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[1P137] A strategy to improve arithmetical performance in four day-old domestic chicks (Gallus gallus)

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Previous studies demonstrated that newly hatched domestic chicks reared with identical objects, when presented with objects disappearing one-by-one in separate locations, were able to compute the overall amount of objects present at each location as they successfully inspected the location concealing the larger set in the numerical comparisons 2 vs. 3 and 2 vs. 4. Here, we investigated the upper limits of this ability. Chicks were reared with 7 identical red objects and, on day 4 of life, they were tested with the comparison 3 vs. 4. In Experiment 1, when the objects were presented and hidden one-by-one, chicks could not discriminate among the two locations ($M = 55.000$; $SEM = 2.500$; $p = 0.856$; $t(7) = 2.000$). In Experiment 2, when objects were presented and hidden as chunked into $(2 + 1)$ vs. $(2 + 2)$ units, chicks succeeded in discriminating and inspected the location hiding the larger group ($M = 72.000$; $SEM = 7.010$; $p = 0.014$; $t(7) = 3.210$), i.e. the four objects. Overall these data suggest that presentation modality

significantly affects the performance and confirm that a mechanism such as chunking can improve mathematical performance in an animal model.