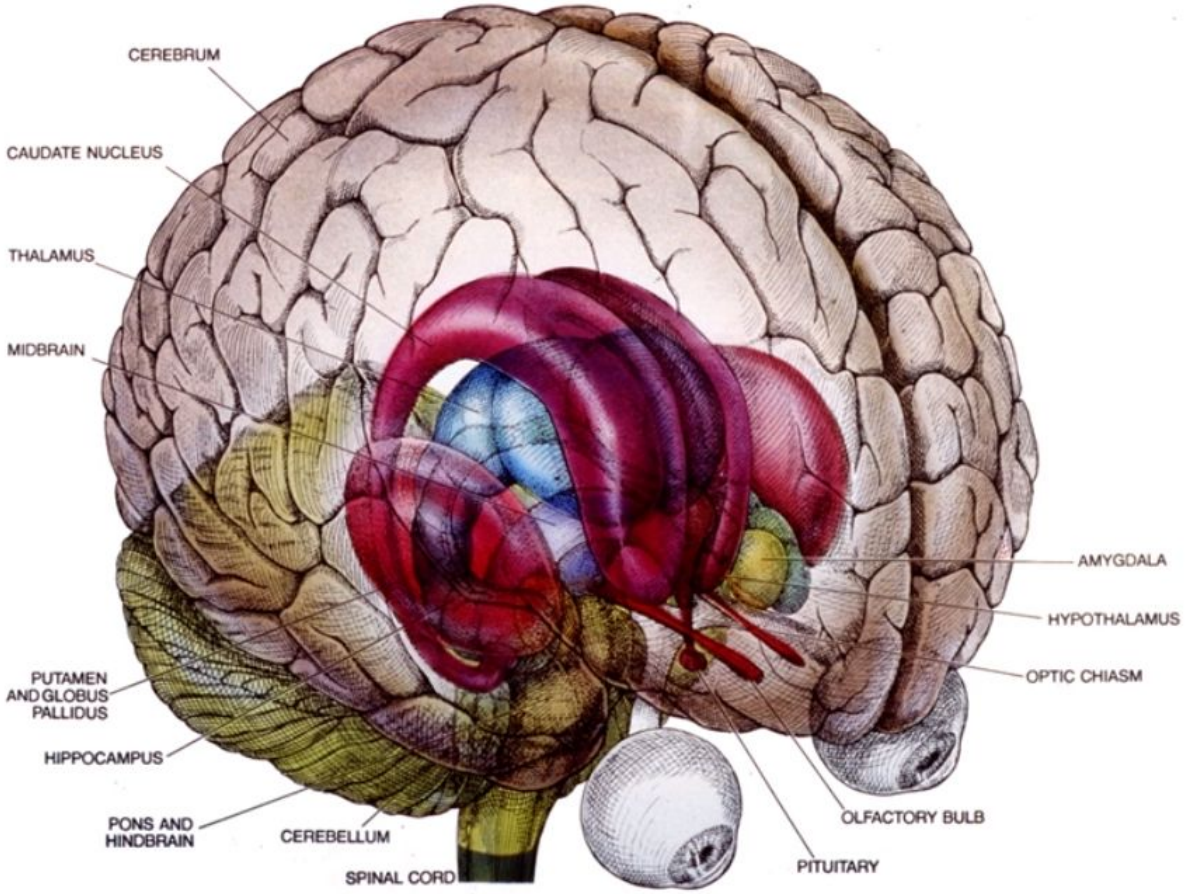
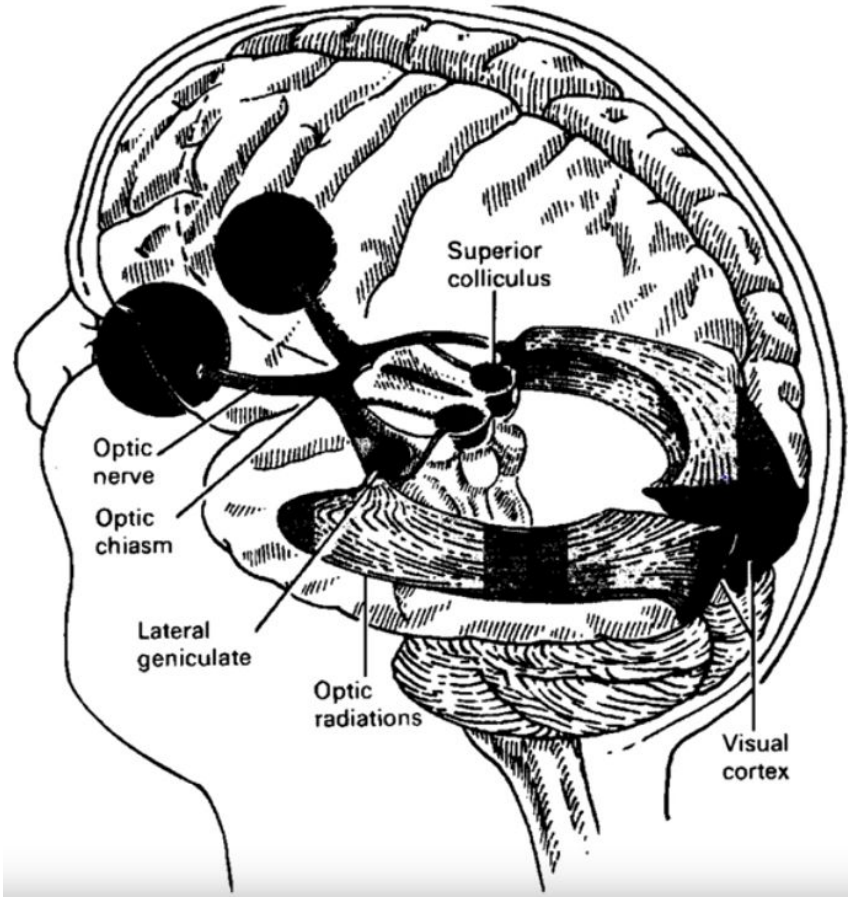
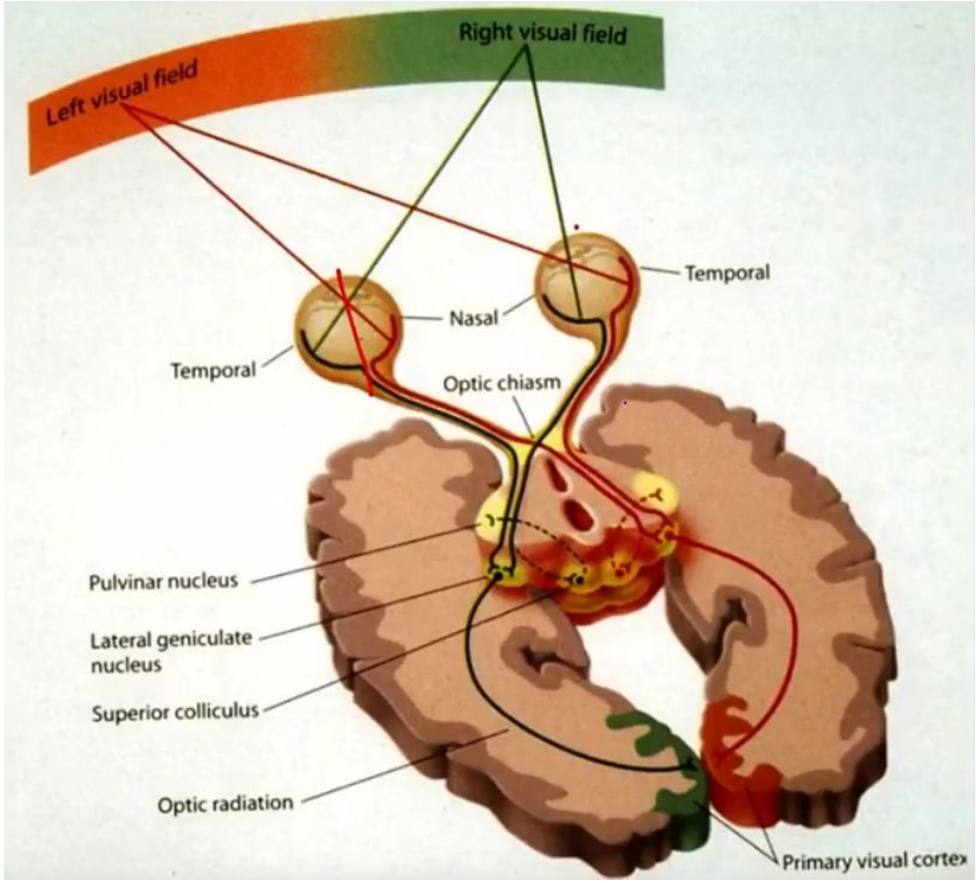
İnsan Görme Sistemi

Görme sistemi



Görme sistemi



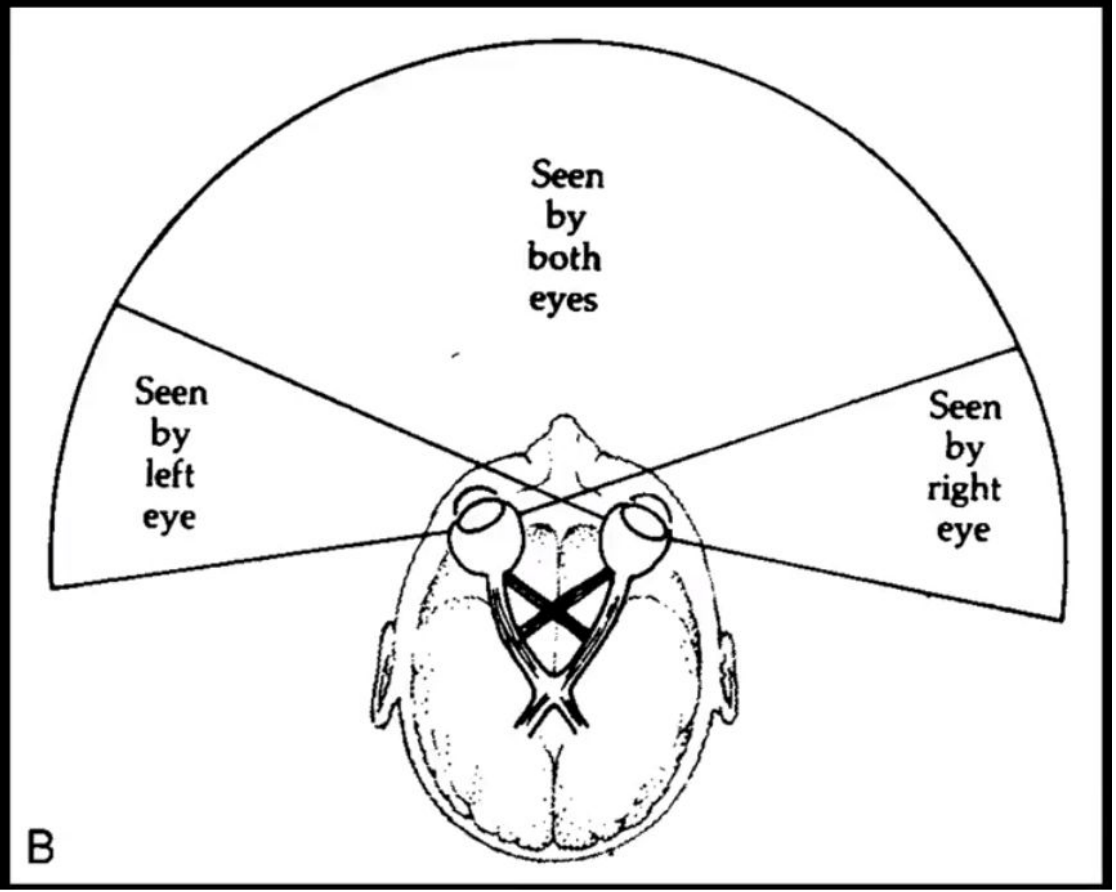


Görüş alanı

Monocular Visual Field:
each eye 160° (h)

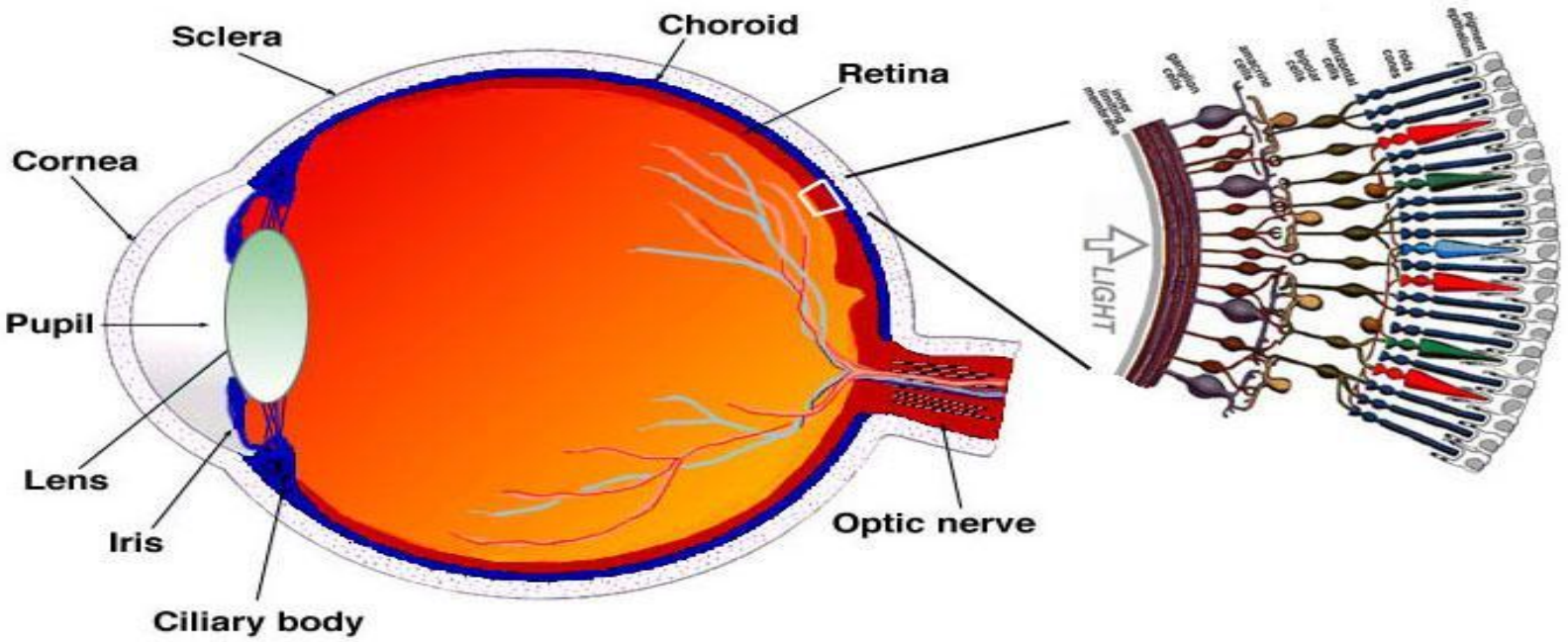
Binocular Visual Field:
120° (h)

Total Visual Field:
200° (h) x 135°(v)



Göz

Diagram from http://webvision.med.utah.edu/



20 mm çap,

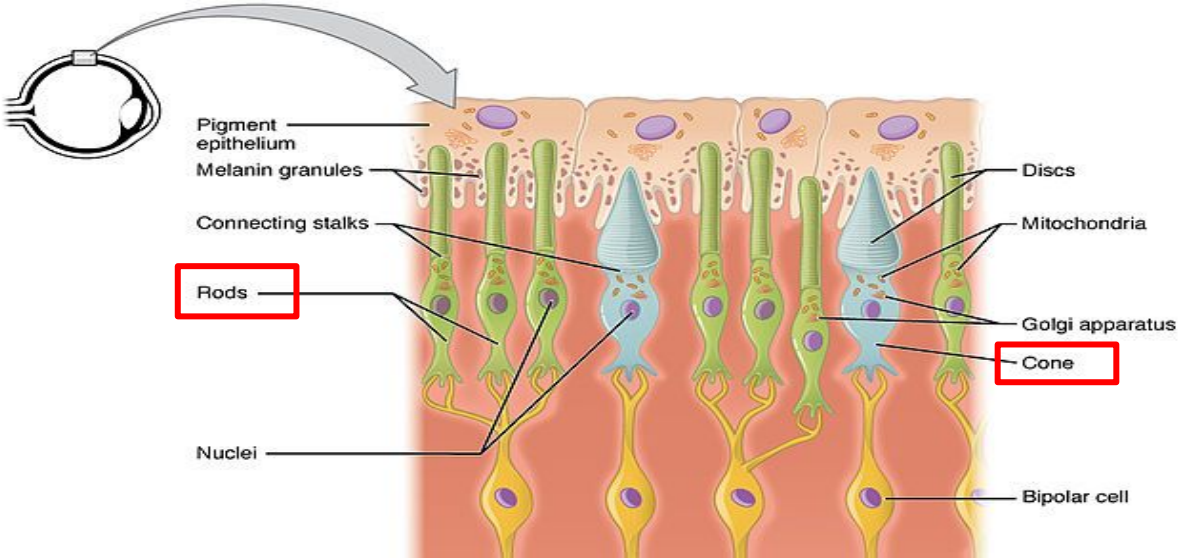
Lens: *%70 su, sarı renkli (sarı yoğunluğu yaşa göre artar), aşırı bulutlanmada katarak ortaya çıkar, görülen ışığın %8 ini, küçük dalga boylarını, infrared ve ultravioleyi emer.*

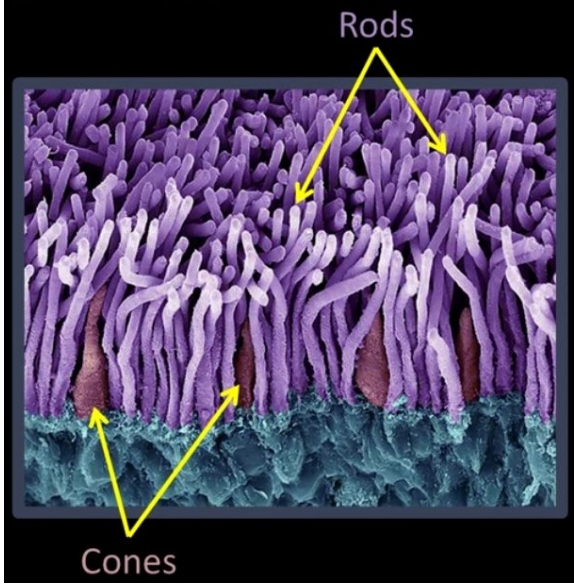
Cornea, Sclera : *Dış zar*

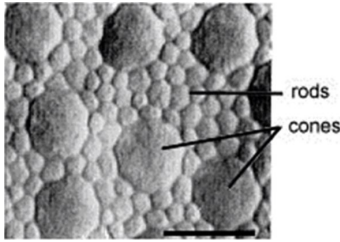
Retina: *İç zar. Nesne görüntüsü, retina üzerine serpiştirilmiş algılayıcılar (rods, cons) üzerinde oluşur.*

Choroid: *Gözü besleyen kan damar ağı.*

Rods & Cones : Işık algılayıcıları







Photon: Temel ışık parçacığıdır. Elektromanyetik taşıyıcıdır.

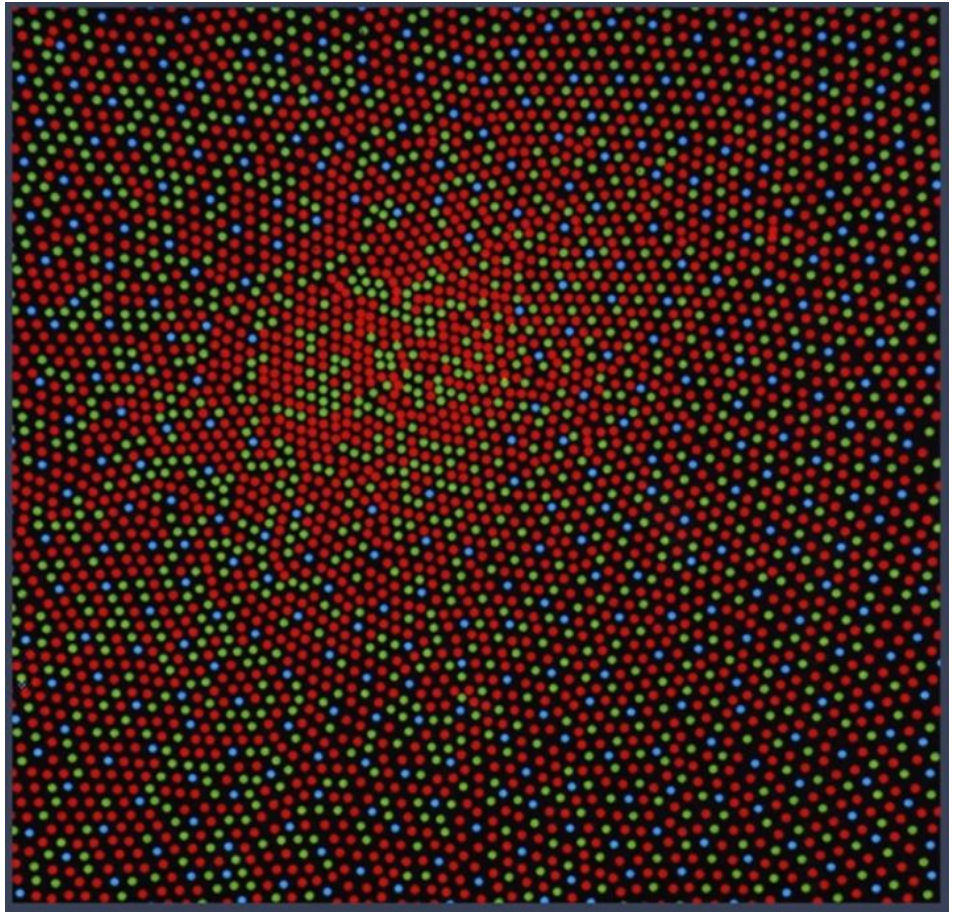
Rods

Retinada 120 milyon bulunur.
Gece görüşü neredeyse tamamen rod ile gerçekleşir.
Işık hassasiyeti Con'dan 1000kat fazla.
Renk algılamasına sahip değildir.
Nesne geometrisinin algılanmasını sağlar.

Cones

Retinada 6-7 milyon bulunur.
Yüksek çözünürlüklü renk algısını sağlar.
Üç tip renk sensörü vardır (%65Red, %33Green, %2Blue)
Her bir Cone sinir hücresine direk bağlıyken, rodelar gruplar halinde bağlanır.

Cone alanından bir görüntü



- Yaklaşık %65'i kırmızı, %33ü yeşil, %2 mavi renk algılayıcıya sahiptir.
- **Mavi** algılayıcının sayısı az olmasına karşılık, duyarlılığı **en yüksektir**.

Palmiye ağacına bakan bir göz

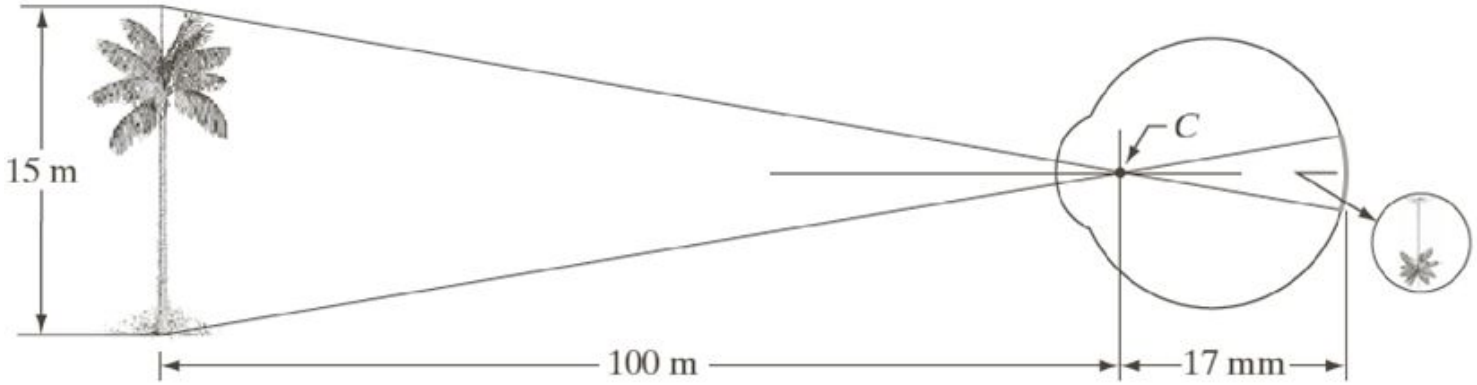


FIGURE 2.3
Graphical representation of the eye looking at a palm tree. Point *C* is the optical center of the lens.

Renk değişiminin algılanması

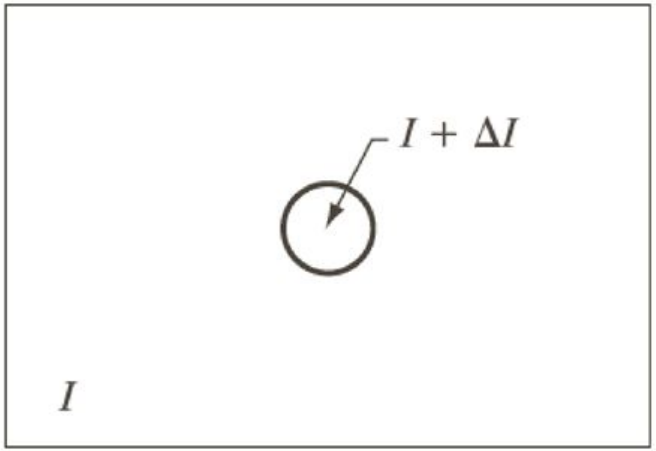


FIGURE 2.5 Basic experimental setup used to characterize brightness discrimination.

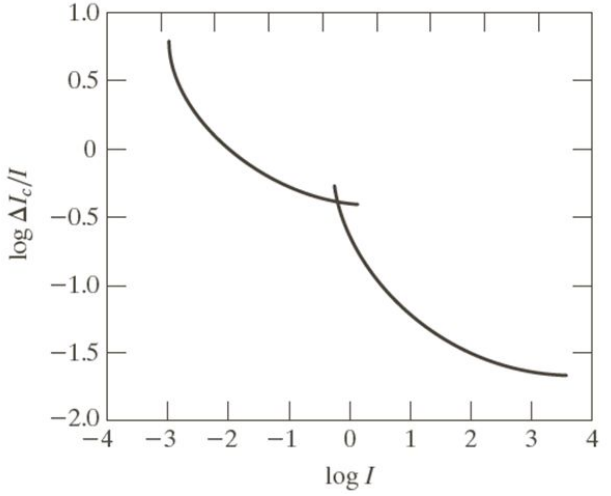
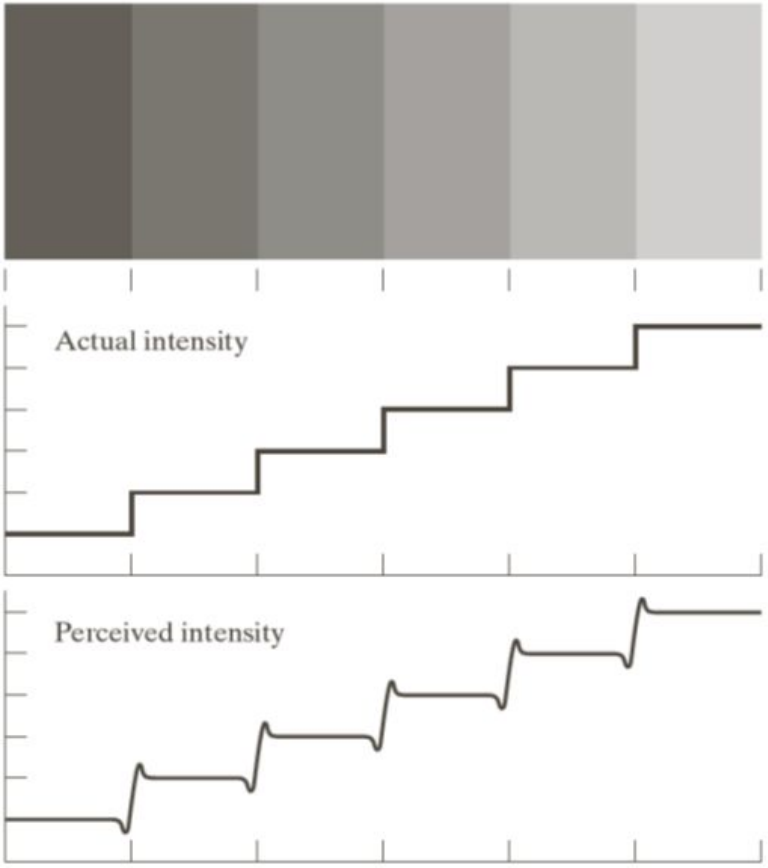


FIGURE 2.6 Typical Weber ratio as a function of intensity.

Parlaklık değişiminin zihindeki etkisi



Algıda yanılma

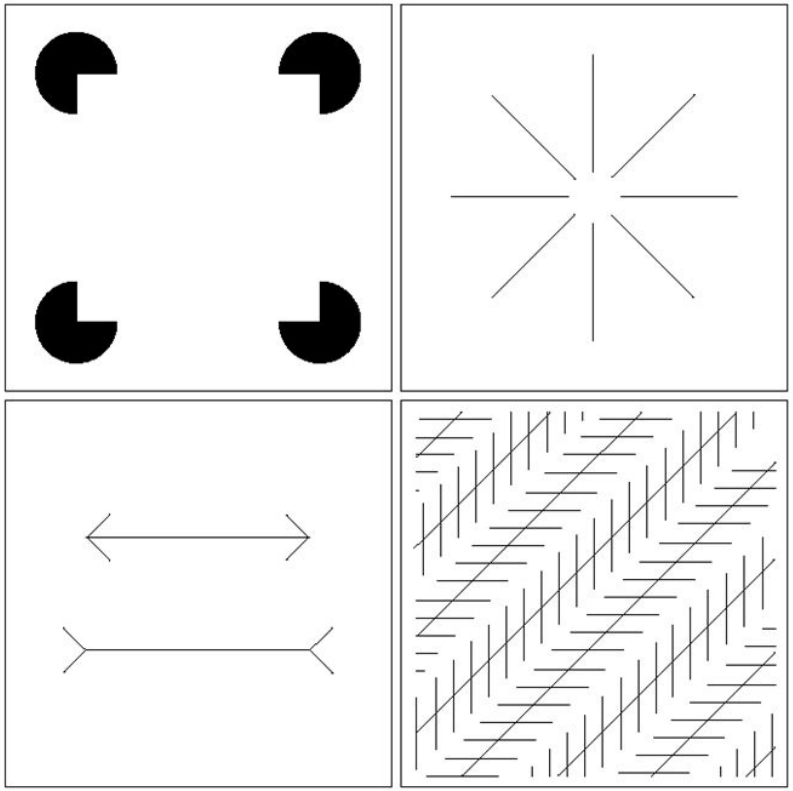
a b c

FIGURE 2.8 Examples of simultaneous contrast. All the inner squares have the same intensity, but they appear progressively darker as the background becomes lighter.

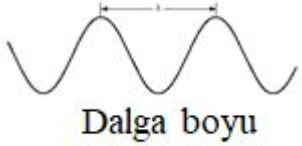
Algıda yanılma

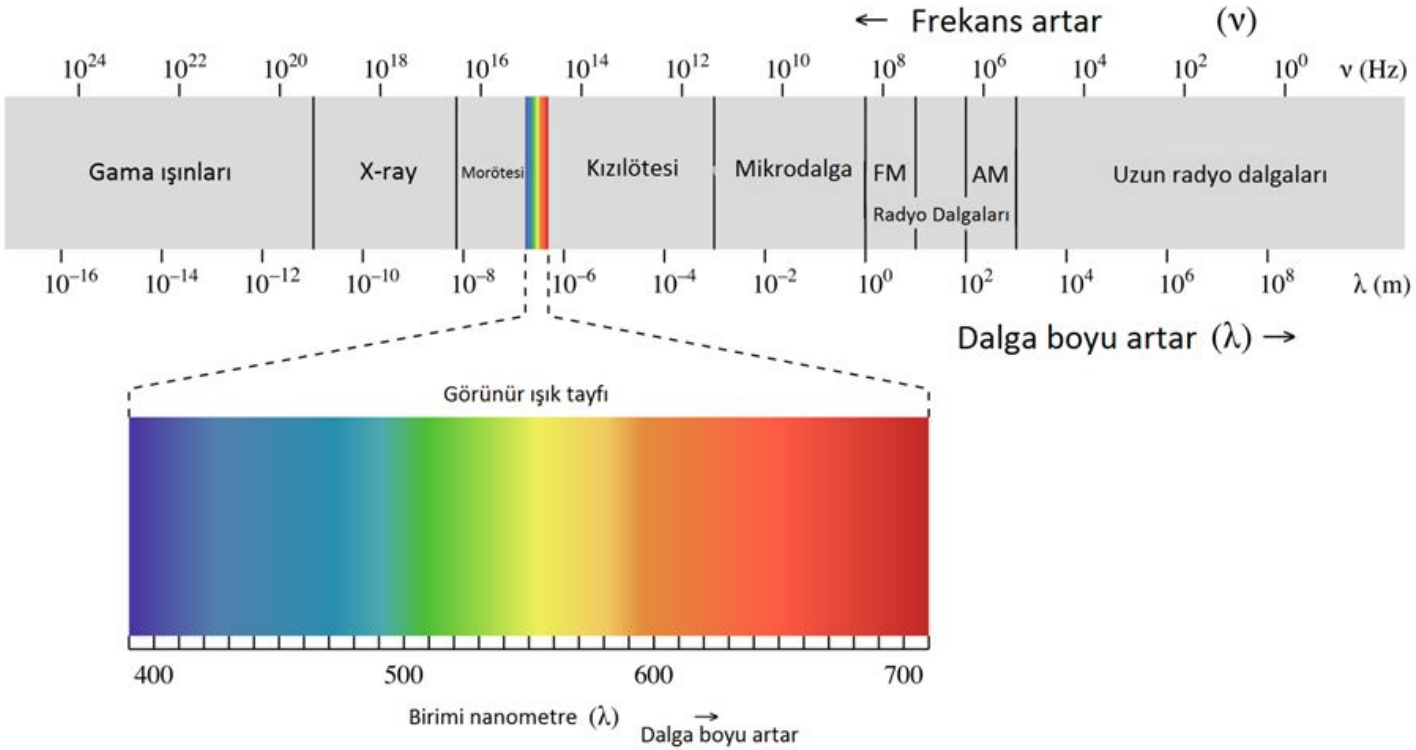
a b
c d

FIGURE 2.9 Some well-known optical illusions.

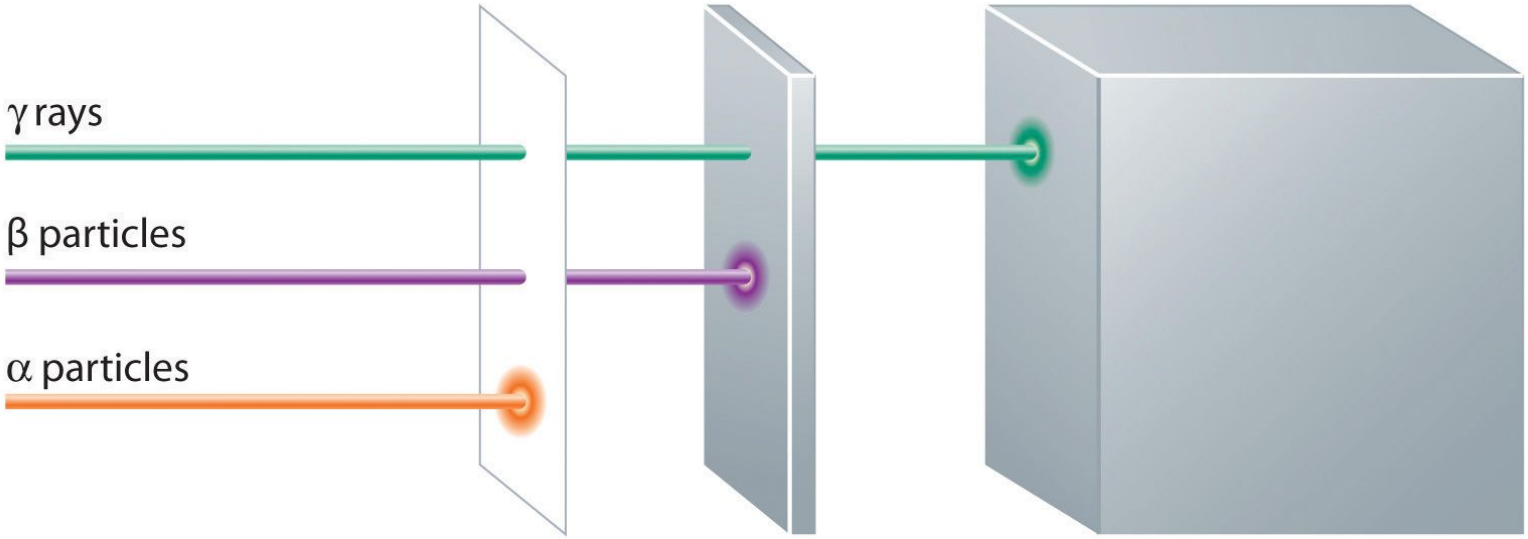


Görünür ışık aralığı

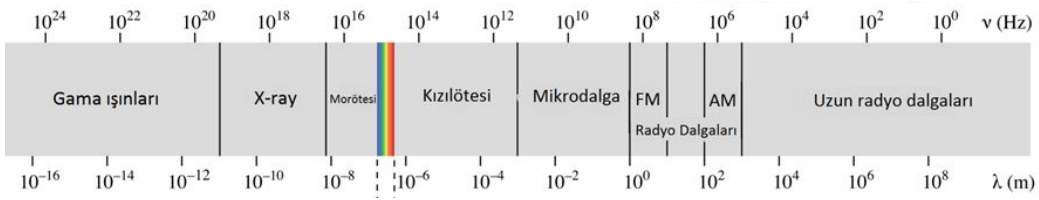




Işığın yayılması

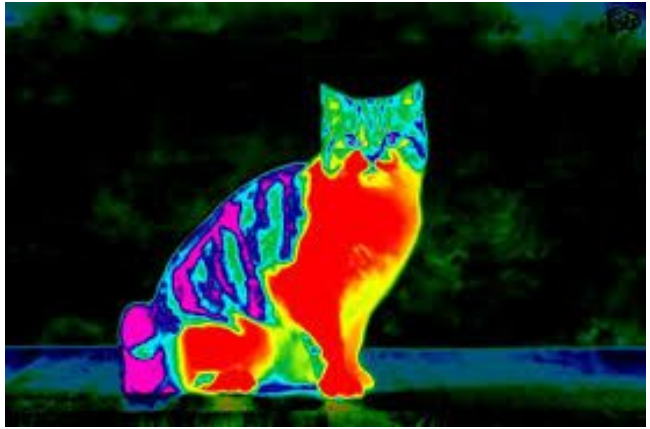


Görüntüler



X-ray

Kızılötesi (Infrared)



Gama