Names: Color Vision Simulation

Physical Science

**Directions:** Go to the provided link on classroom or search ‘color vision phet’ in google and it should be the first result. Read each step of the directions and do your best to answer the questions in complete sentences unless a blank is provided for a one-word or numerical answer.

**Part 1: Single Bulb**

1. Select the ‘single bulb’ simulation. Click the red button on the flashlight to turn it on. The color in the thought bubble represents the color that the person sees in their mind. Take a minute or two and see what the two sliders do and the button on the arm coming out of the bottom thing.
2. What does the person see if you put red light through a red filter? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What does the person see if you put violet light through a red filter? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What does the person see if you put violet light through a violet filter? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Experiment with the colors of filters and lights. Do the filters ‘filter out’ the color they are or the other colors? Explain.
6. Switch the flashlight to white light by clicking the white bulb above the flashlight.
7. See what different filters do to the light seen by the person when the light source is white. Are there any colors you can’t see using white light and a colored filter? Explain.

**Part 2: RGB Bulbs**

1. Click the ‘RGB Bulbs’ part of the simulation at the bottom. Spend a minute or two playing around with this and familiarizing yourself with the controls.
2. The light appears to be tiny particles. Think back to our notes (or look at them if you need to). What do we call light as a particle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Turn red, green, and blue all the way up. What color is seen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Turn red, green, and blue all the way down. What color is seen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Turn green and blue to 100% and turn red to 0%. What color is seen?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Turn red and green to 100% and turn blue to 0%. What color is seen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Turn red and blue to 100% and turn green to 0%. What color is seen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Turn all three to about 50%. What color is seen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Turn all three to about 25%. What color is seen? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. How are the colors form #14 and #15 similar but different? Why do you think this is so?
11. Do your best to mix up a mint green. About what percent is each color when you achieve this?

R = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ G = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ B = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Do your best to mix up orange the color of the fruit. About what percent is each color when you achieve this?

R = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ G = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ B = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_