

# **Color Schemes**

Creative Data Mining

Ricardo Joss



Is there a link of the pure color schemes of a place, to  
it's perception of...

... beauty / ugliness

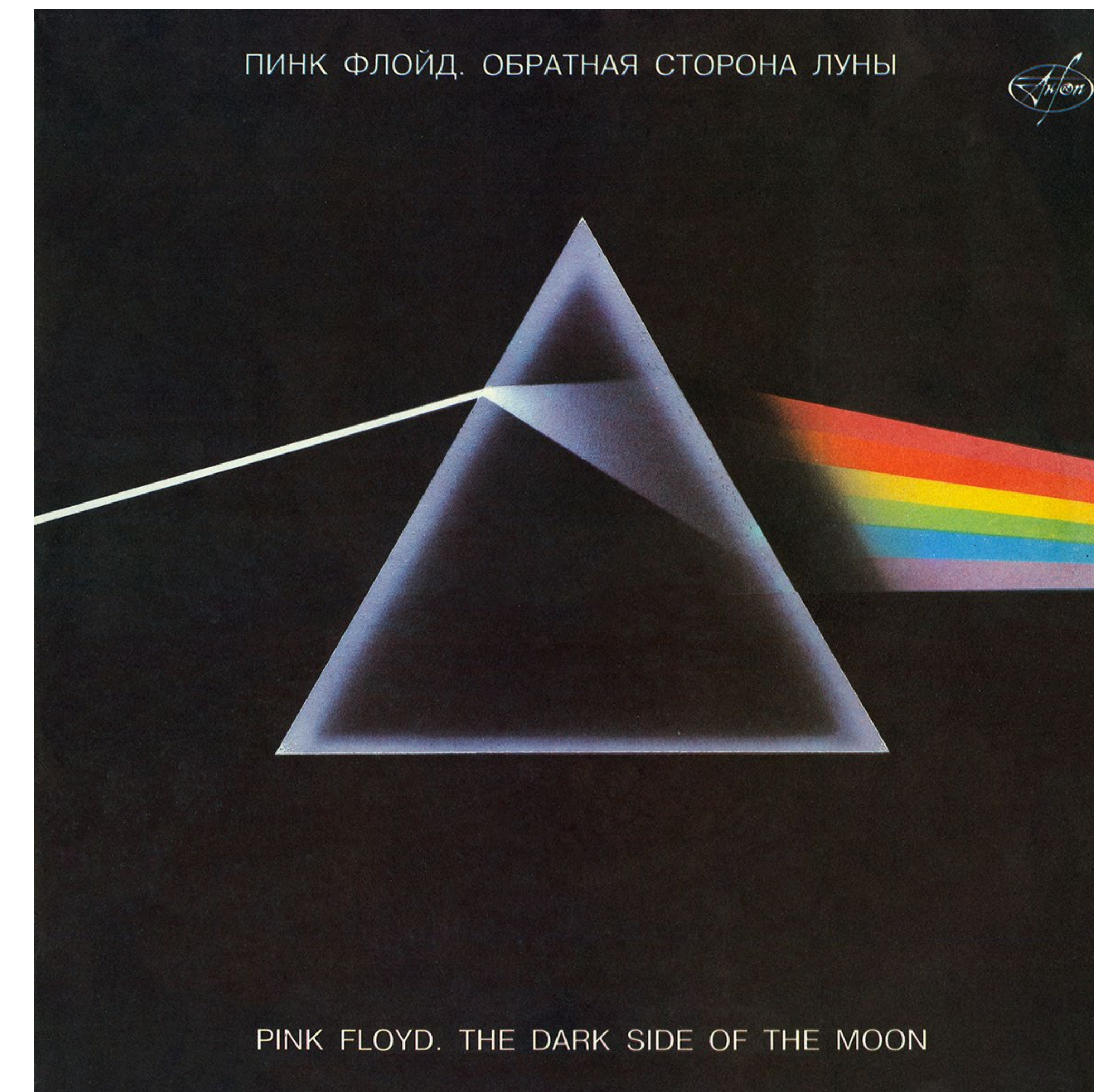
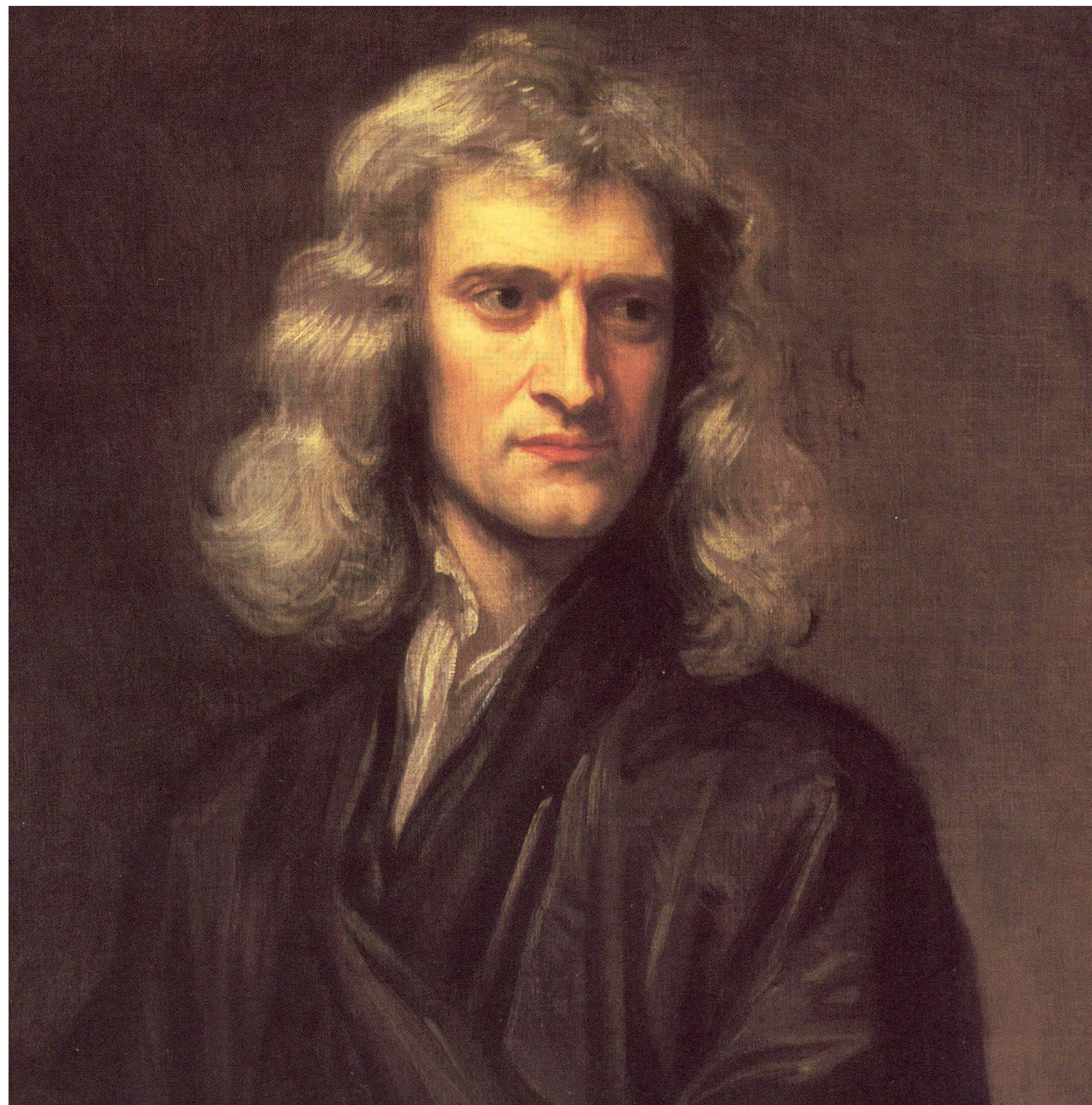
... lightness / darkness

... openness / enclosedness

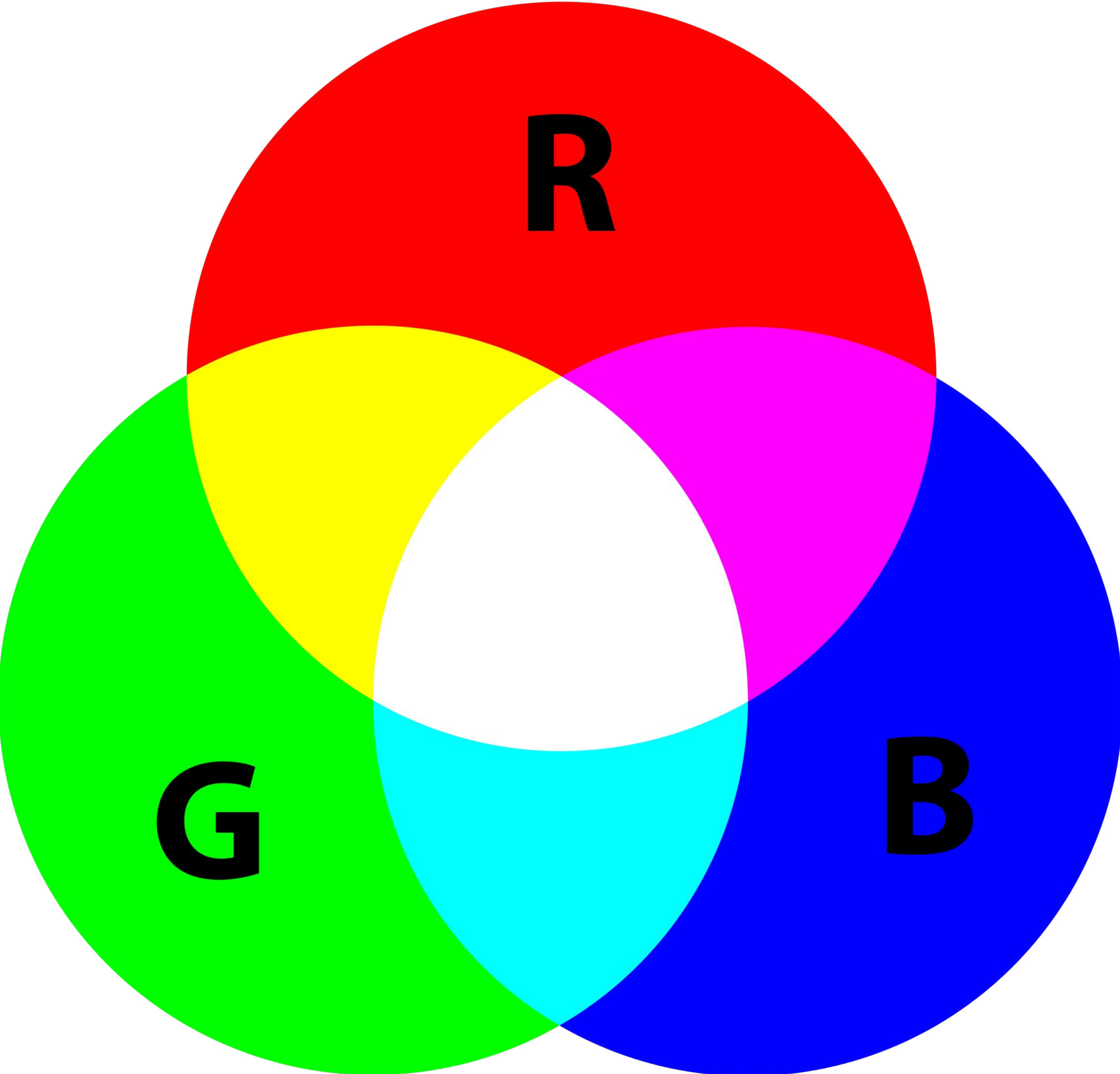
...order / chaos



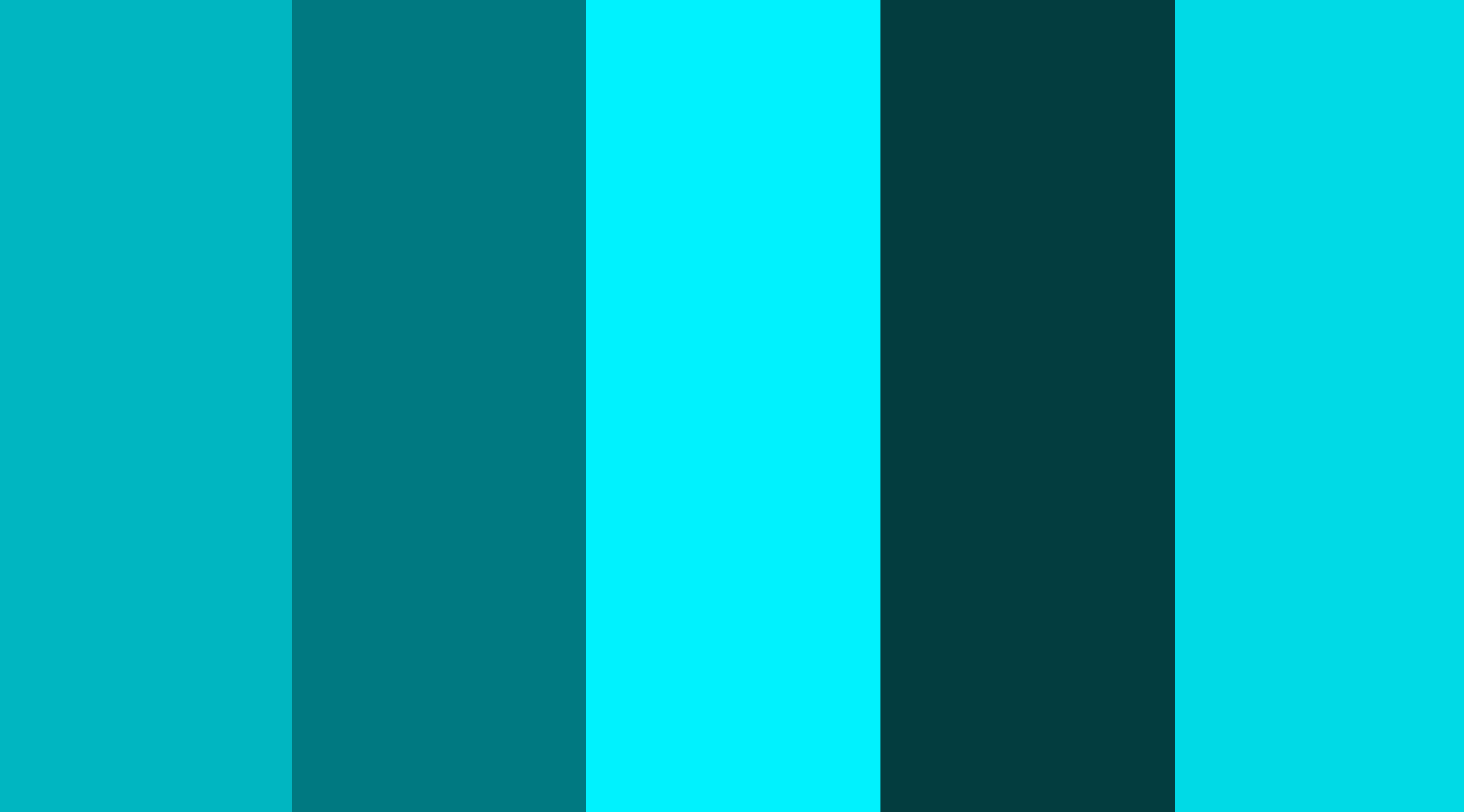




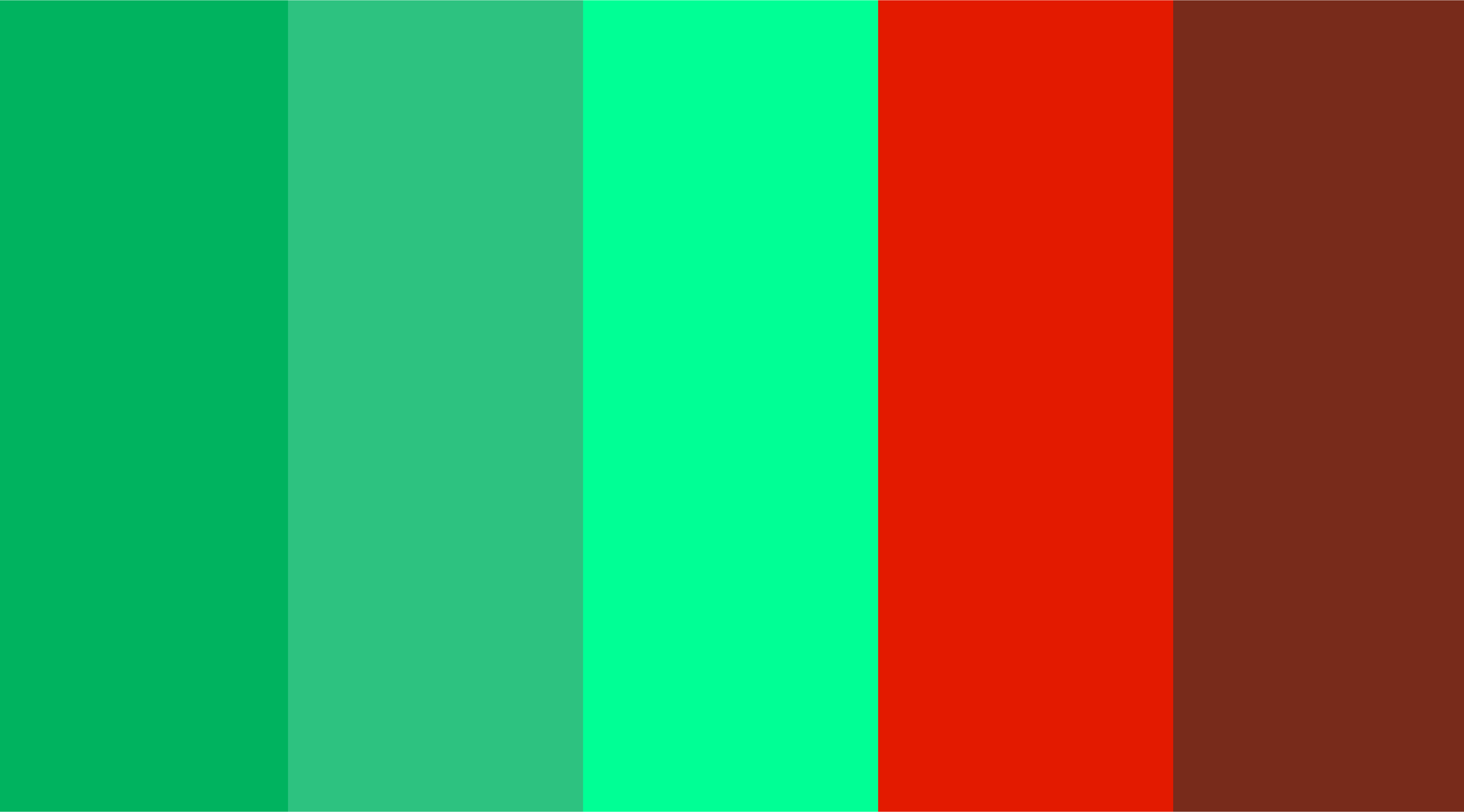




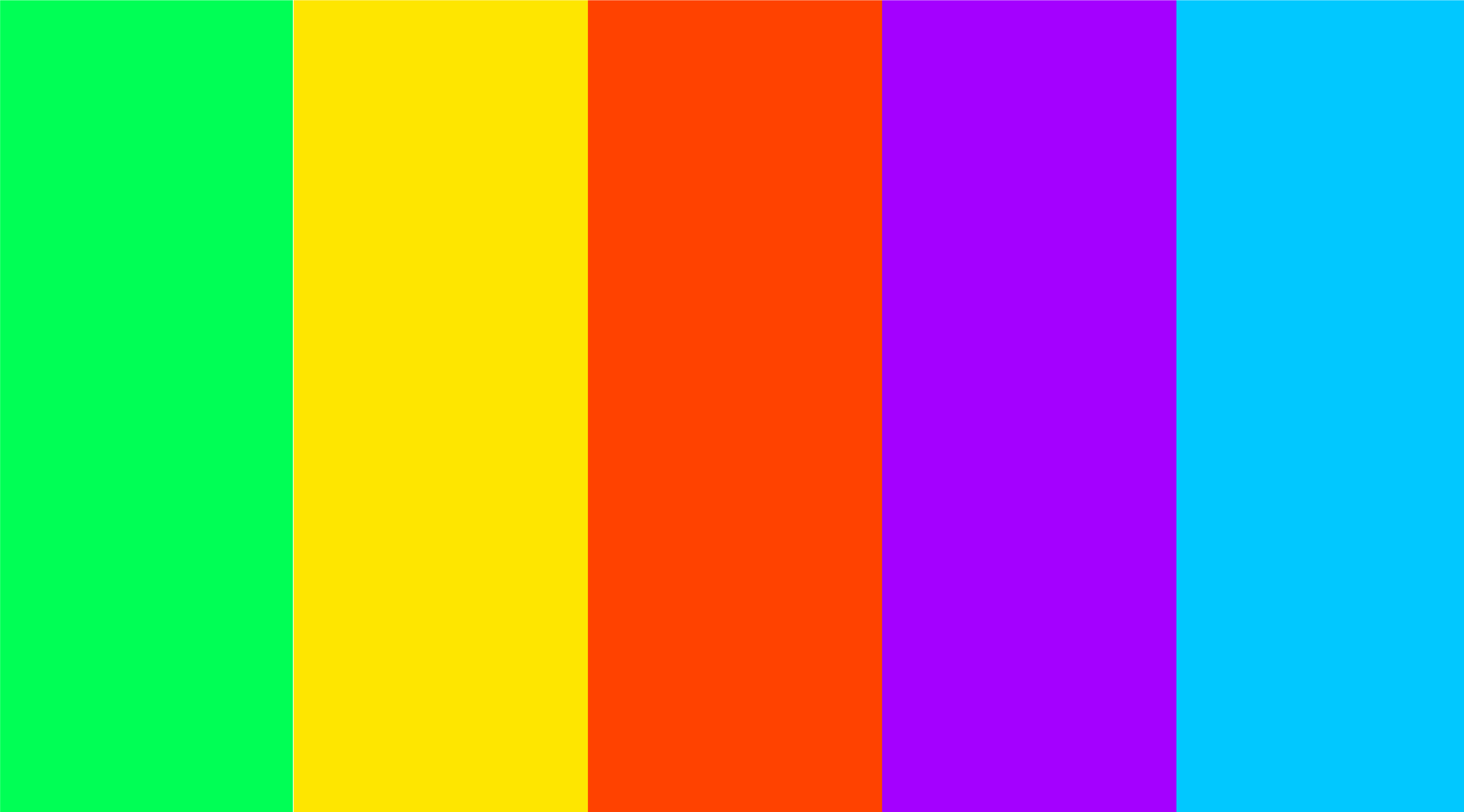




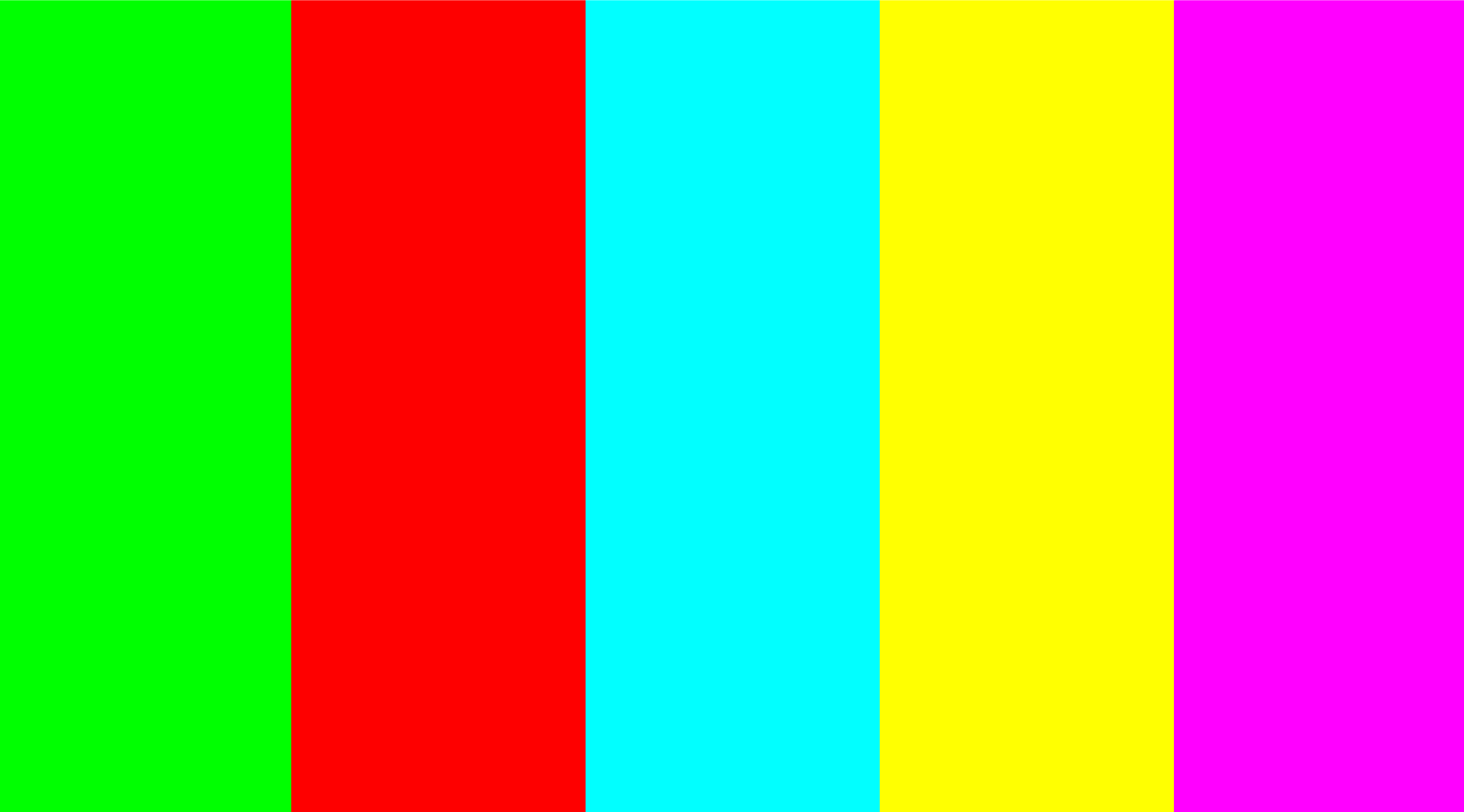




















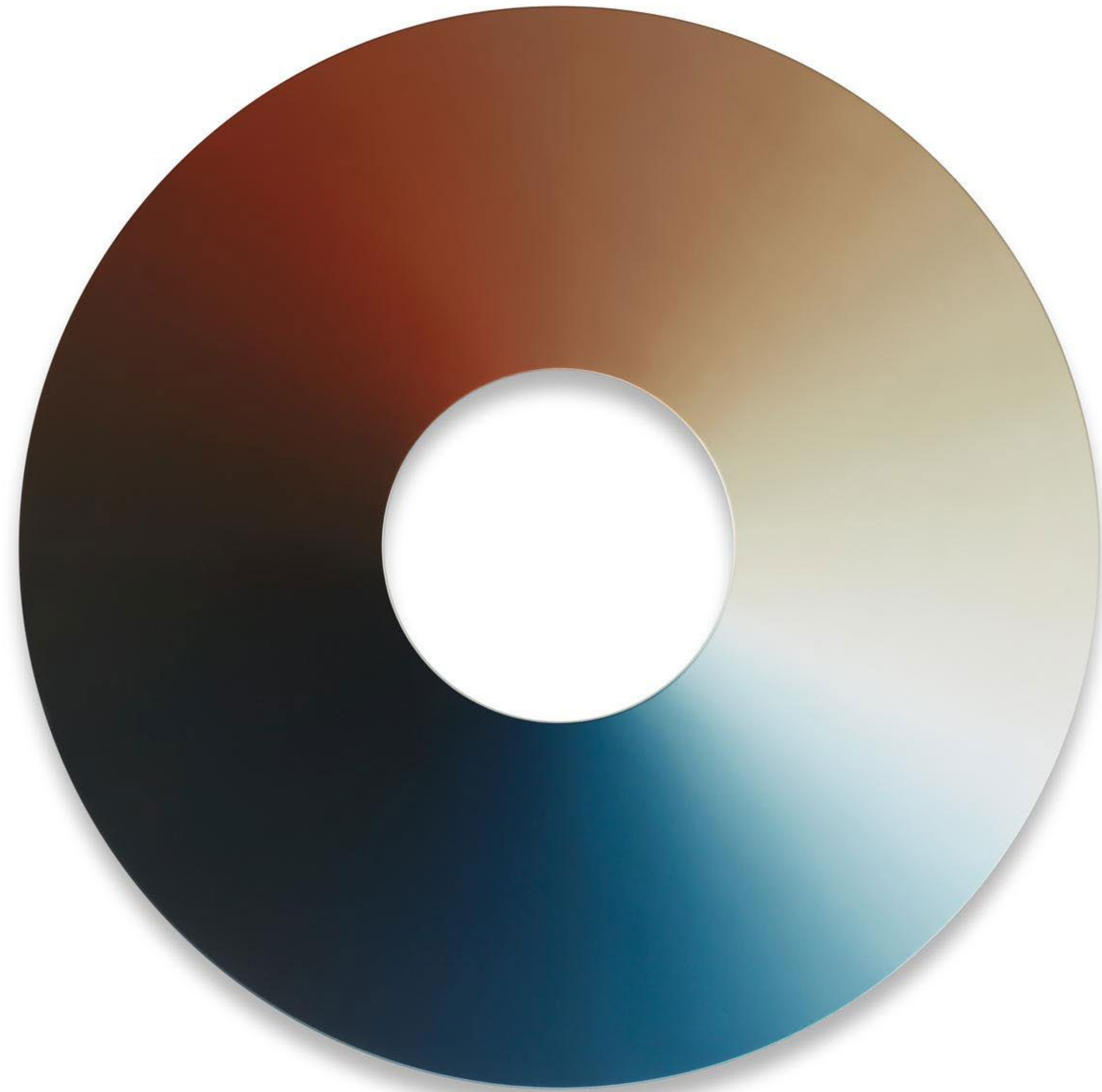
JMW Turner, Ancient Rome, 1839





Olafur Eliason's Studio







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# Method





Get a spherical Camera (A smartphone would work as well...)





Make a Photosphere of the Place



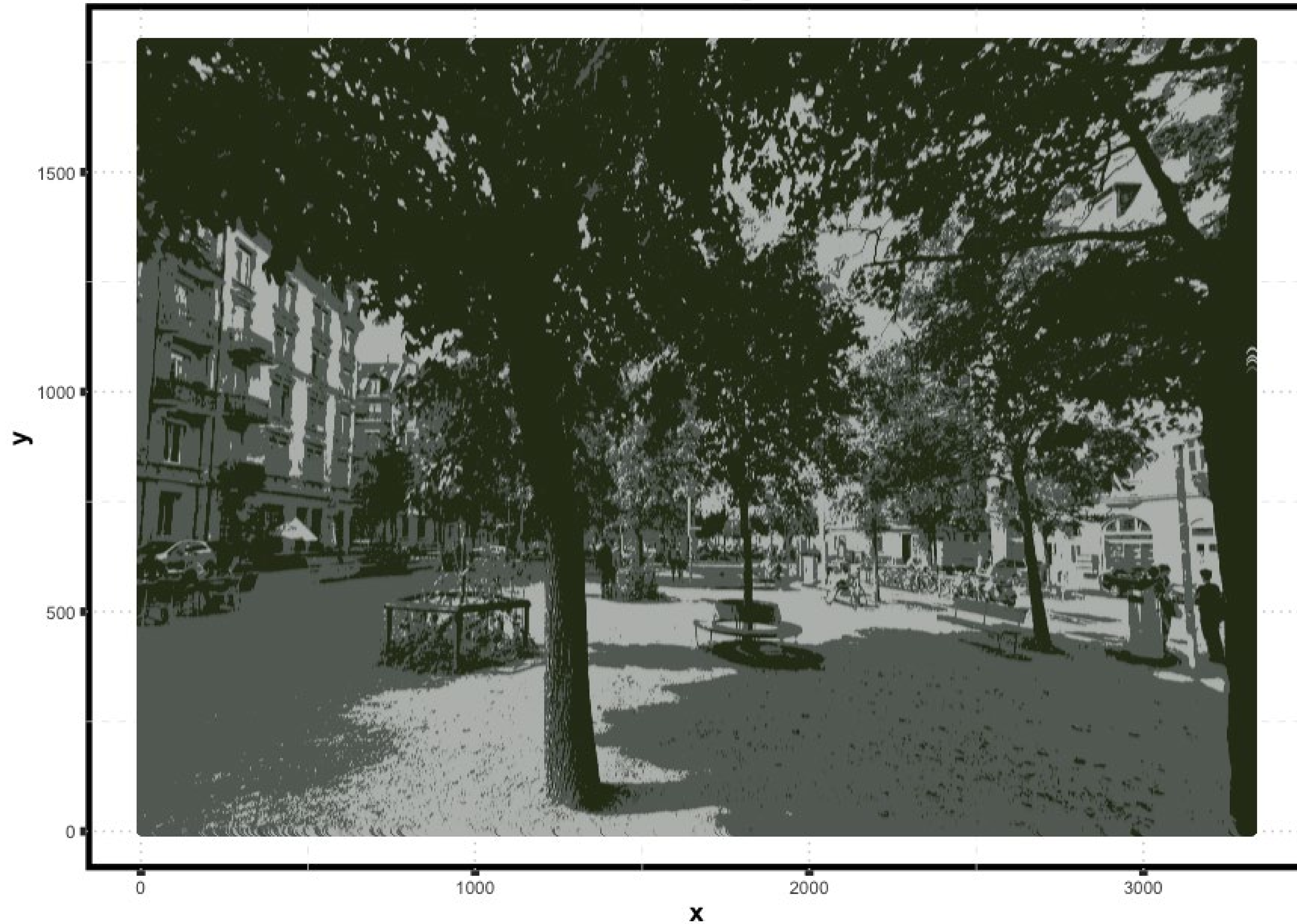


Cluster the colors, to get the most dominant colors.

(Test image taken form Google Street View)



## k-Means Clustering of 3 Colours



Run a k-means algorithm in R. Then wait. Then get a coffee. (Calculation time aprox. 30 Minutes)





Or just save it in Photoshop as a color reduced PNG-File. Sorry, no coffee here. (Caluclation time aprox. 2 Seconds)





Original





Again, just the three most dominant colors.



How many clusters?

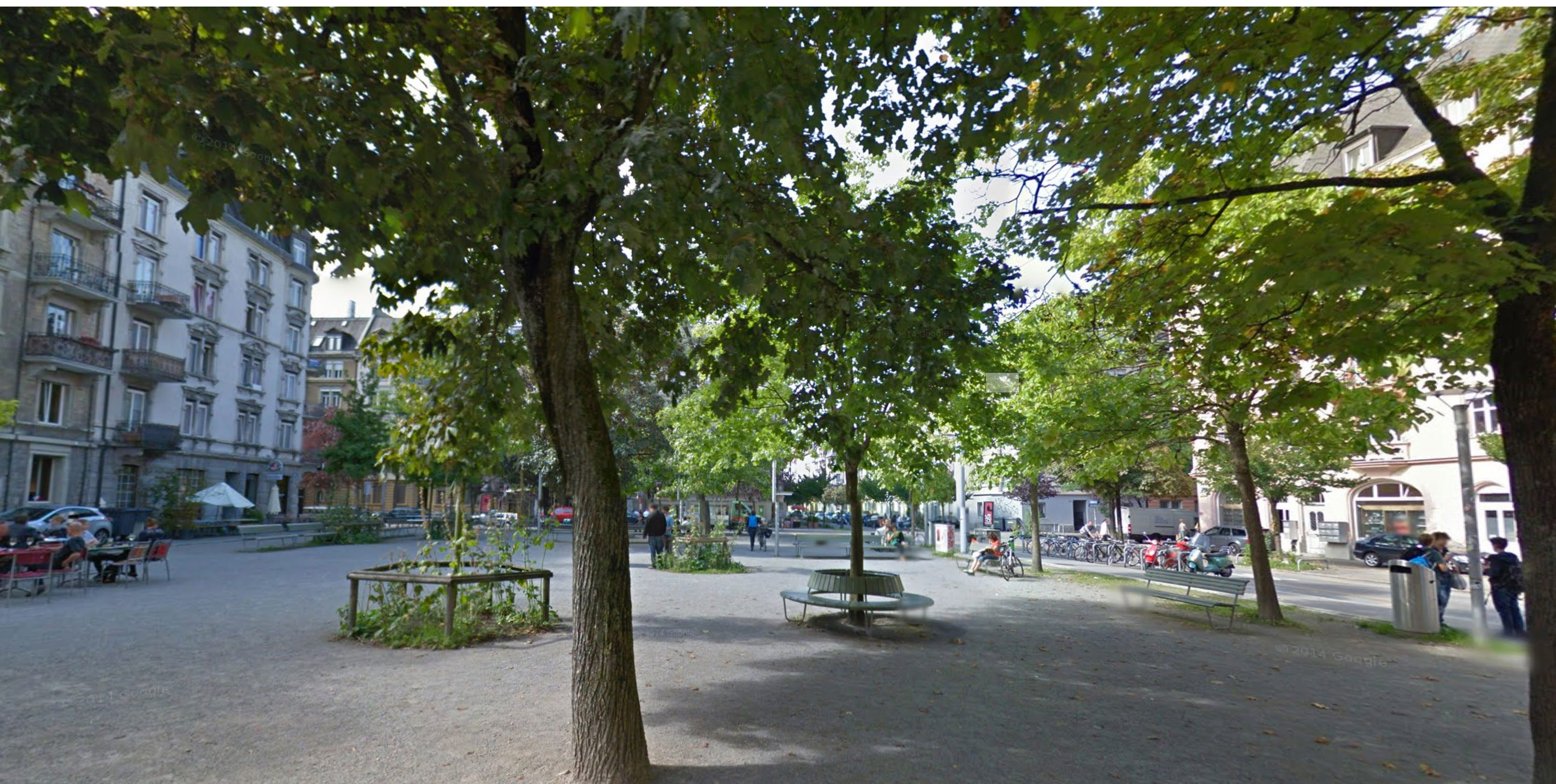


12!



Standard sized pencil set.





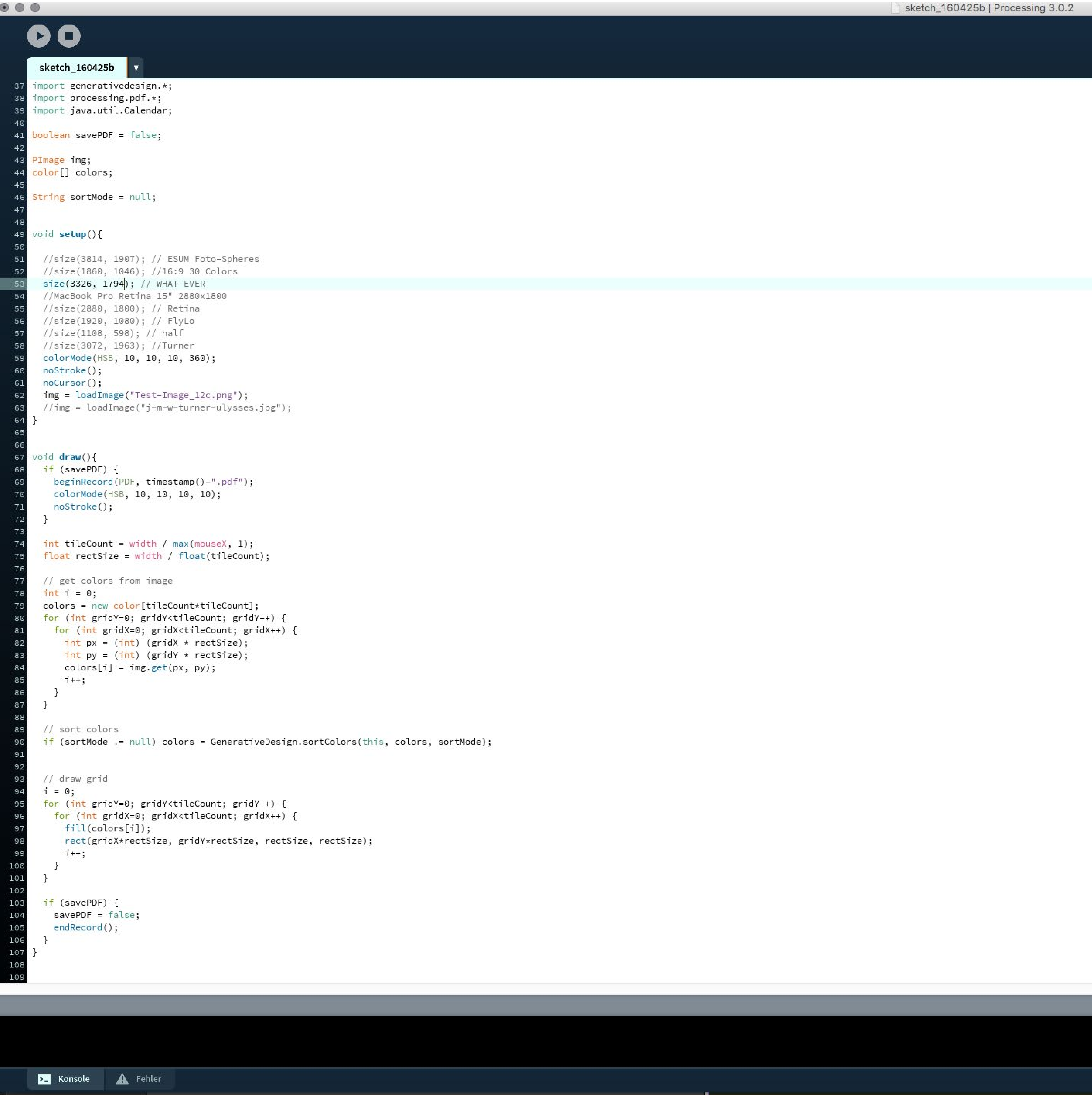
Original, all colors are there.





12 most dominant colors.





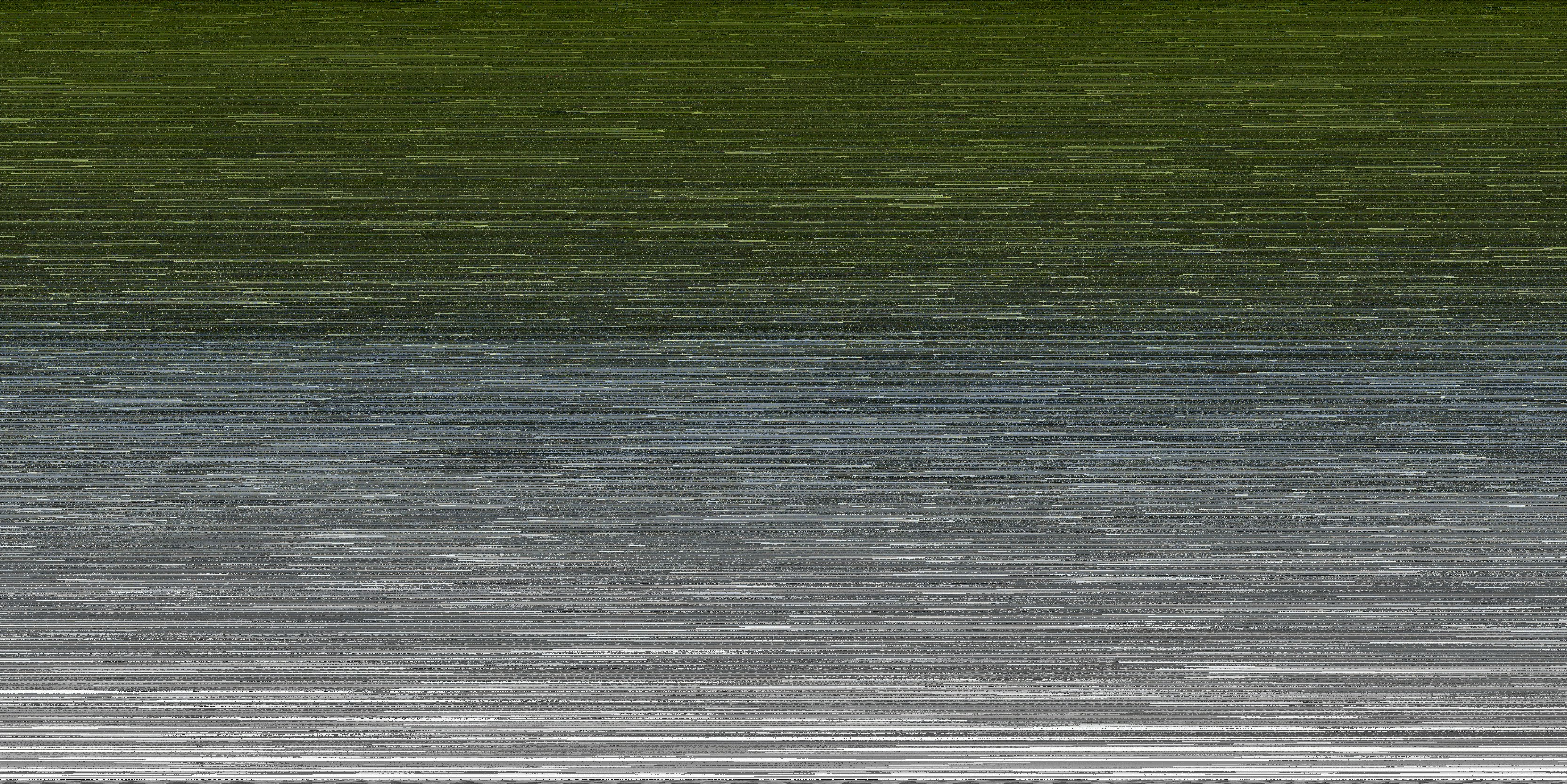
Pixelsorting algorithm in Processing. Sorting by Hue-Value.





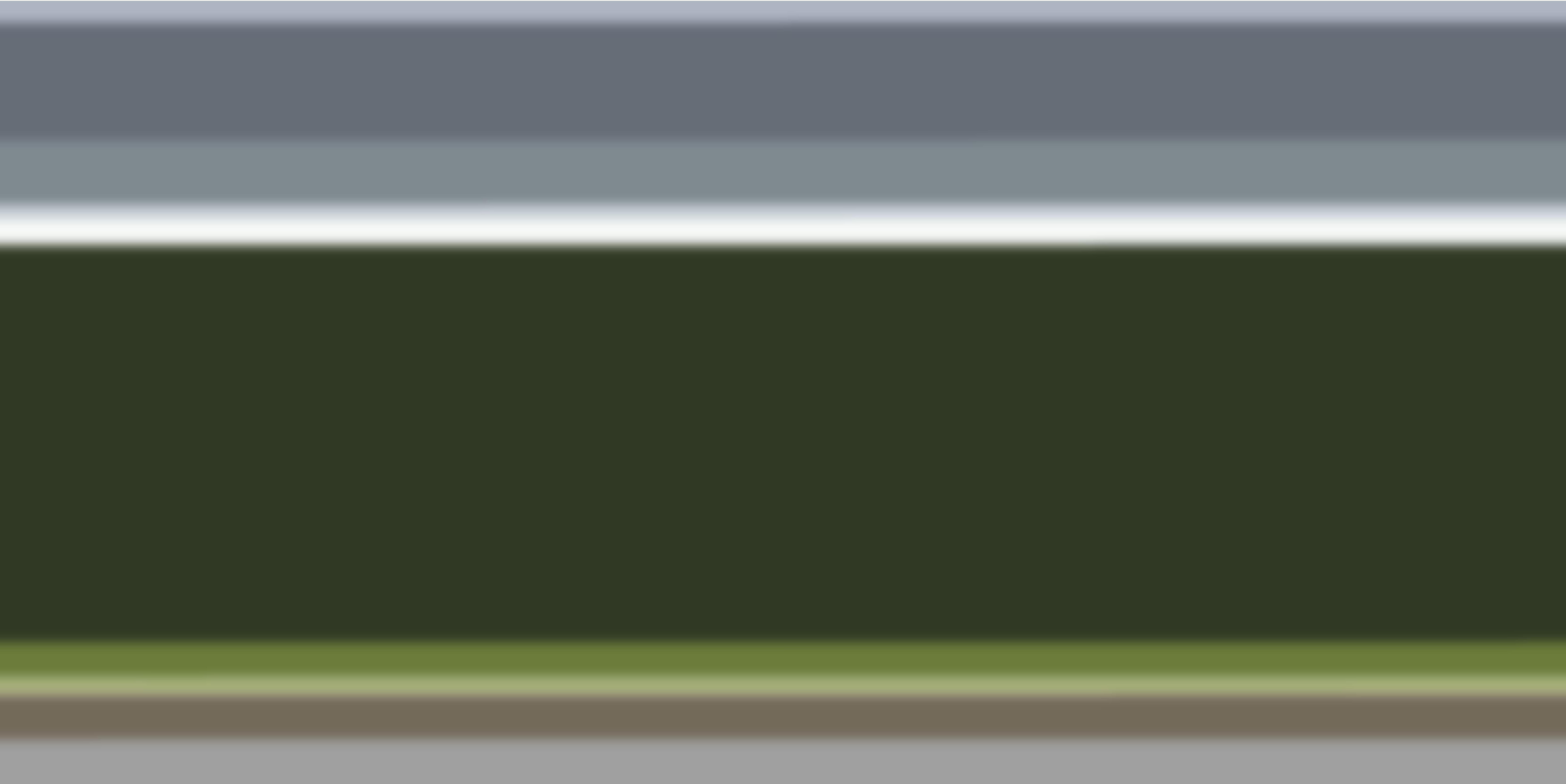
12 most dominant colors sorted by Hue.





Without clustering. All colors are present. Sorted by Hue.





12 most dominant Colors sorted by Hue with Gaussian-Blur of 12 Pixels.



**Let's have a walk . . .**  
in a colorful way





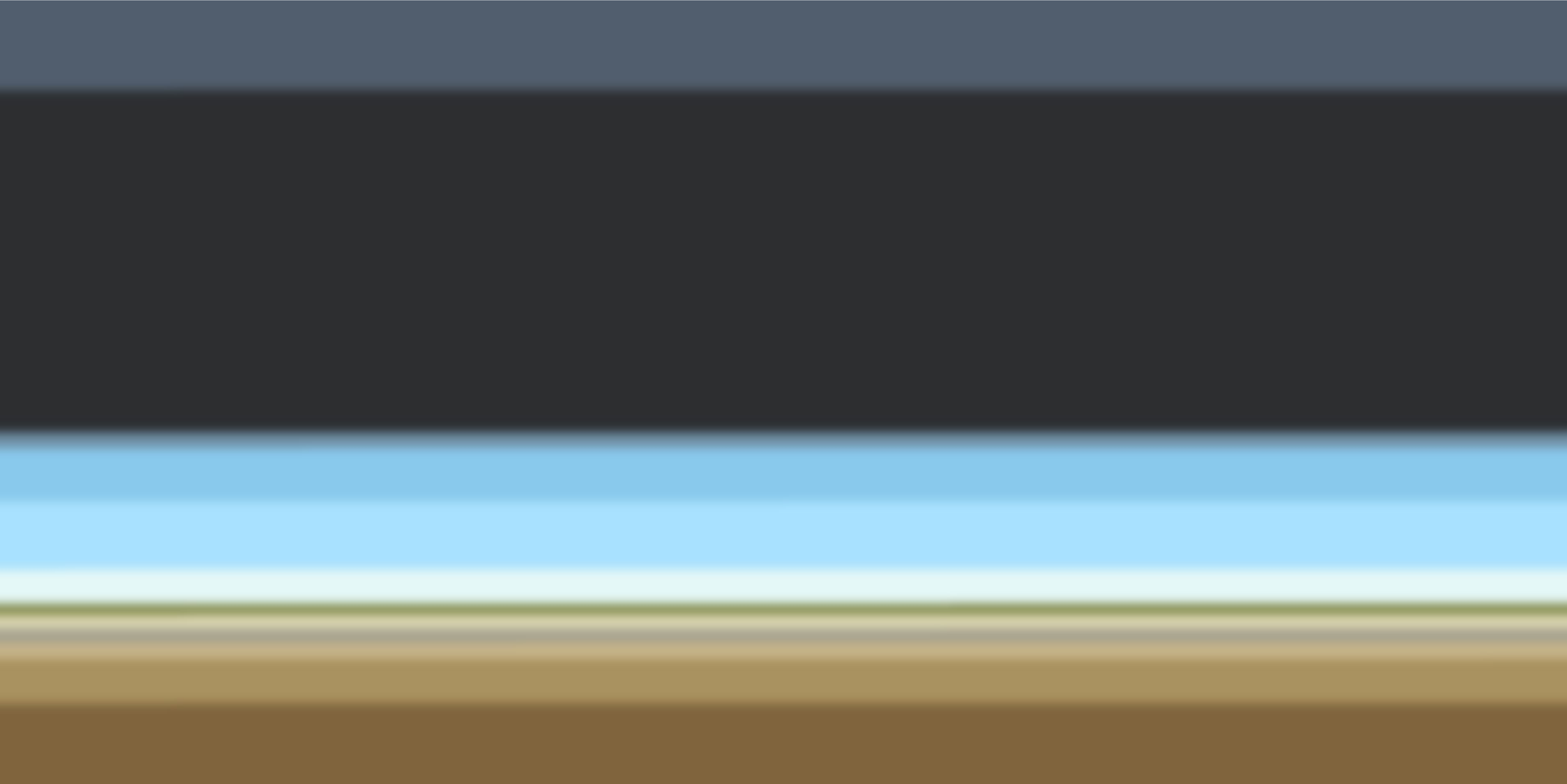
**Position 1 - 12 Colors**





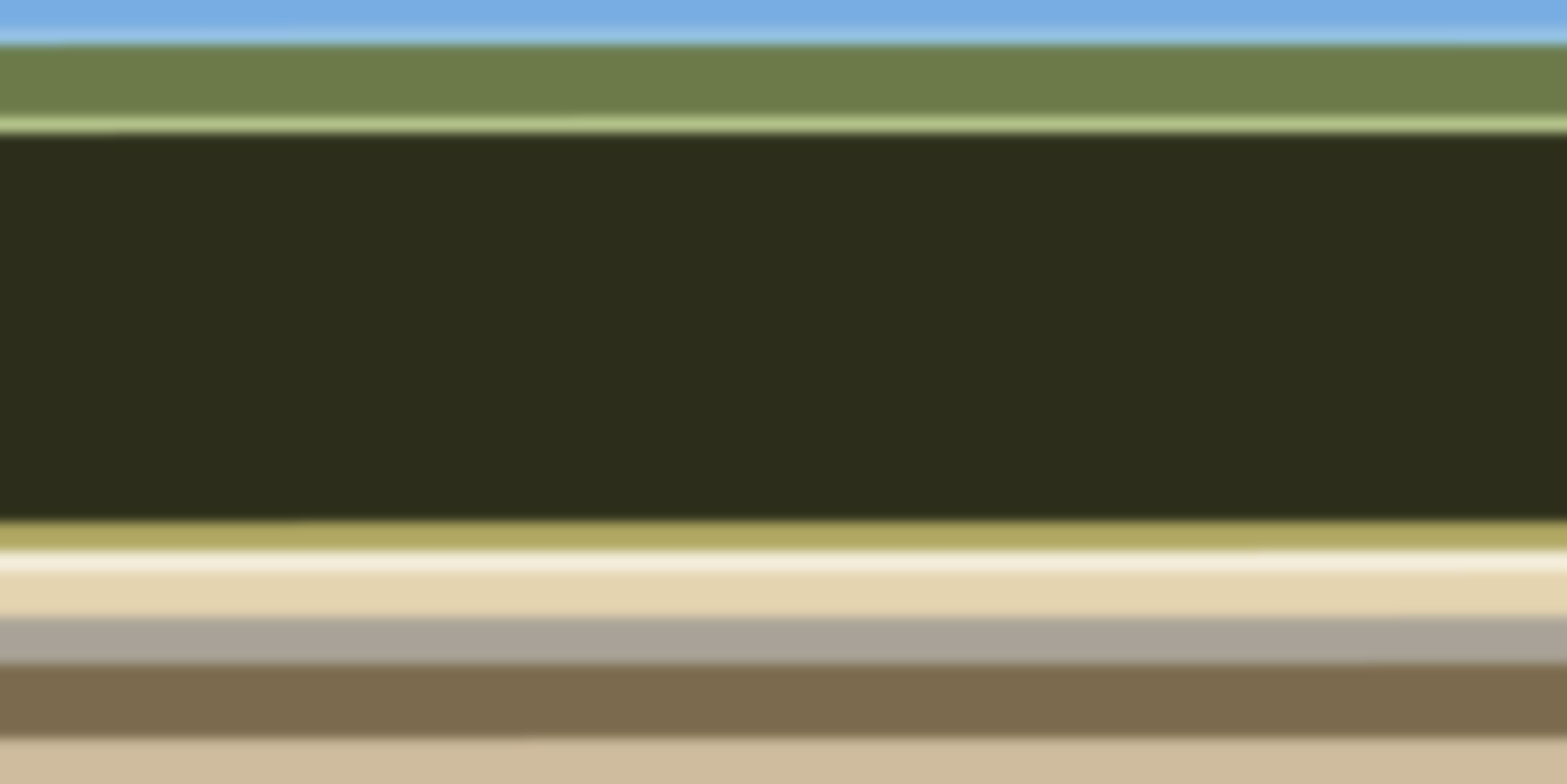
**Position 2 - 12 Colors**





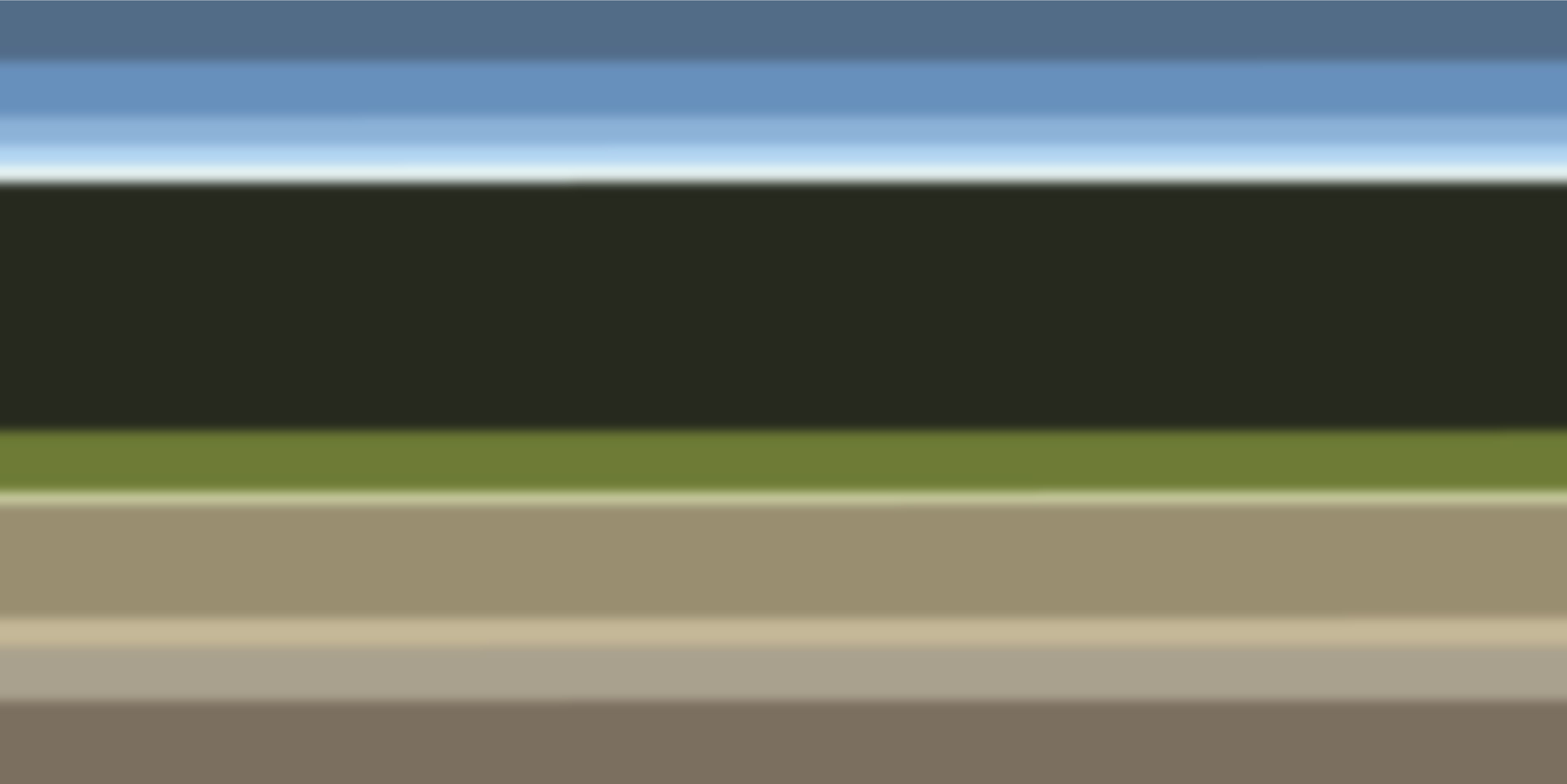
**Position 3 - 12 Colors**





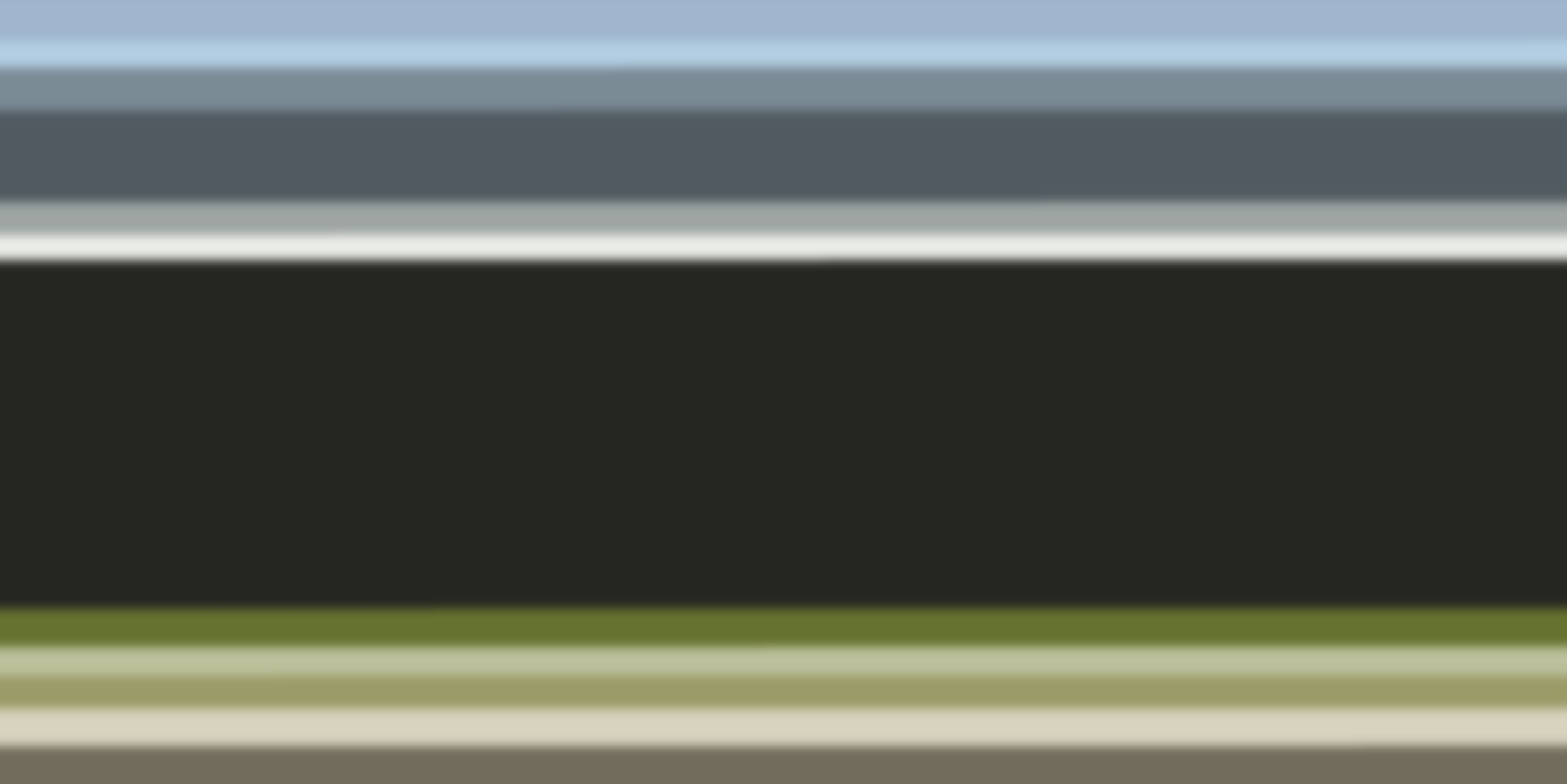
**Position 4 - 12 Colors**





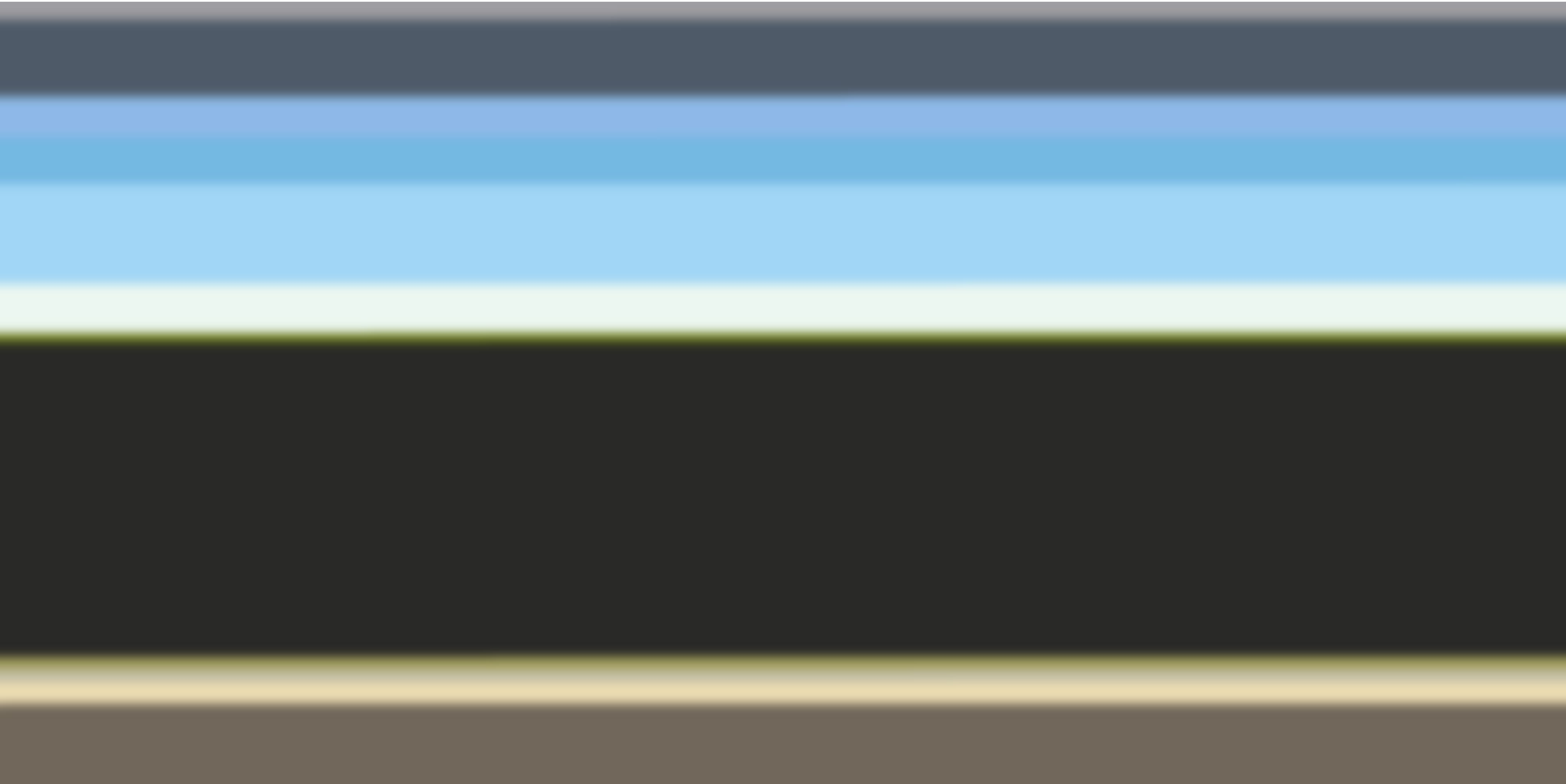
**Position 5 - 12 Colors**





**Position 6 - 12 Colors**





**Position 7 - 12 Colors**





**Position 8 - 12 Colors**





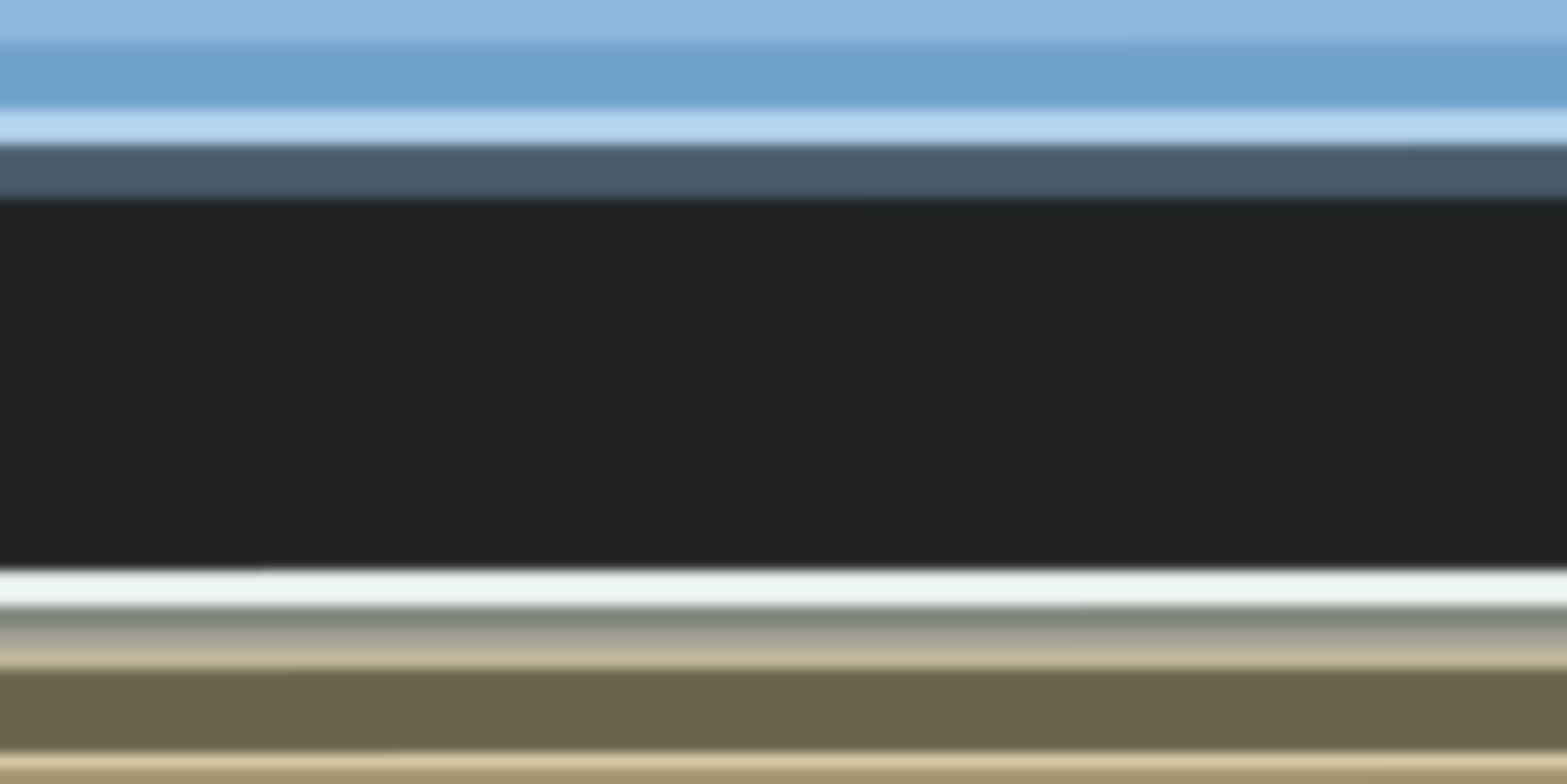
**Position 9 - 12 Colors**





**Position 10 - 12 Colors**





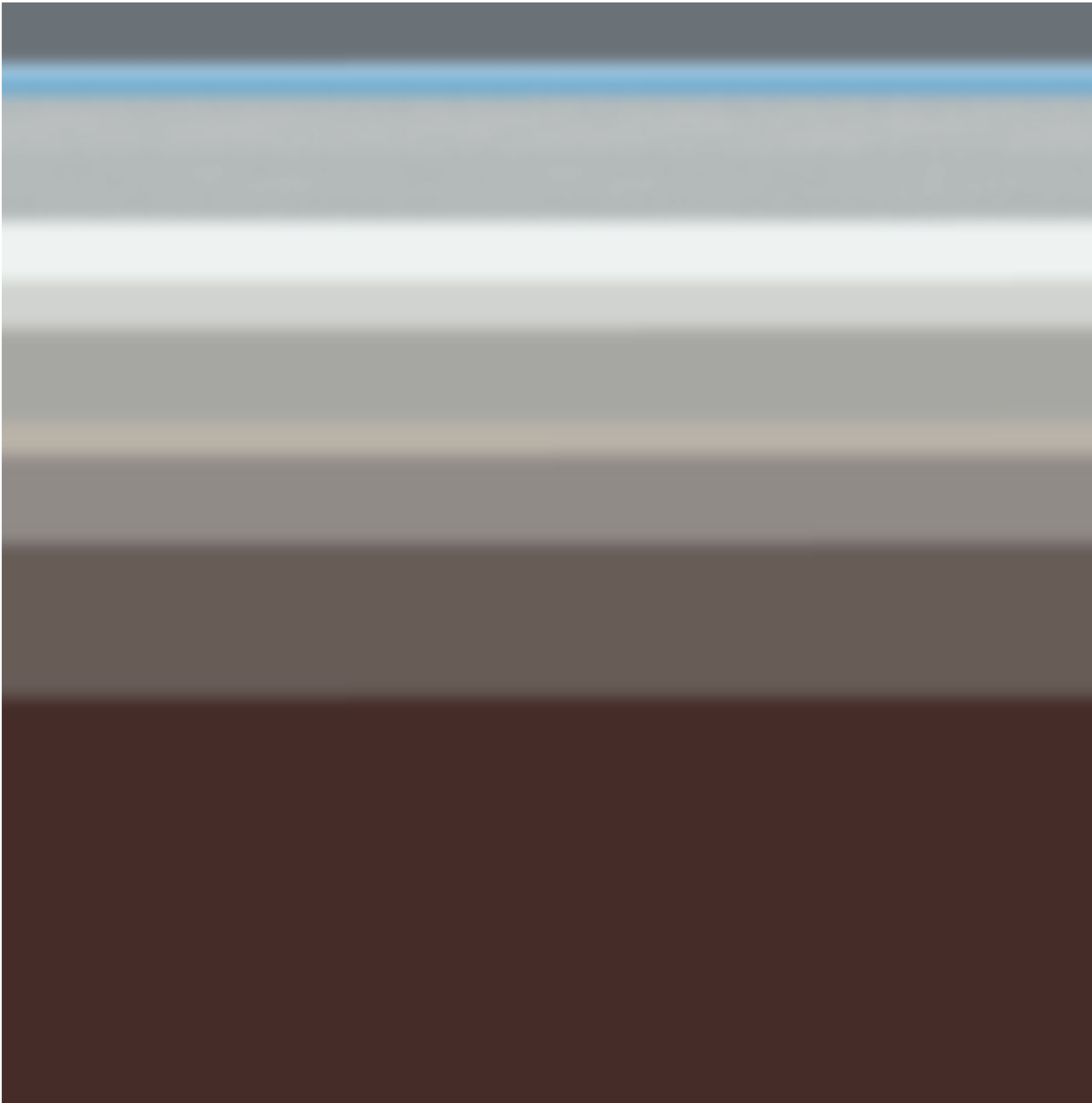
**Position 11 - 12 Colors**





**Position 12 - 12 Colors - Red Sunblind**



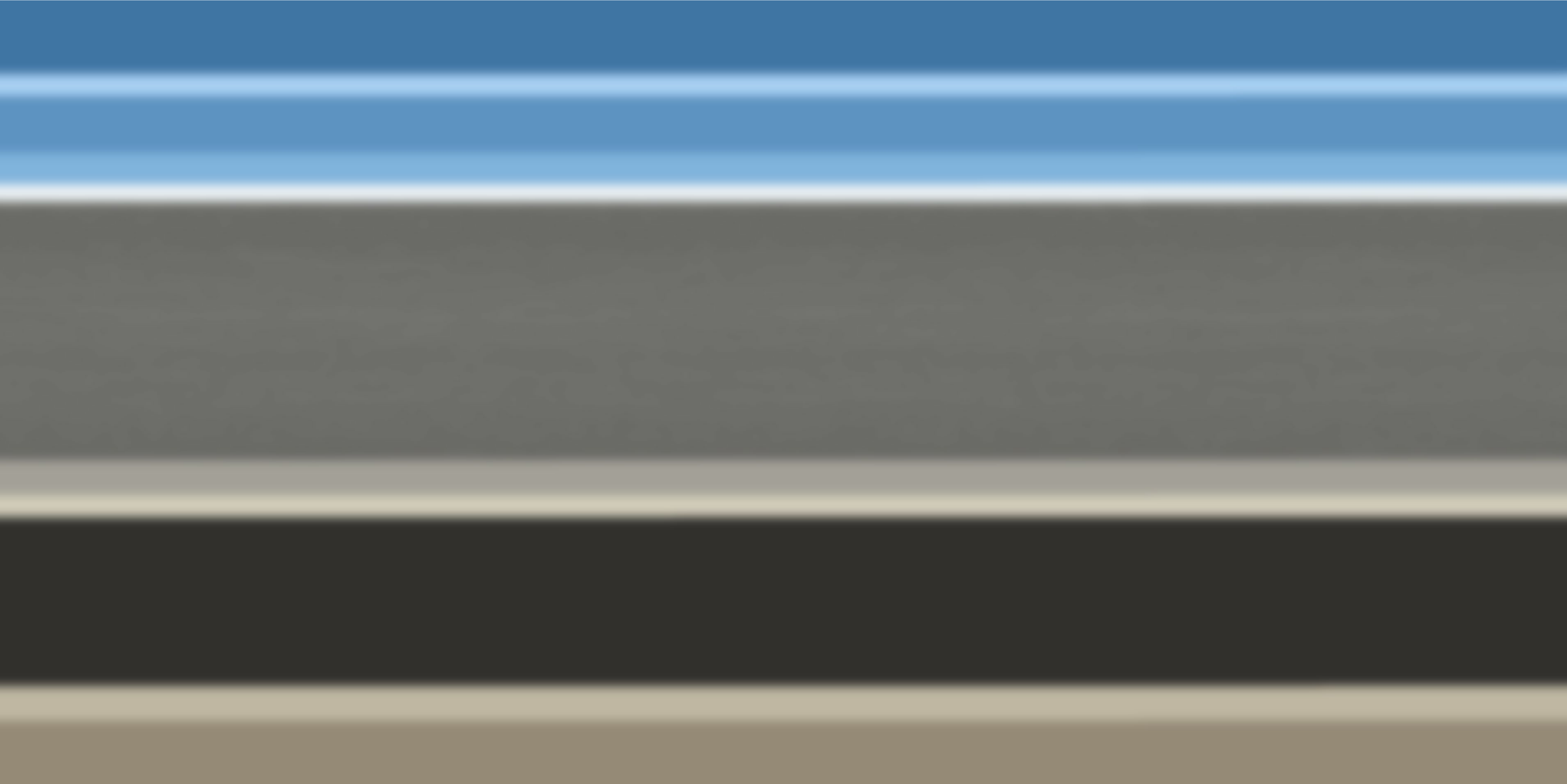


12 Colors



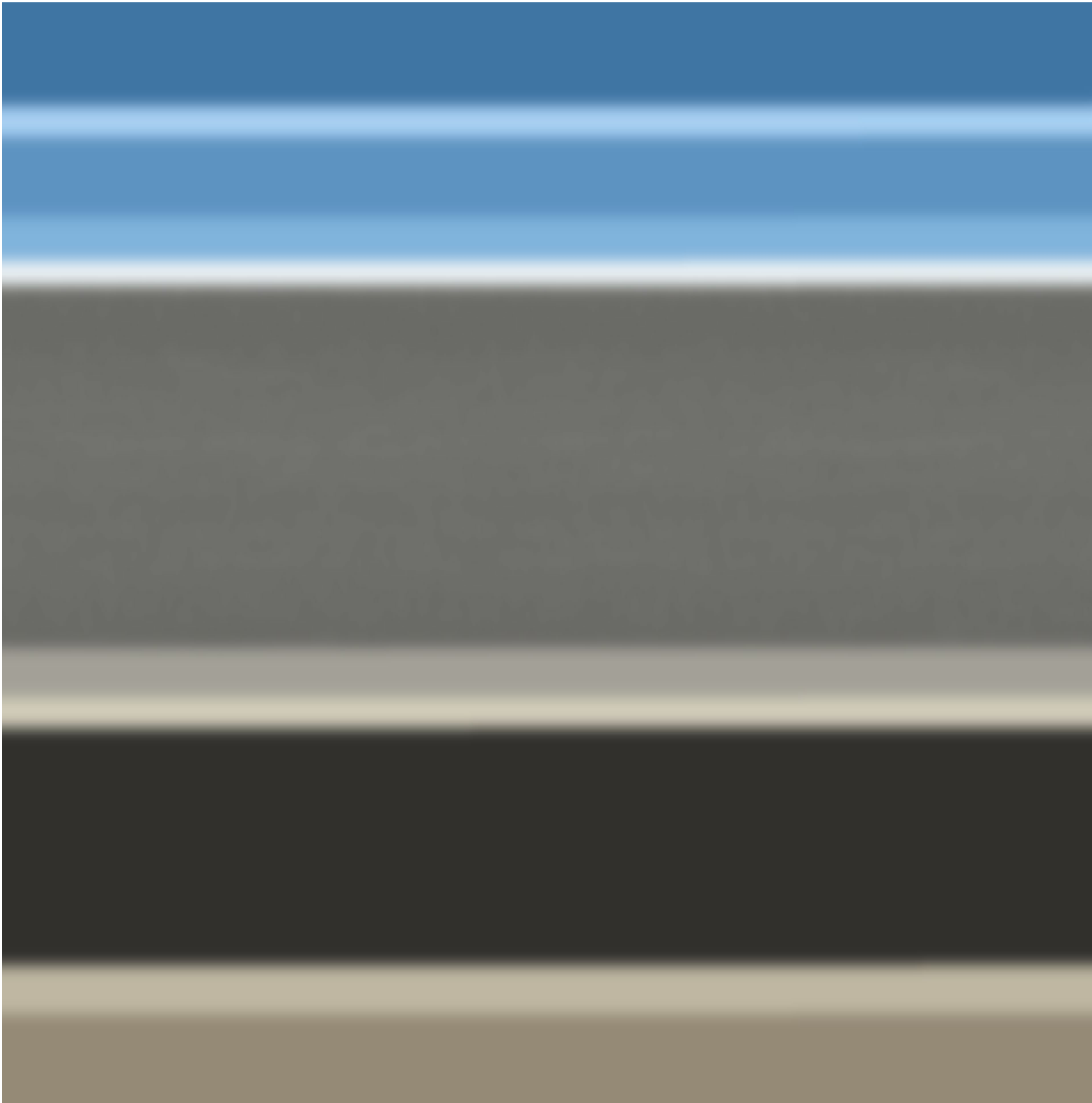
Position 12, Red Sunblind





**Position 12 - 12 Colors - Sky**



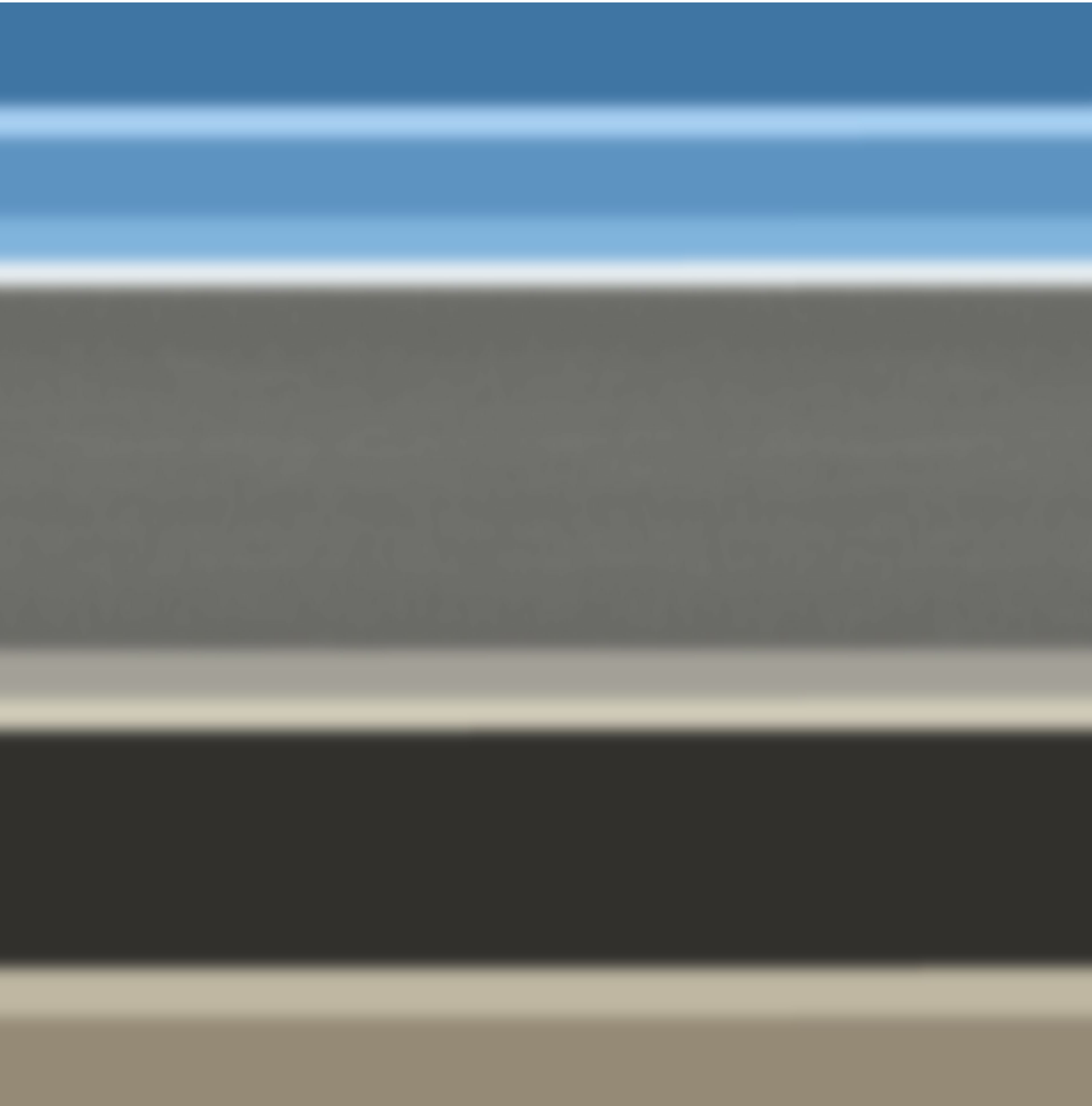


12 Colors



Position 12, Sky





Pos 12, Sky



Pos 12, Red Sunblind





**Position 13 - 12 Colors**





**Position 14 - 12 Colors**



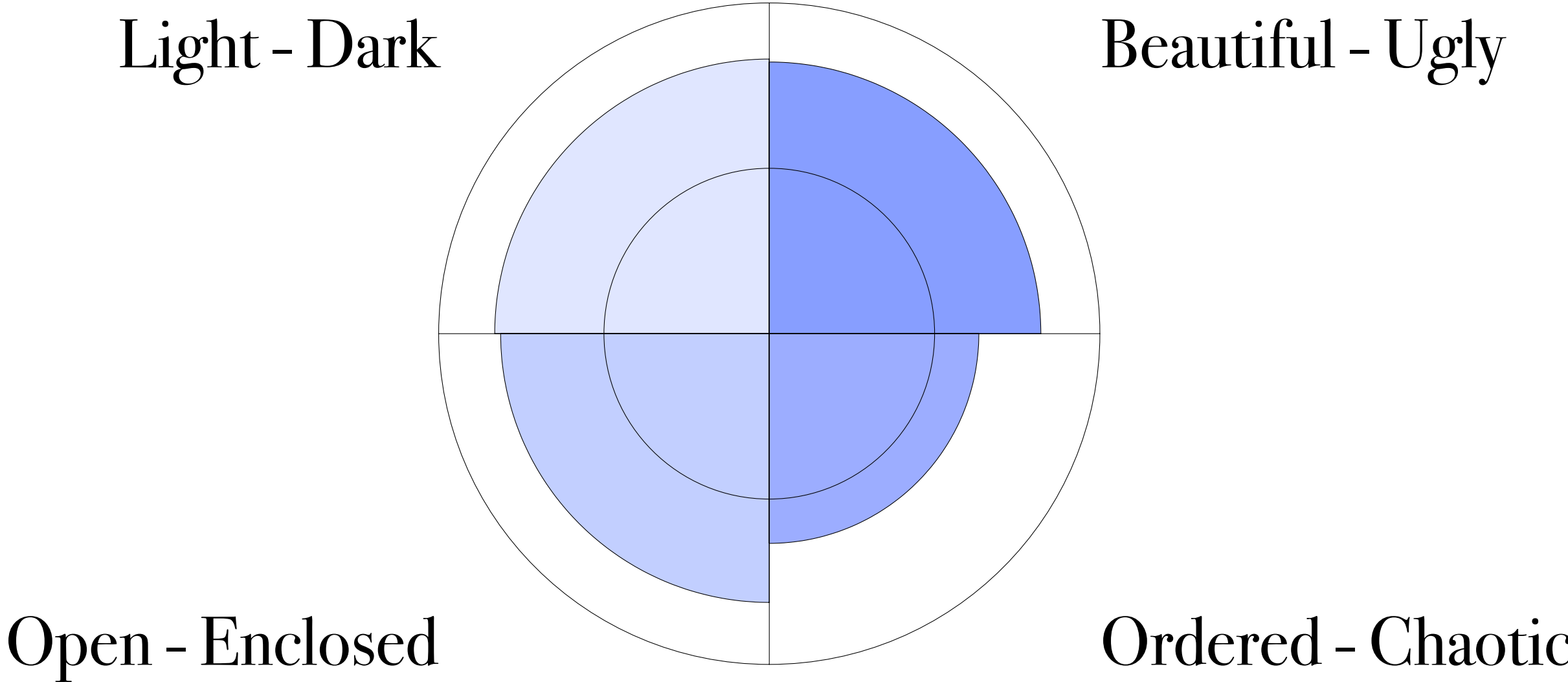
# Outstanding Positions

according to the survey





12 Colors

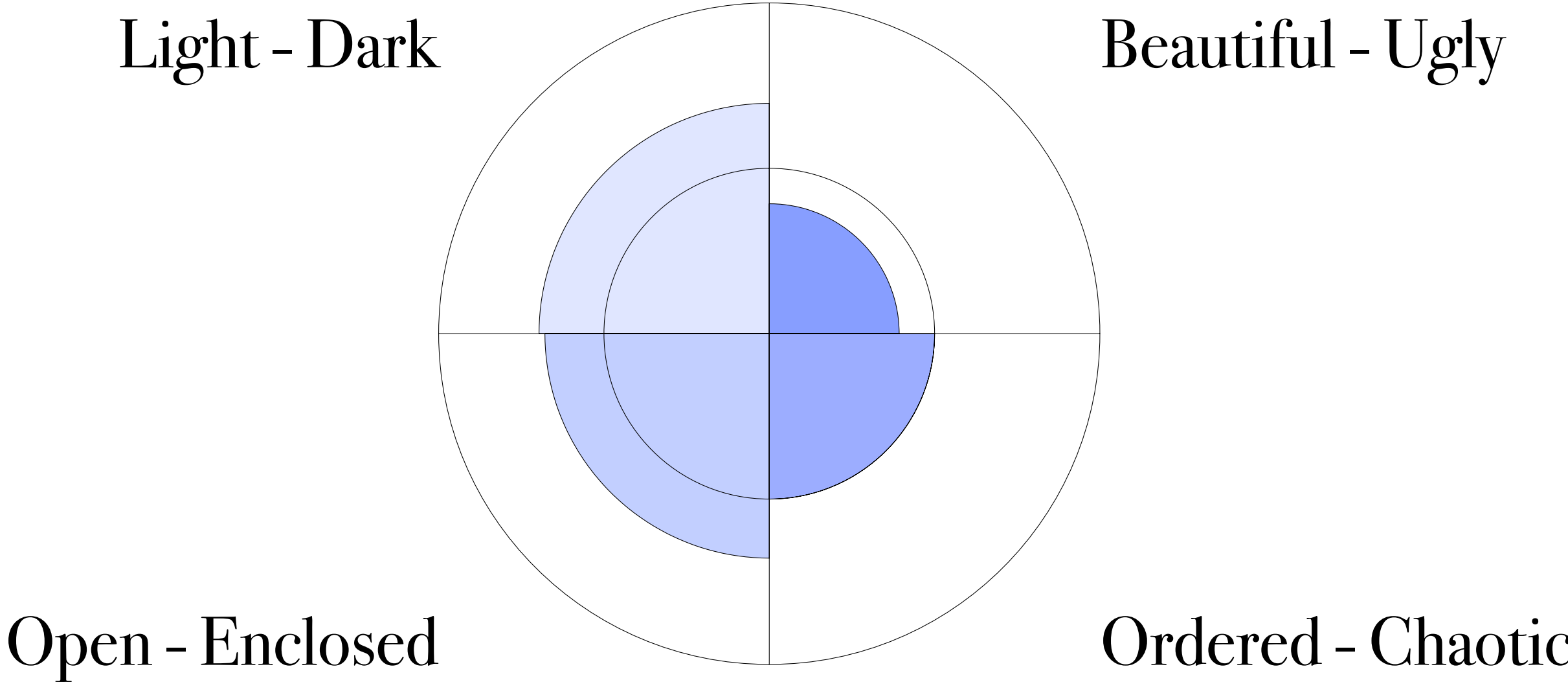


Position 3, rated as most beautiful





12 Colors

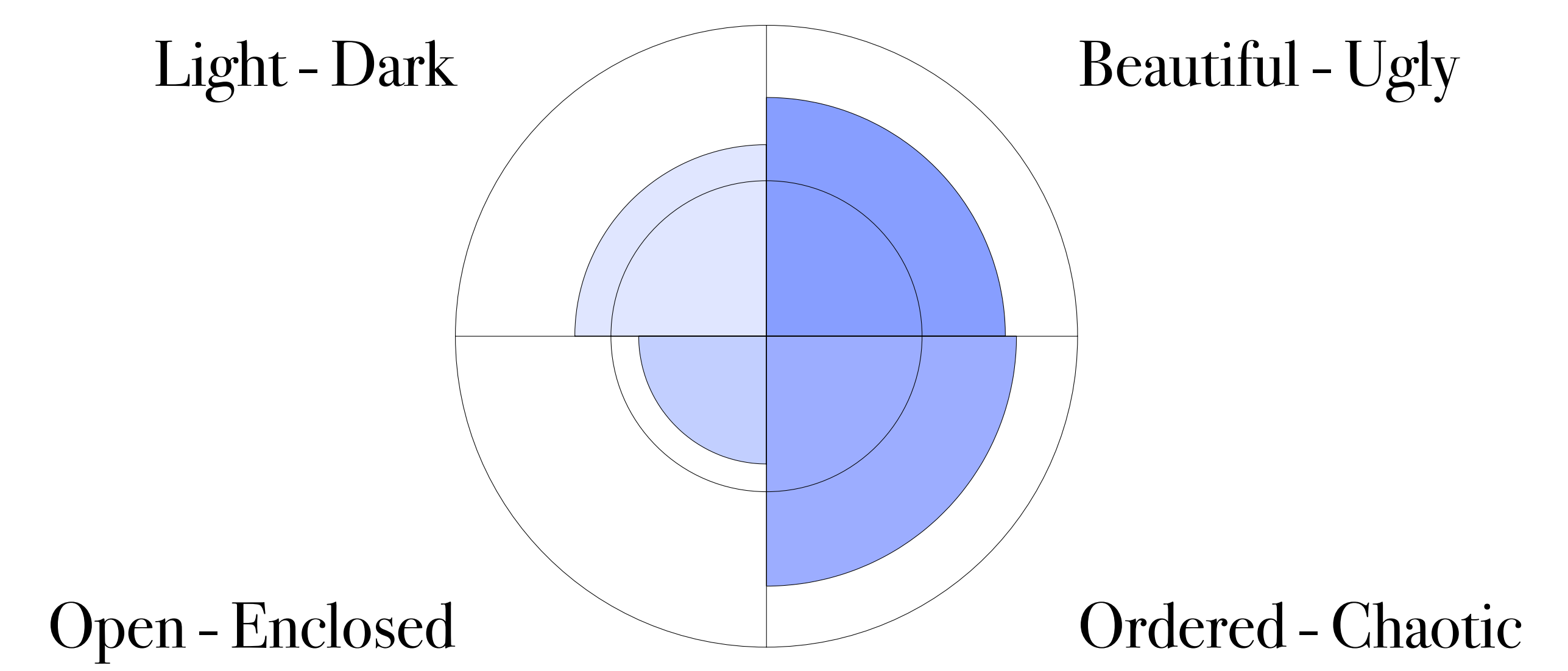


Position 5, rated as ugliest



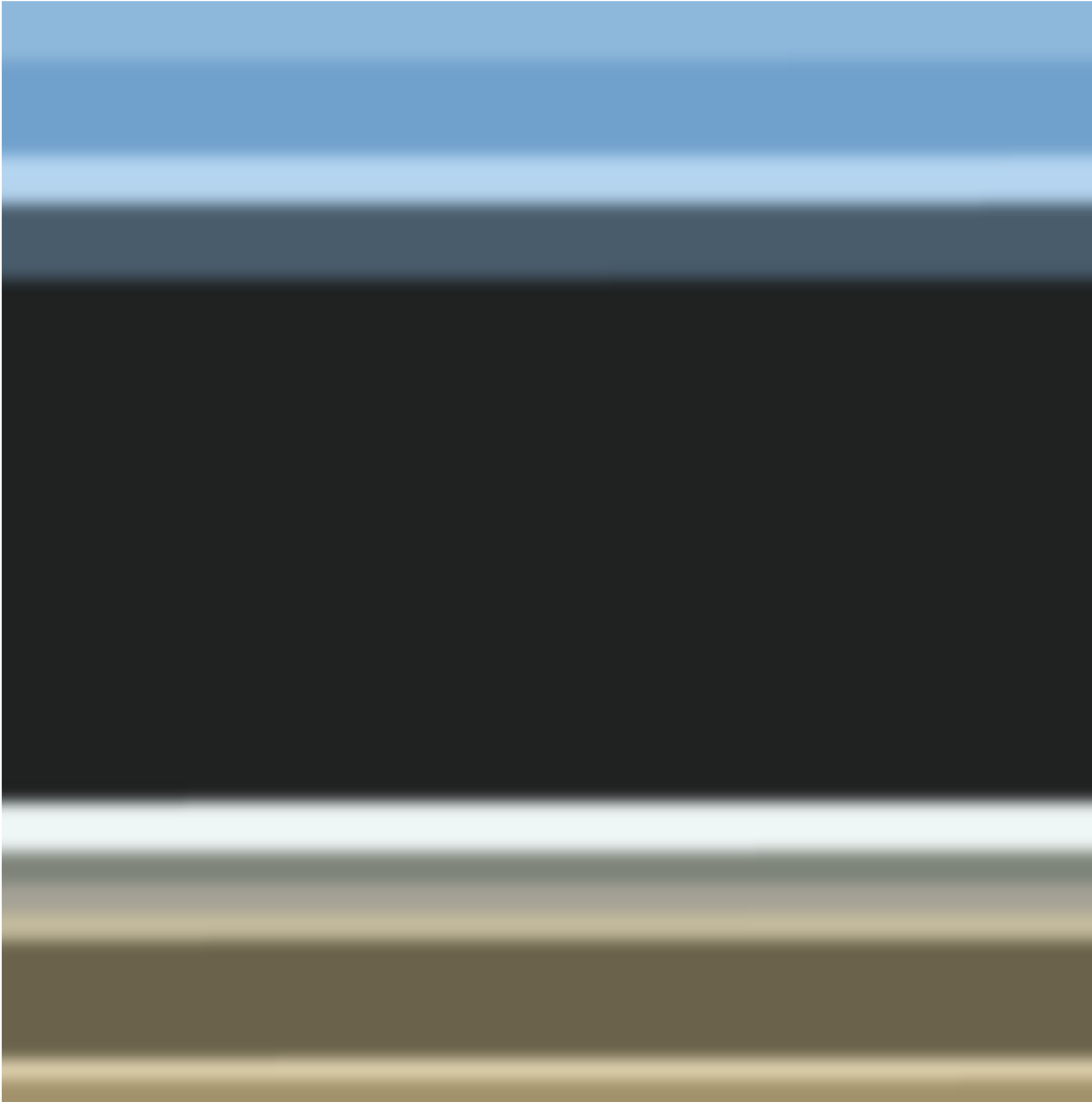


12 Colors

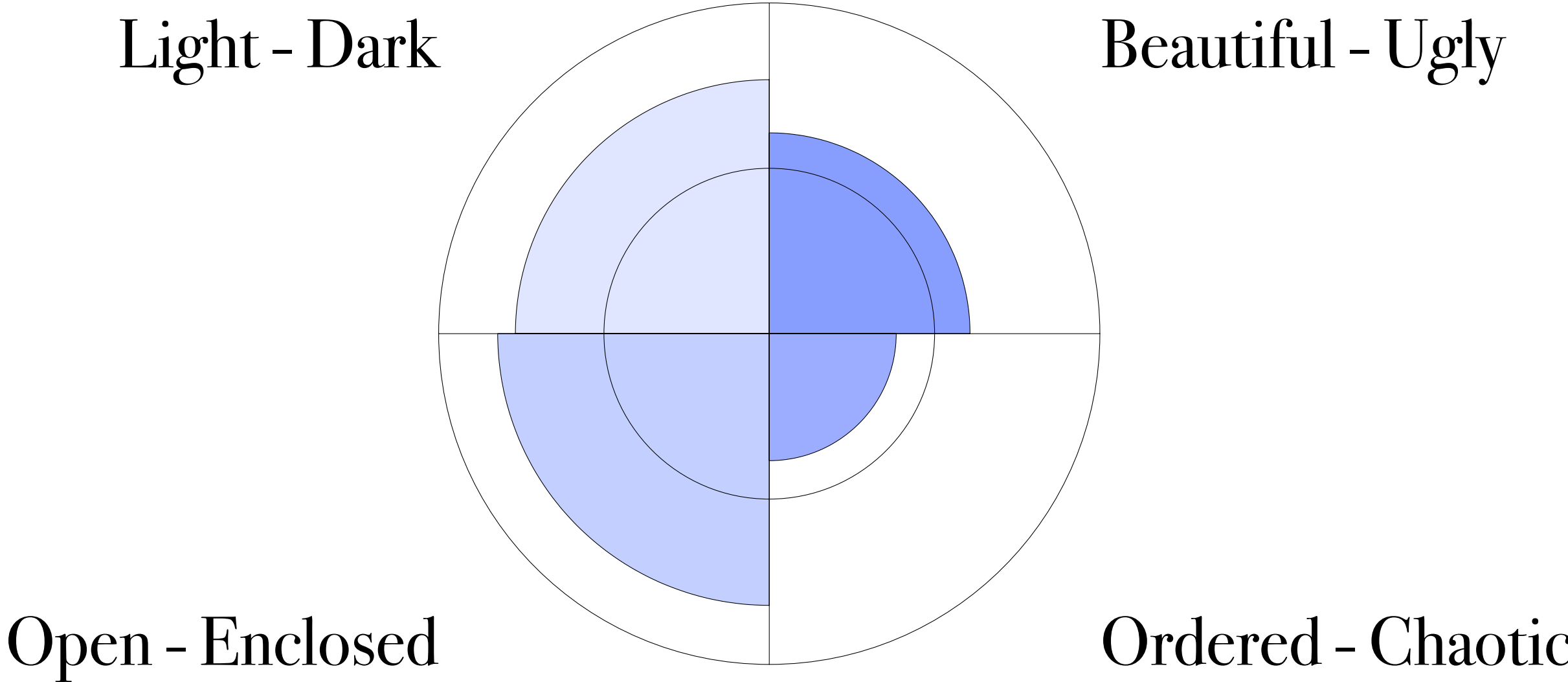


Position 7, rated as enclosest



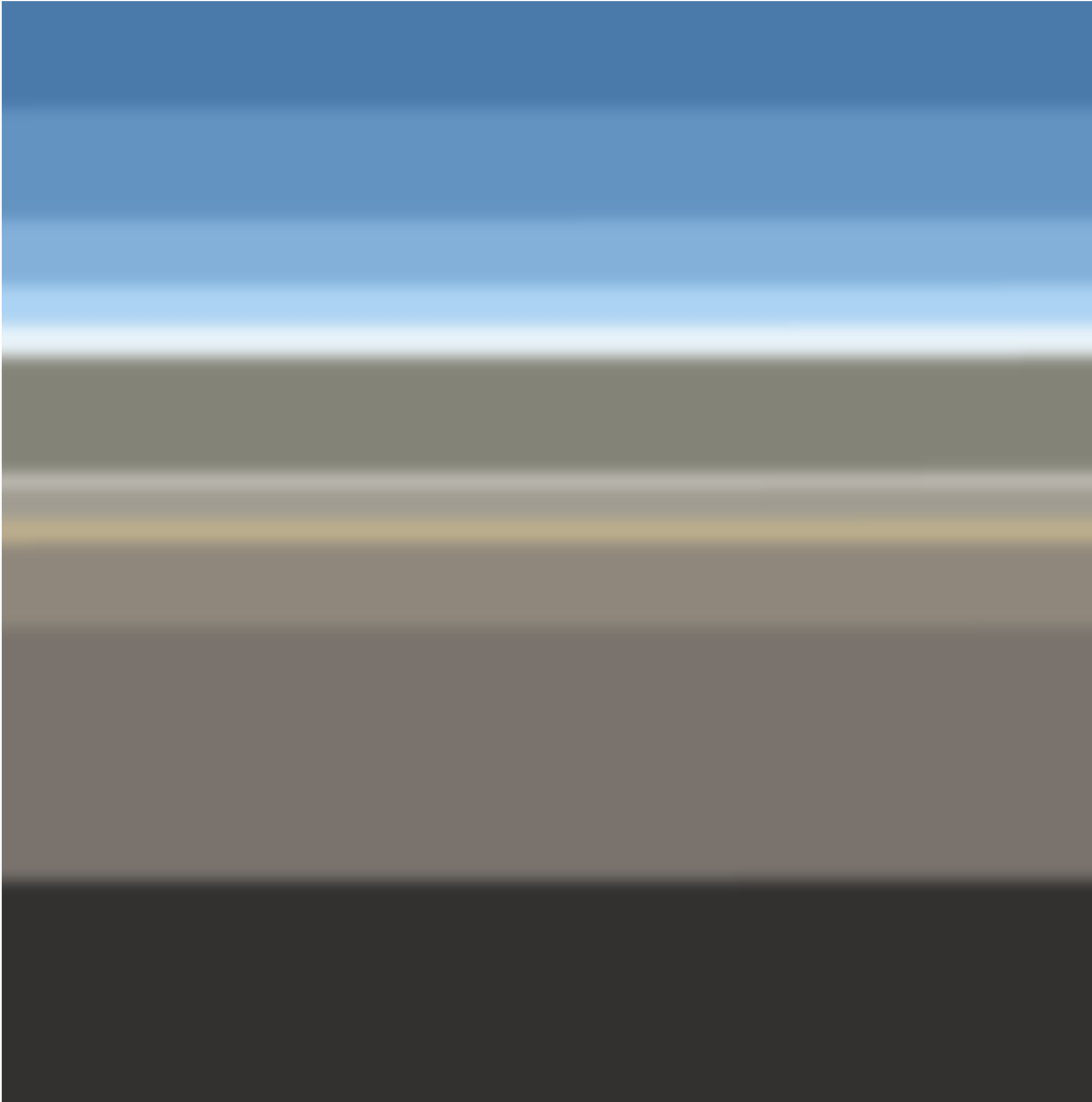


12 Colors

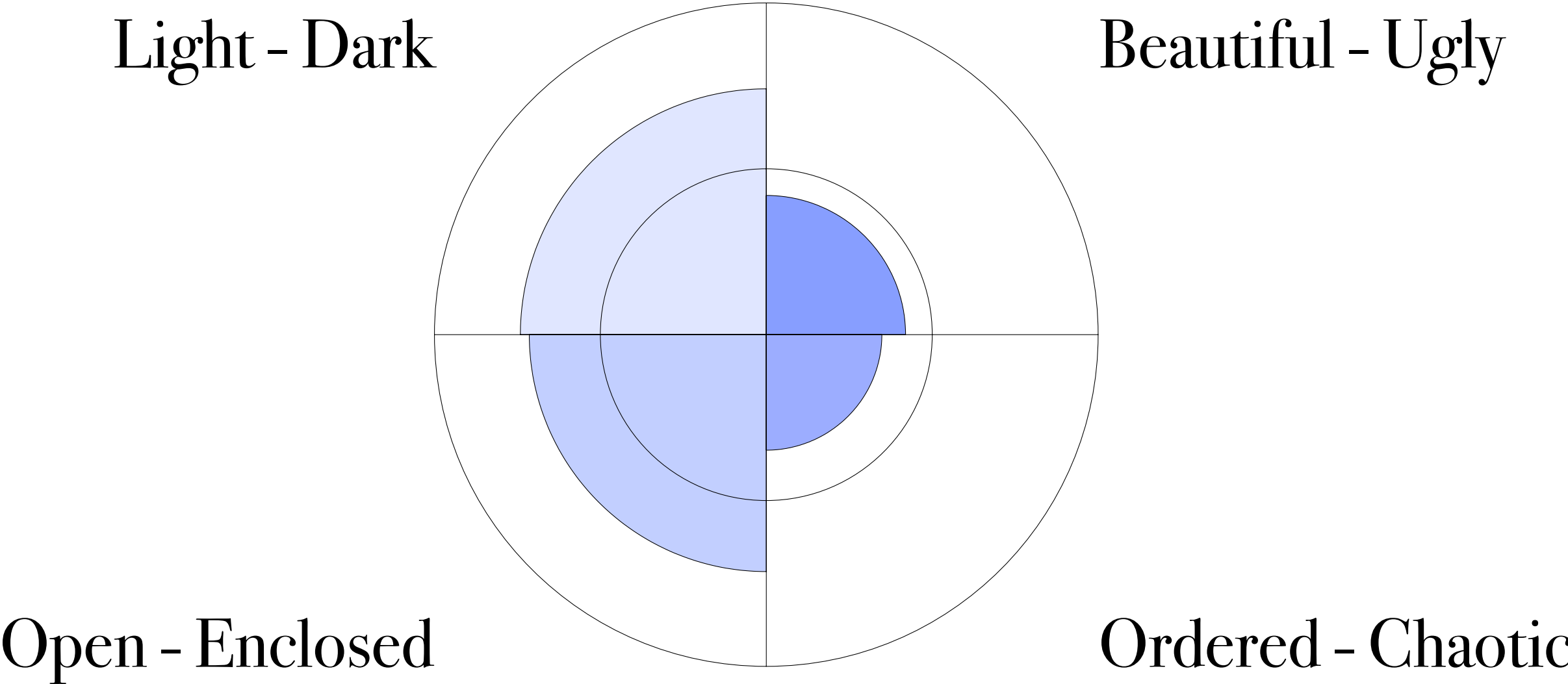


Position 11, rated as most open





12 Colors

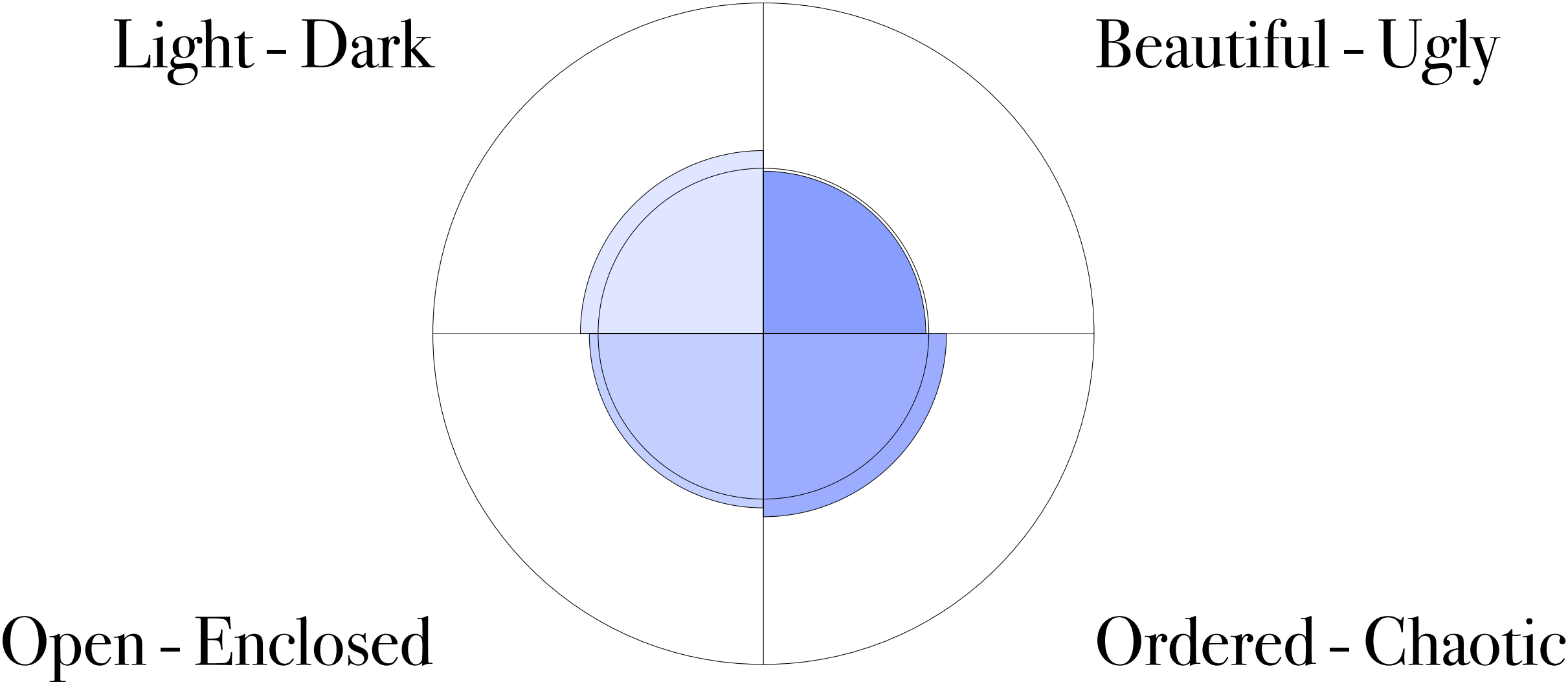
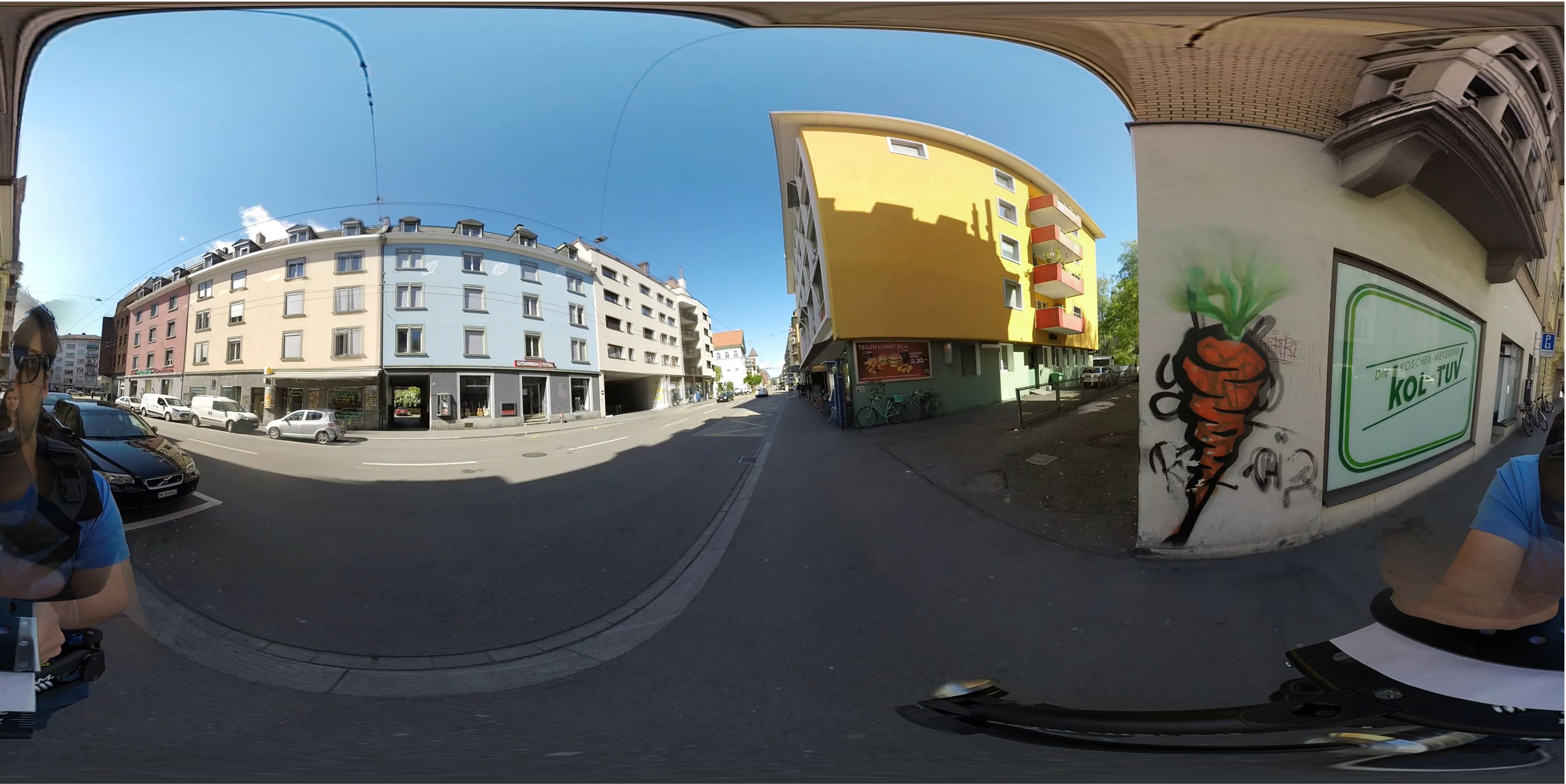


Position 13, rated as most chaotic





12 Colors



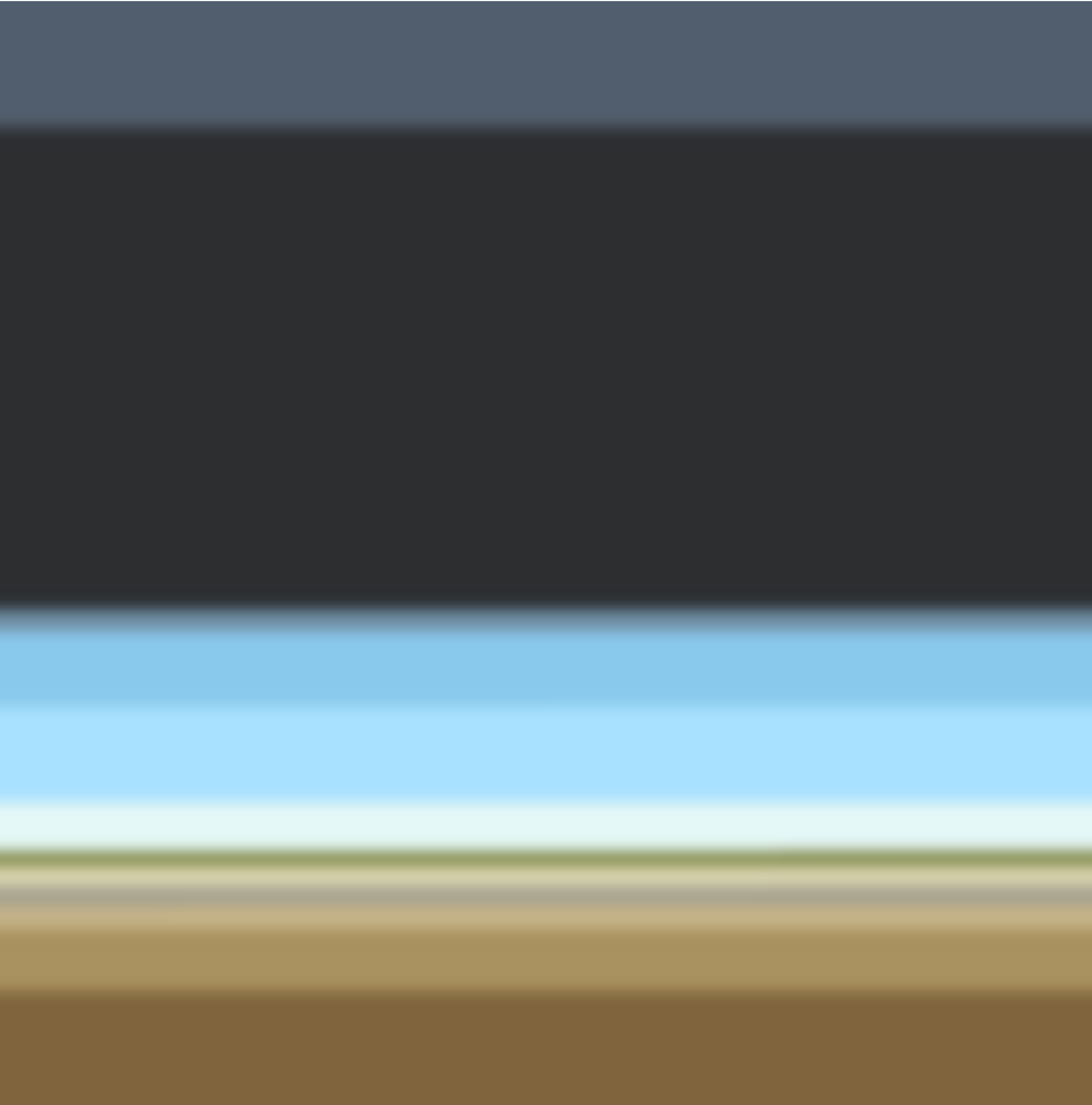
Position 14, rated as darkest



# Best & Worst

according to the survey





Most Beautiful

Position 3 + 64%



Ugliest

Position 5 - 22%



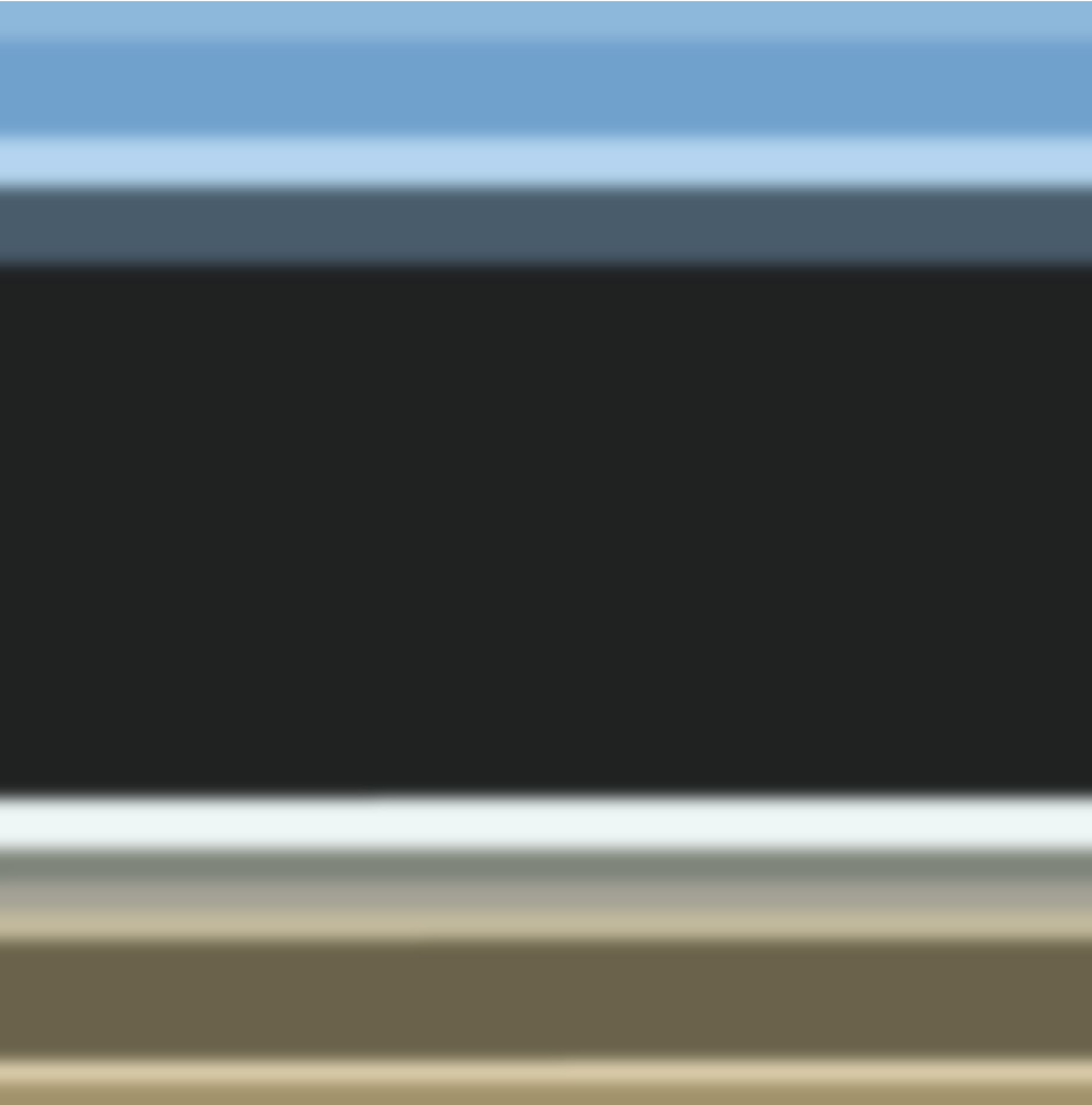


Lightest  
Position 3 + 66%

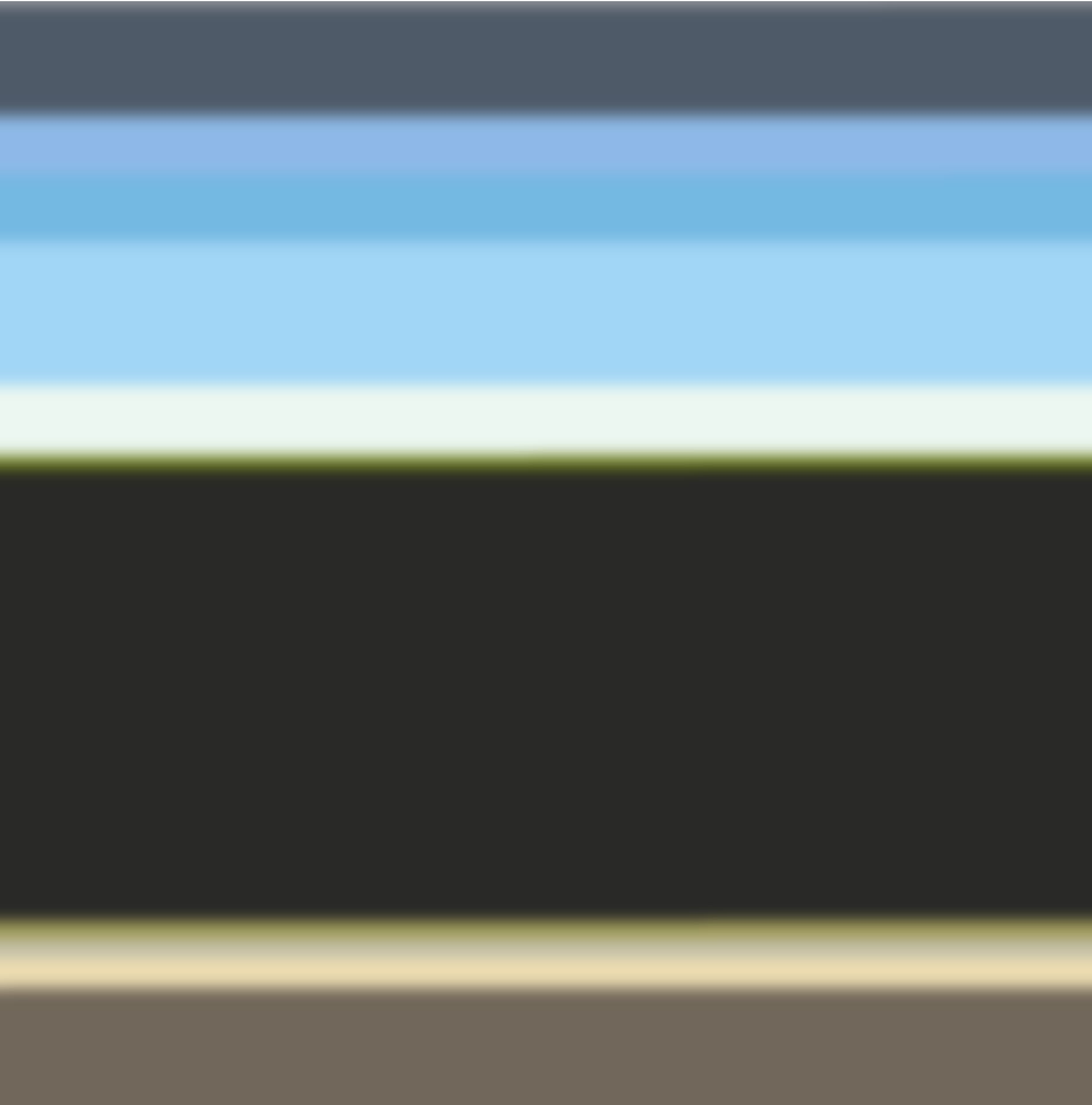


Darkest  
Position 14 + 11%





**Most Open**  
Position 11 + 65%



**Most Enclosed**  
Position 7 - 18%





**Most Structured**  
Position 7 + 61%



**Most Chaotic**  
Position 13 - 31%





**Overall best**  
Position 3 + 55%

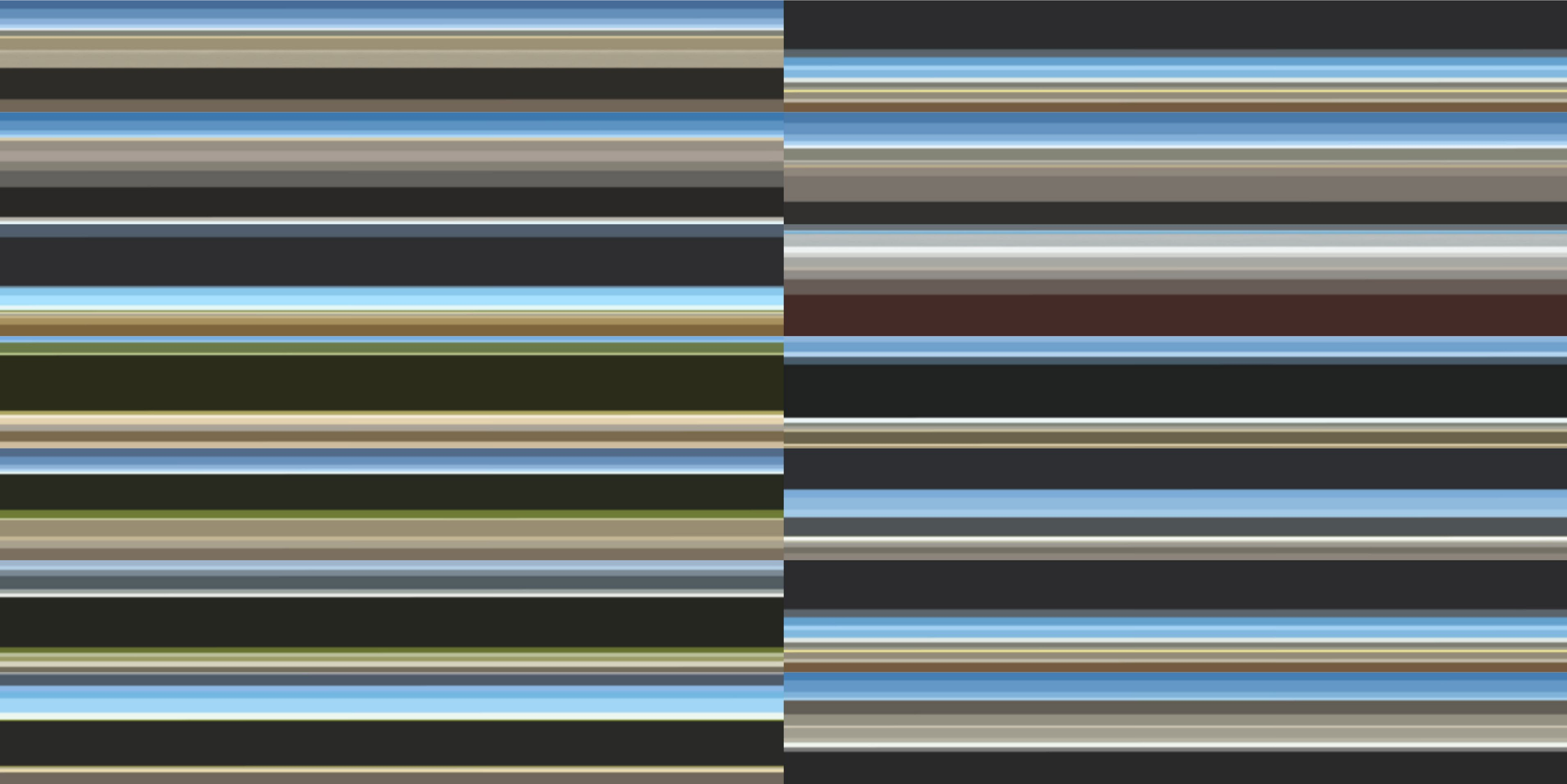


**Overall worst**  
Position 9 + 4%









**All 14 Positions**





**All Positions - 12 Most dominant Colors**



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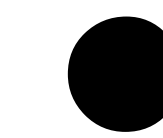
... openness / enclosedness

...order / chaos





Hard to say. Because...



... big difference in daytime, weather, etc.

...spherical distortion.

... no color metering, white and color balance, etc.

... camera is specific to one point .

...people judge not by point but by place.

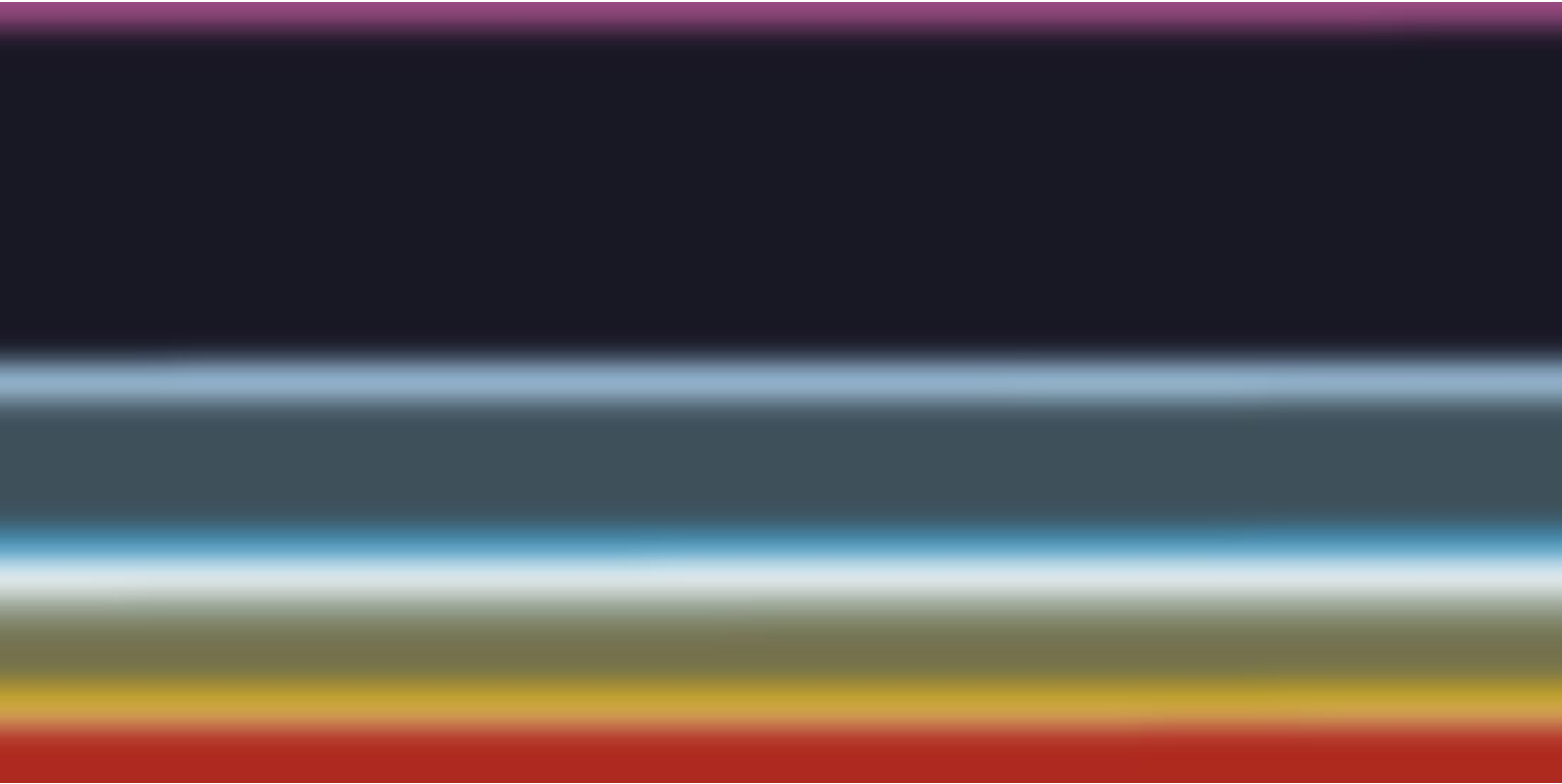
... neather green (plants) or blue (clear sky) influence.



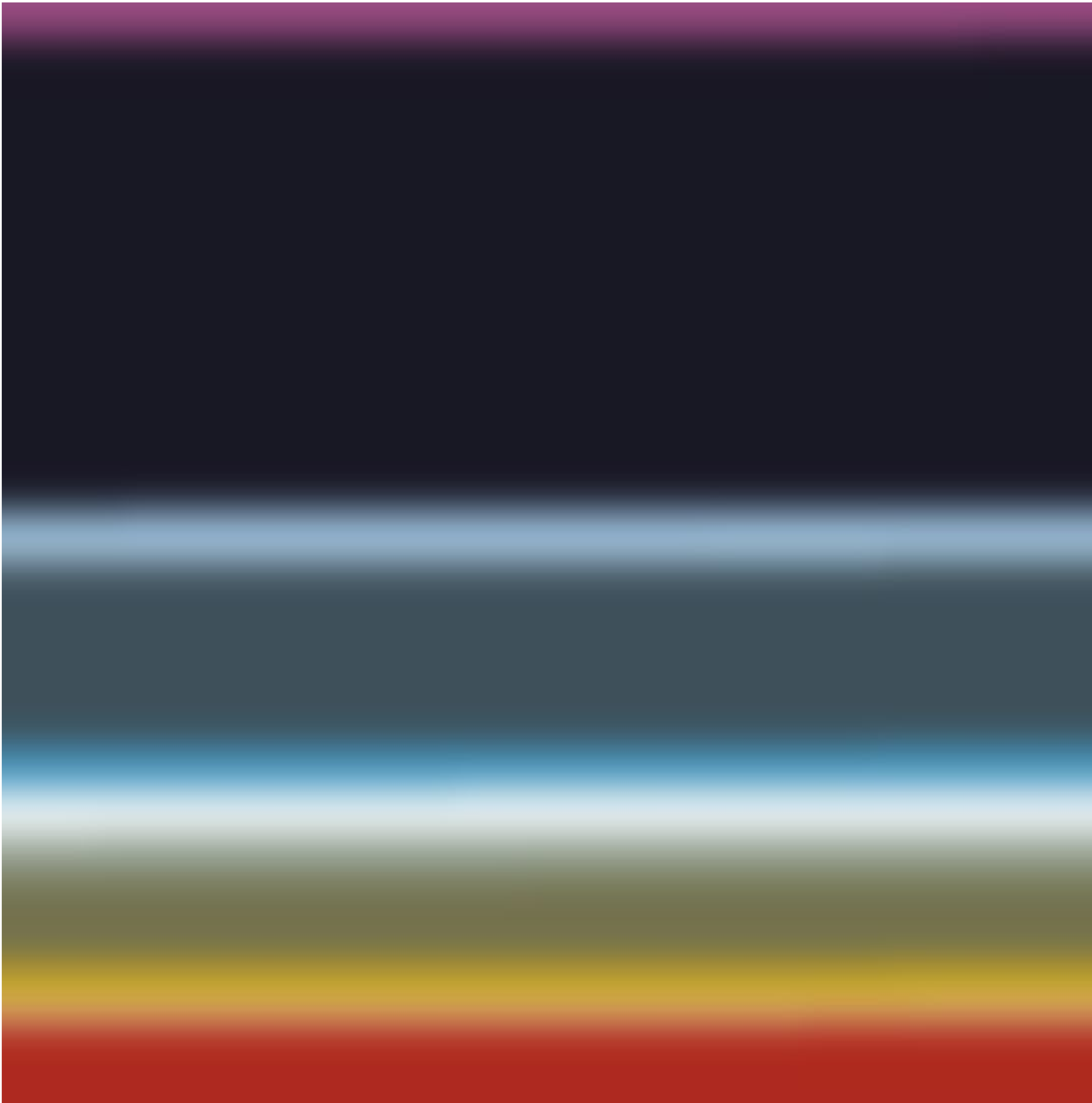
# Other Stuff

just for fun...







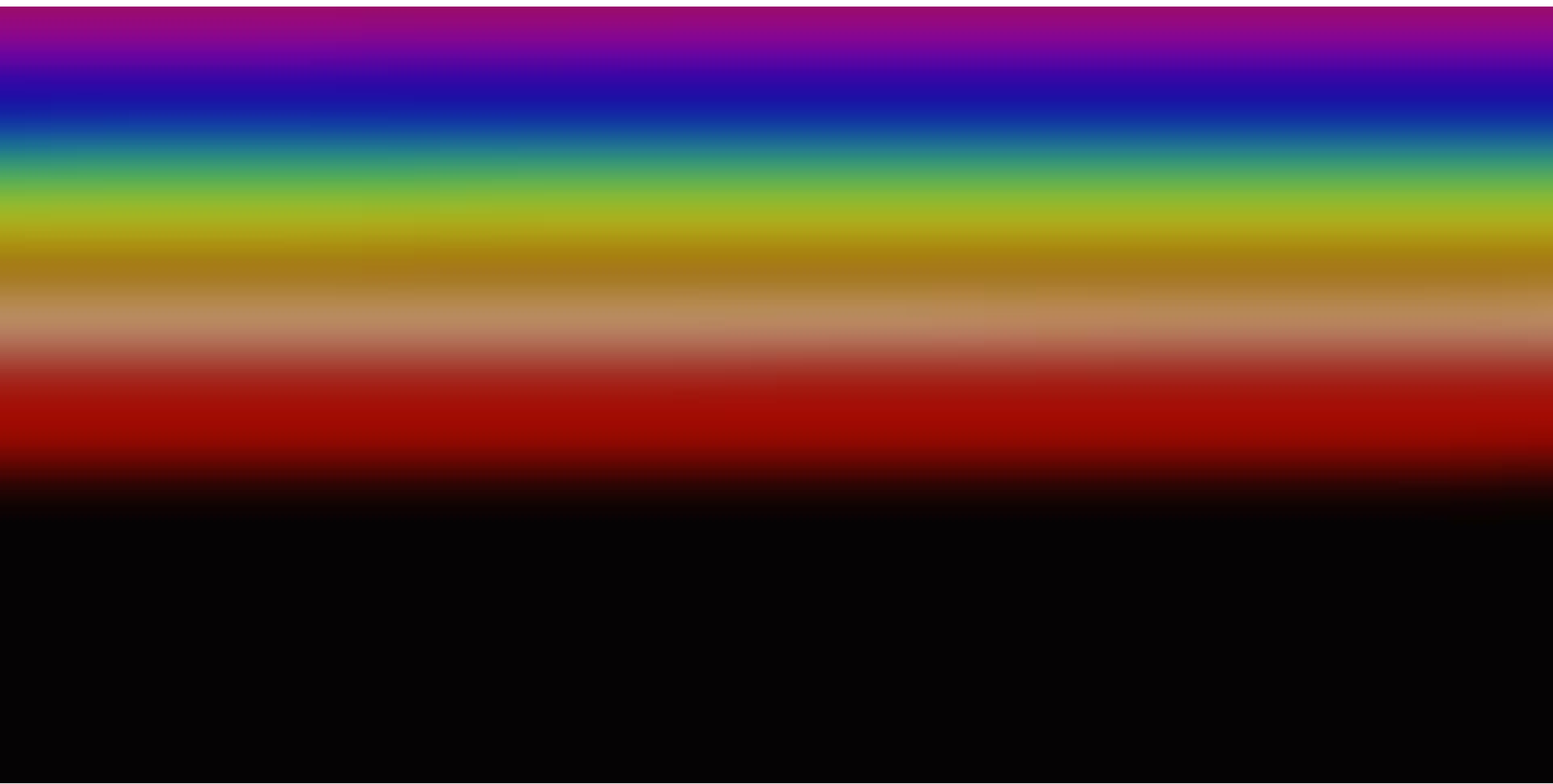


12 Colors



Shinjuku, Tokyo, JP









12 Colors

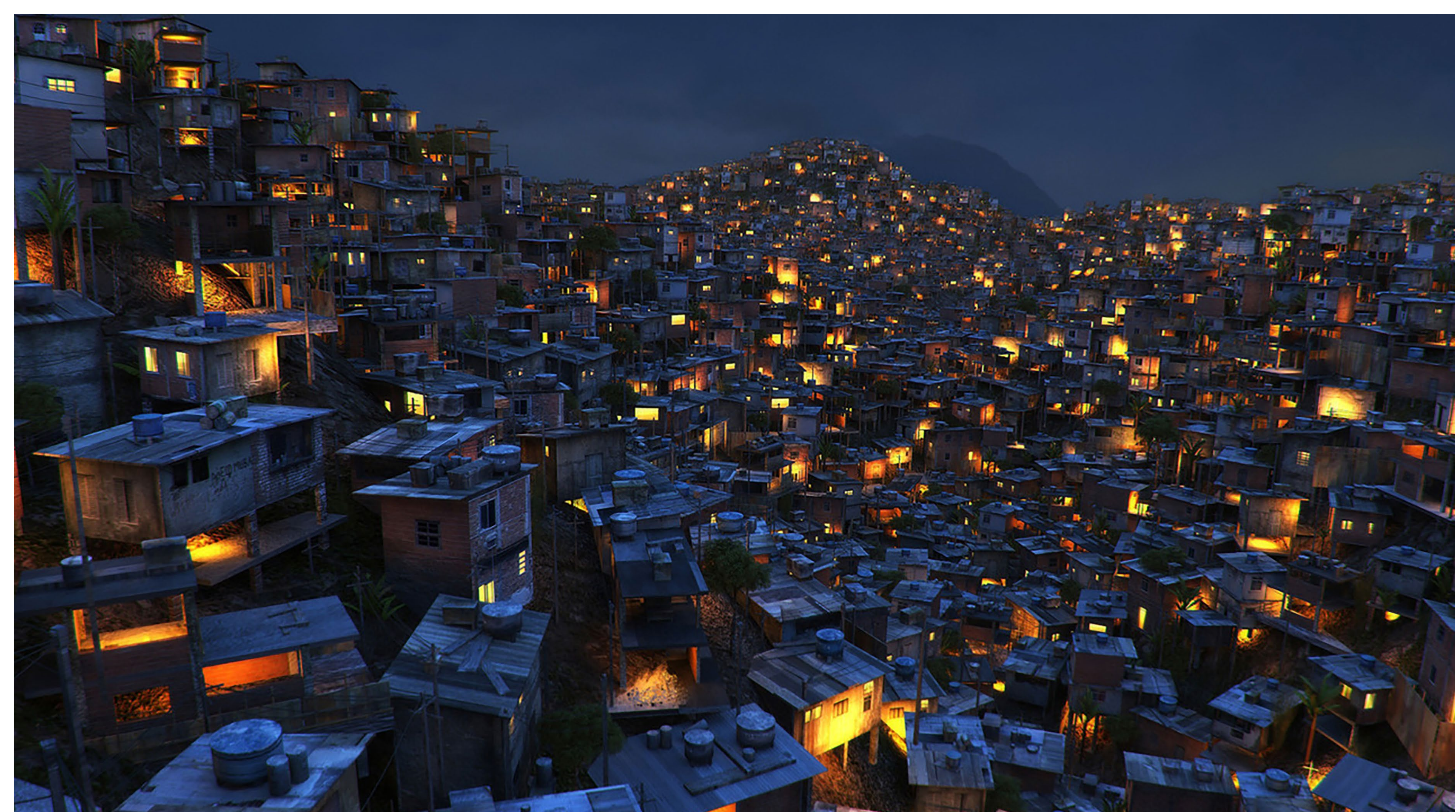


Rainbow Road, Mario Kart 64, Nintendo 1996

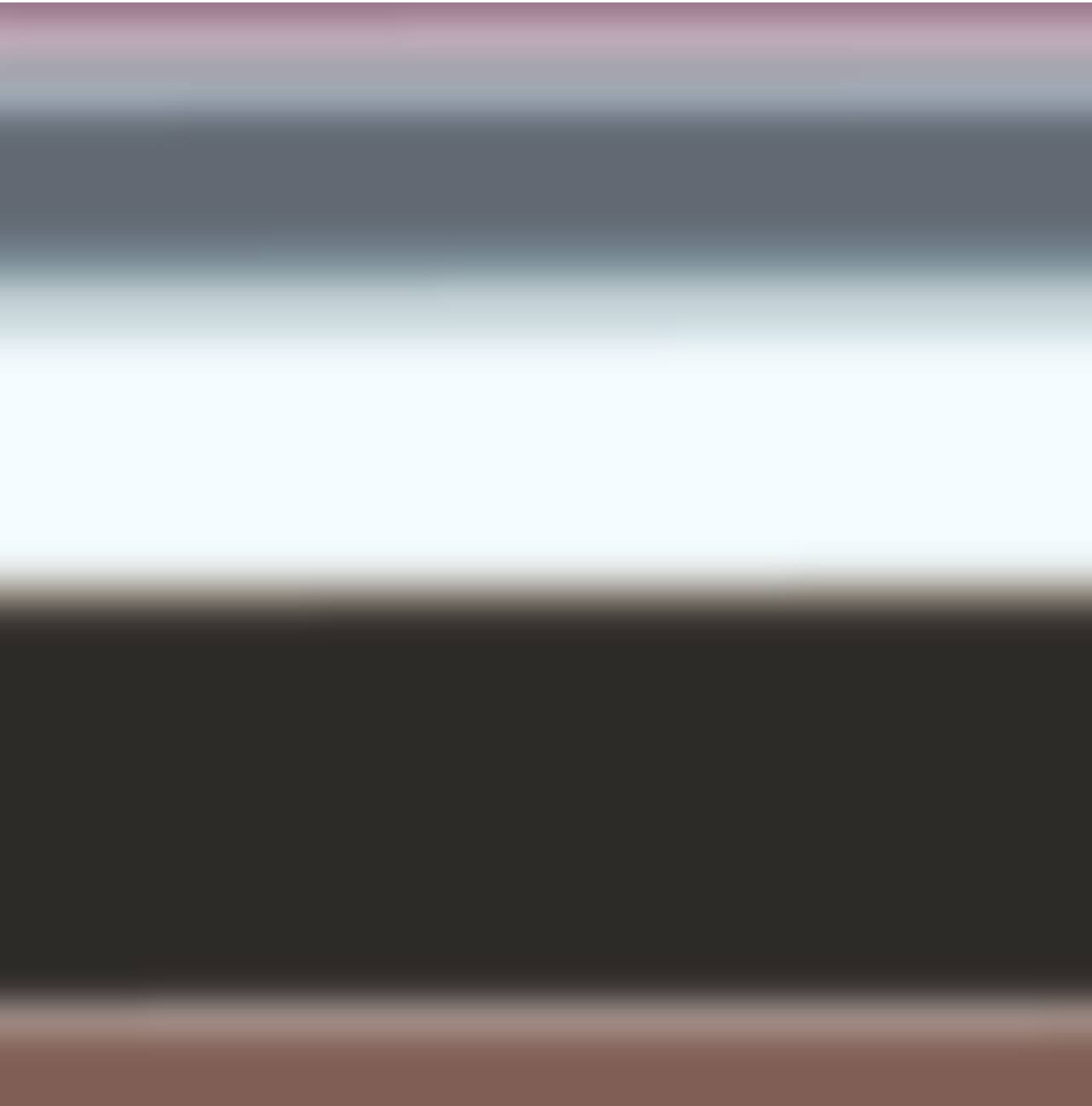




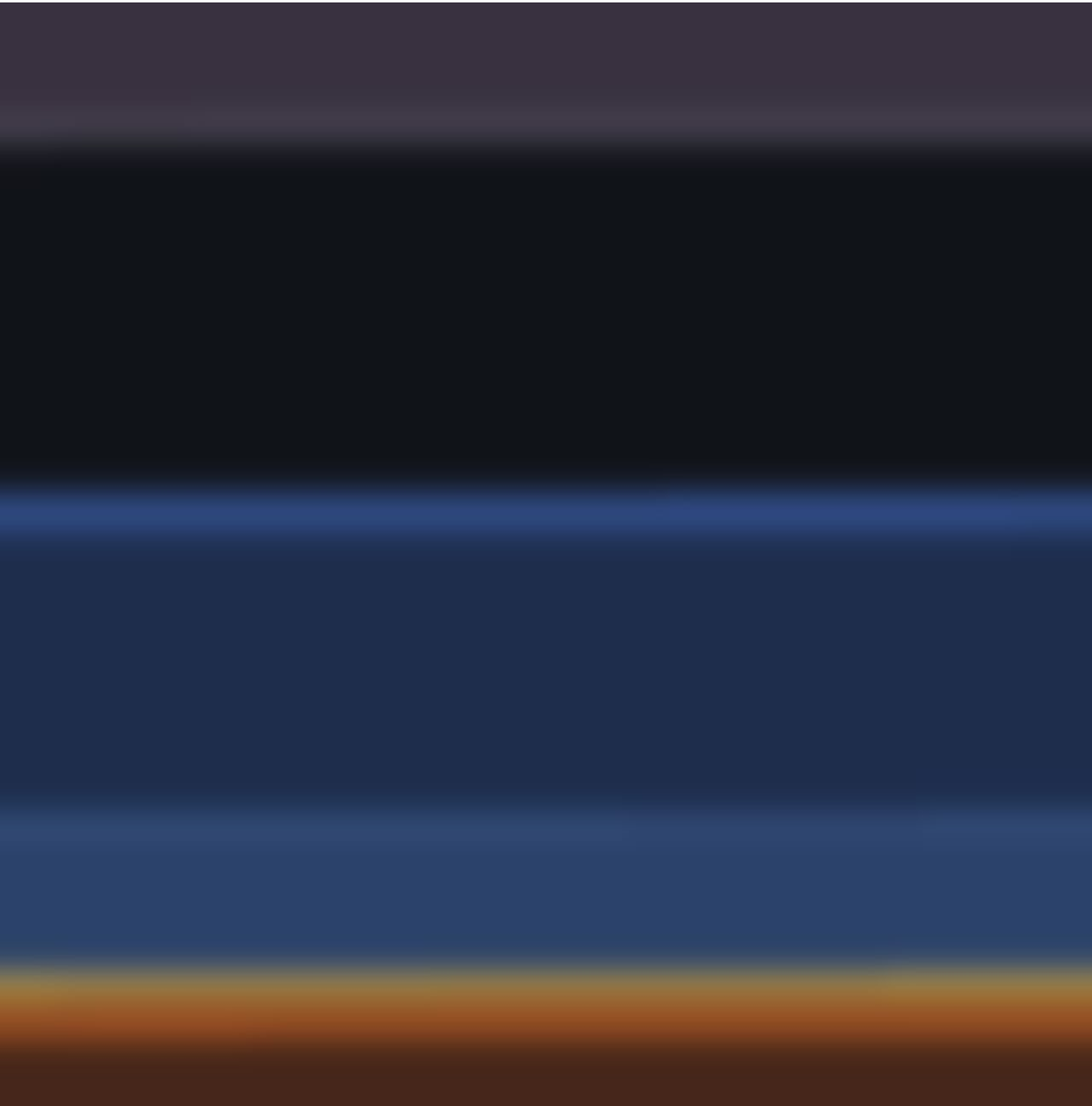








Favela by Day, 12 Colors



Favela by Night, 12 Colors



one more thing...









12 Colors



Unicorn Rainbow Kitten



**Thank you**