 st, repeat from * 3 times (16)

Round 5: Dc in each st (16)

Change to orange yarn:

Round 6-9: Dc in each st (16)

Round 10: Dec in first st, dc in next 6 st, repeat from * once (14)

Round 11: Dc in each st (14)

Round 12: Dec in first st, dc in next 5 st, repeat from * once (12)

Round 13: Dc in each st (12)

Round 14: Dec in first st, dc in next 4 st, repeat from * once (10)

Round 15: Dc in each st (10)

Round 16: Dec in first st, dc in next 8 st (9)

Round 17: Dc in each st (9)

Round 18: Dec in first st, dc in next 7 st (8)

Round 19: Dc in each st (8)

Round 20: Dec in first st, dc in next 6 st (7)

Round 21: Dc in each st (7). Finish with ss, cut yarn leaving a tail for sewing.

Stuff as you go along. Do not close up.

Arms

Size: 5cm long. Make 2.

Using brown yarn:

Round 1: Magic ring with 4 dc (4)

Round 2: Inc in each dc (8)

Round 3: * Inc in first st, dc in next st, repeat from * 3 times (12)

Change to orange yarn:

Round 4-7: Dc in each st (12)

Round 8: Dec in first st, dc in next 4 st, repeat from * once (10)

Round 9: Dec in first st, dc in next 3 st, repeat from * once (8)

Round 10: Dc in each st (8)

Round 11: Dec in first st, dc in next 6 st (7). Finish with ss, cut yarn leaving a tail for sewing.

Stuff as you go along. Do not close up.

Head

Size: 7.5 - 8cm top to bottom.

Using brown yarn:

Round 1: Magic ring with 7 dc (7)

Round 2: Inc in each dc (14)

Round 3: Inc in first st, dc in second, repeat from * 6 times (21)

Round 4: Dc in each st (21)

Round 5: Inc in first st, dc in next 2 st, repeat from * 6 times (28)

Round 6: Dc in each st (28)

Round 7: Inc in first st, dc in next 3 st, repeat from * 6 times (35)

Round 8: Dc in each st (35)

Round 9: Inc in first st, dc in next 4 st, repeat from * 6 times (42)

Round 10-11: Dc in each st (42)

Round 12: Inc in first st, dc in next 5 st, repeat from * 6 times (49)

Round 13: Dc in each st (49)

Round 14: Dec in first st, dc in next 5 st, repeat from * 6 times (42)

Round 15-16: Dc in each st (42)

Round 17: Dec in first st, dc in next 4 st, repeat from * 6 times (35)

Round 18: Dc in each st (35)

Round 19: Dec in first st, dc in next 3 st, repeat from * 6 times (28)

Round 20: Dc in each st (28)

Round 21: Dec in first st, dc in next 2 st, repeat from * 6 times (21)

Round 22: Dc in each st (21)

Round 23: Dec in first st, dc in next 5 st, repeat from * twice (18)

Round 24: Dc in each st (18). Finish with ss, cut yarn leaving a tail for sewing.

Stuff head as you go along. Do not close up.

Mark out hairline and eye placement

Mark the hairline around face and round nape of neck with a contrasting colour yarn. The sample puts the hairline at round 7 for the forehead, the face 8.5cm wide at round 10/11, and stops at the nape of the neck at round 19.

Before you sew the hair, position the eyes. The exact placement will vary depending on the hairline, but vertically they should be about halfway down the head, between either rounds 11 and 12, or rounds 12 and 13. Horizontally, they should be one quarter of the width of the face from the side of the face, and about half the width of the face apart. The eyes in the photo are 32mm apart, centre to centre, which is in this case 7 stitches apart.

Use two ball-headed pins to work out where the eyes, and then mark either with a secure stitch marker or a knot of yarn. It is easier to insert safety eyes into the gaps between stitches. If this throws your face off centre, adjust the hairline slightly to compensate.

Sewing the hair

Cut 45cm/18in lengths of black yarn. If it is four-ply, you can split it into two, but if it is three-ply, sew without splitting and then use the blunt end of a thick tapestry needle or a knitting needle to split the plies.

Leaving a tail, knot the yarn to attach it securely. Rest your finger on the head by the first knot and loop the yarn over it, pass your needle through a crochet stitch and use a simple knot to secure. Repeat until hair complete. Make the hair denser at the top of the head and around the face, with one loop per stitch, but at the back you can do one loop per two stitches. Cut loops. Brush out yarn and trim.

Remove contrasting yarn marker.

See below for photos.

Eyes

Once the hair is complete and trimmed, check the placement of your eyes again and make sure they look right. Use 12mm brown safety eyes, and push the shank through a gap between stitches. You may have to remove some stuffing to get the backs on properly.

Eye alternatives: You can also use felt eyes, crochet eyes, or can embroider them on, whichever you prefer.

For more on eye placement, [see this guide from Planet June](#).

See below for photos.

Mouth

Mark the mouth out with pins. The edges of the smile should be around the inside of the eye, about 5 rounds below the vertical centre of the eyes. The bottom of the smile should be a round below the edges.

Using a deep plum embroidery floss (do not split the threads) such as DMC 1006, sew a curved line in running stitch to mark out the mouth. Then use stem stitch to fill out the smile.

See below for photos.

Hair

1. Sew through one stitch:



2. Put needle through same stitch:



3. Tie simple knot in loop:



4. Loop yarn over finger, slide needle into next stitch along, then do another simple knot.



5. Continue in a row, creating a series of loops. Cut through the loops, tease out the fibres and trim evenly all round.



Eyes

1. The white pin is central, the two pink pins denote the position of the eyes.



2. The eyes in place.



Mouth

1. Pink pins show corners of mouth, white pin shows bottom of curve.



2. Finished mouth.



Construction

Head and body

Ensuring head and body are sufficiently stuffed, trim one tail. Position kink in collar on body at the back of the head. Use second long tail to attach head to body, sewing through final rows.

Arms and legs

Sew the white line (the flight-suit zipper) centrally up the front of the body section before attaching the arms and legs, to make positioning easier.

Arms should be sewn slightly below the black collar, and slightly forward. One way to sew on arms and legs is to use either a long, thick sewing needle or a thin knitting needle to hold the limb in place, and then attach.

1. Insert needle into limb.



2. Position limb on body using needle to hold in place



3. Sew into place.



4. Sew legs together at the top with one or two stitches, then position centrally on the base of the body, attach.



Attach legs at bottom of body. It is easier to sew the top of the legs together with a stitch or two before attaching them so that they don't wander. Make sure that they are central with the white zipper line.

Finishing touches

Using white yarn, sew a straight line up the body from the crotch to just below the black collar to form the flight-suit zipper.

Badges

Jemison has five badges, one on each arm and three on the front of her flight suit, of varying widths. These are very small, but it is possible to embroider them onto cotton lawn, or do simpler versions using felt.

Pilot Frixion 'erasable' pens are useful, because it doesn't matter if some of the ink shows afterwards, as you can use a hairdryer to heat the ink and it will turn white/invisible.

The template for the badges can be downloaded separately from [our website](#) and should print out, if printed at 100%, with the US flag at 1.5cm across.

Embroidered badges

Once you have finished stitching and whilst the fabric is still in the hoop, water down some PVC glue 50:50, and paint onto the back of the fabric to secure stitches and edges. Do not soak the fabric, but make sure that the threads are secure. Let dry. Remove from hoop and trim.

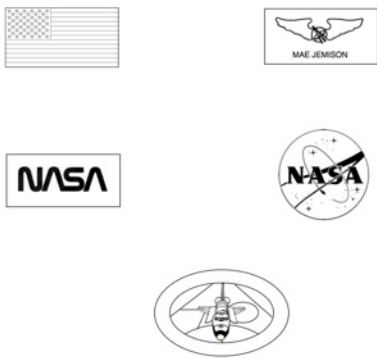
Felt badges

Sew basic version of the badges and cut to size. For the US flag, glue a small square of blue felt for the star field, and for the mission badge, glue a wedge of white onto the gold oval, and sew through both.

Use fabric glue attach to doll:

1. US Flag on left shoulder
2. Nasa worm on right shoulder
3. Nameplate top of left side of chest
4. Nasa meatball below nameplate
5. Mission badge on the right side of chest, slightly below nameplate

Badge template



Finished badges

Embroidered



Felt



Reference images

US Flag



Nameplate



Nasa worm



Nasa meatball



Mission badge



Flight Suit Grommets

Using a mid-grey wool, eg KnitPicks Brava 'Silver', sew two circular grommets in place, about two rounds below the bottom of the Nasa Meatball badge, and about two stitches away from the white zipper on either side.



About Ada Lovelace Day

[Ada Lovelace Day](#) is an international celebration of the achievements of women in science, technology, engineering and maths. Its aims are to increase the profile of women in STEM, to create new role models to encourage more girls and young women into STEM careers, and to support women already working in STEM.

Founded in 2009 by Suw Charman-Anderson, the day itself is held every year on the second Tuesday of October, with our flagship 'science cabaret', *Ada Lovelace Day Live!*, featuring entertaining talks from women across the STEM disciplines. ALD has grown dramatically from its humble origins as a day of blogging, and is now a truly global event, with independently organised events on every major continent.

With the support of our sponsors, we have expanded our activities well beyond the day itself, producing resources that will support girls and women in STEM all year round. These include a [free education pack](#) to help teachers tackle the gender stereotypes; [two anthologies of essays about women in STEM](#), written by authors from around the world; a line of merchandise, including [posters, spiral-bound notebooks and hard-backed journals](#); a [resources database for women in STEM](#); and a [podcast, highlighting the work of women in STEM](#).

Why aren't girls attracted to STEM?

There are many cultural and structural barriers that reduce the number of girls and women who pursue an education or career in STEM. The idea that STEM subjects are "not for girls" is pervasive. Girls understand gender stereotypes and start thinking about careers from a very young age. The WISE Campaign's report, [Not For People Like Me](#) found that "from age 10 start to self-identify as 'not STEM' so start to plan not to study STEM post-16 very early".

We know that one-off interventions are ineffective and that we need to focus on long-term structural and cultural changes. This includes initiatives to challenge stereotypes, provide careers information, and create suitable role models, all with the aim of supporting and encouraging girls and women to achieve their full potential in STEM.

This series of crochet patterns aims to introduce girls to STEM role models early to help them understand that they can indeed have a career in STEM.

Thanks

Our thanks to everyone who's helped with this pattern, including Jenny Blacker, Dr Thorunn Helgason, and Ravelry user Truki.

Found an error or got a suggestion?

If you have found a mistake in our pattern or have a suggestion for making it better, please do get in touch! Email Suw Charman-Anderson at suw@findingada.com.

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Contact Information

Suw Charman-Anderson
Founder, Ada Lovelace Day

Email: suw@findingada.com
Web: FindingAda.com
Twitter: [@findingada](#)