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News

## Aping around with numbers



[Chimps counting 1 to 9 – video from youtube](#)

A wise person once suggested that a monkey given a typewriter and an infinite amount of time could produce the complete works of William Shakespeare.

Literacy, it seems, is not a strength of our primate cousins. However, recent Japanese studies have shown that chimpanzees have extraordinary numeracy abilities, in many cases outstripping our own. Whilst this aptitude doesn't stretch to being able to do your calculus homework, it does suggest that chimps have evolved their mathematical abilities due to the environment in which they live.

Kyoto University cognitive scientist Tetsuro Matsuzawa conducted an experiment, recently published in *Current Biology*, in which he showed six chimpanzees a computer screen that flashed up numbers between 1 and 9. The chimps, three pairs of mothers and their infants, had been trained over a number of years to recognise Arabic numerals and the order in which they ascend see the *youtube* video on the right.

In Matsuzawa's test, the numbers flashed onto the screen and were then quickly replaced by white squares. The chimps were assessed on how quickly and accurately they could touch the squares in the order of the numbers they hid see this [video on youtube](#).

It was found that the chimp infants performed more quickly and with more accuracy than their mothers. The researchers believe that young chimps have a photographic memory that can allow them to memorise a complex scene very quickly. They even believe that human children may possess this ability, but that it declines with age.

More interestingly however, when the highest performing chimp Ayumu went head-to-head with nine university students who had had six months training in the game, the students were defeated hands down.

The difference was most notable when the numbers were flashed onto the screen for only two tenths of a second. Ayumu's success rate of ordering the numbers was 80% the same as it had been when the numbers were on the screen for 0.7 seconds. However, the students' success fell from 80% to 40%.

Matsuzawa would like to conduct further tests to determine how long the chimps remember numbers. At one stage mid-test after the numbers had already been covered on the screen, Ayumu was distracted for 10 seconds and turned from the screen. He was, however, able to resume the game correctly following the break suggesting that his memory of numbers lasts for at least 10 seconds see [video on youtube](#).

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The work suggests that chimps are better at memorising snapshot views of their surroundings. This could be vitally important in their search for food and evasion of predators. Humans may have lost this ability in exchange for the brainpower to understand language and complex symbols.

Marc West

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