

Lesson Plan for RGB Cookie Decorating

Subject: Unplugged – Learning RGB (Red, Green, Blue)

Length of Lesson: 90 minutes

Concept or Skill Focus: RGB Color Codes/Values and Frosting cookies/cupcakes

Goal: To teach students the purpose and usage of RGB color values in programming and to have fun while doing so.

Objectives/Outcomes:

- Introduce RGB values
- Explain its functionality
- Demonstrate how to make different colors and frost cookies
- Guess the RGB value of the frosting

Activities and Time Line (Introduction, Middle, Conclusion)

Introduction – First 30 minutes:

- Watch short video (up to 2:17 minutes): “This Is Not Yellow” located here: <https://www.youtube.com/watch?v=R3unPcJDbCc>
- Introduce RGB values – 0 to 255 (8 bits – see Binary Baubles and Binary Keychains)
 - (0, 0, 0) = Black – all lights are “off”
 - (255, 255, 255) = White – all lights are “on” at highest intensity
 - (128, 128, 128) – Medium Gray = all lights are on the same amount of intensity (a shade of gray)
- Display image of full color wheel –subtractive color
 - Explain primary and secondary colors
- Explain the purpose of RGB
 - How it is used in programming
- Show them examples on whiteboard via projector and let them “guess” the RGB value
 - The largest value will have that color dominance
 - Give them live examples and show changing RGB values as color changes

Middle – Second 45 minutes

- Let each student chose a color from the Icing Color chart (below)
- Each student gets a bag of frosting and adds the appropriate number of food coloring drops
- Students knead frosting until all food coloring is distributed
- Students can make pipettes by maneuvering frosting to the corner of bag
- Snip off corner of bag and have students frost cookie or cupcakes
- Take pictures of the cookies and download them to a computer
- Using a projector, show cookie pictures to students and have them determine the RGB of the frosting
- Open the pictures using MS Paint and with the Eyedropper Tool grab a pixel from the image
- Display the RGB values and see how close the students were to getting the correct RGB values

Conclusion – Last 15 minutes

- Review the purpose of RGB and eat cookies
- Clean up materials and stations

Materials

- Sugar Cookies (or Vanilla Wafers)
- Vanilla Frosting (1-2 16 oz. cans)
- Red, green, blue, and yellow food coloring
- Ziploc bags with ~1 tablespoon frosting
- Table Cloths
- Napkins
- Scissors
- Camera
- Computer with Projector



PINK
1 drop red



RED
3 drops red
1 drop yellow



ORANGE
1 drop red
1 drop yellow



BURNT ORANGE
1 drop red
3 drops yellow



LEMON
1 drop yellow



YELLOW
2 drops yellow



LIME
2 drops yellow
1 drop green



HONEYDEW
1 drop green



GREEN
2 drops green
1 drop blue



SEA GREEN
1 drop green
1 drop blue



MINT
2 drops blue
1 drop green



SKY BLUE
1 drop blue



BLUE
2 drops blue



LAVENDER
1 drop blue
1 drop red



PURPLE
1 drop blue
2 drops red



BOYSENBERRY
1 drop blue
3 drops red