

THE AUSTRALIAN

Chicks do the numbers 'just like us'

JOHN ROSS THE AUSTRALIAN JANUARY 30, 2015 6:00AM

NEUROLOGISTS say chickens have the same mental maths map as humans, suggesting that counting from the left is a “biological default” rather than a cultural construction.

Italian researchers have found that the “mental number line” — the human tendency to arrange increasing magnitudes from the left to the right — also exists in three-day-old chickens.

Their study, published this morning in the journal *Science*, suggests maths is hardwired in brain cells with evolutionary roots stretching back millions of years.

“(Our work) may shed light on the biological basis of difficulties in mathematical learning in schoolchildren,” the University of Trento said.

Co-author Giorgio Vallortigara said the findings suggested a need to rethink the relationship between numerical abilities and language. “(They provide) further evidence that symbolic language is not necessary for mathematical cognition.”

Studies over the past few years have found that birds, chickens and monkeys tend to count from the left. But scientists suspected this could reflect a “general bias” in visual attention, with birds as well as people tending to favour objects on the left.

The new study found that chickens also count down from the right — suggesting a relationship with numbers that is governed not by a visual bias, but an innate mental map.

The team trained the newborn chicks by hiding food behind panels adorned with painted squares. Then the chicks were confronted with a pair of similar panels decorated with either a smaller or larger number of squares.

If the number of squares was smaller, the chicks looked behind the left panel. If it was larger, they opted for the right.

The team said it was the first time the mental number line, which has been recognised in humans since the 1960s, had been observed in any other species. The findings suggested that in animals, as with people, the right hemisphere of the brain played a dominant role in processing numerical and “visuospatial” information.

“This predisposition to map numbers onto space (appears to be) embodied in the architecture of animal neural systems,” said first author Rosa Rugani.

×

Share this story

Facebook ([http://facebook.com/sharer.php?u=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&t=Chicks do the numbers 'just like us'](http://facebook.com/sharer.php?u=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&t=Chicks%20do%20the%20numbers%20'just%20like%20us'))

Twitter ([https://twitter.com/intent/tweet?url=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&text=Chicks do the numbers 'just like us'](https://twitter.com/intent/tweet?url=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&text=Chicks%20do%20the%20numbers%20'just%20like%20us%20'))

LinkedIn ([http://www.linkedin.com/shareArticle?mini=true&url=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&title=Chicks do the numbers 'just like us'](http://www.linkedin.com/shareArticle?mini=true&url=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&title=Chicks%20do%20the%20numbers%20'just%20like%20us%20'))

Google (<https://plus.google.com/share?url=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321>)

Email ([mailto:?body=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&subject=Chicks do the numbers 'just like us'](mailto:?body=http://www.theaustralian.com.au/higher-education/chicks-do-the-numbers-just-like-us/story-e6frgcjx-1227201209321&subject=Chicks%20do%20the%20numbers%20'just%20like%20us%20'))