



Design for the Web

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thoughtbot



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About this book

There are many design books, but none aimed squarely at developers. You don't have to be a developer to enjoy this book, but you should be familiar with web technologies and have an interest in how they are built with the user in mind.

Maybe you are tired of the ready-bake designs based on frameworks like [Bootstrap](#) and [Foundation](#). Maybe your project is starting to take off and you are ready to invest time in your user experience to delight your users and increase conversion.

We won't waste time introducing how HTML and CSS work, or talking about web design patterns as though you've never seen a website. We will mix art theory with user interface examples and real-world code so you get a full understanding of what it means to design for the web. You will learn all the tools you need to craft a positive user experience, motivate your audience, and look good doing it.

This sample contains a few hand-picked chapters, published directly from the book, allowing you to get a sense of the content, style and delivery of the product.

If you enjoy the sample, you can get access to the entire book at:

<http://www.designfortheweb.net>

As a purchaser of the book, you also get access to:

- Multiple formats, including HTML, PDF, EPUB and Kindle.
- Access to a GitHub repository to receive updates as soon as they're pushed.
- Access to GitHub Issues, where you can provide feedback and tell us what you'd like to see.

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Elements of Art & Design

The study of visual design is really a study of human perception, and how to best apply these elements and principles to create a desired response in the viewer. Why do some color combinations look better than others? How can I take my wall of text and make it an easy to read article? There is a long history of great thinkers writing about how art and design work, breaking them down to their most basic parts to understand how they are put together.

These building blocks are called the *Elements* of art and design. They are:

- Color: How colors affect the user emotionally and how combinations of color interact.
- Value: The lightness or darkness of a color.
- Shape: Areas of two-dimensional space. May be geometric like a rectangle, or an organic blob.
- Line: A real or perceived mark between two points.
- Form: A three-dimensional object, or the illusion of a third dimension.
- Space: An area that defined by its purpose and situated in two or three dimensions.
- Texture: The illusion of a third dimensions in a two-dimensional field that looks like you could touch it.

The *Principles* are more about using the elements to get a desired outcome. They are:

- Balance: Arrangement of elements to create symmetry or asymmetry.

- Contrast: Using juxtaposition to create tension.
- Emphasis & Hierarchy: Making one area more important than another.
- Pattern: Regular repetition of elements.
- Rhythm: Creating a sense of movement.
- Harmony: Arranging elements to form a whole.

It seems that no two lists of these elements and principles are exactly the same, and different specializations may use some more than others. Let's take a look at the more important items from these lists and how we use them to design for the web.

Color

Color is such a fundamental part of how humans understand the world that we often overlook how it is processed and why it influences us.

The how

Humans perceive a small part of the electromagnetic spectrum through our eyes as *light*, on a scale of frequencies which we call *color*. Light that has a short frequency is perceived as blue, and a longer frequency is perceived as red. Some humans have a deficiency in the ability to distinguish some colors, so it is important to remember that a discussion about color is about how most humans process light and is necessarily subjective. We will talk about accessibility in relation to color blindness later.

The electromagnetic spectrum doesn't distribute color quite the same way as a color wheel. That's because our cone cells are specialized and don't give us an even sensitivity to light. We are more sensitive to blue, green, and red, and a little less sensitive in between. Our brains also form a smooth continuum between the far left and far right sides to create violet, a trick which works largely because we are least sensitive to that part of the spectrum.

It's hard for us to distinguish colors where we have fewer receptors. We have trouble seeing the difference between very blue and very red, but it's also hard for us to see yellow and cyan in some situations.

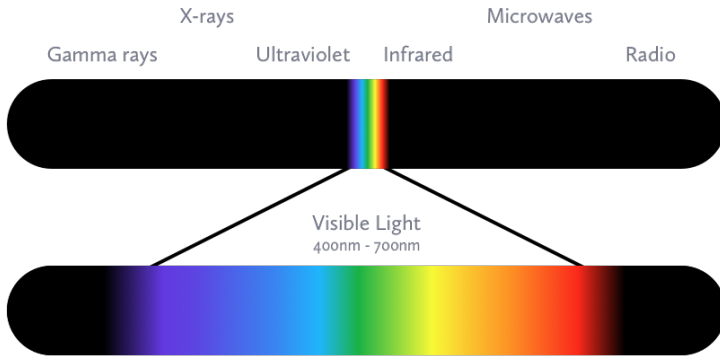


Figure 1.1:

The color wheel distributes color in a way that emphasizes the parts of the spectrum that we see well and deemphasizes the parts that we are less sensitive to. It's a truer representation of how our brains interpret and process color, and explains where our color preferences come from and how to think about accessibility for those with color vision deficiencies.

The why

Everyone has a favorite color, but did you know that over 40% of the people in the world prefer blue? Red and green follow at around 10%, and it continues down the secondary colors around 3-4% and tertiary colors around 1-2%. If you look back up to the color sensitivity chart you can probably guess that we prefer colors that we see most clearly.

We associate colors with the real world objects that share that color and with abstract ideas extended from them. Red, yellow, and orange are the color of fire and the hot sun. These are the "warm" colors, and they tend to make us think of action

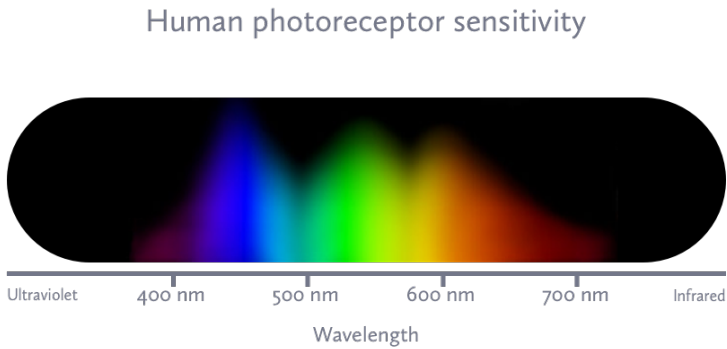


Figure 1.2:

and dynamism. Blue and green are the color of the cool water and grass. These “cool” colors feel reserved and dependable and make people relaxed.

Use these associations to your advantage.

Choosing a color palette

Does your startup offer financial services or do you want your airline to feel safe? Then you’d better use cool colors.

Does your brand target kids, promote sports and health, or just need to set itself apart from the established brand? Warm colors are a good bet.

Using only one color in your palette is called *monochrome*. This will create the strongest connection to your chosen color, but doesn’t give you a lot of options for design. Popular companies that use this technique successfully with very different colors include Coca-Cola, Chase, and Sprint. It is impossible to think of Coca-Cola

without its particular shade of red. These brands try to be unforgettable by using bold colors and heavy repetition.

You can keep the strong mental associations of a monochromatic color harmony while still branching out to neighboring colors. This is called *analogous* color harmony, and can help give you more design options.



Figure 1.3:

You might use yellow-orange as a call-to-action color and yellow-green to deemphasize text while adding in yellow as a desaturated khaki for a background color.

The most common color harmony technique is using *complementary* colors, which are opposite each other on the color wheel.

This is commonly seen in movie posters and in products that try to capitalize on the attention-grabbing nature of contrasting colors to differentiate their product on the shelf. Complementary colors are a sure way to get noticed, but can be hard to work with on pages with a lot of text unless you add in white space or neutral colors.

The *triadic* color harmony can be used a couple of different ways. You could choose



Figure 1.4:

three equally spaced colors, such as the three primary colors, to create a vibrant set of equally strong hues.

You can also move two of the colors closer together to create a sort of blending between analogous and triadic color harmonies. This will give you both a close color relationship and another option for a little extra punch of color.

RGB CMYK HSL HEX WTF

Print designers and other designers that work in inks and pigments deal with CMYK (Cyan/Magenta/Yellow/black). This is called *reductive* color mixing because combining the colors will reflect less and less light until they make black.

Where the primary colors overlap, you will see the familiar red, green and blue as secondary colors.

The model we deal with in light-emitting displays is RGB (Red/Green/Blue). This is *additive* color mixing because combining all of the colors creates white.



Figure 1.5:

In this case, a combination of red and blue creates magenta.

When we write CSS, we use a special shorthand to describe RGB colors called hexadecimal. Hexadecimal colors are prefixed with #. Instead of writing the colors as percentages or on a scale from 255, we use only two numbers per color by using pairs of base 16 numbers, which counts from 0 to 9 and then from A to F.

To describe a purely red color, we would use FF (the highest value) for the red, and then 00 (the lowest value) for both the green and the blue. A pure black would be #000000, a nice medium gray is #AAAAAA, white would be #FFFFFF, and so on. You are likely to always have a color picker close at hand, so while it is useful to be able to adjust a color solely by adjusting the hexadecimal value, it is best to stick to those helpful tools for now.

CSS3 added in a few more ways to describe color. You can describe the RGB values directly by describing that red as `rgb(255, 0, 0)`. Although it isn't as widespread, in some cases it is easier to use HSL (Hue, Saturation, Lightness) to describe colors. That same pure red would be described as `hsl(0, 100%, 50%)`. The first value is given in degrees (as in degrees around the color wheel, starting and ending at

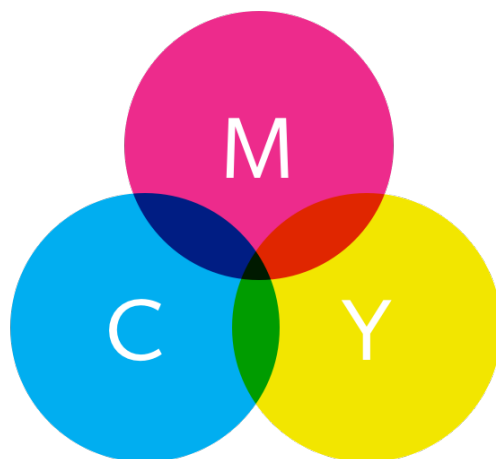


Figure 1.6:

red), the second is that we want full saturation, and the third is that we do not want it to be tinted or shaded. Both `rgb()` and `hsl()` have accompanying methods for adding alpha transparency. For instance, you can use `rgba(255, 0, 0, 0.5)` to show red at 50% transparency.

Form and Space

We occupy three-dimensional space. Sometimes it's fun, sometimes it's dangerous, but that is where we live and it influences how our brains are accustomed to interacting with the world.

In fact, we're so accustomed to it that we will subconsciously assign fake three-dimensional attributes to digital elements on a flat screen. Dropdown menus don't just replace the content they cover, they feel physically "above" them. When we scroll down a page, the elements that move off-canvas are still in our mental map, even though they are no longer being emitted by the screen. They aren't pixels of

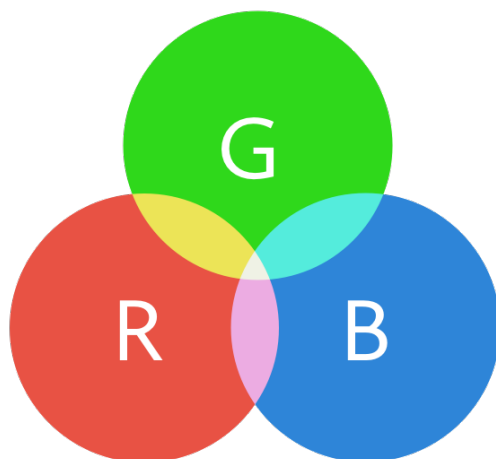


Figure 1.7:

color; subconsciously, they are real. We can't help ourselves. But we can use the illusion of depth to make sense out of our designs.

Think of the visual elements in your application [as pieces of paper](#). Some of the pieces can move independently of the others, while some are taped together. Some are fixed in place while the user scrolls, and some are hidden off-screen.

For example, a header might have important navigational links which the user needs no matter where we move the other pieces, so we position it in place “above” the other pieces. We can take it one step further and give the header a drop shadow or a slightly translucent background so we can see the content slide behind it. By using some visual styling, we can create the feeling of interacting with something more than just pixels on a screen.

Separating your content into logical groups with their own interactions will make navigation effortless. Grouping similar elements not only make it easier to arrange and organize your content, but makes it possible to give different interaction treatments to each area for different contexts.



Figure 1.8:

How do we know how things should be grouped? We turn to *Gestalt theory*. It is a wide-ranging study which explains how we make associations between visual objects. We will expect objects to be related if:

1. Proximity: The objects are close to each other
2. Enclosure: The objects are within a visual container
3. Similarity: The objects look similar
4. Figure and ground: The objects are visually distinct from the background

Proximity

Things that are alike should be grouped together. This seems obvious enough, but sometimes these connections can be hard to define and categorize. When the user looks for related things on a page, they expect them to be nearby. When an interaction isn't where they expect it to be, they will spend time looking all over the



Figure 1.9:

page, with building frustration. Pulling similar elements together can also help a page feel simpler and less cluttered.

If you aren't sure where a piece of content belongs on a page, consider ordering their proximity like this:

- Directly related content
- Suggested content that is main content on its own page
- Unrelated global content, like navigation

Your main content should be front and center, with as little clutter as possible around it. Navigation links should be grouped into headers, footers, and sidebars. Consider using popovers, modals or accordions for useful but secondary actions. We'll talk more about HTML5's semantic elements and how to organize these sections in the Writing Semantic Markup section.

This rule also goes the other direction. If a piece of content is not directly related to the main content, make sure there is separation so the user knows that it is

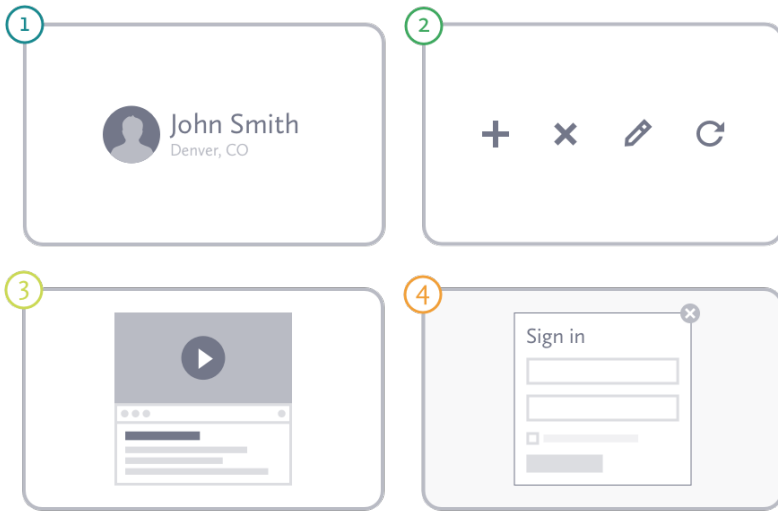


Figure 1.10:

distinct. Content that is completely unrelated and unimportant should not appear on the page and should be moved to a page of its own.

Enclosure

Enclosure can be used to reinforce proximity; either tying content together or to differentiate it. Comments about a blog post should be close to the blog post itself, and including them in the same visual column or surrounded by the same border helps to make that connection. Using a container, links to edit or delete an item can appear *on* the item, rather than simply near it.

Cards might be enclosure in its purest form, and they are quickly [taking over the internet](#). In some ways, this trend represents a moving away from pages as completely contained information, and embracing the aggregation of data that makes the web so powerful. It is also part of a new wave of design patterns coming to us from mobile-first thinking, which focuses on displaying chunks of content on a wide variety of devices and contexts.

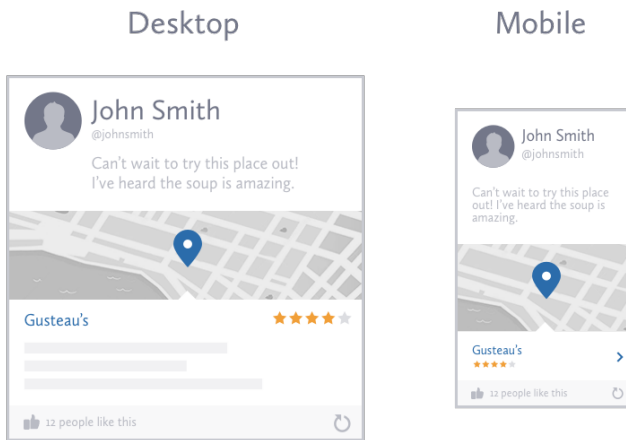


Figure 1.11:

You can also divide an enclosure by using lines, nested containers, or simply differently colored backgrounds. It can cause some extra cognitive overhead for your user if things get complex, so default to grouping with proximity and keep your enclosures subtle.

Similarity

If visual elements have the same style, we will also expect them to behave the same way. Unfortunately, mismatches tend to build up over time. They can happen when pulling together assets (like icons) from disparate places on the web, or when multiple designers are working on a project without enough communication. [Building a styleguide](#) helps fight the inevitable erosion, but it takes dedication to maintain.

Your users are primarily making these connections within your site, but they bring with them the [experience of design patterns](#) used elsewhere on the web. Experimentation is good, but defaulting to consistency with established patterns will cut

down your design time and shorten the learning curve for your users.

Figure and ground

Another way to distinguish new content is to create the illusion of it being *above* the main content. This is best used for very small pieces of information, and can take a few different forms.

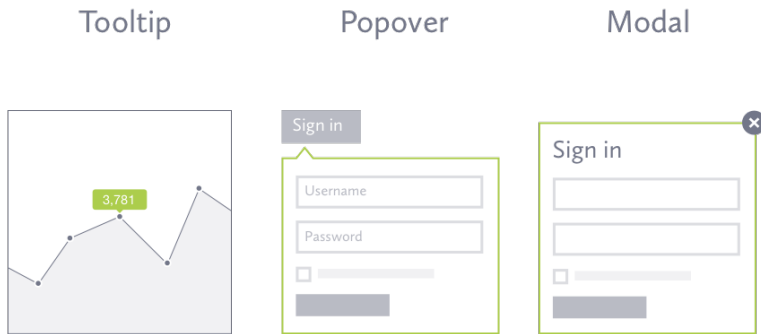


Figure 1.12:

Popovers (sometimes called “Dropdowns”) offer a way to hide content until it is needed while still keeping it nearby.

Tooltips are just popovers containing a label or short description. They are revealed on hover and are most commonly used to explain an icon’s meaning or give a little more detail where room is tight.

Modals then are like the older sibling to the popover. They are larger to accommodate more complex interactions or content like images and videos. They sit at the top of the entire window and often block any action on the content underneath

with an overlay. Triggering a modal usually requires clicking an explicit link rather than simply hovering over an area.

Closing

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