

Manchester Science Festival

22 - 30 Oct 2011

Space-craft with Manchester Science Festival

Crochet and knit your very own solar system to hang up at home or contribute to our growing galaxy of knitted planets, meteorites and stars. Pick up some knitting skills from our resident knitting expert and learn about space science in our craft workshop suitable for all ages.

11am – 3pm, Friday 28 October 2011, Textile Gallery, MOSI

11am – 3pm, Saturday 29 October 2011, Manchester Museum



All patterns instructions are written in English knitting and crochet terms.

Thank you to Art Yarn for creating these patterns for Manchester Science Festival.

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thought-provoking science events
across the city and Greater Manchester.**

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Knitted Star



Ancient Egyptians hieroglyphs showed stars with five points but why do we draw stars like this? It might be because when looking at a star in the sky, we sometimes see lines coming from it. These are called diffraction lines and are caused by our own eyes!

Materials:

- Double knit yarn
- 5mm needles

Makes a flat star about 10cm wide x 10cm long

Needle size and yarn is not important (it will just alter the size of your star!)

Abbreviations:

k = knit

p = purl

k2tog = knit 2 sts together

WS = wrong side

RS = right side

M1 = Make 1 stitch (increase). To do this, insert the left needle from the front to the back, under the strand running between the 2 stitches, then knit into the BACK loop of this stitch with the right needle.

Instructions

CO 9 sts, leaving a long tail of yarn.

Rows 1, 3, 5, 7, 9, 11 (WS): knit

Rows 2, 4, 6, 8, 10 (RS): k1, M1, k to last 2 sts, k2tog

Cast Off, leaving last st on needle.

With RS facing, pick up 8 sts along left edge.

Work Rows 1-11 as above

Repeat this sequence, making 6 segments in total and cast off all stitches.

Use the tail to join first and last segment together for the star. Weave in end on WS.

Variations:

- Change colour for each segment
- Use a textured stitch, like moss stitch.
- Create stripes by alternating different colours
- Add decorative edging by sewing on some beads
- Knit two flat stars, sew them together then fill with toy stuffing to make a 3D version.

Crochet: 5 pointed little star



Don't have any yellow yarn to hand? Stars also come in shades of blue, orange and red, depending on their age, composition and temperature.

Materials

- 3mm crochet hook
- Double knitting yarn

Needle size and yarn is not important (it will just alter the size of your star!)

Abbreviations:

Ch = Chain

Sts = Stitches

Rnd = Round

Sl St = Slip Stitch

Dc = Double crochet

Htr = Half Treble Crochet

Dtr = Double Treble

Pattern

Start with a slipknot* (very important)

Rnd 1: Ch 5 and join with a Sl St to form a ring.

Rnd 2: Working directly into the ring make 15 Htr .

Repeat all the way round into each chain [15 sts]

Sl St to close the round. Ch 1

Rnd 3: you will use three stitches per star arm (i.e. 3x5 arms = the 15 stitches from the previous round).

Then in each of these three stitches for a star arm do the following three steps:

1) In first stitch: Sl St , Ch 1.

2) In the second stitch: 1 Dc, 1Tr, 1 Dtr, Ch2, Sl st into top of Dtr, 1 Tr, 1DC, Ch 1

3) In the third stitch: Sl st

Now repeat these 3 steps for each star arm making a total of 5 star points.

Slip stitch and knot to finish off. Give each star arm a pinch to make it a bit more pointed. Weave in ends.

*To make a slip knot:

1) Make a loop with the yarn. Leave the end dangling, and grab the yarn through this loop to make a new loop. Insert the hook.

2) Pull both ends to close the knot.

Crochet: 5 pointed star (advanced)



This pattern makes a flat star.

Materials

- 3mm crochet hook
- Double knitting yarn

Needle size and yarn is not important (it will just alter the size of your star!)

Abbreviations

Ch = Chain

Dc = Double crochet

Dc2tog = Double crochet 2 stitches together (decrease)

Sl St = Slip Stitch

St(s) = Stitch(es)

Pattern

To Start: Ch2

Rnd1: 5 Dc in second ch from hook. Join with sl st, turn (5Dc)

Rnd 2: Ch1, 2 Dc in each Dc around, join with sl st, turn (10Dc)

Rnd 3: Ch1, *Dc in next Dc, then 2 Dc in next Dc* repeat around, join with sl st, turn (15Dc)

Rnd 4: Ch1, *Dc in next two Dc, then 2 Dc in next Dc* repeat around, join with sl st, turn (20Dc)

Rnd 5: Repeat round 3 (30Dc)

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First point:

Row 1: ch1, Dc in next 6 Dc, turn

Row 2: ch1, Dc in each Dc across, turn

Row 3: ch1, Dc2tog, Dc in next 2 Dc, Dc2tog, turn

Row 4: repeat row 2, turn

Row 5: ch1, Dc2tog twice, turn

Row 6: ch1, Dc2tog, turn

Row 7: 1 Dc into top of point.

Fasten Off

Second point:

Row 1: Attach yarn next to of previous point, pull up a loop, ch1, Dc in same st, Dc in next 6 Dc.

Row 2-6: Same as first point.

Repeat second point 3 more times, do not fasten off after last point.

Weave in all the yarn ends before moving on to the next stage.

Ch1, then Dc around entire star.

Join to first sc with sl st.

Variation

If you want to make a cuddly star, make two star shapes. Sew eyes on one of them, then whipstitch together, filling with toy stuffing as you go.

You could make a whole constellation of stars of different colours and sizes!

What about knitting stars with sparkly yarn, or decorating them with sequins or beads to give your stars added twinkle?

Crocheted Planet / Spaceship!

The planets known as the “Gas Giants” all have rings orbiting them. Saturn’s rings are the most visible, and are named alphabetically A through to G. The gaps between the rings also have names, including Bond Gap, Columbo Gap, Cassini Division.

Make different coloured planets to create your own solar system.



This pattern could make a planet, or with a little added decoration, a flying saucer.

Materials

- Double knitting yarn in two colours. Use one for the main body of the planet, the other for the ring.
- 4mm crochet hook.
- toy stuffing
- darning (wool) needle

You may wish to mark the beginning of each round with a stitch marker or a bit of spare yarn in a contrasting colour, so you can keep track of where your round begins and ends.

As the ring will be attached to Rnd 14, the centre of the planet, you could mark this one.

Abbreviations:

Dc = Double Crochet

Dc2tog = Double Crochet 2 stitches together (decrease)

St(s) = Stitch(es)

Rnd = Round

To make the main body of the planet...

Chain 2 stitches.

Rnd 1: Dc 6 times in each chain stitch (6)

Rnd 2: Dc into each st (12)

Rnd 3: *Dc twice into next st, Dc into next st. Repeat from * 5 times (18)

Rnd 4: *Dc twice into next st, Dc into next 2 sts. Repeat from * 5 times (24)

Rnd 5: *Dc twice into next st, Dc into next 3 sts. Repeat from * 5 times (30)

Rnd 6: *Dc twice into next st, Dc into next 4 sts. Repeat from * 5 times (36)

Rnd 7: *Dc twice into next st, Dc into next 5 sts. Repeat from * 5 times (42)

Rnd 8: *Dc twice into next st, Dc into next 6 sts. Repeat from * 5 times (48)

Rnd 9: *Dc twice into next st, Dc into next 7 sts. Repeat from * 5 times (54)

Rnd 10: *Dc twice into next st, Dc into next 8 sts. Repeat from * 5 times (60)

Rnd 11-20: Dc into each st, **Mark Rnd 14** (60)

Rnd 21: *Dc2tog, Dc in next 8 sts. Repeat from * 5 times (54)

Rnd 22: *Dc2tog, Dc in next 7 sts. Repeat from * 5 times (48)

Rnd 23: *Dc2tog, Dc in next 6 sts. Repeat from * 5 times (42)

Rnd 24: *Dc2tog, Dc in next 5 sts. Repeat from * 5 times (36)

Rnd 25: *Dc2tog, Dc in next 4 sts. Repeat from * 5 times (30)

Rnd 26: *Dc2tog, Dc in next 3 sts. Repeat from * 5 times (24)
Remove the hook but do not break the yarn

To make the ring:

Hold the planet body so that the last round you made is at the top. Select second colour yarn.

Rnd 1: For this round you will work through the front loops of the stitches on round 14 of the planet.

Place a Dc stitch into any Dc stitch on round 14. Dc a second time into this same stitch. Dc into the next 9 stitches . *Dc twice in the next stitch. Repeat from * 4 times. (66)

Rnd 2: * Dc twice in next st, Dc in next 10 sts. Repeat from * 5 times (72)

Rnd 3: * Dc twice in next st, Dc in next 11 sts. Repeat from * 5 times (78)

Rnd 4: * Dc twice in next st, Dc in next 12 sts. Repeat from * 5 times (84)

Rnds 5-6: Dc in each st (84)

Rnd 7: * Dc2tog, Dc in next 12 sts. Repeat from * 5 times (78)

Rnd 8: * Dc2tog, Dc in next 11 sts. Repeat from * 5 times (72)

Rnd 9: * Dc2tog, Dc in next 10 sts. Repeat from * 5 times (66)

Rnd 10: * Dc2tog, Dc in next 9 sts. Repeat from * 5 times (60)

Fasten off making sure you leave a long tail of yarn.

Stuff the ring of your planet. Use a darning needle and the long tail to whipstitch* the ring to the planet body.

Then...

Stuff your planet! And carry on crocheting the last section of the main body.

Rnd 27: * Dc2tog, Dc in next 2 sts. Repeat from * 5 times (18)

Rnd 28: * Dc2tog, Dc in next st. Repeat from * 5 times (12)

Rnd 29: * Dc2tog. Repeat from * 5 times (6)

Rnd 30: Dc next and 4th st together.

Fasten off, drawing tail to the inside.

Now, name your spaceship or planet (and its ring)!

***Whipstitch**

- Insert the needle and pull the yarn through the inside loops of the first 2 corresponding stitches of the 2 pieces to be joined.
- Draw the needle up and over the 2 loops of the first stitch.
- Repeat the two preceding steps across the edges to be joined.
- To finish, weave the yarn back through several stitches to secure.

Little Knitted Alien



Could there be life on other planets? A research program called Search for ExtraTerrestrial Intelligence (SETI) analyses radio telescope data. They look for narrow-band radio activity, which does not occur naturally so might be a clue that another intelligent life form inhabits space.

Materials:

- 3mm knitting needles
- Double knit yarn, plus scraps

Makes an alien about 4cm tall.

You can use any size needles or yarn - this will vary the size of your alien.

Abbreviations

k = knit

p = purl

st(s) = stitch(es)

st st = stocking stitch

k2tog = knit 2 stitches together

m1 = make one by picking up loop between stitch just worked and next stitch, and knit into the back of this loop

mb = make bobble: knit into the front, back and front of next stitch (3 new stitches made) turn, p3, turn, k3, turn p3, turn, k3tog.

ssk = slip 1 st, then slip the next. Insert left needle into the front loops of the slipped sts and knit them together through the back loops

Pattern

Cast on 22 sts.

Row 1: P all stitches

Row 2: k2, m1, k2, k2tog, ssk, k2, m1, k2, m1, k2, k2tog, ssk, k2, m1, k2.

Row 3: P all

Row 4 and 5: Repeat rows 2-3.

Row 6: k3, m1, k6, m1, k4, m1, k6, m1, k3. (26 sts)

Row 7: P all

Row 8: k8, mb, k8, mb, k8.

Rows 9-11: work st st.

Row 12: k1, [k2, k2tog] 6 times, k1. (20 sts)

Row 13: P all

Row 14: k1, [k1, k2tog] 6 times, k1. (14 sts)

Row 15: P all

Row 16: k1, [k2tog] 6 times, k1. (8 sts)

Break off yarn and thread end through remaining sts. Pull tight to gather. Sew back seam.

How will your alien sense the world and communicate? Use scraps of yarn to give your alien any desired combination of antennae, whiskers, eyes, a mouth (or more).

Perhaps you could use your little aliens as finger puppets.

Alternatively, you could fill your alien with toy stuffing and sew it closed along the bottom.

Meteorite

A meteorite is a small particle from a comet or asteroid orbiting the Sun, that survives its passage through the Earth's atmosphere and lands upon the Earth's surface.



Materials needed

- Yarn in DK or aran weight
- 4 double-pointed needles in a size suitable for the yarn weight you are using. I recommend using needles a size or two smaller than the yarn calls for, to produce a firm fabric.
- Toy stuffing
- Yarn needle

Abbreviations

K = knit

P = purl

Sts = stitches

Kfb = knit into front and back of stitch

K2tog = knit 2 together

Bobble = Into same stitch, k1, p1, k1, p1, k1. Pass the first four of these stitches over the last stitch one at a time

Pattern

The basic pattern is a knitted sphere with bobbles knitted every four rounds. In the 'increase' and 'decrease' sections you will be increasing or decreasing every other round.

Cast on 6 stitches using your preferred method (I use the Continental, or long-tail, cast on)

Distribute stitches over three double pointed needles and join to work in the round, being careful not to twist stitches. Knit one round
Add stuffing up to just below the level of needles.
Work decrease rounds, adding stuffing as you go

Increase rounds

Rnd 1: Kfb 6 times (12 sts)

Rnd 2: (K1, bobble, k2) 3 times

Rnd 3: (Kfb, K) 6 times (18 sts)

Rnd 4: K

Rnd 5: (Kfb, K2) 6 times (24 sts)

Rnd 6: (K1, bobble, k2) 6 times

Rnd 7: (Kfb, K3) 6 times (30 sts)

Rnd 8: K

Rnd 9: (Kfb, K4) 6 times (36 sts)

Rnd 10: (K1, bobble, k2) 9 times

Rnd 11: (Kfb, K5) 6 times (42 sts)

Rnd 12: K

Rnd 13: (Kfb, K6) 6 times (48 sts)

Rnd 14: (K1, bobble, k2) 12 times

Straight rounds

Rnds 15-17: K

Rnd 18: (K1, bobble, k2) 12 times

Decrease rounds

Rnd 19: (K2tog, K6) 6 times (42 sts)

Rnd 20: K

Rnd 21: (K2tog, K5) 6 times (36 sts)

Rnd 22: (K1, bobble, k2) 9 times

Rnd 23: (K2tog, K4) 6 times (30 sts)

Rnd 24: K

Rnd 25: (K2tog, K3) 6 times (24 sts)

Rnd 26: (K1, bobble, k2) 6 times

Rnd 27: (K2tog, K2) 6 times (18 sts)

Rnd 28: K

Rnd 29: (K2tog, K1) 6 times (12 sts)

Rnd 30: (K1, bobble, k2) 3 times

Rnd 31: K2tog 6 times (6 sts)

Cut yarn and thread through six remaining sts (add more stuffing if required). Weave in ends.

This pattern was created by Clare Dyer-Smith for Manchester Science Festival

Amigurumi Alien (crochet)



Materials:

- 3mm crochet hook
- Double knitting yarn: 1 main colour, white for the eyeballs, black for the embroidered eye and mouth
- Darning needle
- Scissors

Abbreviations:

Ch = Chain

St(s) = Stitch(es)

Sl St = Slip Stitch

Dc = Double crochet

DC2tog = Double Crochet 2 stitches together (decrease)

Pattern

Body

Using main colour Chain 2

Rnd1: Work 5 sts in first ch.

Increasing...

Rnd 2: 2 Dc in each st around (10)

Rnd 3: *2 Dc in next st, Dc in next st; rep from * around – (15)

Rnd 4: 2 Dc in each st around (30)

Rnd 5: Dc in each st around, in back loops only

Rnd 6-9: Dc in each st around

Decreasing...

Rnd 10: *Dc2tog, Dc in next 3 sts; rep from * around – (24)

Rnd 11: *Dc2tog, Dc in next 2 sts; rep from * around – (18)

Rnd 12: *Dc2tog, Dc in next st; rep from * around – (12)

Rnd 13: Dc2tog (6)

Fasten off.

Eye sockets, make 2 (or as many as you like). If you want to, you can make both eye sockets the same length. I made one shorter.

Chain 2

Rnd 1: Work 6 sts in first ch.

Right socket: **Rnd 2-7:** Dc in each st around.

Left socket: **Rnd 2-4:** Dc in each st around.

Rnd 8 (left 5): 2 Dc in each st around (12)

Rnd 9 (left 6): *2 Dc in next st, Dc in next st; rep from * around – (18)

Fasten off.

Eyeballs, make one for each eye socket

With white, chain 2

Rnd 1: Work 5 st in first ch.

Rnd 2: 2 Dc in each st around (10)

Rnd 3: *2 Dc in next st, Dc in next st; rep from * around – (15)

Rnd 4-5: Dc in each st around.

Rnd 6: *Dc2tog, Dc in next st; rep from * around – (10 sts)

Rnd 7: Dc2tog (5)

Fasten off.

With black yarn, make a pupil in each eyeball. Attach eyeballs to the eye sockets. Attach the eye sockets to the body. Stitch on an expressive mouth. Done!

Variations:

- Give the alien a longer body by repeating rounds 6-9 as many times as you like!
- Make a fatter alien by continuing to increase after round 5