

# How Smart Are Animals?

## Comparing Wolves and Dogs

1 While directly studying the intelligence of wolves in the wild is impractical, captive animals provide a source of information about the wolf's ability to think, plan, and form mental images. Harry Frank of the University of Michigan and his colleagues used four captive wolf pups in some interesting experiments. One set of studies involved puzzle boxes that had to be solved in order to get food. The first test was relatively easy. The food dish was placed inside an open-ended box that was covered by wire mesh. Two wooden blocks were behind the dish so that a quarter of the dish stuck out from the opening. All the animal had to do was to pull the dish out with a paw to get at the food. All four pups were successful.

2 On the second day, the wolves were given two tests. In the first, one of the blocks was turned sideways so that the front of the food dish was about even with the front of the box. Three of the pups figured out how to pull out the dish this time. The other test was much trickier. The food was hidden behind a swinging gate. When the wolf pulled at the edge of the gate, the food dish swung out lazy-Susan style. Again, three of the pups solved the puzzle. The third day, just one block was put behind the dish inside the box and a wooden dowel was attached to the front of the dish by a rope. The wolf had to pull on the dowel to remove the dish from the box. The animals were given two trials. The first time, all four pups solved the puzzle. The second time, three did.

3 The dish was moved farther back in the box on the fourth day so that the pup had to pull the dowel farther to get the food. Again, three pups were successful. On the fifth and

last day, the animals were presented with two new puzzles. In the first, the dish was inside a box turned against the wall. The box had to be pulled away from the wall to get at the food; three wolves succeeded here. The most difficult puzzle was saved for last. The dish was inside the box, but no string was attached. Instead, a plunger at the back of the box could be pressed to push the dish out. Only one wolf solved that problem.

4 Perhaps the most interesting thing about these experiments is the way the wolf pups solved the problems. In several cases, the wolves came up with the correct solution right off the bat, with no trial-and-error attempts. And once a wolf had figured out a string-and-dowel problem, it solved each variation that came up, indicating that the animals understood the basic principle of pulling on the dowel to get the food.

5 By studying the problems first just by looking at the setup and then successfully carrying out the correct manipulations, the wolves indicated that they were probably visualizing the solution first and then carrying it out. Psychologists regard this ability to visualize solutions as an early step in true representational thought. A lot of mental sophistication went into solving these problems by the wolf pups. They combined their awareness of hunger with past experiences in obtaining food and with an understanding of the relationships of physical objects. They understood how their actions could affect their environment to accomplish important goals like obtaining food.

6 Harry Frank also tested four dog puppies in the same experiments. The dogs did very poorly compared to the wolves. Wolves are the major ancestor of the dog (the

jackal may be another), but dogs have been selected by humans for at least 10,000 years for traits that make them good coworkers and companions for people. While wolves and dogs have much in common, the basic nature of the dog differs greatly from that of the wolf because of its history. The feeding-dish experiments show this difference clearly. The wolf pups studied the problems and solved them on their own. The dog puppies, on the other hand, were likely to be curious until they realized that the food wouldn't be easy to get. Then they would go over to the human investigator and beg. When that didn't work, the pup would just give up and wait until the

two-minute time for the experiment was over. Then the experimenter would get the food and show the pup how to solve the puzzle.

7 The results of these experiments might at first make dogs look dumb compared to the wolves. Only one dog solved the problem on the third day, and two did so on the fourth. No dog solved either puzzle on the fifth day. But the dogs really weren't being stupid—they were just being dogs. One trait humans have selected in dogs is attentiveness toward and dependence on humans. No wonder the dogs exerted little mental effort and expected the human to get the food for them!

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