

## Numbers make no sense to people who can't speak a language, scientists claim

By [Daniel Bates](#)

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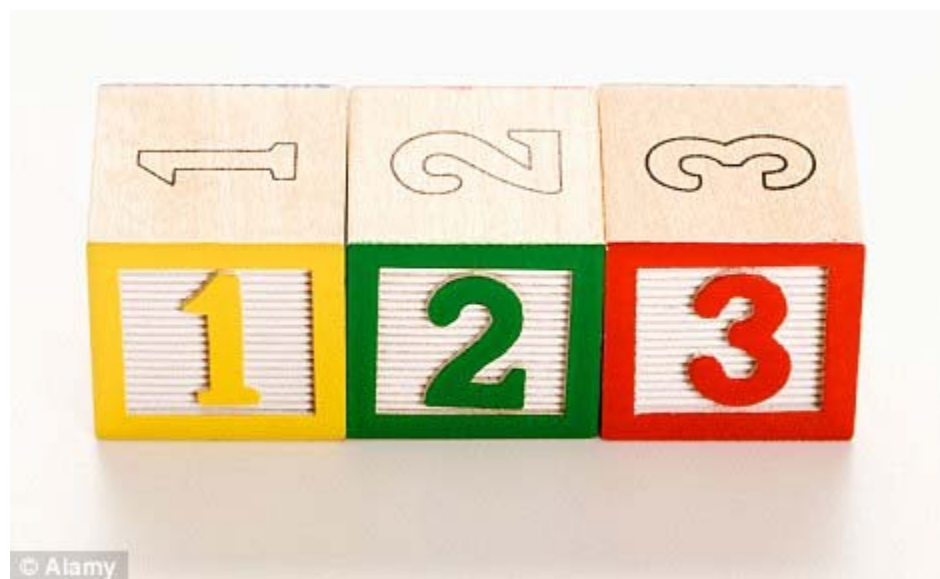
### • Research helps explain how children pick up understanding of numbers

Being able to speak a language is the key to understanding numbers, scientists have discovered.

A research project found that deaf people who had not learned a language containing symbols used for counting were unable to comprehend any number greater than three.

Experts said the reason was that they had not studied the familiar 'count list' of one to ten that most people are taught when they are young.

Children learn such a sequence even before they know what it means and it stays hardwired into their brain for the rest of their lives.



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**Words are key: Deaf people who had not learned a language containing symbols used for counting were unable to comprehend any number greater than three, research found**

The study is the first to identify the link between language and numeracy and was carried out by researchers at the University of Chicago.

They studied deaf people from Nicaragua who had created their own unique sign language to talk to one another.

These so-called 'homesigners' did have numbers in their culture including a monetary system, so any differences they exhibited would have to solely be due to language.

The first test involved asking them to answer which had the most value out of a 10-unit, 20-unit and 100-unit coin.

As they were familiar with their money, the test subjects were able to answer each question correctly.

Things changed when were shown an animated video in which numbers played a key part, such as a story with ten sheep in a pen.

The researchers then asked the subjects to retell the story to a friend using their 'homesigns' but as the numbers got bigger, they had increasing difficulty in making an accurate gesture with their hands.

Finally, the test subjects were shown cards with different numbers of items on them and asked to give a gesture that represented the number of items.

The homesigners were accurate only up to the number three.

The research team concluded that the problem understanding large numbers was not due to an inability to communicate them, but because they could not think about them.

Susan Goldin-Meadow, a professor in psychology at Chicago University, said: 'It's not just the vocabulary words that matter, but understanding the relationships that underlie the words - the fact that "eight" is one more than "seven" and one less than "nine".'

'Without having a set of number words to guide them, deaf homesigners in the study failed to understand that numbers build on each other in value.'

Her colleague Elizabeth Spaepen added that the homesigners were not 'wildly off' in their guesses but that there was definitely an issue connected to their language.

'They can approximate quantities, but they don't have a way of getting to the exact number,' she said.

The study was published in the journal the Proceedings of the National Academy of Sciences.

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what a load of bibble! I have an amazing ability to speak French and German at a high level (often being mistaken as nationals of those countries), yet I'm rubbish at maths.

- me again, peterborough, 10/2/2011 14:51

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The first San people (African Bushmen) encountered by Europeans were reported to have no number system other than One, Two, Many.

- Terence H, Rochester, UK, 10/2/2011 07:06

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Karl Pilkington was right!!!!

- James Crooder, Bristol, UK, 10/2/2011 01:53

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This maybe why they say animals can only count to 3. Interesting research. - Teddy Robbear, Scotland, 09/2/2011 18:06-----I don't agree Teddy not in every case, Watch the counting chimps documentary , they

outsmarted humans in counting and arithmetic easily, also lets not forget we humans are animals too.

- Daveyboy-UK, Cannock, 09/2/2011 22:50

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- Eye, Opening, 09/2/2011 20:14

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This maybe why they say animals can only count to 3. Interesting research.

- Teddy Robbear, Scotland, 09/2/2011 18:06

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