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*Think Outside The Box*

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## Animal Intelligence and Learning

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For many years, people assumed that most animals were incapable of developing language and communication skills or tool usage. They were believed to not be intelligent enough to accomplish these things.

Then studies such as those with Koko the gorilla came along and demonstrated that apes could learn to communicate with people through sign language and later using lexigram programs on computers. Apes are the closest living relatives to humans so this was still not that surprising.

Then studies showing that other animals could learn to understand people with a vocabulary of thousands of words. They could clearly indicate an understanding of shape, size and color.

Some studies have even shown the ability in some primate species to understand the concept of money.

The banner features the Explorable logo at the top center, with the text "EXPLORABLE" in white and "Quiz Time!" in a white script font below it. Below the logo are three quiz cards, each with a white border and a white background. The first card shows a pair of red roller skates on a wooden deck and is titled "Quiz: Psychology 101 Part 2". The second card shows a fan of colorful pencils and is also titled "Quiz: Psychology 101 Part 2". The third card shows a Ferris wheel at sunset and is titled "Quiz: Flags in Europe". To the right of the cards is a white button with the text "See all quizzes =>" in orange.

## Tool Usage

The relationship between tool usage and intelligence is no longer as clear cut as it once was. The usage of tools seems to be an instinctive behavior in some species.

Others, such as crows and chimpanzees have demonstrated an ability to make their own

tools, rather than just using something that is lying around such as a rock. The latter is much more likely to be related to intelligence.

Both crows and chimps have also demonstrated problem solving skills that require a more sophisticated understanding of concepts like displacement than would be expected of an animal of lower intelligence.

## Vocabulary

That some bird species could be taught to talk has been known for a long time. Most assumed it was a case of mimicking the person speaking to them, rather than truly mastering a vocabulary and being able to use it.

Then in the late 1970s, Dr Irene Pepperberg demonstrated that rudimentary speech and communication with an African gray parrot, known as Alex, was possible. Alex was capable to identifying objects, answering questions, displaying a firm understanding and ability to recognize and identify differences between objects including a lack of difference.

Then along came Chaser, the border collie, who has a vocabulary of over 1000 words but they are all verbs and nouns. The question was raised if it was simply a matter of brute repetition teaching the word association, or was there real communication occurring.

At the same time, was the ability unusual and unique to a few individuals or something that they were all capable of but humanity had never explored? It is further complicated by the fact that humans and dogs have evolved together for thousands of years.

People may be most closely related to apes but studies have shown that dogs have a better ability to understand the most minor facial expressions and gestures made by a person. Are they just reading body language?

Studies of intelligence in dogs have become an area of high interest in recent years as scientists continue to probe humanity's longest relationship with any animal.

## So Which Species Are Considered The Most Intelligent?

Most scientists will readily point to elephants, cetaceans (dolphins and whales), apes, crows and some other bird species such as parrots.

More debatable but still being considered are pigs, dogs, cats, cephalopods (squid and octopi), and some rodents.

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