

What do dogs and cats see?

Dogs and cats view the world differently than humans due to a variety of differences in the anatomy and physiology of their eyes. Whereas human vision is highly specialized to distinguish colors and detail, our pets' vision is more fine-tuned to detect motion as well as function in lower light conditions. This is a reflection of the requirements of daily life in each species.

Color vision:

Dogs do have some degree of color vision. However, they do not experience the wide range of colors appreciated by humans, other primates and birds. Based on the composition of their retinal cells, it is thought that dogs most likely see 'colors' with a palette of made up of different shades of blue and yellow. Objects that we would view as red or green are seen as varying shades of gray. Cats also have the capacity for limited color vision. Despite this lack of a complete color palette, pets are able to detect subtle difference in shades of gray that would be indistinguishable to their owners.

Night vision:

Enhanced night vision is due to special adaptive features of our pets' eyes. One of these is a structure called the tapetum lucidum. This is a layer of reflective tissue at the back of the eye that results in the 'eye shine' you may have observed if you've ever seen your dogs eyes in a photograph or in the beam of a flashlight at night. Light is reflected internally within the eye and therefore used more efficiently. Also, due to the arrangement of synapses within the retina, a smaller amount of light is required to generate an electrical signal to the brain. This type of arrangement means that the retinas are much more sensitive to available light. However, there is a trade-off. The same features that allow better vision in dim light result worsened visual acuity, producing a more 'grainy' image with poorer detail.

Visual Acuity:

If normal human vision is 20/20, then the average dog is approximately 20/75. This means that details of an object large enough for a normal dog to be able to identify from 20 feet away would be visible to a normal human from 75 feet away. Cats have even better night vision than dogs and therefore worse visual acuity at approximately 20/150!