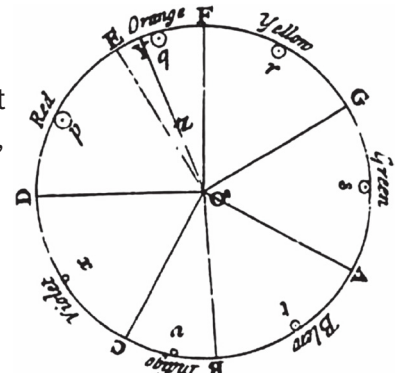


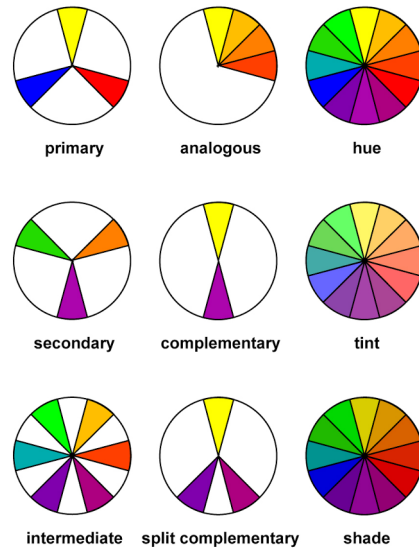
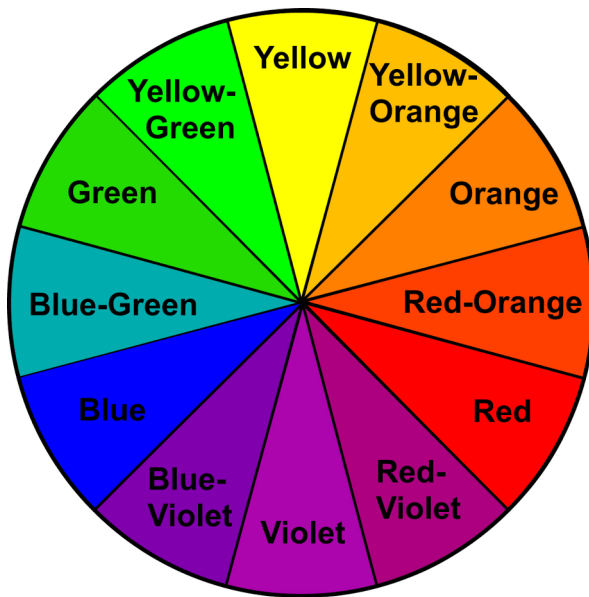
## Handout 2 - Color Theory

*What is a color wheel?*

A color wheel is a circular diagram divided into sectors of different colors. It is used to illustrate the relationship between colors. English mathematician, astronomer, and scientist Sir Isaac Newton developed the first color wheel around 1665 based on experiments he conducted with a glass prism and light. Newton discovered that, when passed through a prism at a certain angle, a beam of light would refract (bend) and separate into the spectrum of colors that we today recognize as the rainbow.



*Isaac Newton's Original Color Wheel*



The modern 12-part color wheel can be divided into three “categories” of colors: **primary**, **secondary**, and **tertiary** (or intermediate).

The primary colors are red, yellow and blue. These colors cannot be created by mixing other colors.

The secondary colors are green, orange and violet (or purple). These colors are made by mixing primary colors. For example, yellow + blue = green. Notice how green is placed directly between yellow and blue on the wheel?

The tertiary colors are yellow-orange, red-orange, red-violet, blue-violet, blue-green, yellow-green. These colors always have hyphenated names, and are made by mixing both primary and secondary colors.

*What is a color harmony?*

In music, harmony is when different notes are played together simultaneously to create a sound that is pleasing to the ear. Visually, harmony is achieved through a combination of color that is pleasing to the eye. Just like with music, visual or color harmony can create a feeling of balance and order, whereas the opposite—dissonance—can create either a chaotic or boring feeling. In essence, harmony lies on a scale ranging from color unity (perceived by the eye as under-stimulating or boring) and complexity (perceived as over-stimulating or chaotic). In visual art, it is the job of the designer/artist to find the balance between these two extremes.

*How is color harmony achieved?*

There are many ways to achieve color harmony. Four of the basic ways to combine colors to create visual harmony include:

- **Complementary Colors:** any two colors that sit directly opposite each other on the color wheel. For example, green + red or yellow + violet. When used together, these two colors create a dynamic visual effect because they do not have any of the same elements and are complete opposites, as suggested by their positioning on the wheel.
- **Analogous Colors:** any colors that sit directly beside each other on the color wheel. For example, orange + red-orange + red. When used together, these three colors create a pleasing visual effect because they have many of the same elements.
- **Monochromatic Colors:** an extremely narrow range of analogous colors—at times just various shades of a single color. Depending on the color used, monochromatic designs could create a vivid or subtle effect.
- **Triadic Colors:** three colors spaced evenly across the color wheel. This creates a very vibrant effect, but can be overwhelming.

