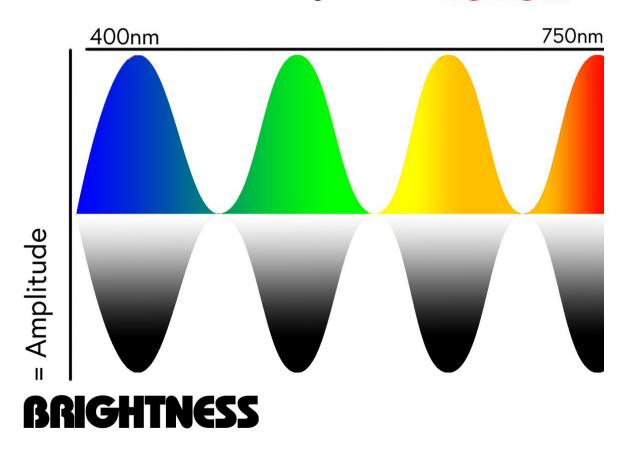


The cones that we find in the retina, specifically in the macula, are the responsible ones for our perception of color. We have three different kinds of rods; red, green and blue. The rest of the colors we perceive are just a combination of these primary hues and shades.

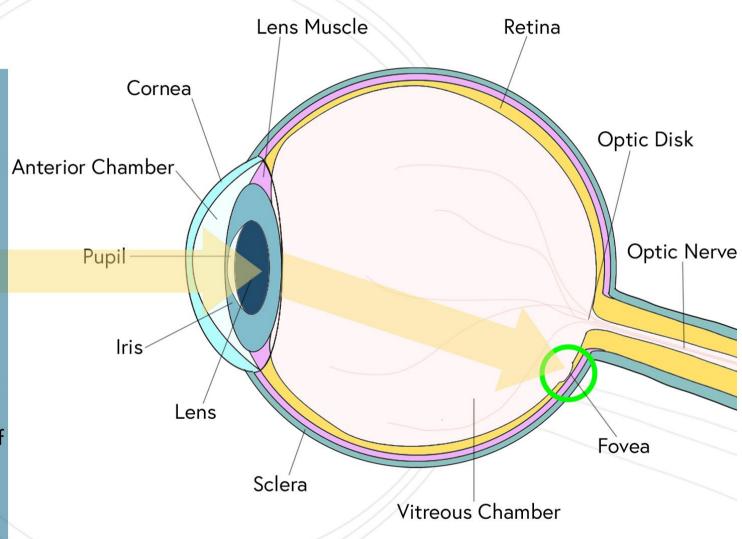
- •From the electromagentic field, we are just able to see waves between 400nm.
- •The length of the wave is what determines its hue, the shortest being blue and the longest being red.
- •The amplitude is what determines the brightness, the higher the brighter and the lowest the dimmer.

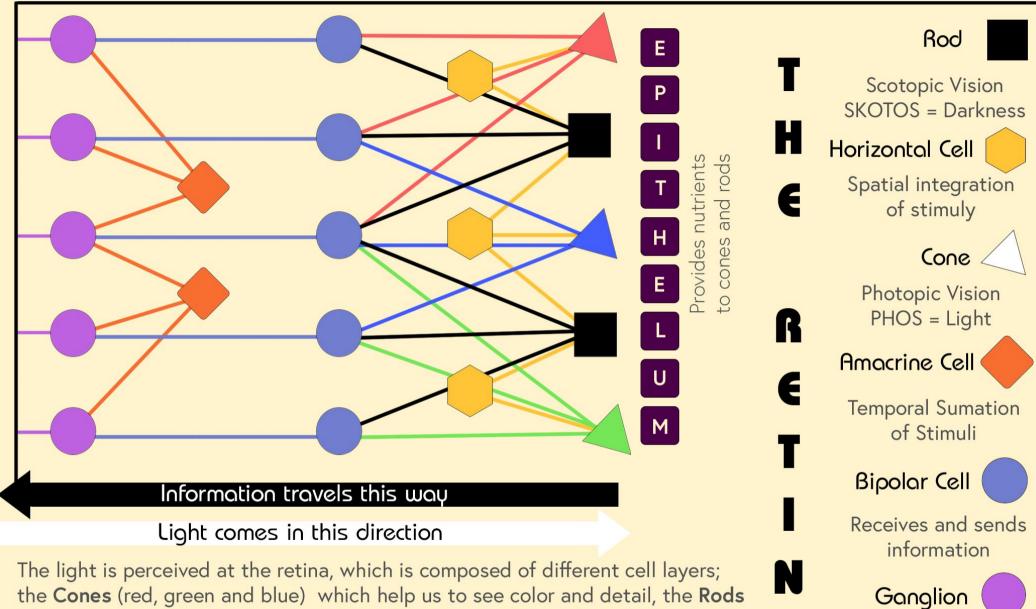
# Longitude = COLOR



# THE EYE

Light impacts the Cornea, getting through the **Anterior** Chamber which contains the Aqueous Humor; a liquid that nourishes the Cornea and the Lens. Once light passes through the lens, it gets reflected upside-down through the process known as Accomodation. Then, light travels across the Vitreous Chamber which contains the Vitreous Humor to finally end at the Retina; the area of the eye that contains a network of photoreceptors and interneurons responsible for sensing light.





which help us see in dim light, **Bipolar cells** which receive and send information from the outer to the inner eye, **Horizontal cells** which integrate the in/out centered stimuli, the **Amacrine cells** which sum stimuly from Bipolar cells and finally send this one to the **Ganglion cells**, which is the final sum beforebeing sent to the brain for further processing.

Sensory output; sends information to the brain

The rod contains multiple layers composed of Rhodopsin with "Cyclic Guanosine Monophosphate" cGMP, floating in the gaps.



### Rhodopsin

Rhodopsin Molecules contain CIS-11, a particle that is sensible to light



Light

#### **All-trans Retinal**

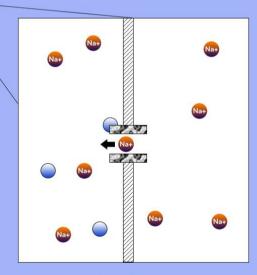
Light produces enoguh energy on CIS-11, stretching it and converting it into All-trans Retinal, a particle that interacts with cGMP.



cGMP gets converted to GMP

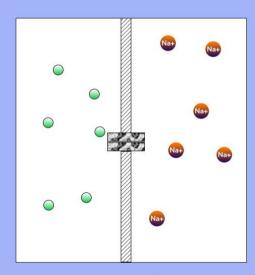


## Rod Cell



#### On Darkness

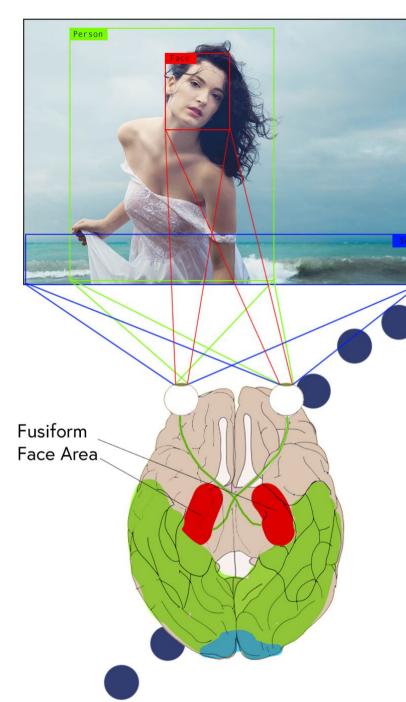
The cell membrane contains gated channels responsive to cGMP, which while attached to the gate allow Sodium Ions to enter the cell. In response to this, the cell gets depolaryzed.

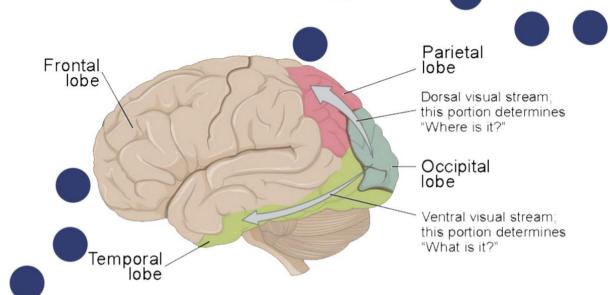


### On Light

In response to light, cGMP breaks into GMP which is unable to attach to the cGMP gates and therefore this ones close. When the gate remains closed, Sodium lons stay out of the cell, which in response causes hyperpolarization.

- Rods and Cones contain layers with their respective molecules; Rhodopsin and Conosin, particles that react to photons and change their structure.
- •This structural changes cause the CIS-11 molecule to break down cGMP molecules into GMP.
- cGMP gated channels are found in the cell mebrane, which allow Sodium lons to enter the cell and depolarize it
- In the lack of cGMP the gates close and the cell hyperpolarizes.
- However, the graded potential is not dependent on cones and rods, this information is integrated by the bipolar cells which are turned on or off according to their areas; on-centerd/ off-centered.





- •The virtual integrated of the stimuli received is what we perceive as an image, the analysis of such stimuli happens in different regions.
- •The Occipital lobe which is the primary visual cortex, receives information from the LGN and tehn begins to process the image.
- •The parietal lobe contains part of the area V2 and the Extrastriate Cortex, which integrates the information and generates a sense of perception in movement "Where".
- •The Temporal Lobe contains the Area IT and Area V4, which integrate input into the subjective experience of object recognition "What".
- •As primates, we contain an area specialized for facial recognition, this ares is the Fusiform Face Area.