COLORS

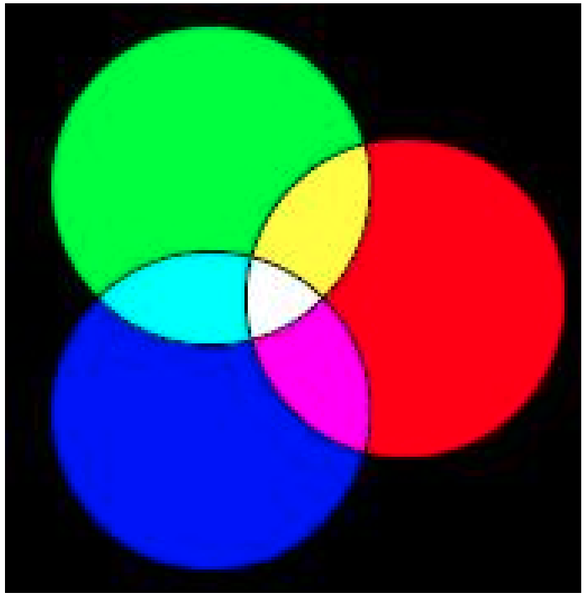
OpenGL Fundamentals

COLOR PERCEPTION

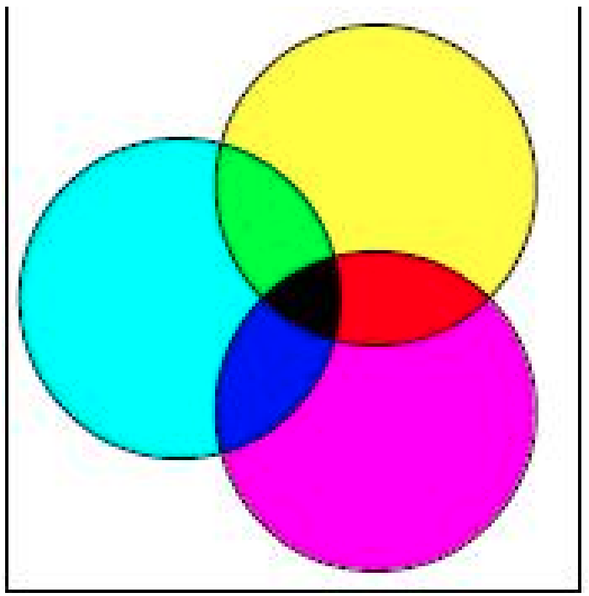
The Trichromatic Theory of Vision

- Humans perceive color in 3 components: Red, Green, Blue,
- The retina of the eye contains several kinds of light-sensitive receptors called cones and rods.
- Human eyes contain three kinds of cones, sensitive to red, green and blue light respectively.
- Rods, the fourth kind of light-sensitive cell, are mostly used for vision in very light levels and peripherals vision and detection of motion; they could barely detect colors.

Additive colors



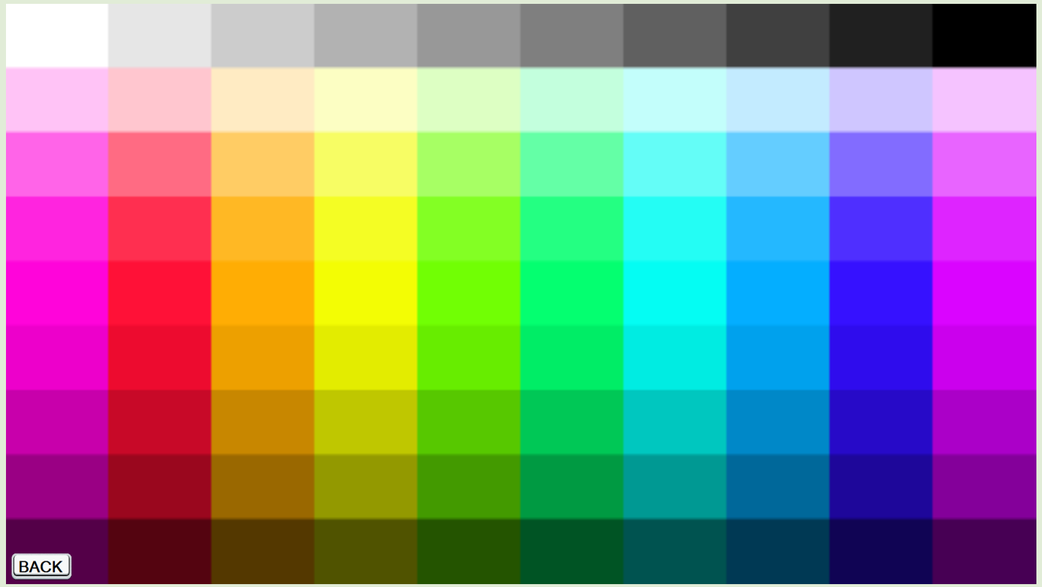
Subtractive colors



COMPUTER COLOR

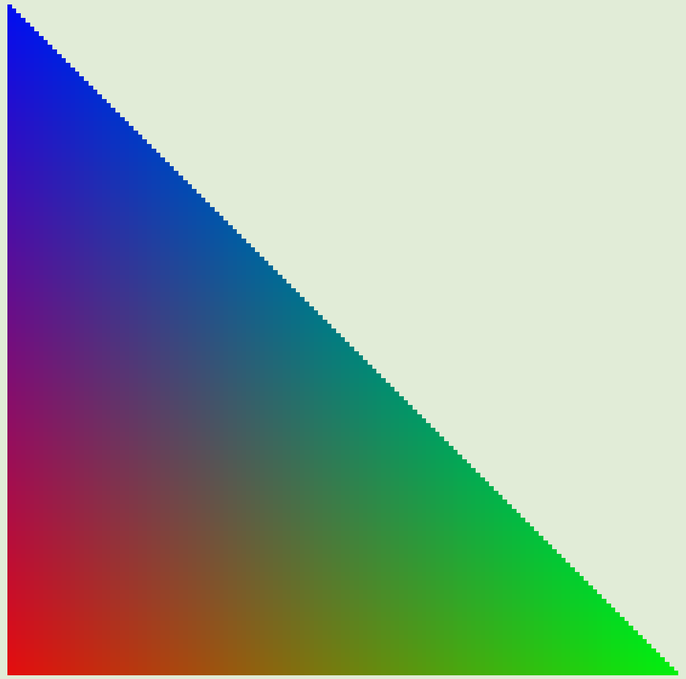
Representation of RGB Colors

- 24-bit color → 16,777,216 colors (true color)
- 32-bit color: 8-bits for each of R, G, B, the remaining 8 bits may be used for an alpha (α) value
- RGBA mode : Red, Green, Blue, Alpha
- the memory for all the pixels is called the memory buffer



EXAMPLE

```
glBegin (GL_TRIANGLES);
   glColor3f (1.0, 0.0, 0.0);
   glVertex2f (5.0, 5.0);
   glColor3f (0.0, 1.0, 0.0);
   glVertex2f (25.0, 5.0);
   glColor3f (0.0, 0.0, 1.0);
   glVertex2f (5.0, 25.0);
   glEnd();
```



LEARNING LINKS

- https://en.wikipedia.org/wiki/RGB_color_model
- https://www.rapidtables.com/web/color/RGB_Color.html