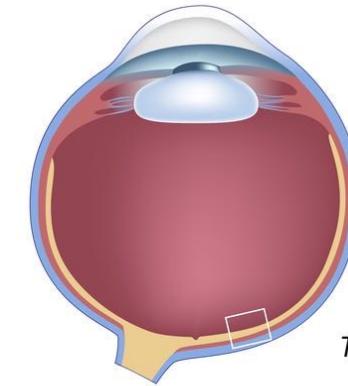
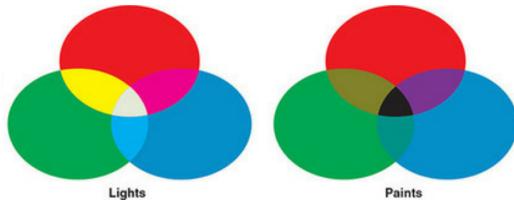


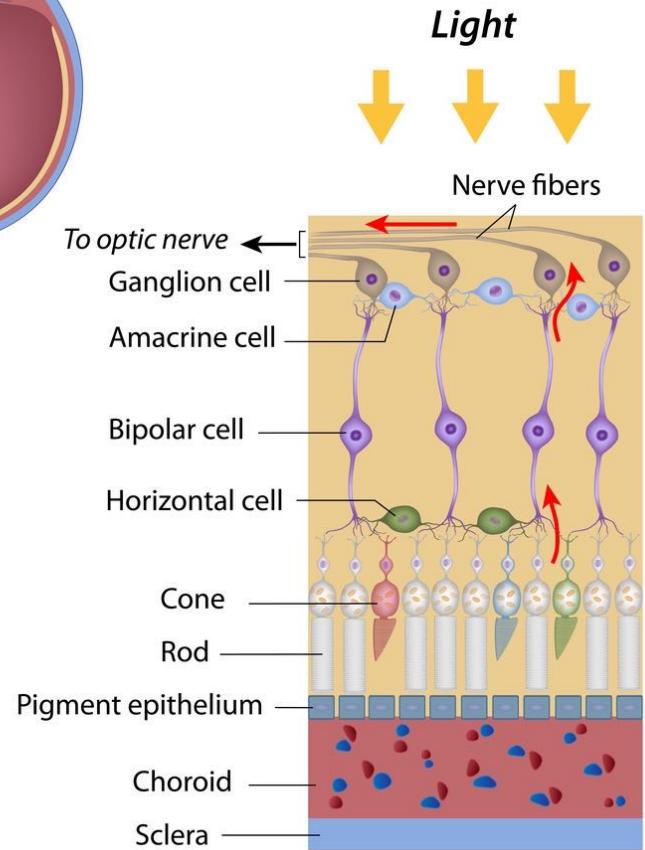
Biological Neurons & Human Visual System

12/08/20

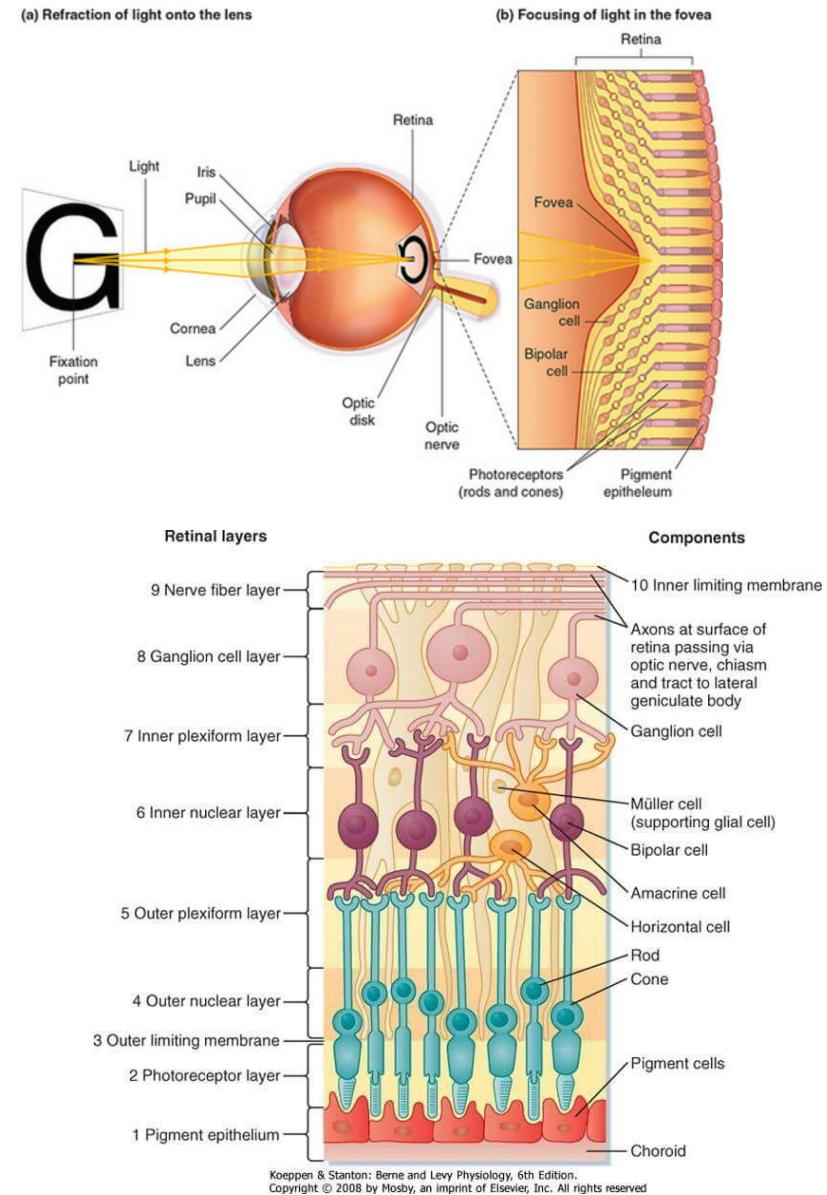
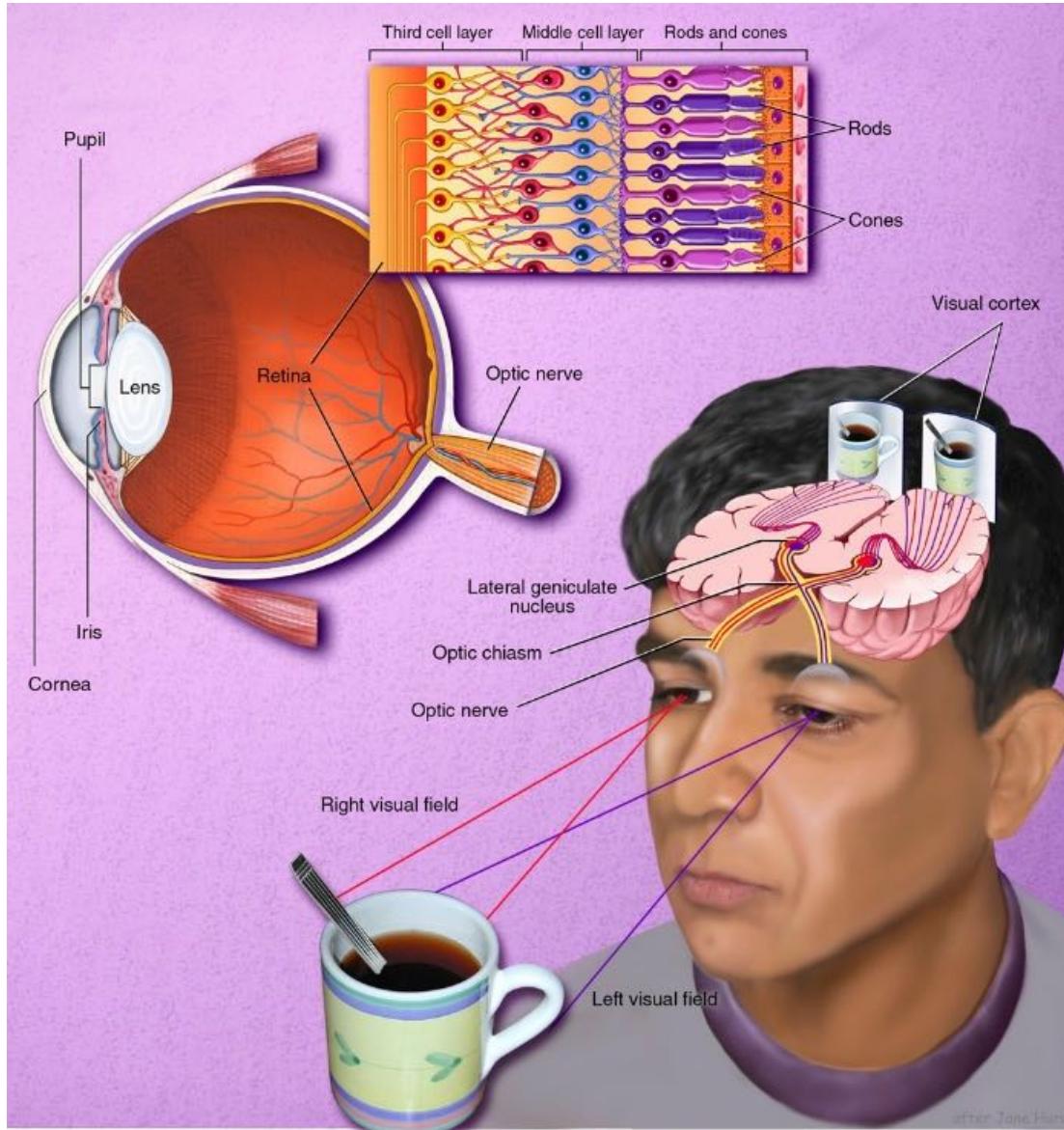
Human Vision and Visual Perception is Constructed By Your Brain



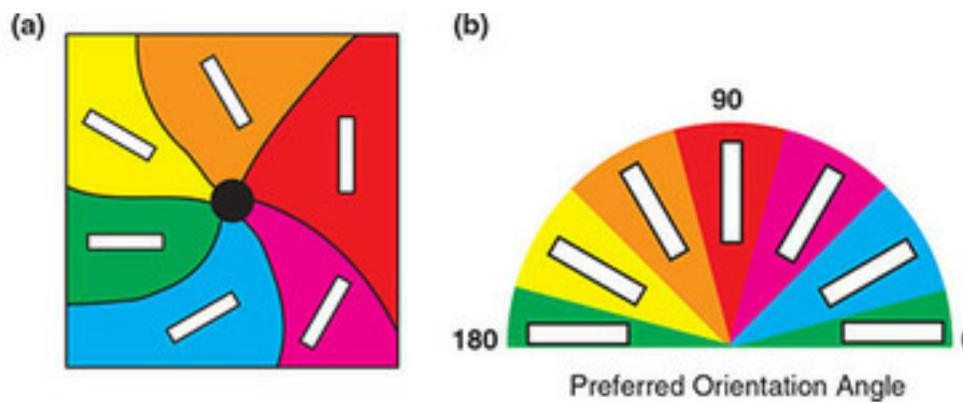
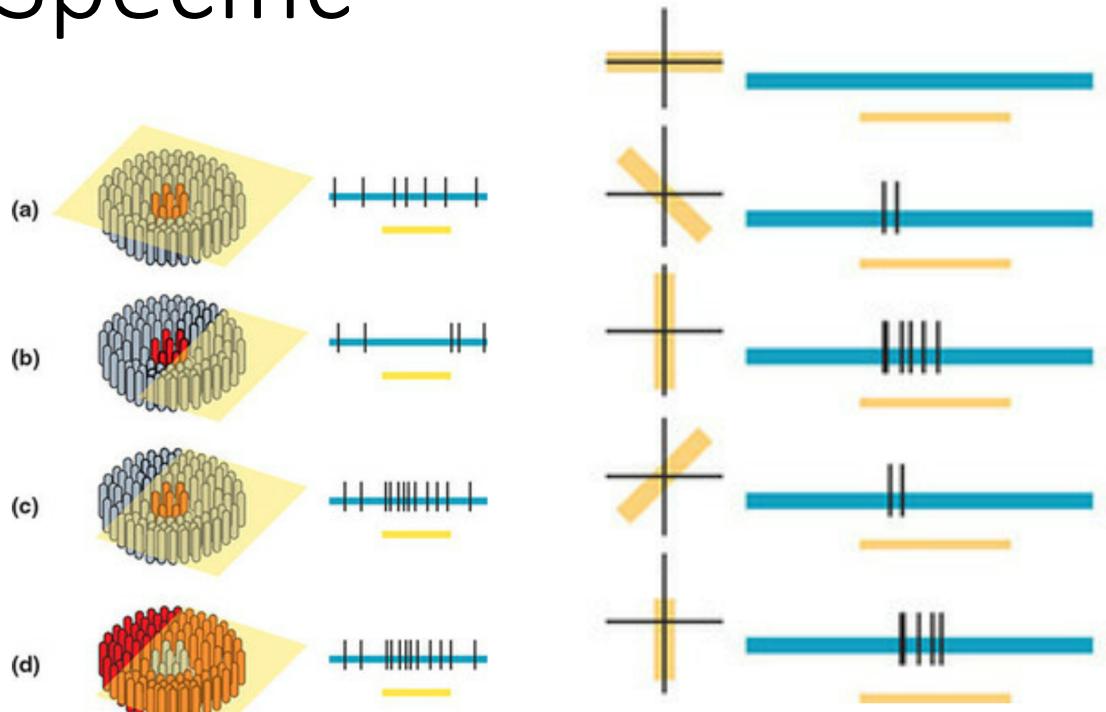
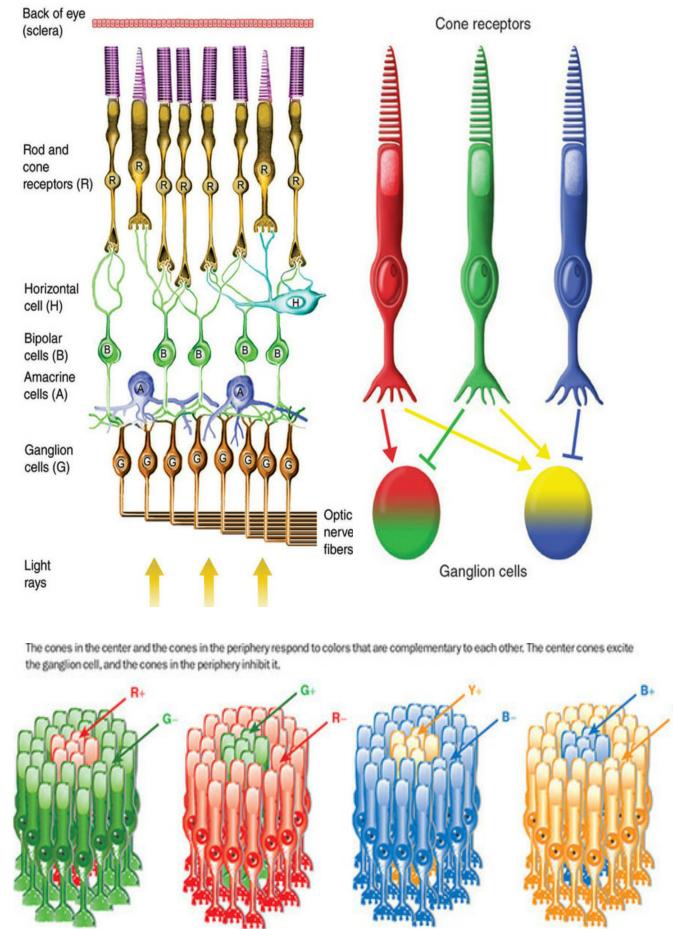
Structure of the Retina



The Retina has a complex multi-cellular structure



Retina Cells Respond to Specific Patterns/Colors/Angles



Info about Color/Movement/Edges are Processed by Separate Networks

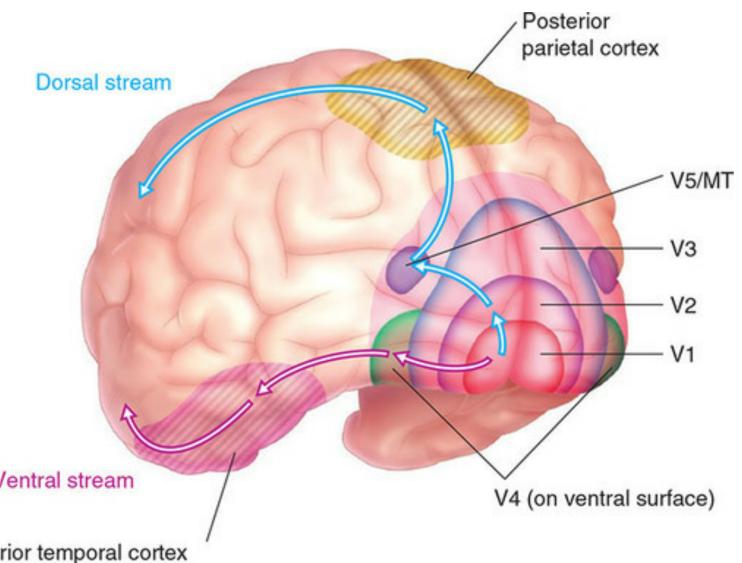
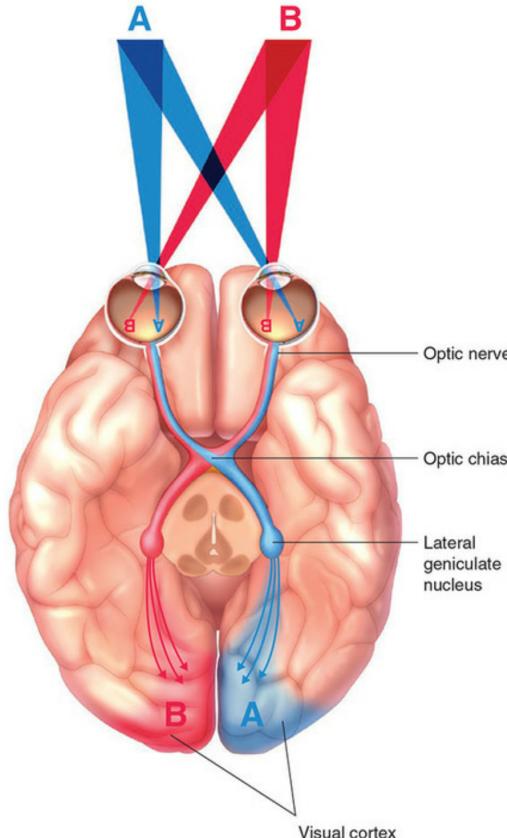
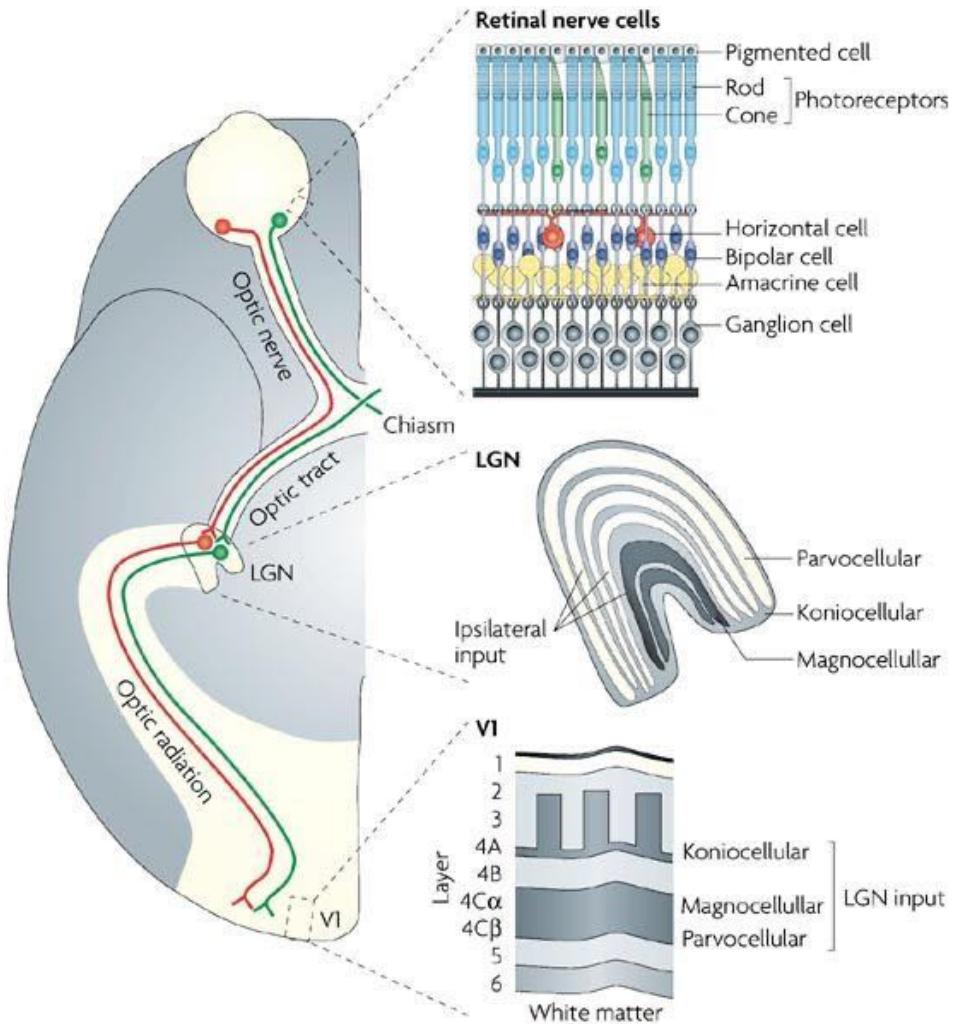
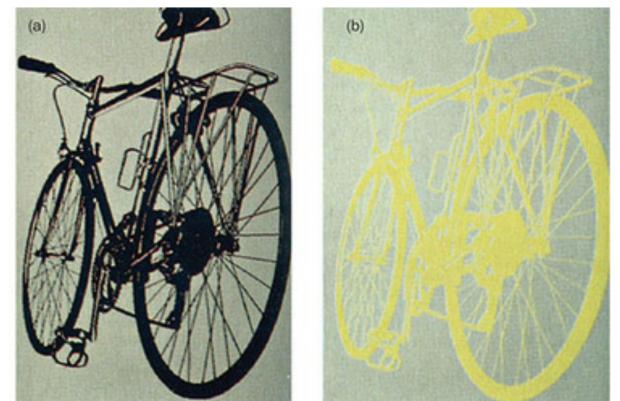
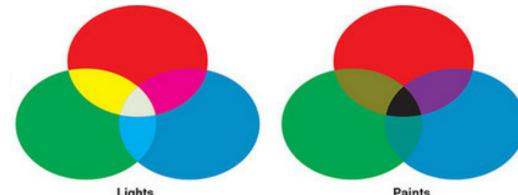
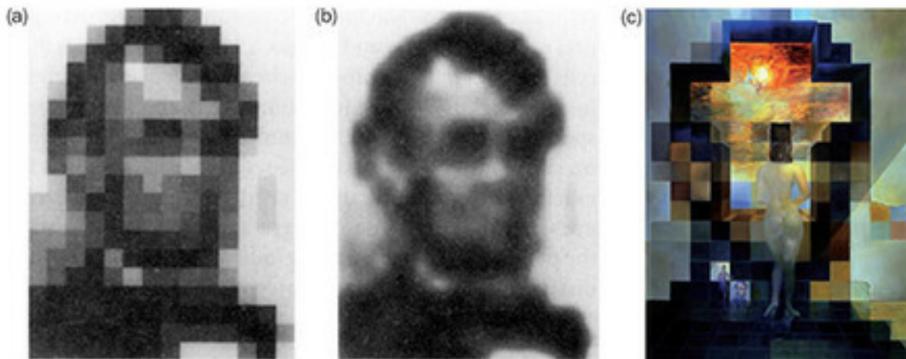


Image (a) has considerable brightness contrast, so it mostly stimulates the magnocellular system, giving an appearance of depth. Image (b) consists of color contrast, which provides little stimulation to the magnocellular system.





(a) An image limited to abrupt changes in brightness (high spatial frequencies) is not as meaningful as (b) one that has both high- and low-frequency information. The image in (b) is the same image as (a), except that the edges have been blurred. (c) Salvador Dali's 1976 painting *Gala Contemplating the Mediterranean Sea Which at Twenty Meters Becomes a Portrait of Abraham Lincoln*. Look closely and you will see (a) rather than Dali's wife Gala; squint your eyes and you will see (b).



(a) The original photo; (b) the same photo with low frequencies removed; (c) the photo with high frequencies removed. Notice how high-frequency changes in contrast define borders and fine details, while low frequencies reveal distinguishing characteristics through shadow and texture.

