

# Dr Eugenie Clark

*Amigurumi Ichthyologist Crochet Pattern*



*Ada Lovelace Day*



# Dr Eugenie Clark

[Dr Eugenie Clark](#), The Shark Lady, was a Japanese American ichthyologist who studied sharks and pioneered the use of scuba diving in marine biology.

In 1955, Clark founded a research base on Florida's gulf coast, the Cape Haze Marine Laboratory (later the [Mote Marine Laboratory](#)), where she studied the behaviour, reproduction and anatomy of sharks and other fish, becoming an international authority.

She worked hard to dispel many of the myths around sharks and was the first person to train sharks, proving that they aren't mindless killing machines but have a good memory and can learn tasks as well as a dog. She also discovered that the Moses sole secretes an effective shark repellent, and was the first scientist to develop "test tube babies" in female fish.



Clark was an avid marine conservationist and wrote two books, *Lady with a Spear* (1953) and *The Lady and the Sharks* (1969). She continued her work, learning to pilot a deep sea submersible at the age of 87, until just before her death in 2015, aged 92.

You can read about [Dr Helen Scales'](#) encounter with Dr Eugenie Clark [on our website](#) or buy *A Passion for Science: Tales of Discovery and Invention* from [Amazon](#).

## Terminology, techniques and materials

**Terminology:** Pattern uses UK terminology.

**Techniques:** Magic ring, double crochet, treble crochet, half treble crochet, double treble crochet, slip stitch, i-cord, 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:** Pink, black, grey, mid-brown.

**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:** Safety eyes, brown, 12mm. Stuffing. 18cm length of thin flexible vinyl tube, diameter 3mm-5mm. Long black pipe cleaners, length 24cm. Nail or superglue. Black elastic, 5mm wide, about 40 cm off.

**Additional tools:** Tapestry needle. Optional: thin knitting needle.

## Abbreviations

|       |                                    |
|-------|------------------------------------|
| DC    | Double crochet                     |
| TR    | Treble crochet                     |
| HTR   | Half treble crochet                |
| DTR   | Double treble 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 black 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 x 3, dec, dc x 5, dec, dc x 5, dec, dc x 2 (18)

**Round 17:** Dc in each st (18)

**Round 18:** Dc in each st, finish with ss, cut yarn leaving a tail for sewing (18)

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 each dc (16)

**Round 4-5:** Dc in each st (16)

*Change to pink 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)

*Change to black yarn:*

**Round 19-21:** Dc in each st (8)

**Round 22:** Dc in each st, finish with ss, cut yarn leaving a tail for sewing (8)

Stuff as you go along. Do not close up.

## Flippers

Make 4.

*Using black yarn (count each chain as the first stitch, and then make the next stitch in the second stitch of the row below):*

**Round 1:** Magic ring with 4 dc (4)

**Round 2:** Inc in each dc (8)

**Round 3:** Inc in each dc (16)

**Row 4:** Chain 3 (count this as your first dtr), tr in the next dc, htr, dc, htr, tr, dtr (7)

**Row 5-7:** Turn, ch 1, dc in each st (7)

**Row 8:** Turn, ch 1, dc x 2, inc, dc x 3 (8)

**Rows 9-11:** Turn, ch 1, dc in each st (8)

**Row 12:** Turn, chain 4, ss in the back of the stitch nearest the hook (count this as your first dtr), tr, htr, dc x 2, htr, tr, dtr, finish with ss, cut yarn leaving a tail for sewing (8)

Sew the flippers together in pairs and, if the ch4 and the dtr are gaping a bit, sew sideways through the final row to pull those edge stitches in, which should create a nice, straight side.

## Arms

Size: 5cm long. Make 2.

*Using pink 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 black 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, finish with ss, cut yarn leaving a tail for sewing (7)

Stuff as you go along. Do not close up.

## Head

Size: 7.5 - 8cm top to bottom.

*Using pink 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, finish with ss, cut yarn leaving a tail for sewing (18)

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

## Diving Mask

*Using:*

18cm length of thin flexible vinyl tube, diameter 3mm-5mm

Long black pipe-cleaner, or two short ones twisted together. If your pipecleaner is thick, cut to 18cm, if thin and can fit two widths inside tube, cut to 24cm).

Nail glue, superglue or a robust tape.

For a thick pipe-cleaner, push through tube until you have 2cm left, then push that into other end of tube. For thin pipe-cleaners, push through tube until there is equal length sticking out both ends, then push ends of pipe-cleaners into the tube until they meet. Glue tube ends together with nail glue or superglue, or tape firmly together. (Note that PVA, or white glue, will probably not work on vinyl.) See photos.

*Using black yarn:*

**Round 1:** Sl st, wrapping yarn around the tubing with each stitch, attach about 40 dc to the tube, enough that the stitches are neatly spaced and not too cramped. Do not worry if you can still see the tube through the yarn. Join round with ss.

**Round 2:** Ch 1, dc in each st, join end of row with ss. Leave very long tail of 50 cm or so. Use ends of yarn to sew round the tube, covering any gaps in the yarn.

*Using grey yarn:*

**Round 3:** Do not start with a sl st, instead draw yarn through first dc, then dc in each st. Pull yarn through last stitch, thread tail into needle, thread yarn through first stitch and back down through last stitch to create seamless end to row. Secure yarn ends and weave in.

Shape mask into an oval, and curve it to fit the face.

Sew 5mm black elastic to sides of mask, to fit snugly over head.

## Breathing tube

Make a 2 stitch i-cord, long enough to fit easily over the head (using specified yarn, that's about 27cm long). You can knit the i-cord if you want, or follow [these instructions from Planet June](#).

## Mouthpiece

Make a 4 stitch i-cord, 2.5cm long. Sew mouthpiece to centre bottom of mask. Thread breathing tube through centre of mouthpiece, so that it can move freely.

## Gas bottle

Stuff as you go along.

*Using black yarn:*

**Round 1:** Magic ring with 4 dc (4)

**Round 2:** Inc in each st (8)

**Round 3:** Inc in each st (16)

**Round 4-14:** Dc in each st (16)

**Round 15:** Dec in each st (8)

**Round 16:** Dec in each st (4)

Close up.

## Gauge

Make two.

*Using grey yarn:*

Round 1: Magic ring with 6 dc (6), ss into first dc to close. Leave a long tail.

Sew together, back to back. Using tails, attach the gauge edge-on to the top of the bottle.

## Diving weights

Make three.

*Using grey yarn:*

Row 1: Ch 5

Row 2: Turn, skip 4 sts, dc in the back of the next st (ie the second chain you made)

Row 3: Ch 2, ss into the front of the next st (ie, the first chain you made), ss to secure. Cut yarn. Sew in the first end behind the the final ss to create as smooth a join as possible

## Diving gear construction

Thread the three diving weights onto a ~20cm length 5mm-wide elastic. Sew the ends of the elastic to the back of gas bottle so that it fits snugly around the waist, and so that the gas bottle is positioned centrally on the back.

Sew the breathing tube ends on to the top of the gas bottle just behind the grey gauge.

When doll complete (see below), fit gas bottle and weights belt onto body first, then position diving mask over hair and eyes.

## 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 or wide, and about half the width of the face apart or more. 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 lengths of dark brown yarn, long enough to reach to about half-way down the back (about 40 to 45 cm long in the example). Sew on to top of head in groups of five, along a centre 'parting', from forehead to crown.

Using long stitches, sew from nape of the neck to the parting and along hairline to create an underlayer of hair. Remove contrasting yarn marker. Secure hair into a ponytail at the nape of the neck with a few strong stitches, and trim. 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.

### **Nose**

Using pink yarn, sew a few stitches to create a small nose.

## **Construction**

### **Head and body**

Ensuring head and body are sufficiently stuffed, trim one tail. Use second long tail to attach head to body, using whip stitch to sewing through final rows.

### **Arms and legs**

Arms should be attached angled 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 use the long tail yarn to sew through the limb from one side to the other, rather than trying to sew around, stitch by stitch.

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.

### **Flippers**

Attach flippers to bottom of feet, pointing forward and very slightly outwards.



## Photos







## 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, bluescubaboo and Melissacar106.

## 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](mailto:suw@findingada.com).



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