



EXPLORING SENSATION & PERCEPTION

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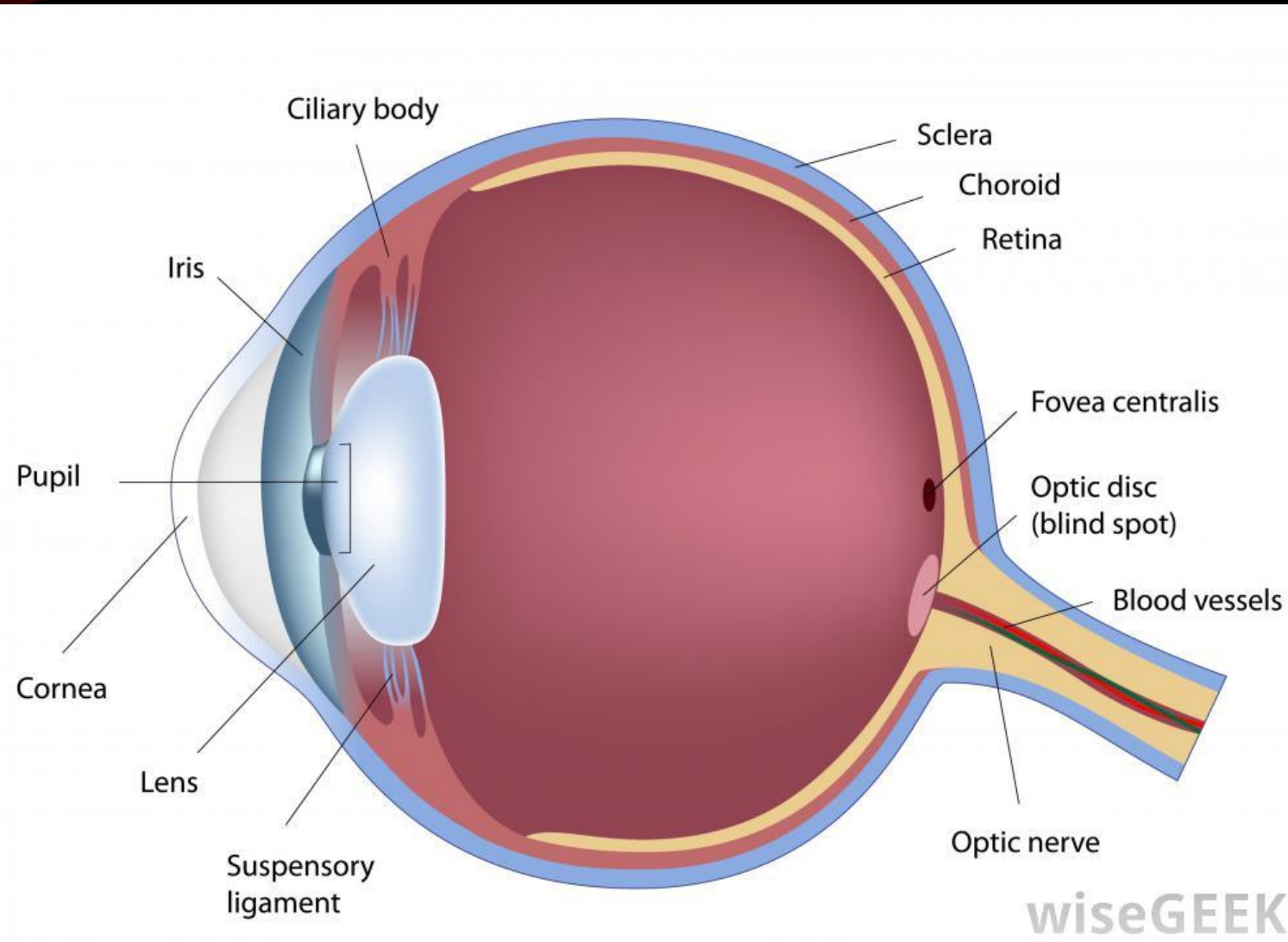
SENSATION VS PERCEPTION

- Sensation
 - cells that fire from external physical input
- Perception
 - interpretation of sensory input

BLIND SPOT EXAMPLE: DIFFERENCE BETWEEN SENSATION & PERCEPTION

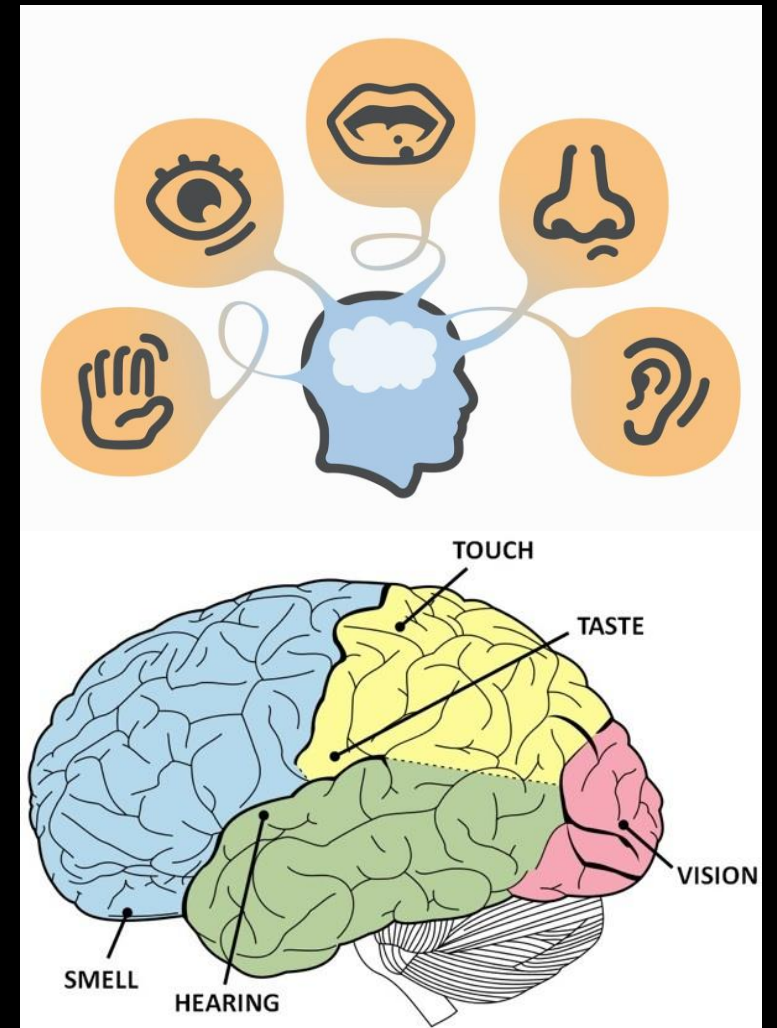
Blindspot example

- Close left eye, focus on X with right eye
- Move paper to ~10inches from nose



HOW MANY SENSES?

- Aristotle's view: 5



VISION

- Rods & cones
 - Mantis shrimp



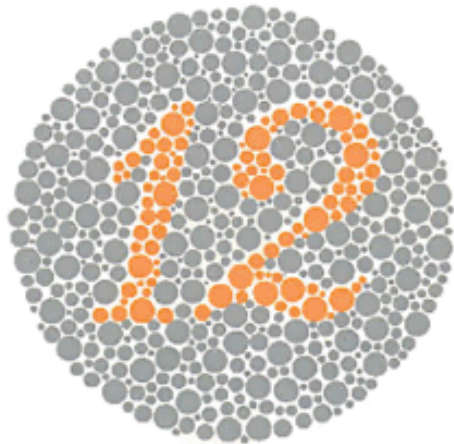
Color blindness

Color blindness refers to the difficulties with identifying various colors and their shades. The term is misleading because colorblind people are not blind, but rather tend to confuse some colors, and a rare few may not see colors at all. Red-green color blindness is the most common deficiency, and in most cases is inherited, affecting

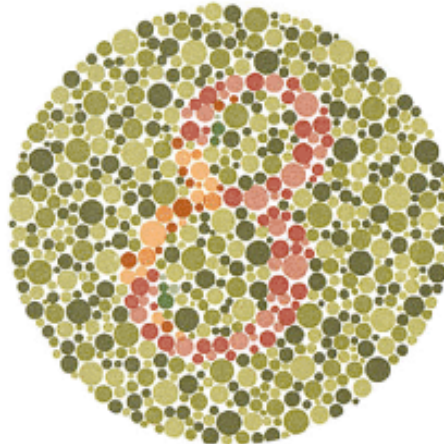
8% of Caucasian males and 0.5% of females. Normal color vision requires the use of all three types of cones, which enable people to see a large spectrum of colors. A defect or deficiency of any of the types of cones will result in abnormal color vision.

The Ishihara color test

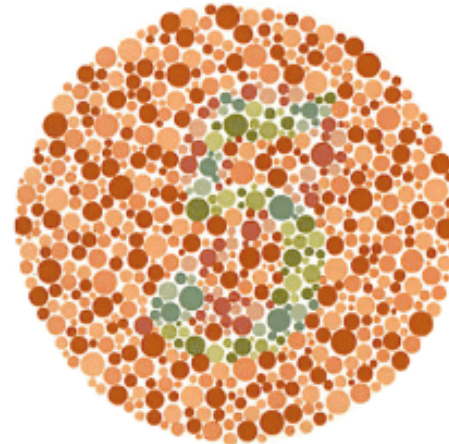
The Ishihara color test is a simple and accurate method for discovering various kinds and degrees of congenital color blindness. It was named after its designer, Dr. Shinobu Ishihara (1879-1963), a professor at the University of Tokyo, who first published his tests in 1917.



Both normal and those with all color vision deficiencies should read the number 12.

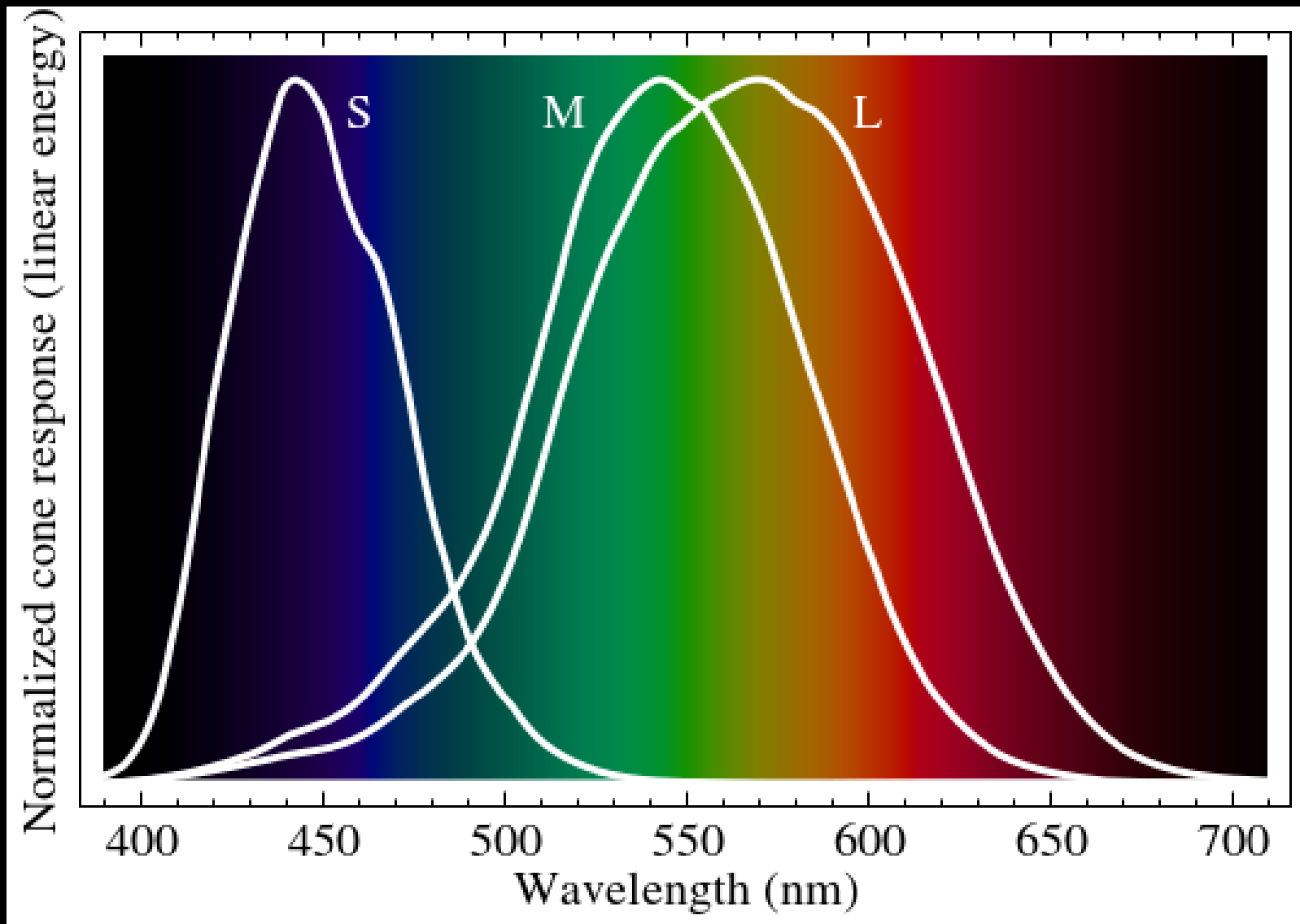


Those with normal color vision should read the number 8. Those with **red-green color vision deficiencies** should read the number 3. Those with total color blindness should not be able to read any numeral.



Those with normal color vision should read the number 5. Those with **red-green color deficiencies** should read the number 2. Those with total color blindness should not be able to read any numeral.

The results are not to be considered a valid test for color blindness and should be considered inconclusive. For any true indication of color-blindness an ophthalmologist should be consulted.



HUMAN TETRACHROMATS

- 2 cone cell pigment genes on X chromosome, each X with 2 cone variants
- Concetta Antico
- 4th cone absorbs reddish-orangey-yellow wavelength
- <https://research.ncl.ac.uk/tetrachromacy/whatistetrachromacy/>



MOTIONBLINDNESS: AKINESOPTIA

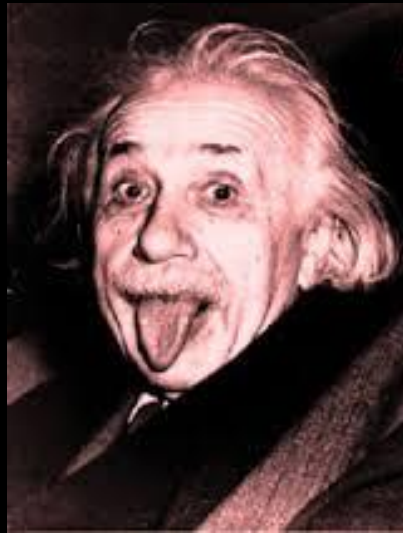
- <https://www.youtube.com/watch?v=tYFhDzQ1rYU>



TASTE

- What factors contributed to whether you liked certain foods as a child?

ARE YOU A SUPER TASTER?



WHAT ARE YOUR TASTE PREFERENCES?

- Brusselsprouts
- Cabbage
- Kale
- Coffee
- Grapefruit juice
- Green tea
- Carbonated beverages (i.e., soda, beer, etc)
- Tonic water
- Olives

WHAT WERE THE CHARACTERISTICS OF FOODS YOU LIKED VS DISLIKED?

- <http://www.youtube.com/watch?v=1YBheuHma8I>
- <http://www.youtube.com/watch?v=-uICMT1yOcM>

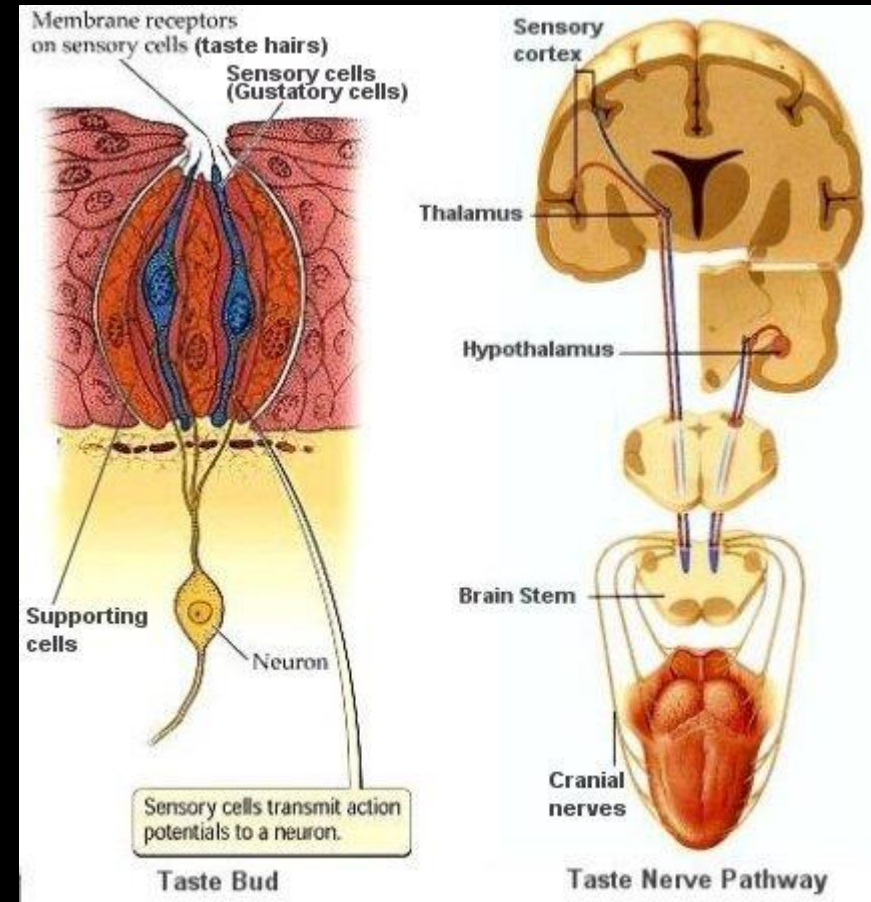
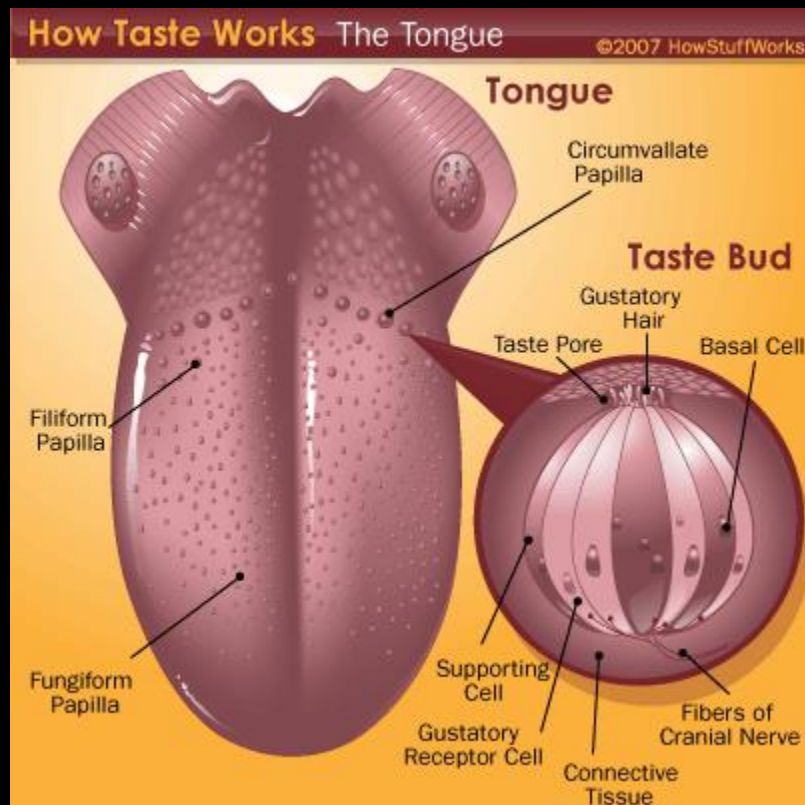
TONGUES

Tongue map myth



TASTE PERCEPTION

- Receptors for tastes and textures





LINDA BARTOSHUK

- Coined term “supertaster”
- 1990s noticed genetic variation in taste perception



RATING SCALE

1

Very Bitter

2

Bitter

3

Neither

4

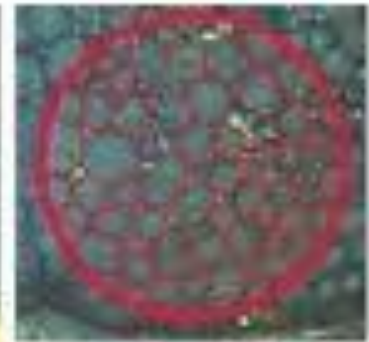
Sweet

5

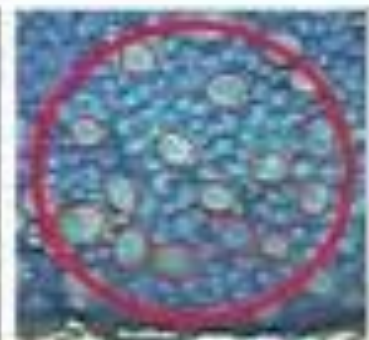
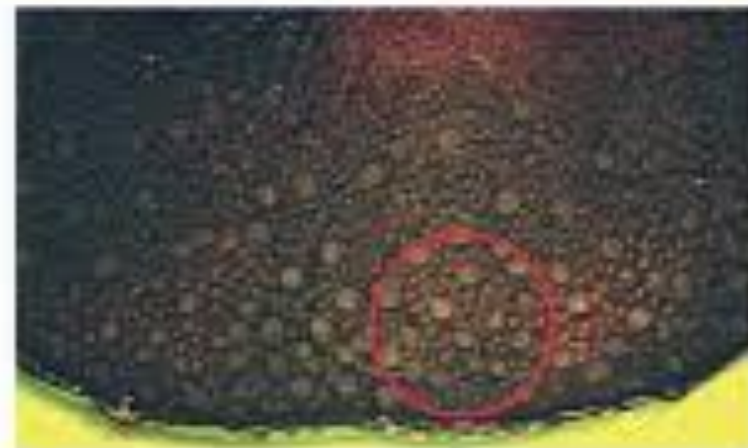
Very Sweet

ARE YOU A SUPER TASTER?

What did you taste?



◀ SUPERTASTER



◀ NONTASTER

- 
- Chemical on strips = PROP (propylthiouracil)
 - TAS2R38 gene

RATES & CHARACTERISTICS

- 35% of women, 15% of men
- 25% non-tasters, 50% medium tasters, 25% supertasters
- Asian, African, South American



CAN WE TURN ON OUR TASTEBUDS?

- Miracle Berry (*Synsepalum dulcificum*)
- Miraculin – glycoprotein molecule w/ carbohydrate train
- Miracle berry activity

RATING SCALE

- 1
- Very Sour

2
Sour

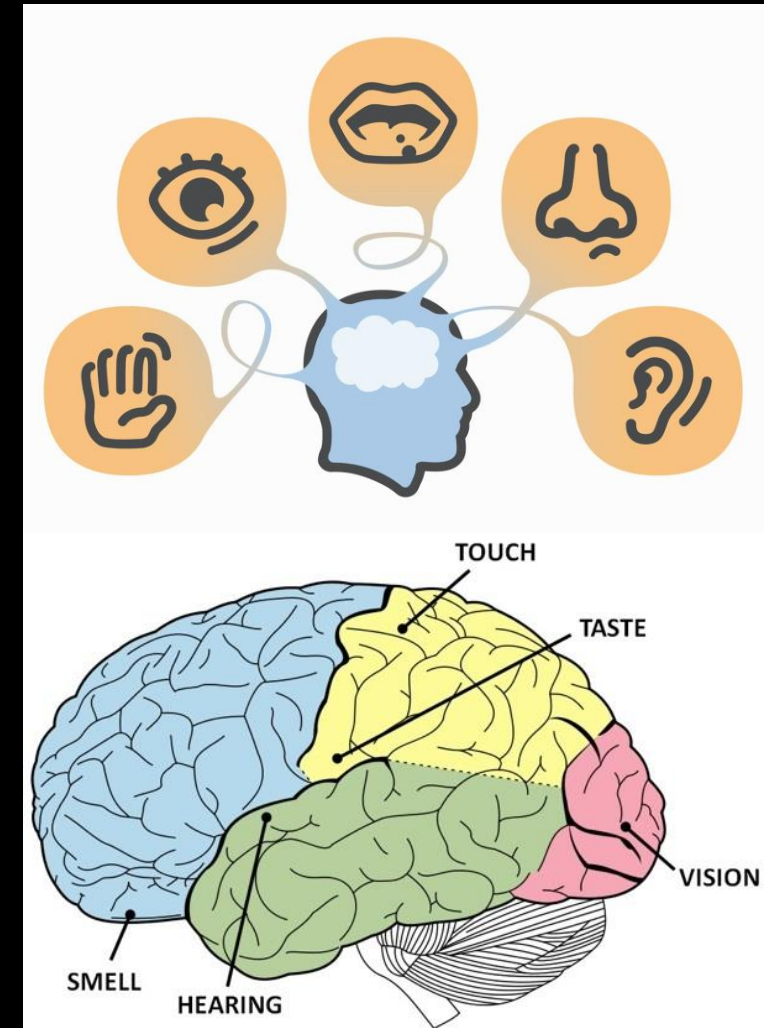
3
Neither

4
Sweet

5
Very Sweet

HOW MANY SENSES?

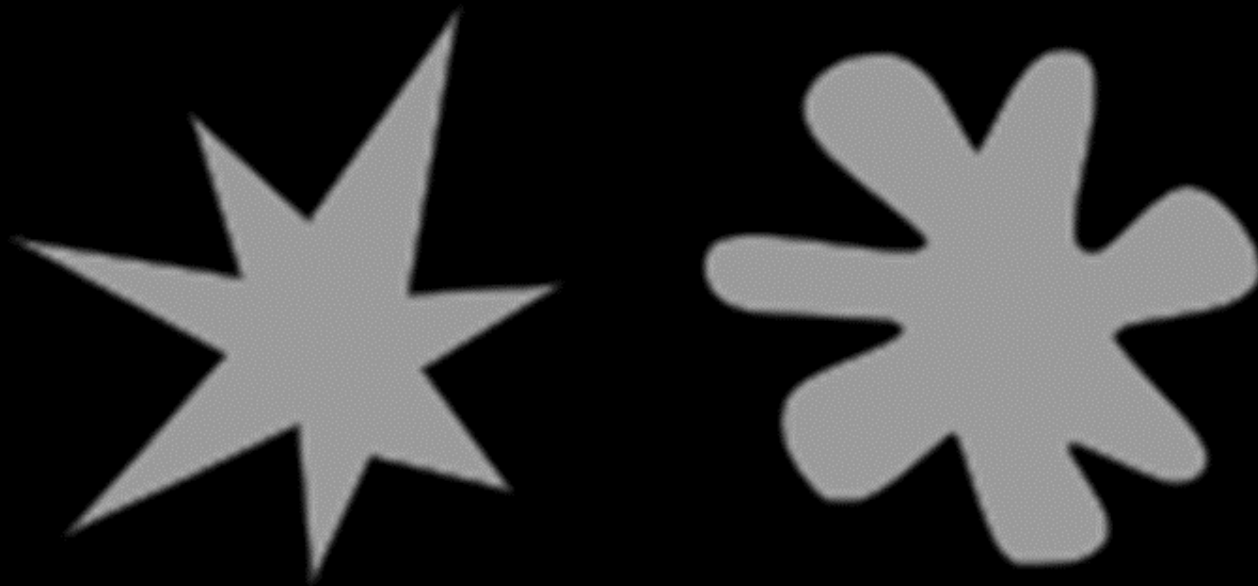
- Aristotle's view: 5
- Is that all?
 - Touch - temperature (hot, cold)
 - pressure, pain (nociception), itch
 - proprioception
 - equilibrioception
 - magnetoception
 - time



PROPRIOCEPTIVE BLINDNESS:AGNOSIA

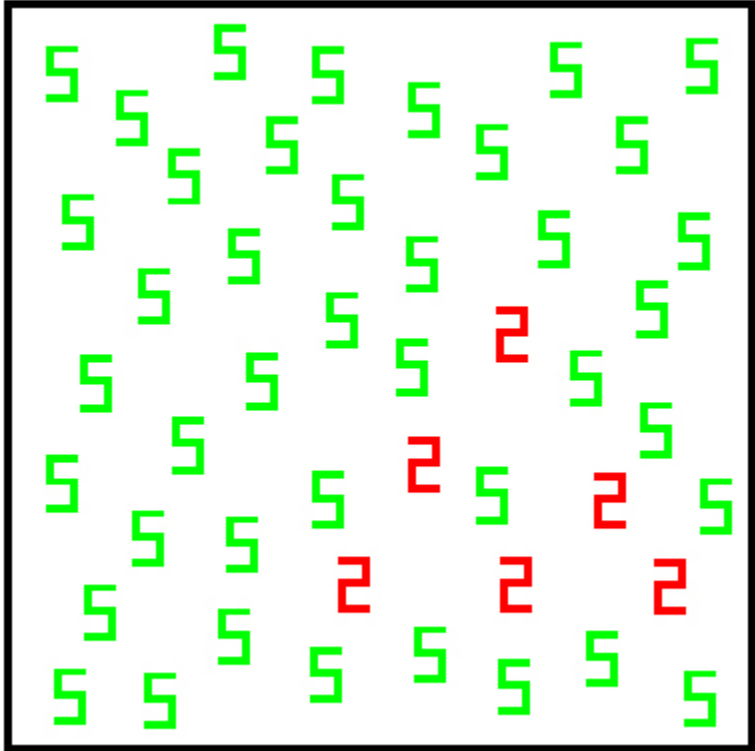
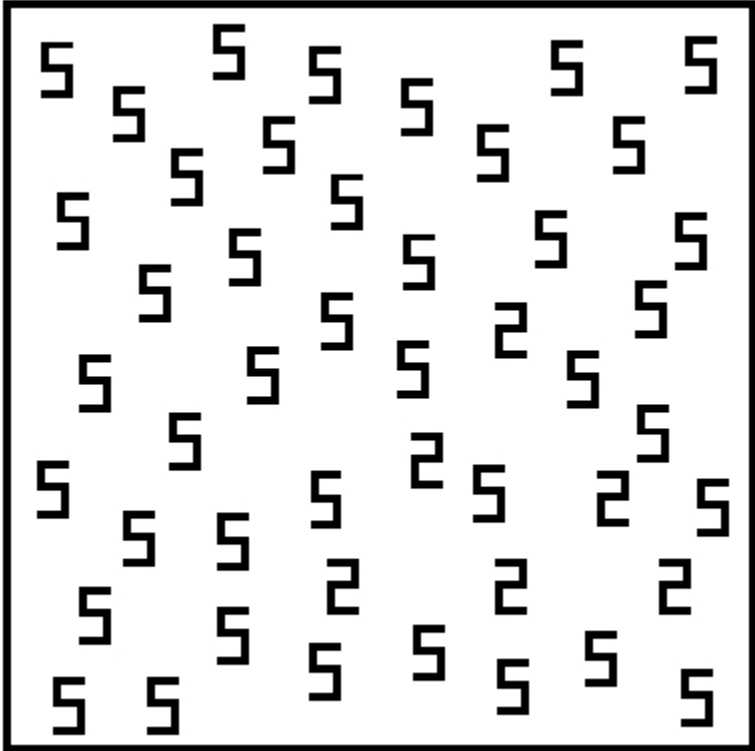
- <https://www.youtube.com/watch?v=FKxyJfE831Q>

HOW DO WE COMBINE SENSORY MODALITIES:
LABEL THESE SHAPES: BOUBA /KIKI

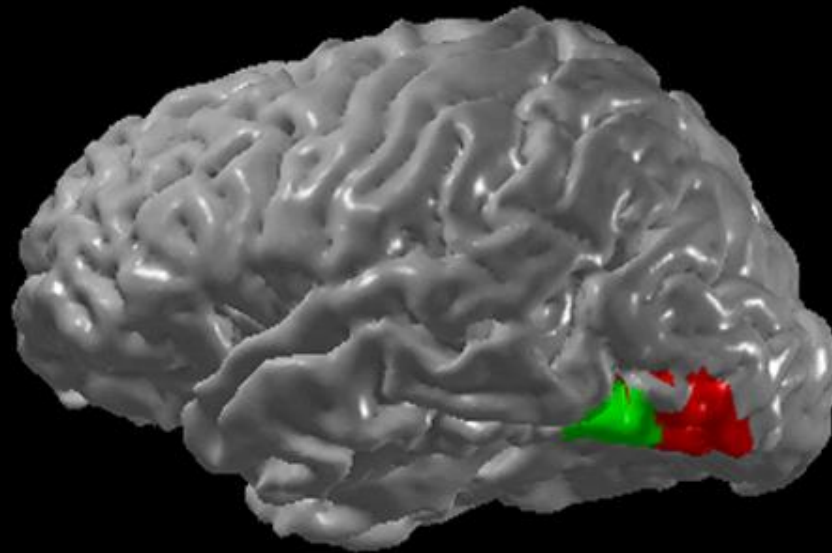


SYNESTHESIA

- Stimulating 1 sense automatically & involuntarily stimulates other senses
- Greek antiquity – philosophers asked about the color of music
- Richard Cytowic
- Rate estimates – vary
 - 1: 2000 to 1:300
 - Rates may be greater in people with autism



CROSS ACTIVATION HYPOTHESIS



CONCLUDING REMARKS

- Our perceptions are not a 1:1 correspondence w/ sensory input
- Our senses are not as independent as we once thought
- We are not all created equal as far as sensory receptors
- We are not all created equal in terms of perception
- We have many more than 5 input channels to gather info from the world

TONGUE-TIED...THE END

