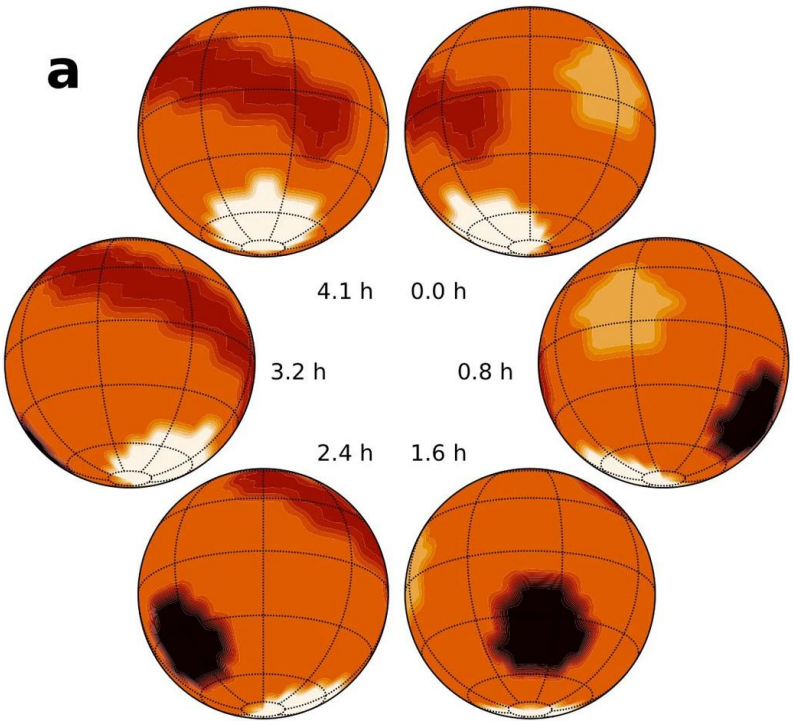
Knit Kit 7 - Iron Rain



You think the rain outside is bad? On stars, it rains iron.

The Story

Beth Biller, University of Edinburgh:
I am one author of the first brown-dwarf mapping study of its kind, which was done in 2014. The study used telescopes to look at a brown dwarf star in a lot of detail for a long time, so we could see its weather patterns. I'm very excited about this result, it is one of the first times that we've seen what a brown dwarf actually looks like! In the future we can use the same method to make other maps of planets around far-away stars. That's why this result is important - not just to know about star weather, but because we now know that we can look for weather in other parts of space.

The Science

Brown dwarfs are bigger than planets and smaller than stars. Like planets, they have clouds. Unlike the water vapour clouds of Earth, brown dwarfs' clouds are much MUCH hotter (about 1100 degrees). The clouds are made up of hot, fine sand grains, not water. The sandy clouds cool in the star's skies and rain iron instead of water. In 2014, we mapped the cloud tops of one brown dwarf using the Very Large Telescope. It showed that the weather patterns on these brown dwarfs are quite complicated. The cloud structure on the brown dwarf changes as you get higher in the atmosphere, and can't be explained if there was just a single layer of clouds.

This is the same kind of weather structure that we have on Earth, just hotter, and made of sand. This science is so new, it's still getting better. The next set of telescopes will let us see in even more detail.

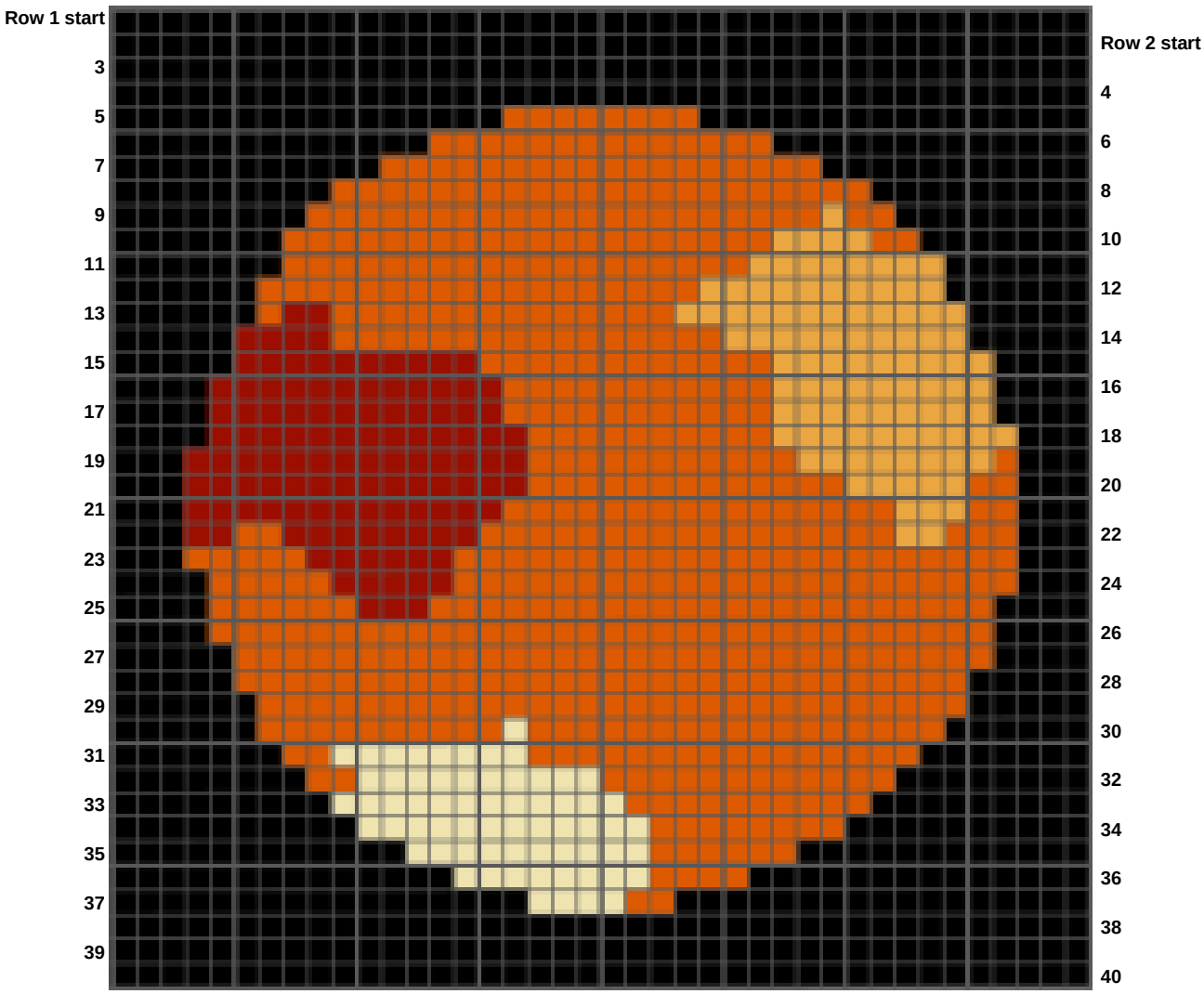
This is an easy knit. You will need:

- 5 colours of wool - we used black, orange, yellow, brown and cream
- A pair of knitting needles

And that's it!

We used these colours, but you don't have to - the scientists used these colours to understand the image, but you can use whatever you want, or what you or your family have lying around. In this knit, we used around 25g of back, and 10g each of orange, yellow, brown and cream, and 4mm knitting needles.

Skills used include: Cast On, Knit, Purl, Change Colour (fair isle), and Cast Off. Go to our website www.knittheuniverse.co.uk for links to handy YouTube videos to learn these skills. Remember: After casting on, knit odd-numbered rows, changing colours as you go, and purl even numbered rows, changing colours as you go.



Knitting Pattern

K – Knit P – Purl
A – Black B – Brown C – Cream O – Orange Y – Yellow
For example, P2B means purl 2 stitches in brown.

Cast on 40 stitches in black (or an alternate colour).
Row 1-4: Using black, knit odd rows, purl even rows
Row 5: K16A, K7O, K16A
Row 6: P13A, P14O, P13A
Row 7: K11A, K18O, K11A
Row 8: P9A, P22O, P9A
Row 9: K8A, K21O, K1Y, K2O, K8A
Row 10: P7A, P2O, P4Y, P20O, P7A
Row 11: K7A, K19O, K8Y, K6A
Row 12: P6A, P10Y, P18O, P6A
Row 13: K6A, K1O, K2B, K14O, K12Y, K5A
Row 14: P5A, P10Y, P16O, P4B, P5A
Row 15: K5A, K10B, K12O, K9Y, K4A
Row 16: P4A, P9Y, P11O, P12B, P4A
Row 17: K4A, K12B, K11O, K9Y, K4A
Row 18: P3A, P10Y, P10O, P13B, P4A
Row 19: K3A, K14B, K11O, K8Y, K1O, K3A
Row 20: P3A, P2O, P5Y, P13O, P14B, P3A
Row 21: K3A, K13B, K16O, K3Y, K2O, K3A
Row 22: P3A, P3O, P2Y, P17O, P8B, P2O, P2B, P3A
Row 23: K3A, K5O, K6B, K23O, K3A
Row 24: P3A, P23O, P5B, P5O, P4A
Row 25: K4A, K6O, K3B, K23O, K4A
Row 26: P4A, P32O, P4A
Row 27: K5A, K31O, K4A
Row 28: P5A, P30O, P5A
Row 29: K6A, K29O, K5A
Row 30: K6A, K17O, K1C, K10O, K6B
Row 31: K7A, K2O, K8C, K16O, K7A
Row 32: P8A, P12O, P10C, P2O, P8A
Row 33: K9A, K12C, K10O, K9A
Row 34: P10A, P8O, P12C, P10A
Row 35: K12A, K10C, K6O, K12A
Row 36: P14A, P4O, P8C, P14A
Row 37: K17A, K4C, K2O, K17A
Row 38-40: Using black, purl even rows, knit odd rows
Cast off.