

## An instinct for numbers? Ancient humans and even some animals evolved the ability to count

Although researchers once thought that humans were the only species with a sense of quantity, studies since the mid-twentieth century have revealed that many animals share the ability. For instance, [fish, bees and newborn chicks](#) can instantly recognize quantities up to four, a skill known as subitizing.

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Six-month-old human infants also show a similar appreciation of quantity, even before they have had significant exposure to human culture or language.

What all of this suggests, says Andreas Nieder, a neuroscientist at the University of Tübingen, Germany, is that humans have an innate appreciation of numbers. That arose through evolutionary processes such as natural selection, he says.

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In societies with complex number systems, there were clues to how those systems developed. Significantly, [cognitive archaeologist Karenleigh] Overmann noted that it was common for these societies to use quinary (base 5), decimal or vigesimal (base 20) systems. This suggested to her that many number systems began with a finger-counting stage.

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The societies that moved beyond finger-counting did so, argues Overmann, because they developed a clearer social need for numbers. Perhaps most obviously, a society with more material possessions has a greater need to count (and to count much higher than 'four') to keep track of objects.

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