

Color Cocktail Design Recommendations

- After a triangle has been hit by a ball, all future collisions between the ball and the two sides of the triangle should not affect the color any more.
- Special care must be given to selecting the right colors for the game. For example, if you would blend plain blue and yellow, the result would not be a nice shade of green! From the color research done for the game, we suggest the following colors to be used (in combination with blend mode 1):
 - cyan blue (RGB: 0.000, 0.500, 1.000)
 - sulfur yellow (RGB: 1.000, 0.961, 0.259)
 - tele magenta (RGB: 0.749, 0.090, 0.451)
 - red (RGB: 1.000, 0.000, 0.000)

Blending these colors gives nice results, for example:

- blue + yellow = grass green
- blue + yellow + yellow = olive green
- blue + magenta = royal blue
- blue + magenta + magenta = purple
- red + blue = purple
- red + blue + blue = royal blue

Some combinations are less interesting. It is possible to create orange by blending red and yellow, but under some viewing angles the difference in color is not clear enough. By carefully selecting the triangles the player can use in each level, it can be avoided that the player creates colors that are too similar.

- In blend mode 1, blending is implemented to work like blending paint in real life. As a ball bounces on different surfaces, it stores all colors it bounces with. The resulting color of the ball is calculated as follows:
 - Convert all colors from RGB to CMY ($C = 1-R$, $M = 1-G$, $Y = 1-B$)
 - Calculate the sum of these colors (without clamping)
 - Divide each component of the resulting color

by the larger component (so the color components are in the range [0,1])

- Convert the resulting color back to RGB ($R = 1-C$, $G = 1-M$, $B = 1-Y$)
- Ideas for more variation:
 - different amount of balls per level
 - different positioning of the place where the balls fall from
 - Additional objects:
 - 'half triangles' (just one slope with a color)
 - objects only affecting the balls' direction, and not the color (e.g. different slopes)
 - ...
- A color blind option could be added, e.g. working with symbols, shapes or letters on the balls. To get the same gameplay and difficulty, the combinations made should not be immediately obvious. A possible solution here would be to use a letter from the color on the ball.