YOUR BRAIN
NEUROSCIENCE AND SOCIETY

HOW WE SENSE OUR ENVIRONMENT:
DIFFERENCES ACROSS SPECIES

Student Worksheet

Vision: We see the world around us by using our biology to convert photons of light into a signal our brains can understand. To do this, we have receptors in our eyes called **photoreceptors** that are activated by the light all around us. These photoreceptors then send a signal to an area of our brain called the visual cortex that allows us to consciously perceive what we are looking at.

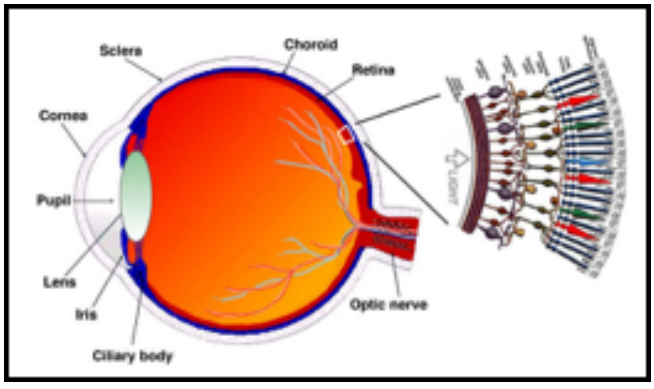
We have 2 types of receptors in our retina (the part of our eye that allows us to see):

1. _____allow us to see colors.
2. _____allow us to see black and white and are used for night vision.

What 3 types of cones do humans have?

What cones do we have that dogs don't have?

What human condition causes some males to see the world similar to how a dog sees the world?



What cones do butterflies have that we don't have?

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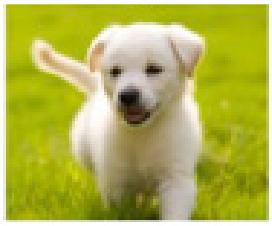
Rank these species in order of the number of cone types that they have (Write 1-4 below the pictures – 1 is lowest, 4 is highest):

Humans	Mantis shrimp	Dogs	Butterflies
			
_____	_____	_____	_____

What are the 5 basic senses in humans?

1. _____
2. _____
3. _____
4. _____
5. _____

Research online to find a species that experiences the world differently than humans. Try to figure out WHY!

Example:

1. Species: **Butterfly**
2. What sensory system is different in this species? **Vision**
3. How is it different than humans? Better or worse? **The butterfly has more cones for seeing color than humans do so it has better color vision than we have.**

Now it's your turn:

1. Species:
2. What sensory system is different in this species?
3. How is it different than humans? Better or worse?

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