

## COLOR THEORY: Week 2

*“We learn to see, and then we learn to create, and then we learn more about how we see from what we’ve created. It’s a grand oscillation between seeing and understanding.”*

— Adam Rogers, *Full Spectrum: How the Science of Color Made Us Modern*

### Notes, clarifications, and information to the first week of class

- Colors around the outside of the color wheel—primary and secondary colors and everything in between them—are **chromatic**. Black and white are **achromatic**.
- **White** is the presence of all lights or hues in the color spectrum.  
**Black** is the absence of all lights or hues in the color spectrum.  
Many artists don’t buy gray or black paint. They mix their own grays and blacks from other hues.
- In the world of color, **Complementary** means opposite. I couldn’t find any explanation for the use of the word itself. The complementary of yellow is purple. (The complementary of any primary color is a mixture of the other two primary colors.) When you mix any two complementary colors together equally, you get neutral gray.
- When referring to hues that work well together, the term **Harmonious** is used.

### Color of the year

Notice how the predictions vary between different paint companies and a company that defines color for printing, fashion, and plastic.

### Reviewing homework from Week 1

The challenge was to match each of the pieces of paper in six hues (red, orange, yellow, green, blue, and violet) with one of the 10 steps on the gray scale. We’ll compare what we each determined. We’ll also take a look at two representations of this challenge, including one done by Albert Munsell, the first person to identify three characteristics of color and assigned quantities to each characteristic.

### Hue, saturation, and value (HSV)

*Werner’s Nomenclature of Color* (updated by Syme) was one of the first color guides developed in 1774 by Abraham Gottlob Werner, a geologist. Note that while he differentiates among colors, there is no system for reproducing the colors. Charles Darwin used this book to describe colors he observed in nature on his voyages to South America and Australia between 1831 and 1836.

Some color theorists before Munsell proposed that color needed to be visualized as three-dimensional. Munsell used a sphere to demonstrate his system, in which colors are based on “three identifiable and measurable qualities of color: hue, chroma (saturation), and value.” This allowed for accurate communication and reproduction of color in teaching, art, and industry. Over time, he modified his sphere to show that some hues exist outside the sphere, referring to his model as a “color tree.”

**Hue** refers to the color itself, that is, red, orange, yellow, blue violet, etc. Pure hues are at the outer edges of the color tree.

**Value** refers to the darkness or lightness of a color. The shades of gray, from black to white, exist on the trunk of the color tree.

**Saturation** or **Chroma** refers to the saturation or brilliance of a color. On the color tree, saturation goes from the end of one branch of the tree to the end of another branch. The saturation of a color indicates how much of two complementary colors are mixed together. Alternately, saturation refers to how much white, gray, or black is added to a hue.

### **Josef Albers' *Interaction of Color***

Josef Albers is considered one of the greatest teachers of color. He identified how our perceptions of color shift depending on the color context in which a hue appears. He repeatedly emphasized that color is subjective and deceptive. In his classes, he presented students with challenges such as how can one color appear as two colors, how can two colors appear as one color, etc. In his book, *Interaction of Color*, he uses his students' work to demonstrate these challenges. Albers believed the only way to really understand color is to play with color. In the process of working on the challenges, students came to understand how color choice can affect design in print, fabric, weaving, products, etc.