COLOR

Color has no language barrier.

Unlike written language, color touches everyone instantly with a wide range of feelings, emotions and messages.

If typography is the mouth that communicates through sounds and words, then color is the eyes. Along with typography, color adds the next layer of rich context.

Color can mean different things to different people. Yellow may bring up memories of your mother's bright yellow mixing bowl she used when she baked cookies. Blue can remind you of a sad memory, perhaps the blue of a worn scarf from a lost loved one.

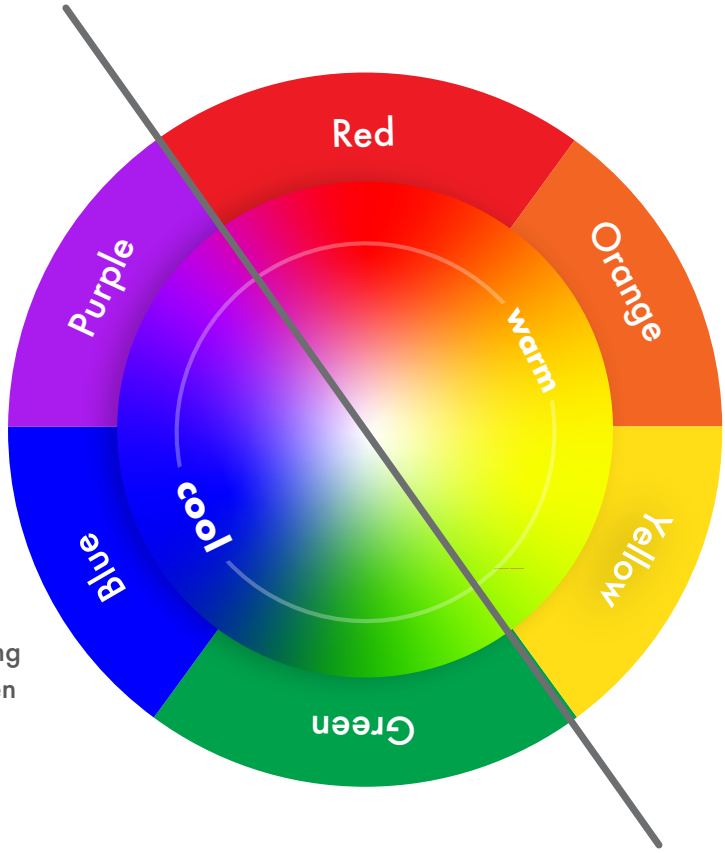
Culture can shift how we view colors, too. In China for instance red is lucky, prosperous, full of good fortune, while red in some countries can mean bloodshed or violence.

One thing is for certain, color touches us all. Color is a designer's secret weapon to help us tell our stories.

This section will go over several critical Color Theory aspects like the psychology and emotion of color harmonies and how to properly use color in practical projects.

Color can make the difference in whether your design is seen as drab, calm, energetic, harmonious, motivational, somber or tired. Finding the right color choices can seem daunting, until you learn a few tricks to help narrow down a million choices into one.

Color Wheel Basics

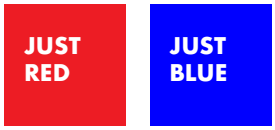


This is the color wheel. It should not be something entirely unfamiliar to anyone who has taken even the very basic of art classes.

A color wheel tries to make sense of millions of different colors by organizing them in logical way.

You will see six main colors represented on the wheel. These are called hues and they consist of just one color and nothing else. So a blue hue is just blue, a red hue only contains the color red. No black, white, or gray added.

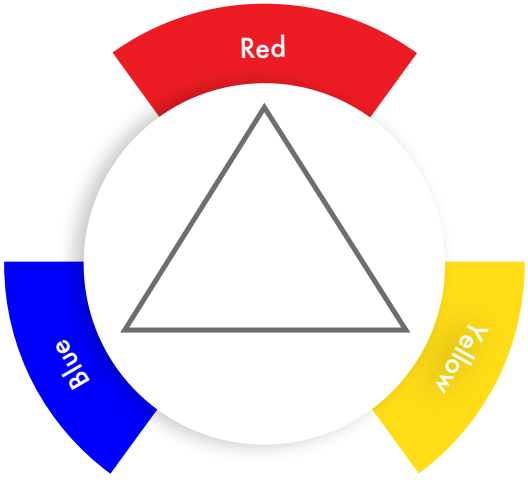
You will notice that warm colors are in the right half of this color wheel above and consist of Red, Orange and Yellow, while the cooler colors, Green, Blue and Purple are on the left side of the wheel.



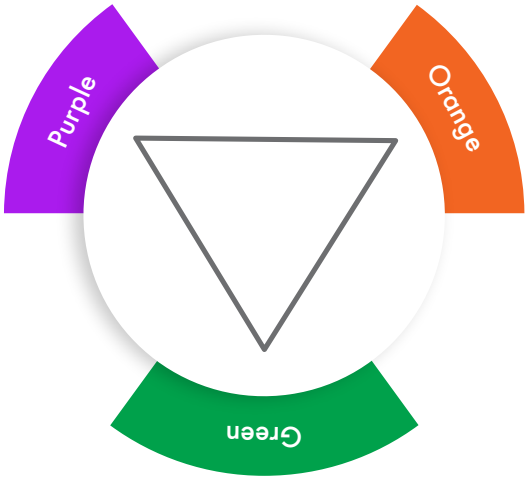
HUES

The three primary colors are Red, Blue and Yellow. They are primary because you cannot create them by mixing any two colors together.

That leads us to secondary colors, Purple, Orange and Green. You can mix two primary colors to create secondary colors.

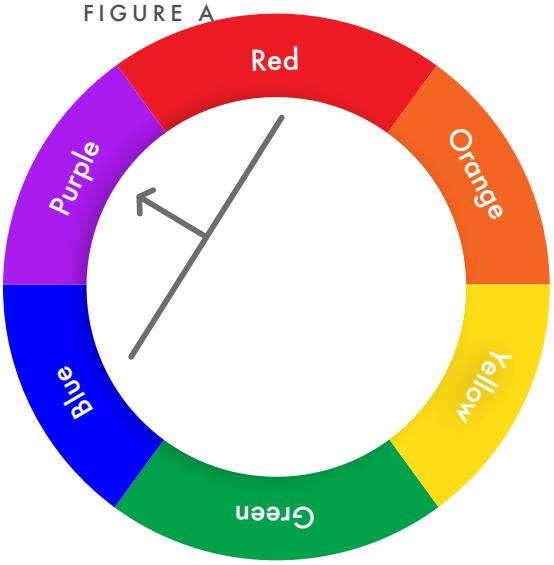


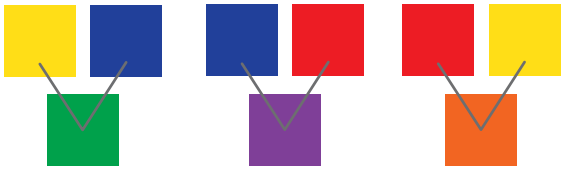
PRIMARY COLORS



SECONDARY COLORS

FIGURE A



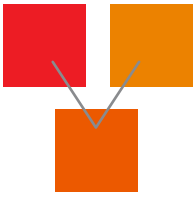


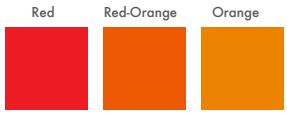
CREATING SECONDARY FROM PRIMARY COLORS

You can see in the figure how you can take any two of the three main primary colors (red, blue and yellow) to create secondary colors. In this case yellow and blue (both primary) come together to create green, and red and blue come together to create purple.

We can slowly create more and more colors by mixing both primary and secondary colors together. In figure B we are mixing red (a primary color) and orange (a secondary color), producing a color in-between those, depending on the ink mixtures of red and orange.

FIGURE B

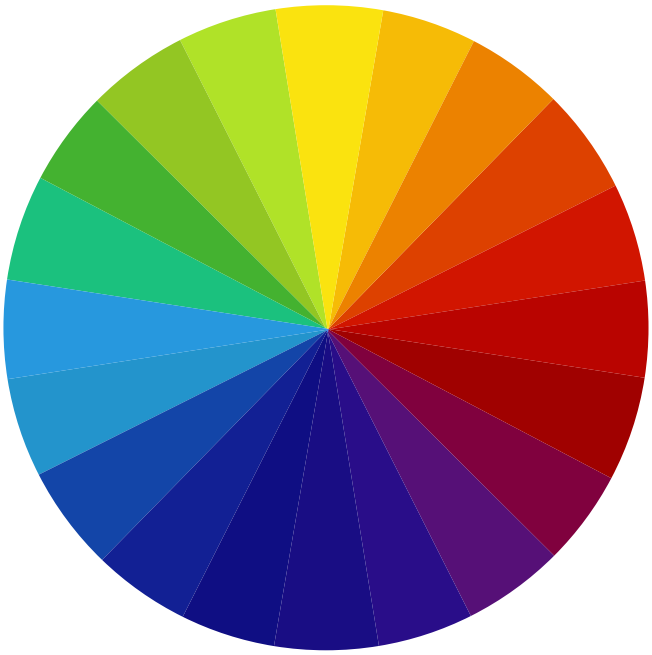




There are not huge differences when you mix a secondary and a primary color together but they do create a much wider variety of hues.

This allows the full gamut of colors. The mixing of a primary and secondary color is called Tertiary Colors.

Our color wheel is becoming more complex and rich with color options. Being able to pick the right combination of colors now becomes a daunting task. Color harmonies ease this task by creating specific methods in picking colors based on where they land on the color wheel.



COLOR WHEEL INCLUDING TERTIARY COLORS

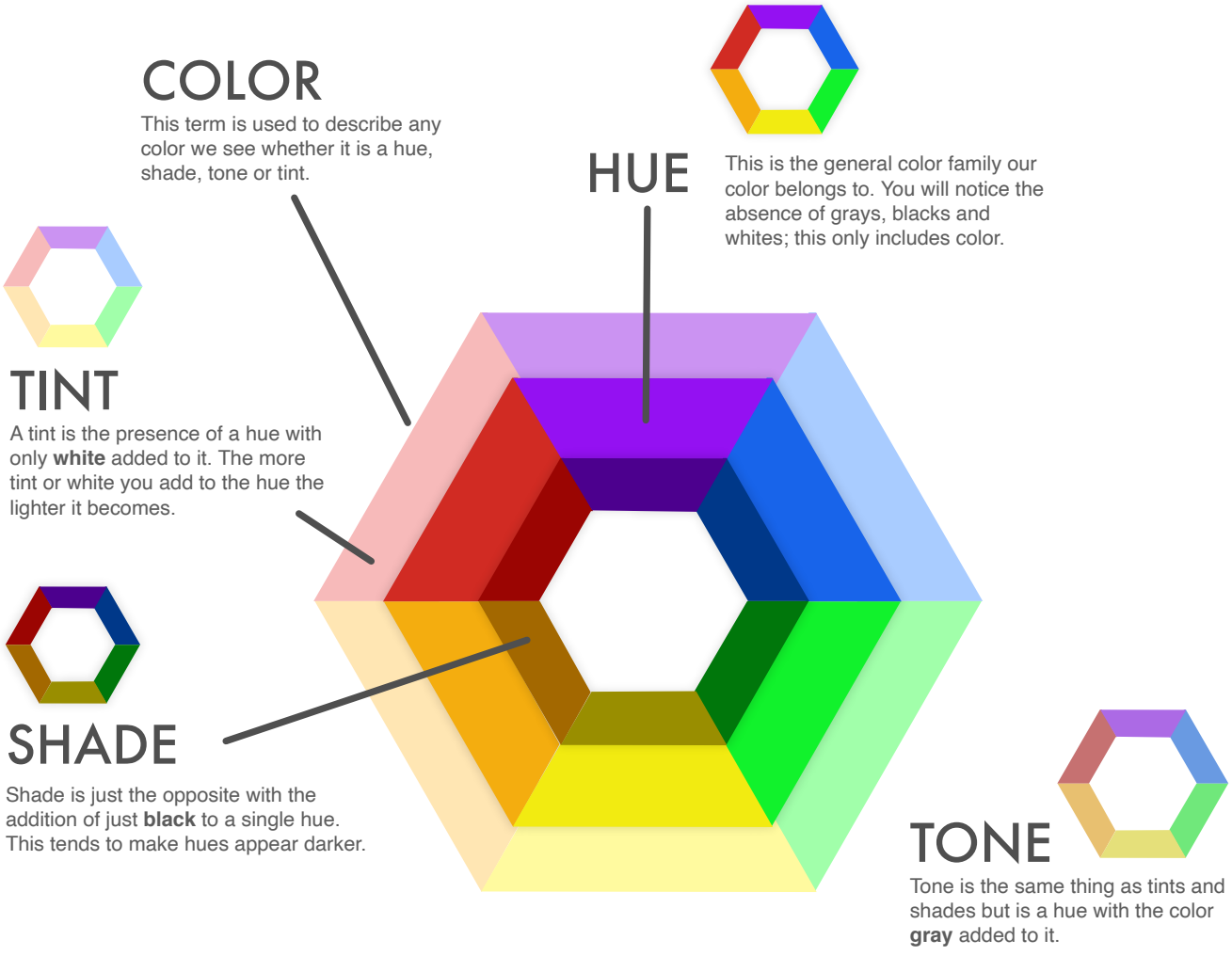
With enough color mixing you will end up with an endless amount of color options with the only limit being what is out of range for the human eye to see.

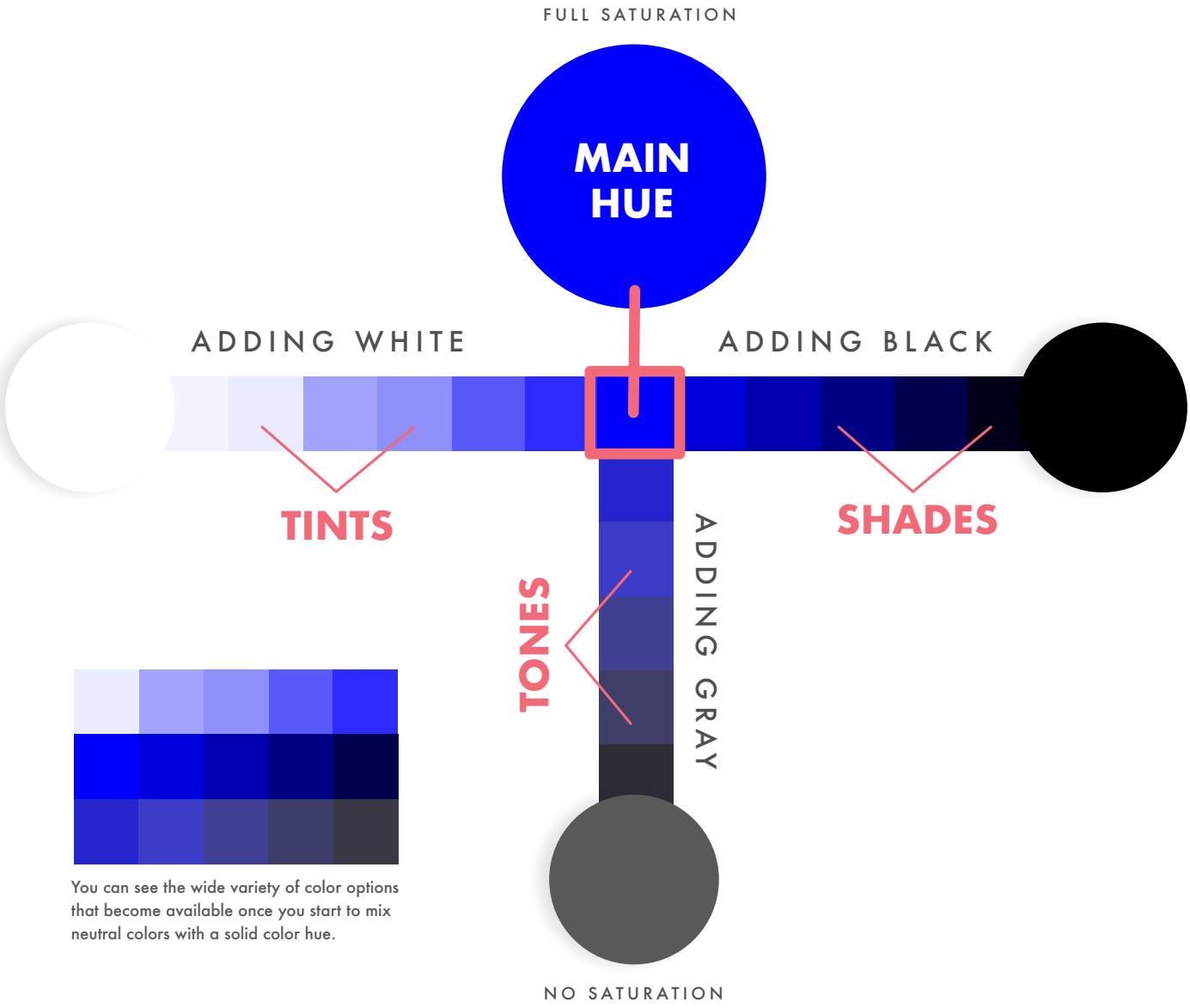
Hue, color, shade, tint: which one is which?

Have you ever heard someone use the term "shade" when talking about the paint color they picked out for their living room? There might be a good chance they are using that term incorrectly. But, there are so many names for different variations of color that you cannot blame them.

The main terms you need to focus on are Color, Hue, Tint, Shade and Tone. The term color is the broadest description of the entire color spectrum; any variation of color can use the overarching term color as its description. As you get more narrow in description you get the term Hue. As we saw earlier, a hue is a single color without any additional inks or colors added. So red would be a pure hue. Hues that have white, black or gray added to it can no longer have a hue as it loses its purity.

When we have a blue, for example, and we want to make it a light blue we can add white to blue. When we add white to a pure hue like blue it is called a Tint. The opposite is true with adding black, that is called a Shade. Lastly, adding gray to a pure color hue will make it a Tone of that hue.



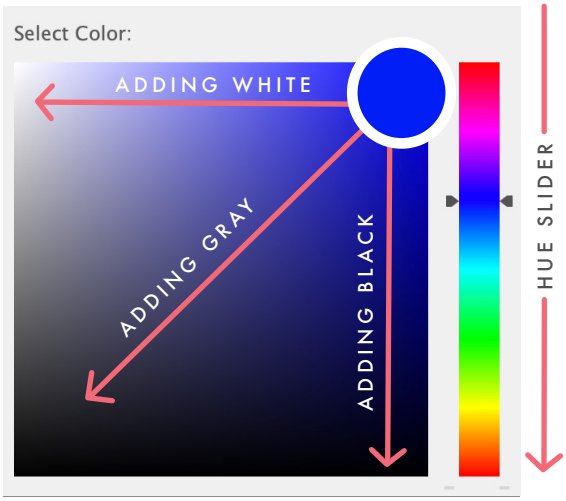


You can see the wide variety of color options that become available once you start to mix neutral colors with a solid color hue.

I created this graph so we can see what different tones, tints and shades might look like for one color hue.

In this case we have a pure purple color hue. From the left we are slowly adding more and more white to each color swatch. The right side starts with the main blue hue and slowly adds more and more black to each swatch. We also add more gray to each swatch moving downward, decreasing the saturation of that hue.

Hue Cube

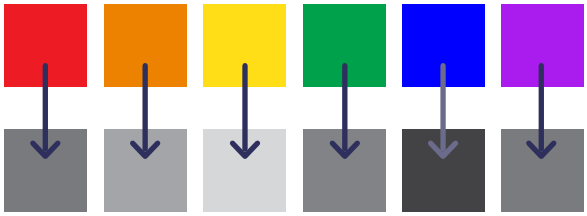


Most modern software includes a color selection option called a "Hue Cube". They allow you to see and select color variations that slowly add more gray, white and black to your main hue selection.

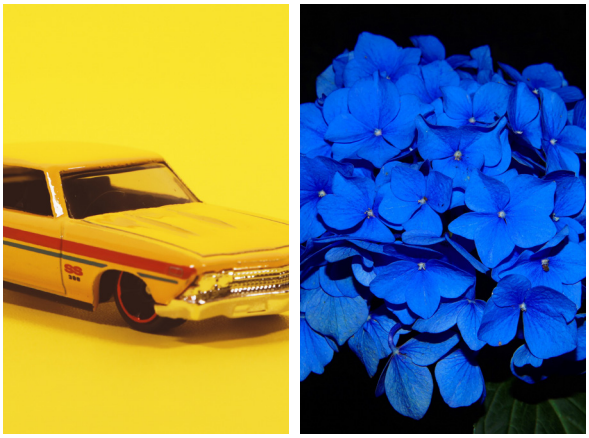
Value

You may have heard of the term Value before and it is the measurement of the brightness of a color. So for instance, yellow has a higher value compared to blue. Some people use the word "lightness" interchangeably with the word value. You may also have seen the term Intensity used for value.

To find out how much value a color has, convert your colors to black and white to find out how dark the gray tones go.



As you can see, blue has one of the darkest values while yellow has one of the lightest. When you strip all of the hue out of a color you are left with something called Grayscale, which only contains black at certain levels.



When we look at photos that have a lot of yellow hues in them we tend to think, "wow, that is bright!" Yellow actually reflects more light, giving it a much higher value. Compare that to cooler colors which reflect less light. It is also a reason why yellow tends to be reserved for call-to-actions or important elements and text while cooler colors tend to work better in larger areas.

Saturation

When you add gray to a hue, we call those Tints and Shades, respectively. What do we call the variation we see when this process happens? We call this saturation and it describes the brilliance of a color. If value describes the lightness of the color then saturation describes the strength of a color.

HIGH SATURATION LOW SATURATION

As we slowly add gray to the pure purple hue in the first square we slowly see the saturation decreasing. The saturation or strength of the hue is becoming less vibrant or dull.

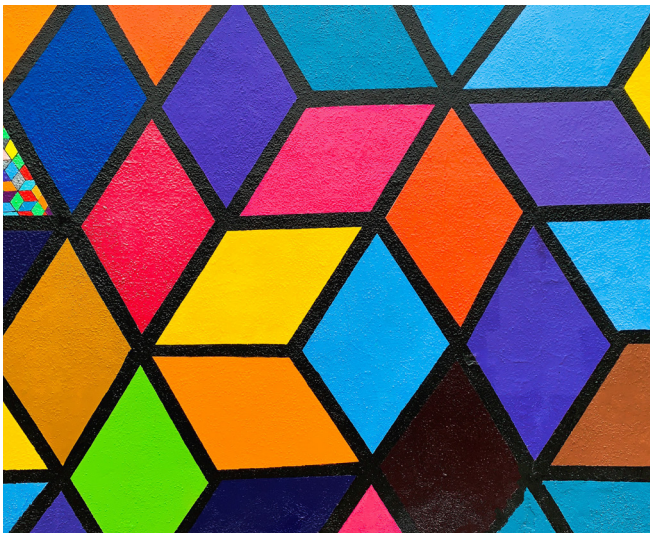
In Adobe Photoshop I went to Adjustments then to Hue/Saturation and reduced the saturation by 50 percent. This adds gray to the hues in the photo to give it a more toned down look. You may have heard of the term "toned down" before, which is the act of adding gray to a color which calms the intensity of a hue.

Bold color hues

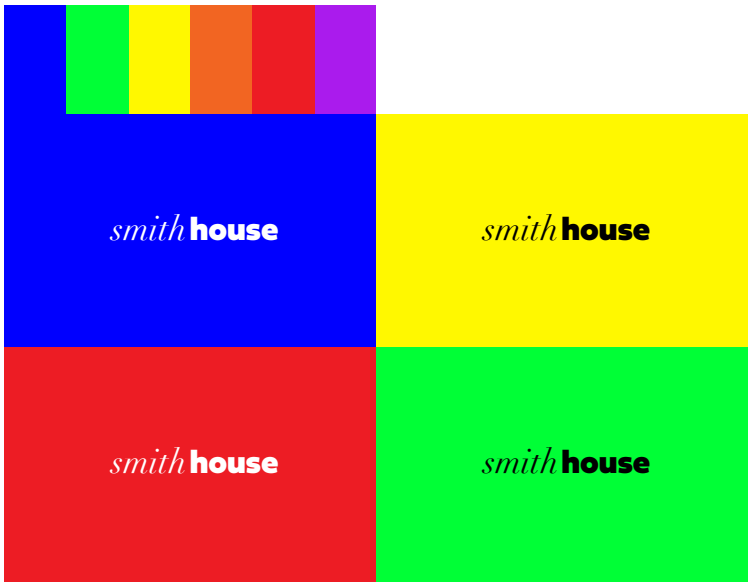
When you use the six main primary and secondary colors as full hues they can give designs a distinctive “Pop Art” look. Andy Warhol made this style famous with his use of vibrant, fully saturated hues. They can make bold statements and draw a viewer’s eyes to your design.

Andy Warhol got his start as an illustrator in the advertising world. His attention-grabbing aesthetic was most likely influenced by having to create eye-catching illustrations for products and services.

Judy Garland, Andy Warhol



The power of color mixing



Primary and Secondary colors can be very restricting and it is why further color mixing is needed to put together a wider, more versatile color palette.

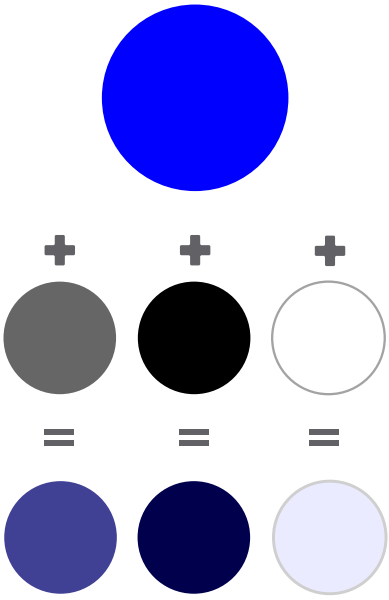
Take for instance the bright color palette using just primary and secondary colors for the logo here (to the left) for a financial institution.

It's great for grabbing your eyes, but horrible for establishing the right mood and tone for the company!

We can take the pure blue hue here (below) and mix it with either gray, black or white to get a full range of complex colors. This bodes well for a softer more professional look needed for the company's industry.

White, black and gray are all neutral colors, so when mixed with a powerful strong hue they achieve a nice balance of color.

When we start to mix simple hues with more complex hues like orange-red, maroon or lilac, along with a neutral, we start to get overwhelmed with the amount of possible color choices for our projects.



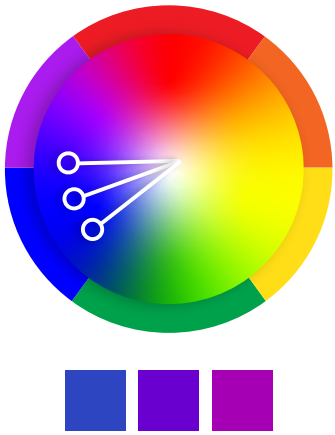
The palette featured here is very harmonious because all three colors in the palette are derived from the same primary blue hue.

Color Harmonies

How do we start to create and mix colors together to make effective color palettes? There are millions of color choices to make and knowing methods, and finding a starting point, helps in paring our selections down.

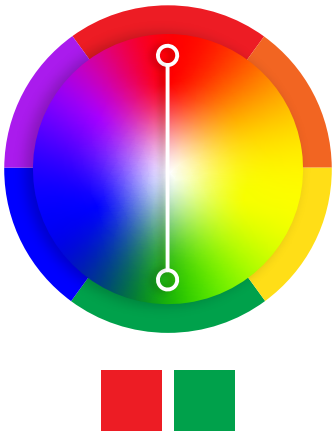
Color harmonies are an array of different color techniques. There are six main color harmonies commonly used in design. Although there are many others, these six are the most helpful.

ANALOGOUS



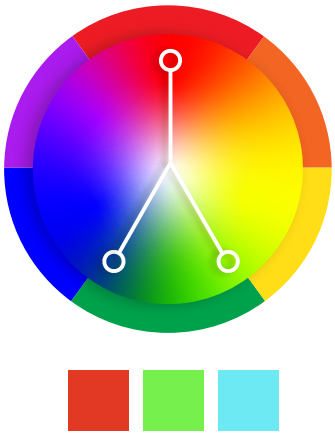
These colors are close to each other on the color wheel. There is little contrast between the colors, giving them a softer look. One of the most versatile color harmonies outside of monochromatic.

COMPLEMENTARY



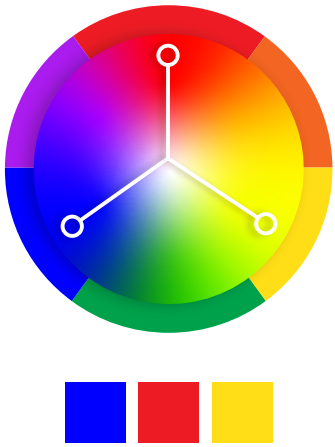
Complementary colors exists on opposite sides of the color wheel. They have the most contrast of any two colors, giving them a dramatic look.

SPLIT-COMPLEMENTARY



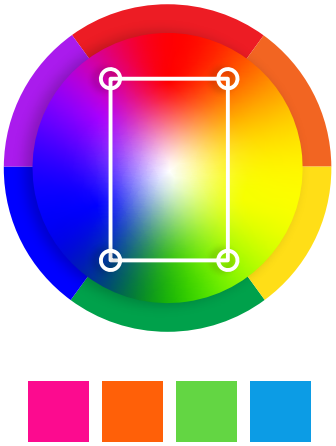
Split-complementary colors takes the high contrast complementary colors and lessens the dramatic contrast by splitting the difference on the opposing side.

TRIADIC



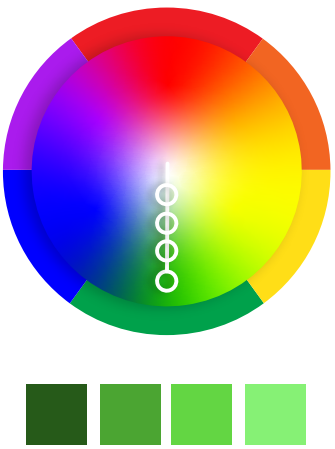
These colors are evenly spaced out along the color wheel in a triangle pattern. You may have noticed that the three primary colors are triadic colors, as well as the three secondary colors.

TETRADIC



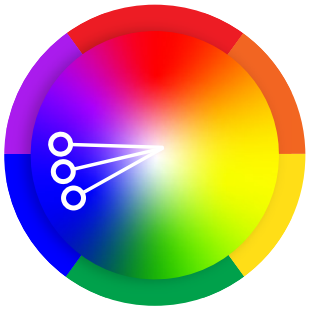
A bit harder to use, tetradic forms a rectangle or square around the wheel to form a color palette that has no one dominant color. These are great for creating big pops of color that exist throughout your whole palette.

MONOCHROMATIC



Monochromatic colors are just variations of one single hue. These variations can be created by adding white, gray or black to the base hue to create a wide variety of different shades and tints. This one is the easiest color harmonies to work with.

Color palette selection example.



ANALOGOUS

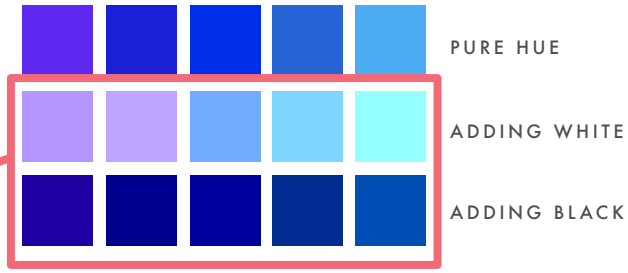
Let's say we need to develop a color palette for a new company. Let's say we settle on the color blue.

We look toward **analogous colors** to find nice, closely related pairings to the color blue and we find a deep purple a blue-green color.

PURE HUE

Using pure hues can make creating designs from those pure hues difficult because they all have the same saturation and strength.

We can add white, gray or black to any of our analogous colors to gain a wider workable color palette.

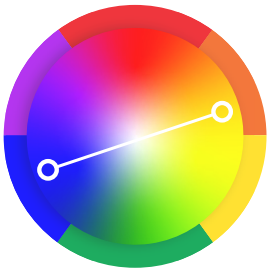


PURE HUE

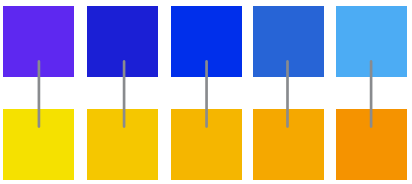
ADDING WHITE

ADDING BLACK

We have established some great cooler colors using a analogous color scheme. But, what if we wanted to add a punch of color to our palette?



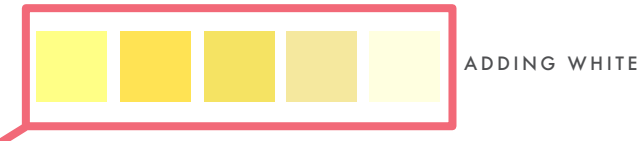
COMPLEMENTARY



PURE HUE

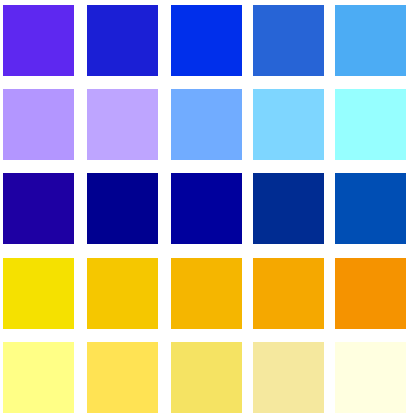
PURE HUE

We can take our analogous colors and find corresponding **complement colors** for each one. This creates a dynamic pop as it has higher contrast.



ADDING WHITE

We can even find various shades, tints and tones of our colors to expand our complement color set.



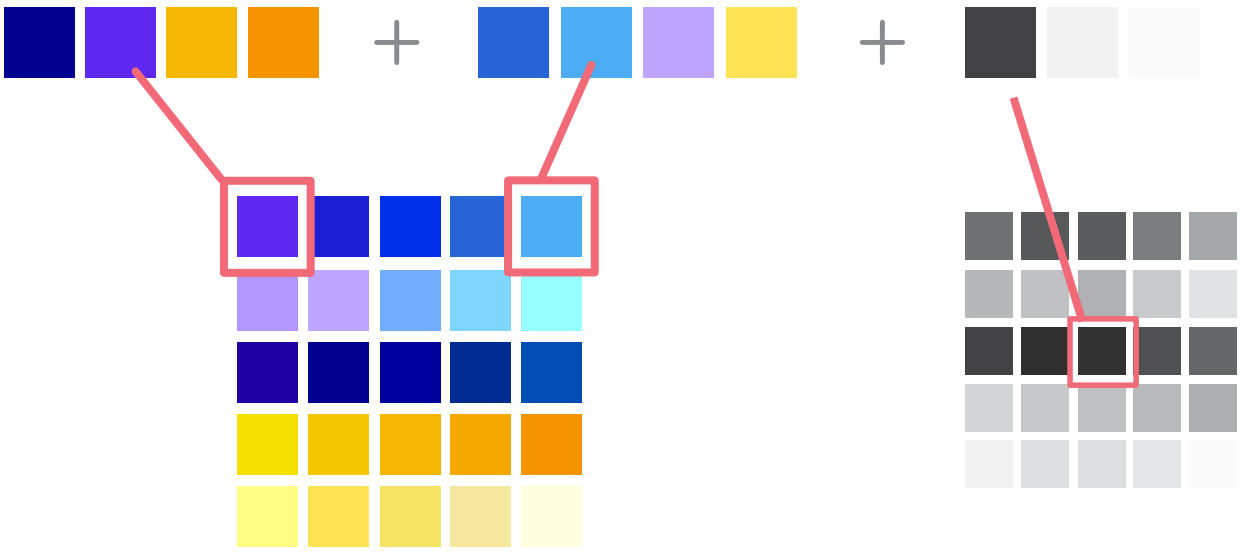
This yields a great set of analogous colors but also complement colors in that set. This is a great example of how understanding different color harmonies can give you a huge head start in pairing colors together.

It can be one color harmony or a combination of several that helps form your color choices.

PRIMARY COLORS

SECONDARY COLORS

NEUTRALS



Having such a huge color palette like this when creating design work can be daunting and unnecessary. We need to pare down our palette to select individual colors that have a purpose.

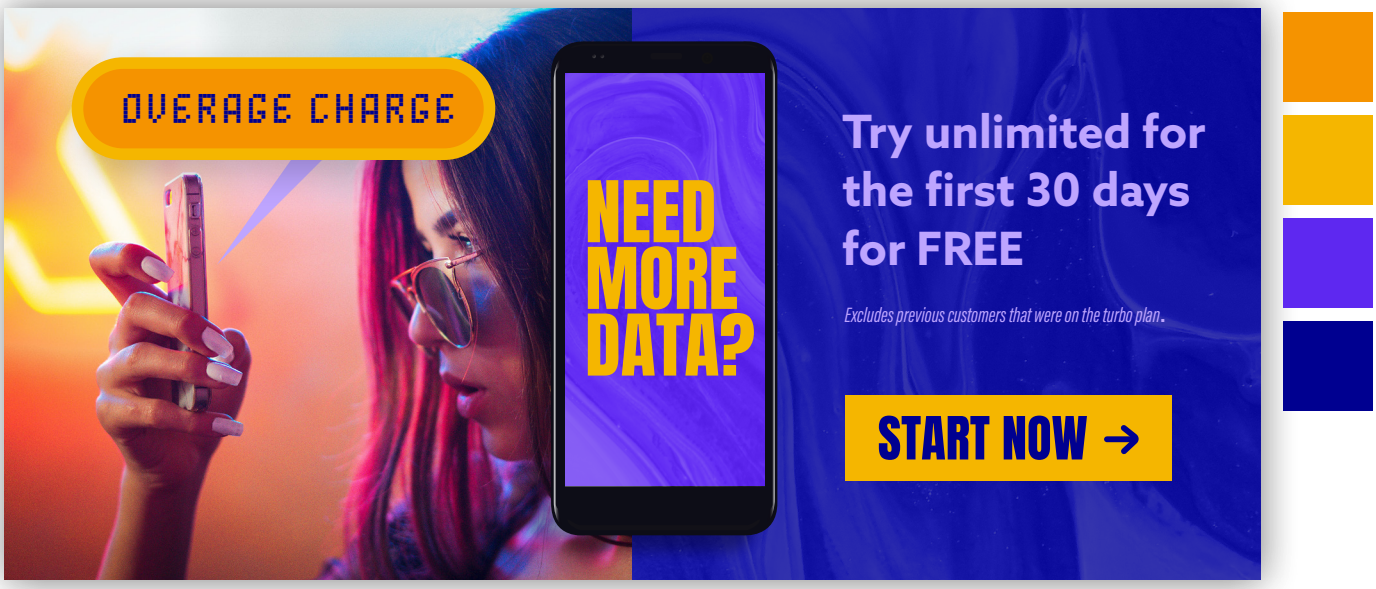
Primary colors are the most used colors in a designer's toolbelt for any given project. These will take up larger spaces and be featured more often as prominent colors.

Secondary colors are used less frequently and are alternatives if a primary color is too bright, too dark or too light for a given area or if a situation warrants something outside of the original primary color palette.

Neutrals are anything that has low saturation. The ones shown here are in a pure grayscale, without any original hue remaining. (Neutrals can still have hues in them, just not very prominent.)

I like to include at least one or two neutral colors in any color palette. Without neutrals you only have access to swatches that have obvious hues, giving you less choices when it comes to typography color and other design elements.

Make sure to test out your color palette on practical projects. You will discover changes, tweaks and new swatches that need to be added to maximize the harmony between your selected primary and secondary color choices.

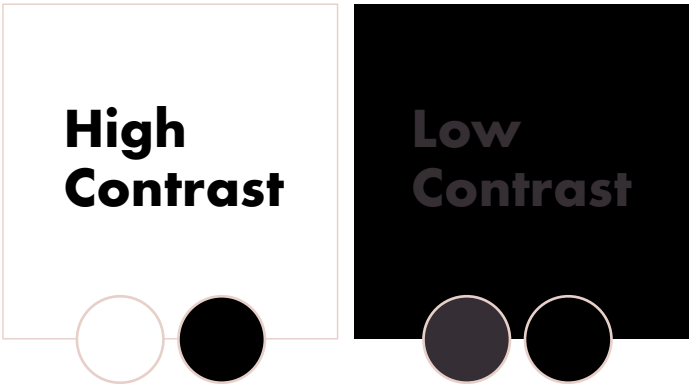


Contrast is king.

Having the right amount of contrast between your colors is essential for effective design.

The highest contrast available to you is white on black (or black on white). Text is the most legible when it is black on a white background. Our eye establishes the white as the background and the black text as the foreground. It is easily seen and read.

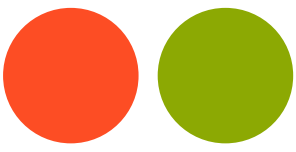
The low contrast example makes the text look less obvious and more subtle. This make readability an issue, but can also make for great subtle messages when you don't want your text to be the first thing that stands out.



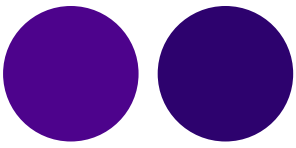
The fast food ad to the left uses complementary colors on the color wheel (red and green). Because they have great distance from each other on the wheel, it gives them a high contrast.

It is effective in drawing your eye to the headline. You may also notice purple and cooler tones dominate the background so it does not compete with the red and green headline color.

There is high contrast in the headline and low contrast in the background; they work together to bring the most important items to the forefront.



HIGH CONTRAST HEADLINE



LOW CONTRAST BACKGROUND

Contrast can help sell.

In some cases, contrast can increase the effectiveness of an ad, such as a social media ad (see right). The ad on the top will produce more interest and clicks because of the higher contrast colors used for the 10 percent off promotion, the most important part of the ad.

The ad on the bottom will most likely be glanced over by busy viewers because the green blends in with the green dominated background.

BUY NOW

BUY NOW

BUY NOW

BUY NOW

Call-to-action buttons on website landing pages and display ads need to be obvious and quickly found.

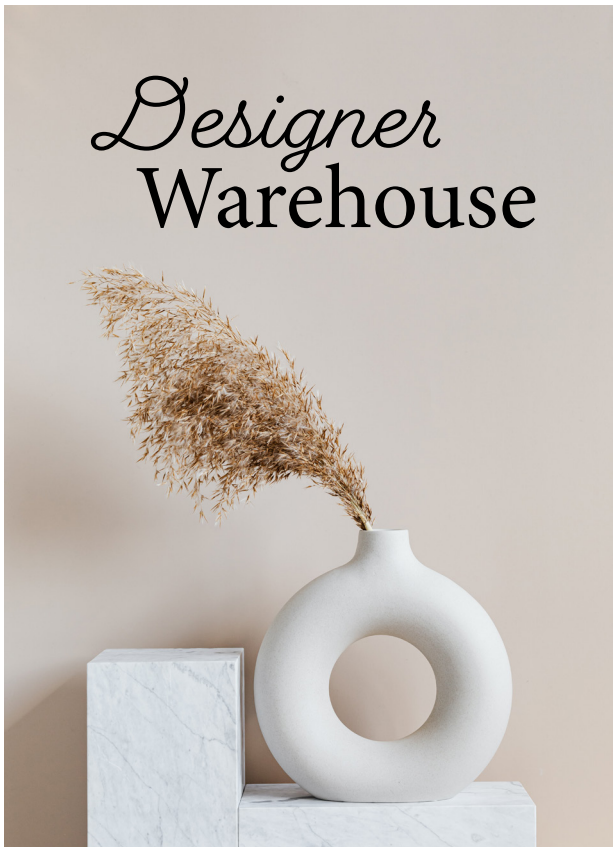
Higher contrast buttons tend to convert better.

Color is just one way to add contrast to a button. This could be done by adding a border or being different in some way compared to the nearby type and size of the other objects on the page.

The background and other colors in the layout can make a difference in the contrast of your button. Darker backgrounds will encourage the use of lighter colors, while for lighter backgrounds you will want to use darker colors to stand out.

LOW CONTRAST

Low contrast can be used to reduce tension in your design and soften the look. These two posters feel very different yet they have the same layout, typography and structure.



HIGH CONTRAST

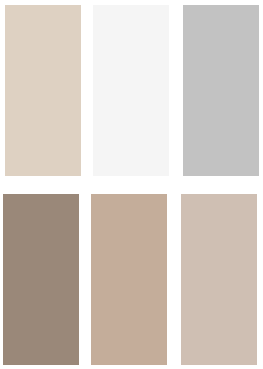
The color contrast in the version on the left is very low, matching not only with the nearby photo but also looking light against the light tan background. The example on the right feels heavy with it's dark black typography on top of a light background.

LOW CONTRAST COLOR PALETTE EXAMPLES

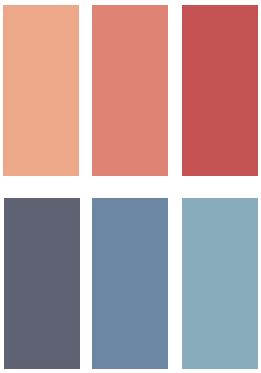
Monochromatic color harmonies make excellent lower contrast color palettes.

Neutral colors lack saturation, so when put together they have a common, unifying characteristic.

NEUTRAL COLORS



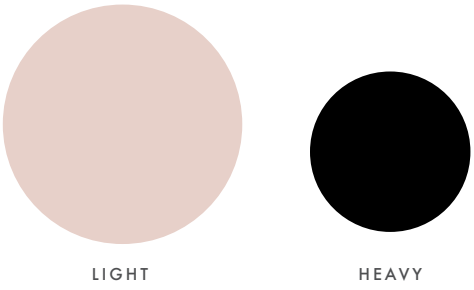
MONOCHROMATIC



a softer look

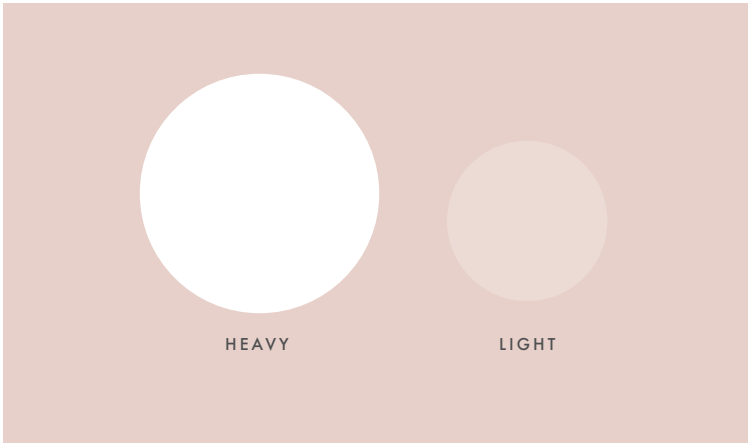
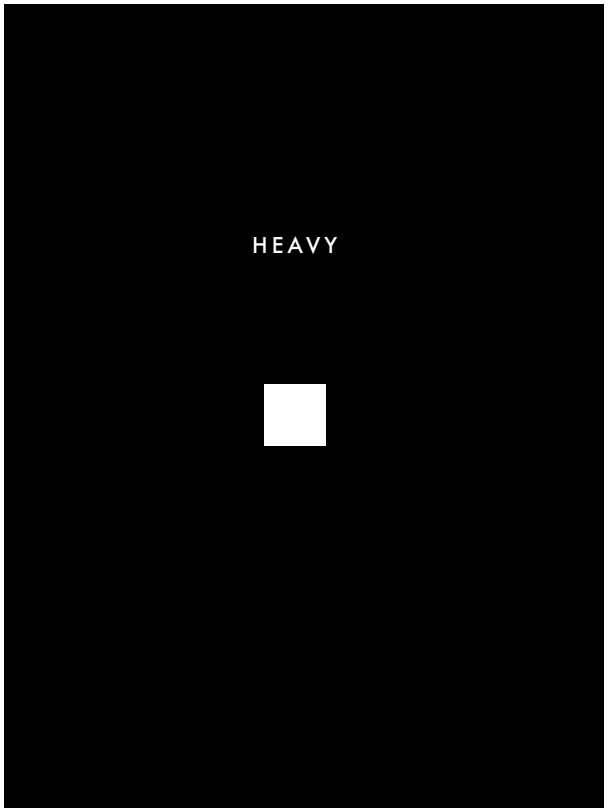
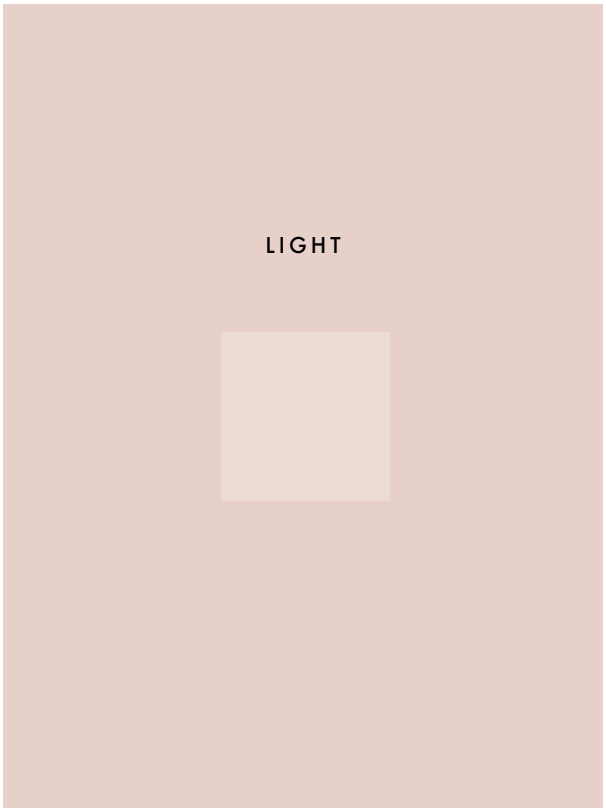
lower contrast

WEIGHT



Weight is just as important as contrast. You will notice that, even though the black circle is only half the size of the lighter circle, it dominates the space because it has a higher weight. This weight comes from the high contrast it has against the white background.

This means that high contrast colors can help you decide which object is heavier, therefore gaining the most attention in a design.



Let's change the colors. Now we have a higher contrast white color against the darker beiges. This high contrast suddenly makes the larger circle more dominant and heavier, while the smaller circle is barely noticeable.