



# SCIENCE DOGS



by Meish Goldish

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# Memory Champ

A black-and-white border collie named Chaser sat in front of a huge pile of toys. There were more than a thousand of them. Chaser's owner, Dr. John Pilley, had spent three years trying to teach his dog the names of all the toys. Now he was ready to see if Chaser could actually remember them all.

Chaser learned the names of more than 1,000 stuffed animals, balls, and Frisbees.



# Names and Actions


As Dr. Pilley taught Chaser new words, he wondered how the dog's mind worked. For example, when he said, "Fetch doll," did Chaser think the word *fetch* was part of the doll's name? Or did she understand that *fetch* was an action that she was supposed to do?

Chaser with  
a stuffed animal



To find the answer, Dr. Pilley taught Chaser two more action words: *paw* and *nose*. Then he told her to “Paw doll.” Chaser moved the doll with her paw, but she didn’t fetch it. When Dr. Pilley said, “Nose doll,” the dog simply touched the toy with her nose. Chaser showed that she understood the difference between objects and actions, just as children do!

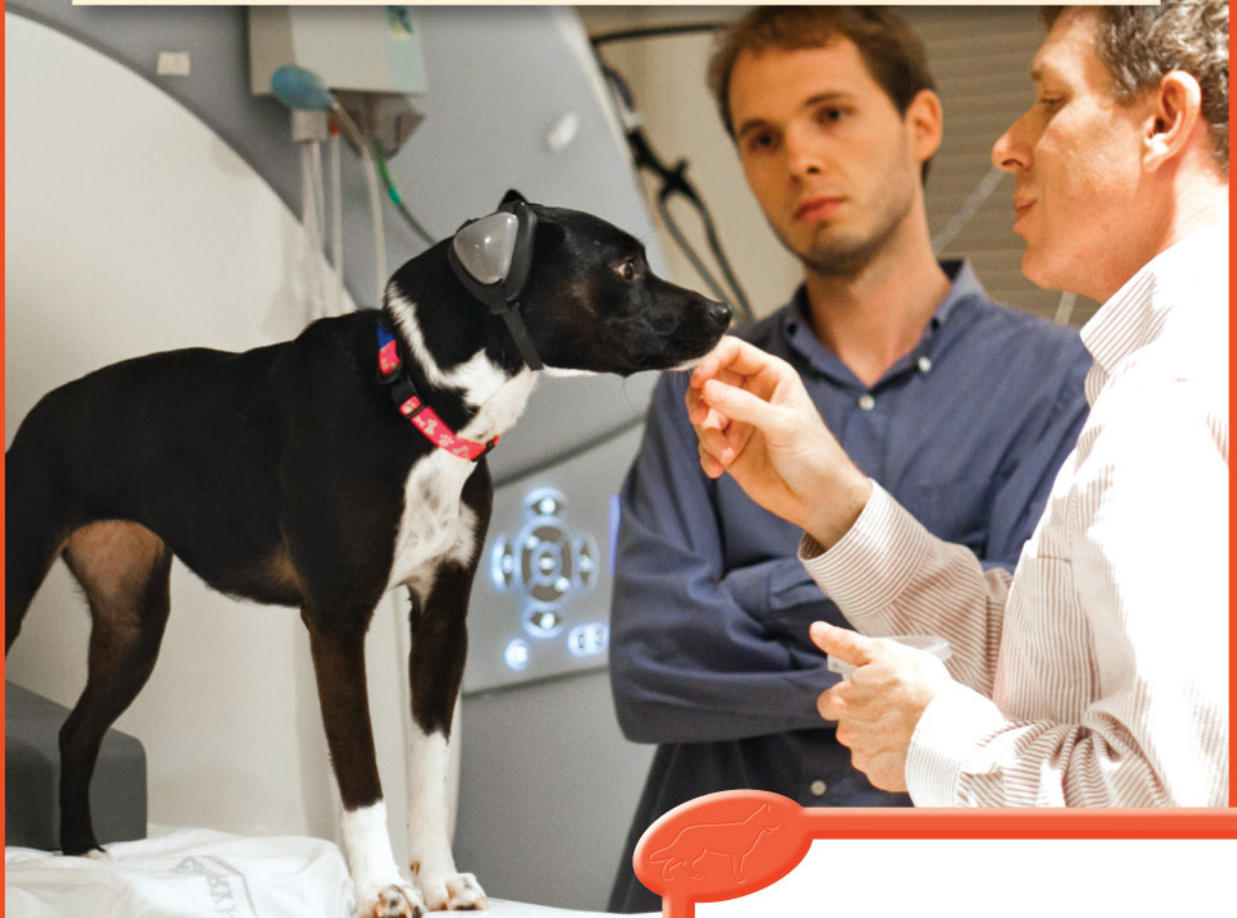
Chaser fetching  
a tennis ball

A photograph of a white dog with black spots, identified as Chaser, running on a green lawn. The dog is holding a yellow tennis ball in its mouth. The dog's tail is raised and slightly curved. The background is a blurred green lawn.

**Chaser’s ability to understand more than 1,000 words is similar to that of a three-year-old child.**

# Picture This

Dr. Pilley isn't the only scientist who studies how dogs' minds work. In 2012, **researchers** at Emory University in Georgia planned to use an fMRI machine to **scan** a dog's brain. They wanted to see how dogs' brains react when people give them certain signals. Dr. Gregory Berns headed the research team. He chose his own dog, Callie, for the test.



Dr. Gregory Berns (right) from Emory University with his dog, Callie, next to an fMRI machine

**FMRI stands for "Functional Magnetic Resonance Imaging." The fMRI machine is a long tube that uses magnets to take videos of what's inside a body.**

To prepare her for the **experiment**, Dr. Berns taught Callie two special hand signals. One signal meant she would get a tasty treat, while the other meant she would not. He also trained Callie to sit perfectly still for ten minutes. Why? For the fMRI to take clear videos of the dog's brain, Callie could not move inside the machine.



Callie learned to sit still inside this model of an fMRI machine.

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