## COLOR

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My research and artmaking deal with the properties of color and what it means to me. In this mixed media installation I focus on color context: the way in which color looks when paired next to other colors or in certain shapes, and the general aesthetics of color. When we see colors, we usually don't see them all together and, in turn, don't notice when they change. I am furthering this idea through an animation in which the colors gradually fade in and out of each other; they eventually go through the entirety of the color spectrum, so subtle that the viewer may not notice it at first glance. The animation is the best way to showcase this spectrum, for I was able to control every color in a way that the jump between colors was something one would be able to see, but not right away.

I hope that viewers can develop a new understanding of the extent to which color actually influences our daily lives; color is often undervalued and underappreciated. Often, we associate certain colors with certain emotions and feelings; for example, yellow connotes happiness, while blue connotes sadness. This installation explores those associations and emotions we feel about color and combines them into one cohesive piece. The illustrations, combined with the audio, are intended to make the viewer feel overwhelmed by all the sensations that they personally have come to associate with certain colors.

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In this paper, I address color. This is not an analytical paper on color theory, but my own personal experience with color and the history behind it. My research began with one simple question: how does color make me feel? At the end of my research, I had more questions than I began with. Why am I drawn to certain colors and not others? Why are some colors considered ugly? What changes our perception of color? These are questions that I cannot answer with my research, because they are different for everybody. However, this paper has helped me better understand myself specifically because of what colors I choose to surround myself with.

When I was five, I had a glass prism on my windowsill. My mom told me that the white light went through the glass and refracted the light to make a rainbow. It was hard for me to wrap my mind around the fact that the light went in a pure white, yet came out as a rainbow, but I just assumed it was something that could not be explained. Now I know that the color we see is determined by the length of the light waves reflecting off of that object. Our eyes have millions of light receptors that send messages to our brain to make it possible for us to see color. Rods are the 120 million transmitters located mainly in the back of the retina, and send mostly black and white information to the brain. ${ }^{1}$ Cones are the 6 million transmitters that fill up the space in the front of the retina. We have three different types of cones that each receive different wavelengths: long, medium, and short. Cones are what transmit the energy to the brain that translates into color. ${ }^{2}$

I have always been obsessed with color. We moved to Houston when I was four and from the first day we lived in that house, I would ask my mom if I could paint my boring white walls pink. Every night I fell asleep imagining waking up to my barn shaped roof in pink instead of white. I begged and begged, but the answer was always a hard "No." Eventually, my favorite color changed from pink to green.
"Can I paint my room green?"
"No."
It went on like that for what seemed like forever. Finally, she agreed to let me paint the ugly yellow bathroom a nice green. Finally, I got to choose the color of my walls and I loved it! I loved my green bathroom so much more than my yellow one. Eventually the time came that we were going to move out of that house. I no longer woke up to my boring plain white barn shaped roof and I no longer brushed my teeth in my beloved green bathroom.
"Elizabeth, since we're moving, you get to redo your room and paint the walls whatever color you want." My eleven year old self was on cloud nine; I spent hours looking at paint swatches, choosing if I wanted green or pink, and holding the chips in front of the window to see how the sun would affect it. My new room had three walls that could be painted and, because I could not settle on a color, I chose three: green, pink, and orange. I loved it. My room was green, pink, and orange for two years.

When I was fourteen, I decided I didn't like those colors anymore. I wanted white walls, like all the rooms on Pinterest and Tumblr; green, pink, and orange were too childish now. But still, I was scared that I would hate my white walls like I did before, so I only painted the orange and pink ones. My green wall was still green. For two more years, I had a colored wall. I was sixteen when I decided I hated my green wall and it needed to go. That was a year ago. Now, all my walls are white.

My favorite color was green for about ten years. I told my dad that, and every time after he bought something with a color selection, he chose the color green. My dog's bed, a t-shirt, and even our kitchen mixer were all green. I was in second grade when it really began. My friend and I always drew together; she was always blue, I was always green. The color green reminds me of my second grade classroom where I stayed until five p.m., waiting for my dad to pick me up. The color green reminds me of the sleeping bag I brought to summer music camp and the sour skittles we ate every day. The color green reminds me of my childhood.

[^0]The color green comes with a lot of different "meanings." Now, people associate it with health and the earth, and in some cases, jealousy and envy. ${ }^{3}$ In the Victorian era, green paint was, quite literally, poisonous to those who used it; in 1775, Carl Wilhelm Scheele, a chemist, invented green paint that ended up being laced with arsenic because of how cheaply it could be made. ${ }^{4}$ In the 1800 's a more sturdy alternative was made called Paris Green. This color was also used as rodenticide and insecticide and was later banned in the 1960s. ${ }^{5}$ When I was growing up, green was always the color of the villain which I now realize seems like a nod to the poisonous toxicity of Scheele's green and Paris green.


1845 Wallpaper ${ }^{6}$


Paris Green Paint ${ }^{7}$

When I was in eighth grade, I only wore black: black shoes, black pants, and black hoodies. Every time I went to get my nails done, they didn't even bring out the color choices because every time, without fail, I chose black. Black was a safe color for me because I'd grown up hearing that it went with everything. I wore the color black to blend into the mass of kids walking up and down the path to get to classes. I wore the color black to make my already small frame look smaller. I wore the color black so no one would notice me.

Black is often perceived as a depressing color; many people associate it with death and unhappiness. Black clothing also gives off the idea of maturity and professionality. Everyone has been told that mixing all the colors of paint makes black. This idea comes from the fact that something appears black when the object absorbs all the wavelengths of visible light hitting it, instead of reflecting them. ${ }^{8}$ During the Impressionist period, instead of painting objects black, they just filled it in with color instead. To show that black could be just as expressive as color, artists such as Frank Stella, Richard Serra, and Ad Reinhardt painted whole pieces in only black. ${ }^{9}$

[^1]Frank Stella in particular exhibits minimalism in his paintings. His work is made up of thick stripes of black enamel house paint on canvas. It is theorized that Stella wanted to take away the decision making of painting to focus mostly on the materials used and the viewer, as he was known to say, "What you see is what you see." 10


Similarly to Stella, Serra did not want to run into misinterpretation from the viewer. Serra thought that any colors would refer to nature so he stuck to only black which he considered a "non-color." ${ }^{13}$ Serra hoped that the black of the piece had the properties to evoke a physical reaction from the viewer so that the viewer would pay more attention to the piece. He went as far to say "Black is a property, not a quality." 14


[^2]Purple is the color I want my hair to be. Purple is the color of my Vans and the color of my four dollar jacket from the thrift store. Purple is the first color I've latched onto since when I only wore black, and I haven't let go. As Monet once said, "It's violet. Fresh air is violet." ${ }^{16}$ Purple is the color that is woven into my string bracelet I wear on my wrist every day. To me, purple is a color that is bright and cheerful. It reminds me of childhood and a time of innocence.

Purple is a color that is often associated with royalty and power, an idea dating back to the time of Julius Caesar. When in power, Caesar went to Cleopatra's palace and saw that it was adorned with purple. He was so inspired by this that upon returning to Rome, he decided he wouldn't wear a toga unless it was dyed purple. The dye that was used, Tyrian Purple, was made out of tiny shellfish called murex. Half an ounce of this dye took 250,000 shellfish to make, causing this pigment to be extremely expensive. ${ }^{17}$

Throughout time, purple has been an important color for artists; Monet thought that purple was more important than black because it gave shadows more depth, and Georgia O'Keeffe also used a lot of purple in her art to show "warmth, sensuality, and vigor." ${ }^{18}$ One art piece in particular that uses purple to the greatest importance is Breathing Light by James Turrell. This piece is a room painted all white with the edges and corners curved to reduce the depth effect. The color that is projected around the room does not have a fixed shade and there is seemingly no light source. The light fades in between pink and blue without the viewers' realization, optimizing the piece's use of purple ${ }^{19}$.

Breathing Light, James Turrell, LACMA ${ }^{20}$
Red is the color of spaghetti sauce on Wednesdays. Red is the color of perfectly ripe strawberries. My friend Julia tells me that red is not my color; she says that it does not suit me, and that it is weird that I own a red jacket. Red is the color of intensity, people usually associate it with anger, passion, and warmth. ${ }^{21}$ The pigment that makes red is one of the oldest that we

[^3]know. ${ }^{22}$ About 40,000 years ago, the pigment for red was taken out of soil filled with iron. Now it is often taken from an insect called a cochineal. These extracted pigments are commonly used in makeup such as lipstick and blush. ${ }^{23}$

Blushes and lipsticks, though sometimes red, are often colored pink, a color that is associated with weakness and despite the fact that red, it's parent color, is associated with aggression. Pink reminds me of the blanket I had as a child and the color of my hair when the purple dye I use fades. Pink reminds me of softness and my favorite Disney princess, Sleeping Beauty. Studies have been done based on how the color pink affects performance, and the men in one study experienced weakness and muscle loss while surrounded by certain shades of pink. ${ }^{24}$ Pink has been associated with weakness because of how it is considered a feminine color.

Orange is the color of oranges. What came first, the fruit or the color? Orange is the color of the leaves that litter the ground during soccer games between Academy and Pius. Orange is the color of the sunsets in Albuquerque summers, and the color of the fires we have in my living room during the winter. Orange reminds me of warmth and comfort. Orange is on the warmer side of the color spectrum. Warmer colors have longer wavelengths than cooler ones like blue and purple. ${ }^{25}$ Because of the wavelength difference, men and women often see orange differently than the other, as men need longer wavelengths to see a color the same way that a woman does. ${ }^{26}$ Men usually seen orange as more red than women and green as more yellow. ${ }^{27}$

Yellow is my grandmother's favorite color. Was her favorite color. At her service, we let go of yellow balloons. Yellow is usually associated with positivity and hope. ${ }^{28}$ Even though yellow currently conjures up an air of "good vibes", it has a dark past. Pigments for yellow paint originally came from many sources. An artist named Joseph Mallord William Turner often used the watercolor paint Indian Yellow. This pigment was derived from cow's urine after ingesting mangos. ${ }^{29}$ This was later banned for animal cruelty and the new Chrome Yellow came into fashion. Chrome Yellow was a lead based paint and often caused delirium. ${ }^{30}$ An artist that is often associated with yellow is Vincent Van Gogh. While there is no hard evidence for this, people report that he ate paint in his depressive episodes, a rumor which has been romanticized into the idea that he ate yellow paint to make himself happy on the inside.

Blue is my best friend Juliana's favorite color. Blue is the color of my eyes and the color of my jeans. Blue is the color of my wool socks that are worn out on the heels. Blue is seen as a calming color. ${ }^{31}$ While the color blue seems as old as time, it is one of the newer pigments that

[^4]was discovered. Before lapis lazuli was found, there was no way of documenting the color. In old texts such as The Bible and The Odyssey, the sky and sea are not described as blue. Instead, they are described as "big and wide," "stormy," and "silent"- and, most shocking of all, "winered. ${ }^{, 32}$ So when lapis was found, it was an astounding discovery. For a while, it was only able to be found in a mountain range in Afghanistan. Because of this, it was super expensive and even comparable to gold. Later, a synthetic version, known as Ultramarine Blue, was made by Yves Klein in conjunction with a Parisian paint supplier. ${ }^{33}$


Figure 1 Yves Klein, Ultramarine Blue


Figure 2 Yves Klein, The Smithsonian

White is the color of my only bottle of gel nail polish. White is the color of my duvet and the color of my walls. White is the color of clothing I avoid out of fear of dirtying. White is associated with purity and innocence. In some places it is also associated with death. ${ }^{34}$ White paint used to be made with lead, and even though lead's harmful properties had become common knowledge since the 1800s, lead white paint was not banned in the United States until 1978. Lead white was not the first paint to be banned but, likely that it was the most missed one, as painters loved it because it could reflect light so well. ${ }^{35}$ The things that we see as white appear that way because the object reflects all the wavelengths that hit it. ${ }^{36}$ Rauschenberg takes advantage of this concept with the installation of his piece called White Paintings. This piece is three panels, 72 inches by 108 inches painted white. After finishing the piece, Rauschenberg has no control on how they look in the exhibit because of the different lightings and settings. ${ }^{37}$

[^5]

When I began my research I thought that I would know everything by the end. I know where different pigments came from and what people typically associate with different colors. But now, I realize that I just have more questions. How do individual emotional differences affect our perception of color? How do societal differences affect our perception of color? What changes our perception of color? Color is more important than we realize; it is one of the biggest indicators we have, and we use it for everything. We use color to determine if the weather is good, when to go after a stoplight, and if a fruit is a lemon or a lime. Color is important to consider not only to the artist but in daily life, because we can choose which ones we surround ourselves with. While we may not all see color the same way, we all see it in our own personal way which we associate with different emotions and ideas, and just being aware of how we see these colors can have a positive impact. By understanding how different colors make us feel, we are able to adjust our daily lives to be better suited for us.

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