

Do Cats See Color?

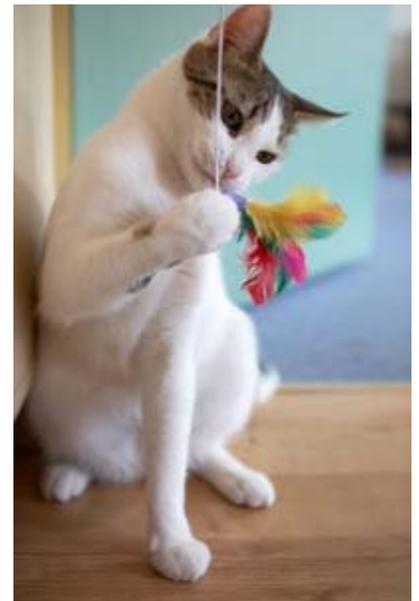
By Lynn Buzhardt, DVM Characteristics

When you look at a rainbow in the sky, you see shades of red, orange, yellow, green, blue, indigo, and violet. Do you ever wonder what your cat sees when he looks at a rainbow? Can your feline friend distinguish the same range of color that you do? Does he see bands of black and white? Do the colors look blurred?

How cats see color is a long-standing topic of research and the results are pretty amazing. While cats can't appreciate all the colors that humans do, their world is not entirely black and white. In fact, cats live in a pretty colorful world.

What makes a color so "colorful?"

Color is discerned by the nerve cells in the eye. The retina of the eye has two main types of cells--rods and cones. The ability to differentiate colors is determined by the presence of the special color sensitive cells called "cones." Human and feline eyes have three types of cones that can identify combinations of red, blue, and green. But because humans have 10 times more cones than cats do, they appreciate more color variations. In scientific observations, cats don't appear to perceive the full range of colors that humans can. Some scientists believe that cats see only blue and gray, while others think they see also see yellow like their canine counterparts.



Just as cones are responsible for distinguishing colors, rods have a special job to do as well. Rods detect light levels and motion. Cats have more rods than humans do, giving them the edge when it comes to seeing in low light or identifying moving objects.

How does a cat's vision compare to human vision?

Just because cats don't appreciate the entire spectrum of color that humans do, that doesn't mean they don't perceive different colors. They just may not see the "true" color of an object. They are also less sensitive to changes in brightness, so they don't have the ability to perceive color in the rich, vibrant tones that we do.

In addition to color perception, felines and humans have other visual differences. In some respects, feline vision is not as acute as human vision. Cats are more near-sighted than we are. When

looking at an object from the same distance, the object may appear crisp to us, but blurred to our cats. For example, if a human sees an object clearly from a distance of 100 feet, it will appear blurry to a cat. In fact, the object will not appear sharp until the cat is much closer to it, about 20 feet away.

What are other visual differences between cats and people?

To compensate for these minor deficiencies felines have other visual advantages. Cats have eyes that are set more on the sides of the head, which allows them a broader range of peripheral vision than we have. The trade-off is a smaller range of visual acuity so cats don't have the depth perception that we do.

Also, cats have elliptical pupils that dilate to the max, allowing them to capture as much light as possible. They also have reflective cells under the retina which form the tapetum. The tapetum gives cats the "shiny eye" appearance and also improves their ability to see in dim light.

"When compared to humans, cats see better in dim light (dusk and dawn) and more accurately detect motion."

Cats also have more rod cells in the retina than their human friends. Rods are responsible for detecting motion, even small movements at great distances. So, when compared to humans, cats see better in dim light (dusk and dawn) and more accurately detect motion.

Why do cats see what they see?

Cats are equipped with the visual accommodations that allow them to survive and thrive in the wild. Seeing well in dim light and picking up slight movements in the forest at great distances improve the cat's hunting ability. These assets also help a cat know when HE is the prey and needs to flee.

Knowing how and what your cat can see will help you make good choices for her. For example, you should keep your cat's color range in mind when shopping for toys. He will enjoy yellow and blue toys more than red ones. And you'll understand why he suddenly becomes alert while sitting on the windowsill as he hones in on a bird flying 50 yards away. You'll also know that to get his complete attention, you should stand directly in front of him where his range of visual acuity is greatest.

"Your cat will enjoy yellow and blue toys more than red ones."

And the next time you are lucky enough to be graced with a rainbow in the sky, rest assured that your cat can enjoy it, too. He won't see ALL the colors of the rainbow, but he may see a bit of yellow and blue. And that'll be just fine for him!

This client information sheet is based on material written by: Lynn Buzhardt, DVM

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