Visible Light

Objectives
- Identify relative wavelengths & frequencies in the visible spectrum.
- Identify the primary colors of light & the colors formed when these are combined.
- Differentiate between color by addition and subtraction.

Color Spectrum

Visible Spectrum

700 – 400 nm (1 nm = 10^{-9} m)

(700 nm)

(400 nm)

Color

The color we see is dependent on which frequencies strike, absorb and reflect.

This image below shows white light striking a green leaf. Only the green light is reflected to your eyes.

White - Black

White light is a blend of all colors of visible light. Appears to be white because they reflect all colors of visible light.

Black is the absence of reflected light – objects absorbs all colors.

Primary Colors of Light

Red (650 nm)  Green (550 nm)  Blue (450 nm)

Mixing the primary colors of light in different proportions can produce the vast array of colors you see on television and computer screens.

Color by Addition

Mixing colored light is an additive process.
Visible Light

Mixing Color

- RED
- GREEN
- BLUE

- YELLOW
- CYAN
- MAGENTA

Color by Addition

Primary Paint Pigments

- YELLOW
- CYAN
- MAGENTA

A pigment is a colored material that is used to change the color of other substances.

The color of a pigment results from the different frequencies of light that the pigment reflects.

Complementary Colors

Two colors added to produce white.

Color by Subtraction

Mixing colored pigments is a subtractive process.
Visible Light

Color by Subtraction

Print Colors

Assignments . . .
- Chromebook Lab: RGB Color Addition
- Chapter 21 Homework #1 - 6
<table>
<thead>
<tr>
<th>Attachments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color Creator</td>
</tr>
<tr>
<td>Color Addition</td>
</tr>
<tr>
<td>Color Subtraction</td>
</tr>
</tbody>
</table>