

Glossary

aberration failure of rays to converge at one focus because of limitations or defects in a lens or mirror

accommodation the ability of the eye to adjust its focal length is known as accommodation

adaptive optics optical technology in which computers adjust the lenses and mirrors in a device to correct for image distortions

angular magnification a ratio related to the focal lengths of the objective and eyepiece and given as $M = -\frac{f_o}{f_e}$

astigmatism the result of an inability of the cornea to properly focus an image onto the retina

color constancy a part of the visual perception system that allows people to perceive color in a variety of conditions and to see some consistency in the color

compound microscope a microscope constructed from two convex lenses, the first serving as the ocular lens(close to the eye) and the second serving as the objective lens

eyepiece the lens or combination of lenses in an optical instrument nearest to the eye of the observer

far point the object point imaged by the eye onto the retina in an unaccommodated eye

farsightedness another term for hyperopia, the condition of an eye where incoming rays of light reach the retina before they converge into a focused image

hues identity of a color as it relates specifically to the spectrum

hyperopia the condition of an eye where incoming rays of light reach the retina before they converge into a focused image

laser vision correction a medical procedure used to correct astigmatism and eyesight deficiencies such as myopia and hyperopia

myopia a visual defect in which distant objects appear blurred because their images are focused in front of the retina rather than being focused on the retina

near point the point nearest the eye at which an object is accurately focused on the retina at full accommodation

nearsightedness another term for myopia, a visual defect in which distant objects appear blurred because their images are focused in front of the retina rather than being focused on the retina

numerical aperture a number or measure that expresses the ability of a lens to resolve fine detail in an object being observed. Derived by mathematical formula $NA = n \sin \alpha$,

where n is the refractive index of the medium between the lens and the specimen and $\alpha = \theta/2$

objective lens the lens nearest to the object being examined

presbyopia a condition in which the lens of the eye becomes progressively unable to focus on objects close to the viewer

retinex a theory proposed to explain color and brightness perception and constancies; is a combination of the words retina and cortex, which are the two areas responsible for the processing of visual information

retinex theory of color vision the ability to perceive color in an ambient-colored environment

rods and cones two types of photoreceptors in the human retina; rods are responsible for vision at low light levels, while cones are active at higher light levels

simplified theory of color vision a theory that states that there are three primary colors, which correspond to the three types of cones