

I always thought dogs were color blind but recently heard that might not be true. Can they see colors?

Dogs and humans differ in their visual abilities in many ways, color vision being one of them. Dogs can actually see some colors, but not the full spectrum of the rainbow as humans with full color vision can. In the back of the eye, the light sensitive nerve center is called the retina. In it are specialized cells, rods and cones, that transmit information entering the eye to the brain. Rods are important for detecting light and dark, as well as shape and motion of objects. Dogs and cats have a lot more rods in their retinas than humans do. They have 5 to 7 times the light sensitivity of humans due to the number of rods, a larger pupil and the presence of a tapetum (a special area that acts like a mirror to intensify the light) in their retina. Those differences help them see much better than us in the dark, being able to see in 1/6 the amount of light we would need.

Cones are special photoreceptors that send visual information to the brain regarding color and fine detail, but require bright light. Humans have more cones in their retinas than dogs and have three types of cones, while dogs have only two. Whereas a normal human has visual acuity of 20/20, a typical dog is estimated to have acuity of 20/75, meaning a dog would need to be 20 feet away from an object that a person with normal vision could see clearly at 75 feet. Some breeds such as Labrador retrievers have visual acuity closer to a person's which makes them a good choice as a guide dog. A cat's visual acuity is only in the range of 20/100 to 20/200.

As for color recognition, dogs are lacking the "red" cones so they are similar to red-green color blind people. Laboratory tests done with dogs having them select among a choice of three colored bars showed that they can see yellow, blue and many shades of gray. Scientists believe red and orange are seen as shades of yellow, and green and violet are seen as shades of blue to gray or black. This means it might be easier for your dog to find a yellow ball in the grass than a blue one. Agility activity equipment for dogs is often painted blue and yellow to make the obstacles more visible. Guide dogs are trained to differentiate traffic lights by location rather than red/yellow/green.

There is an interesting website, dog-vision.com that gives an idea of what you are seeing vs. how your dog might see it.

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