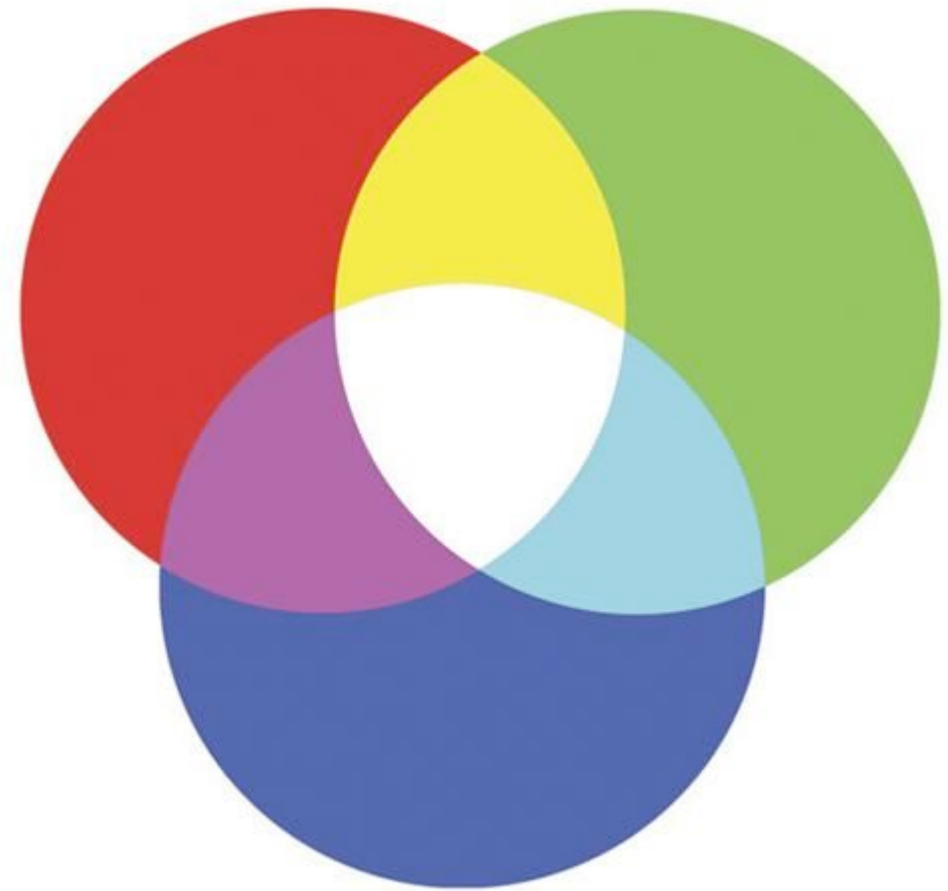# Foundations of Design

Before we can code our component library we have to design some of the foundational elements of our design system.

Color

Additive color mixing

Colors start black and become white as more red, blue, or green are added.

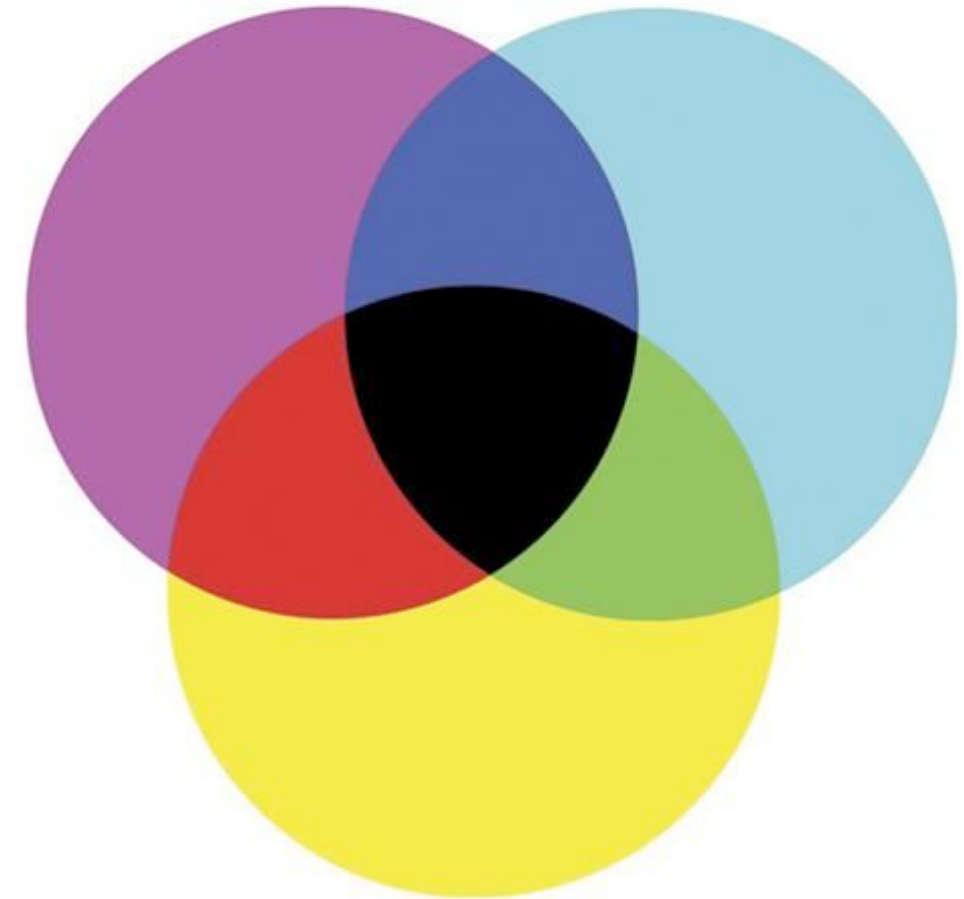TVs and computer monitors use additive color mixing.

Subtractive color mixing

Subtractive colors start as white and as filters are added takes on the appearance of color.
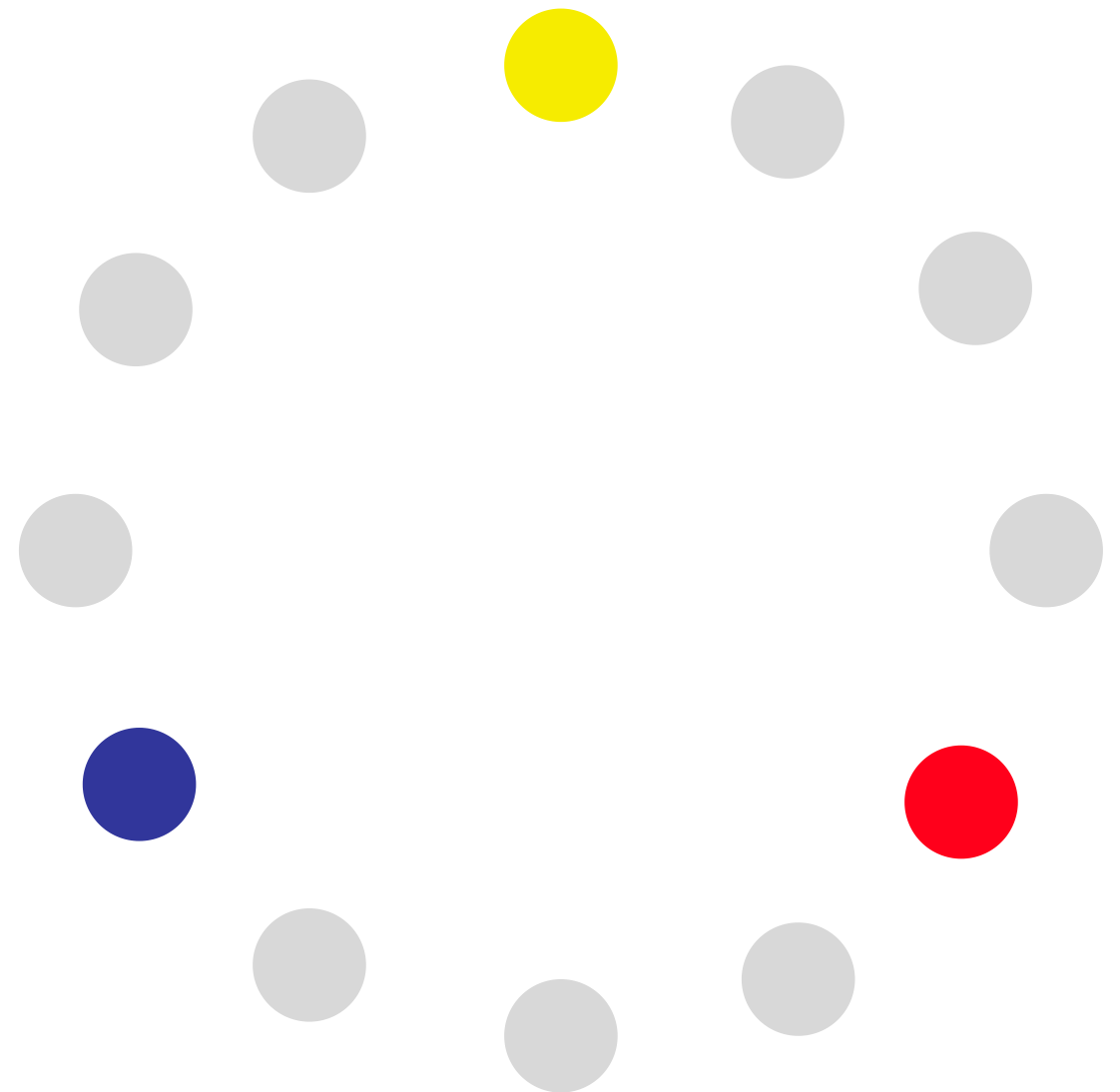
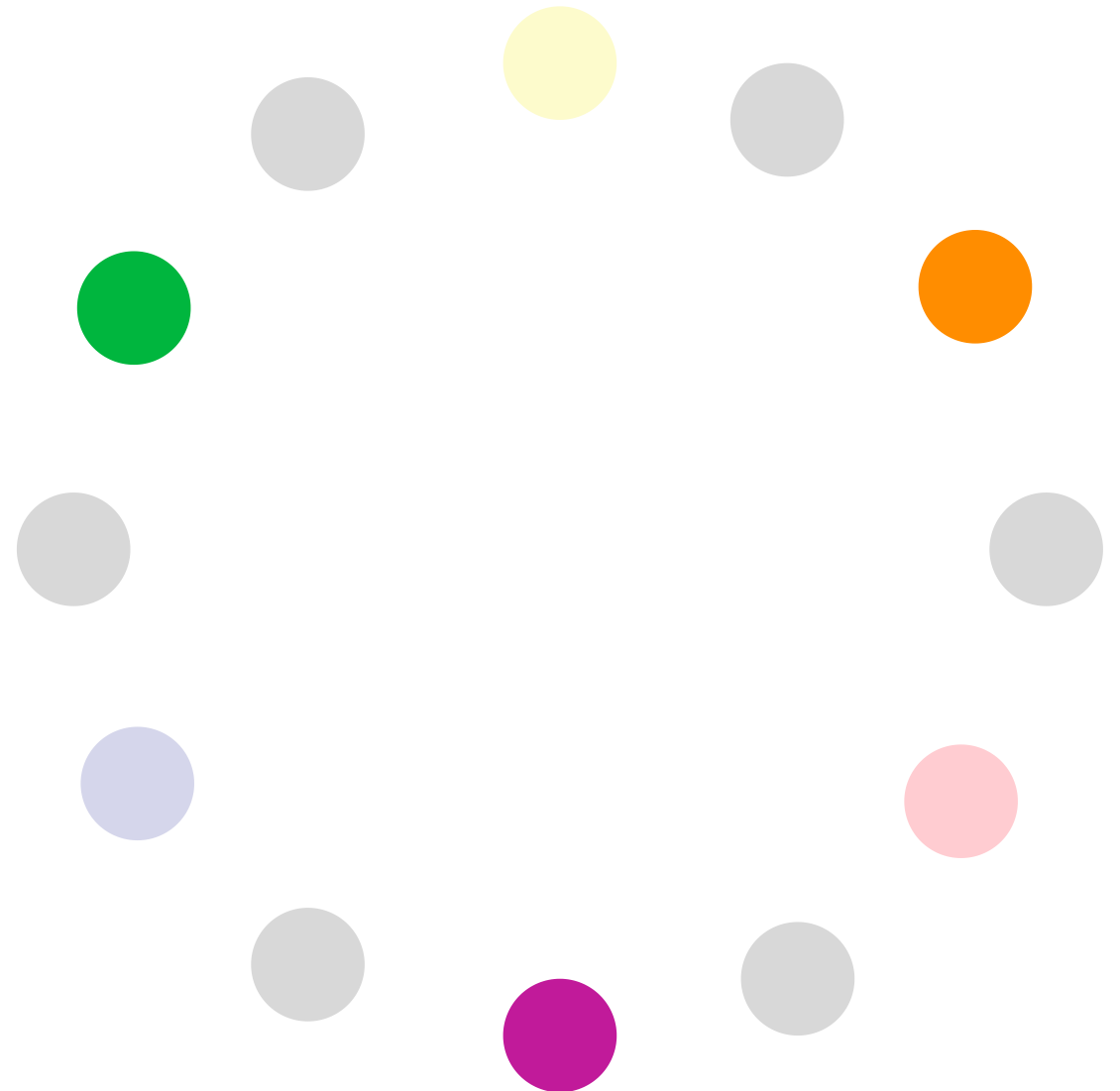Photos and magazines use subtractive colors.

Color types

Primary colors

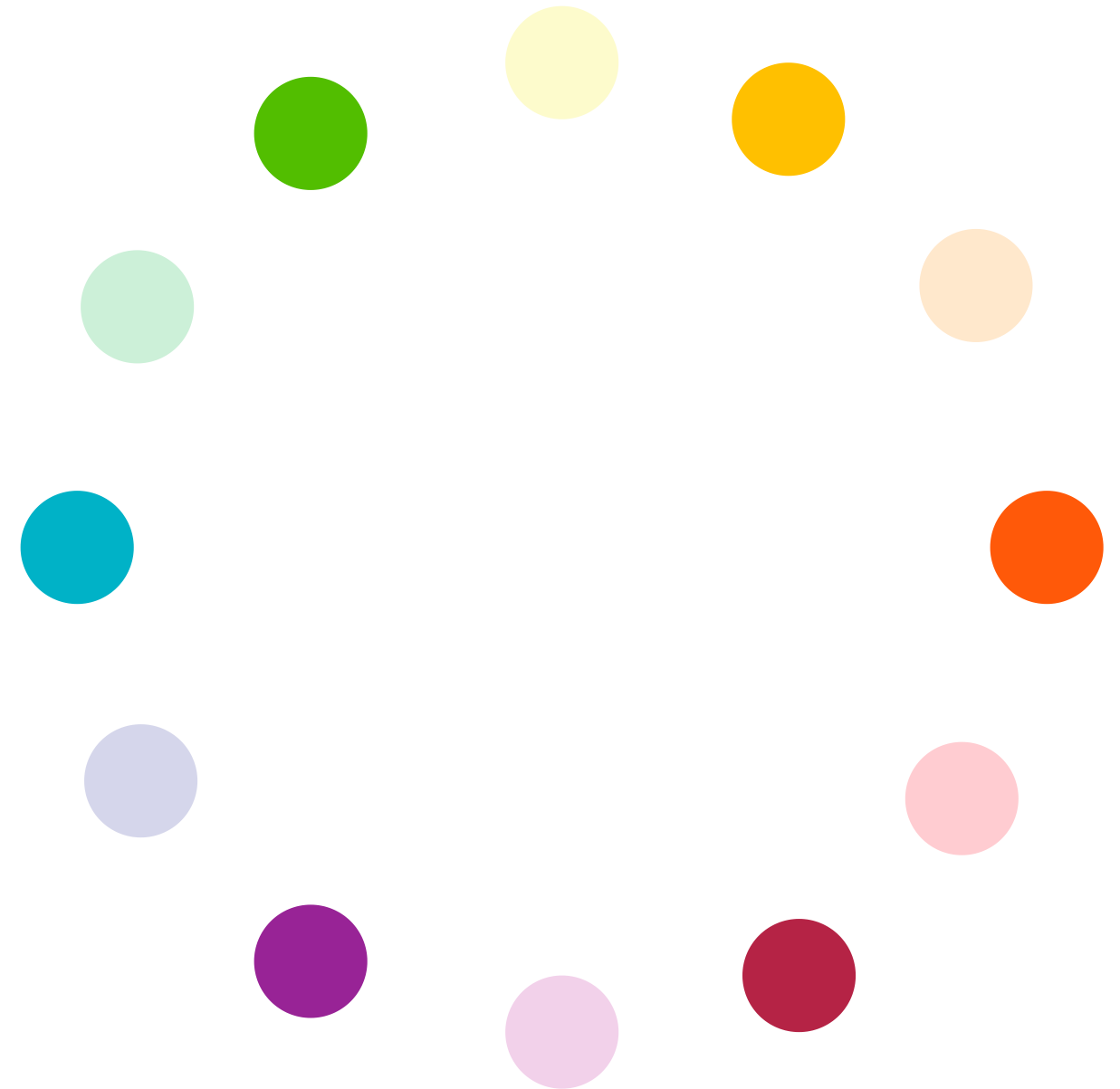Colors which cannot be created
by combining other colors.

Secondary colors

Secondary colors result from
mixing two primary colors.
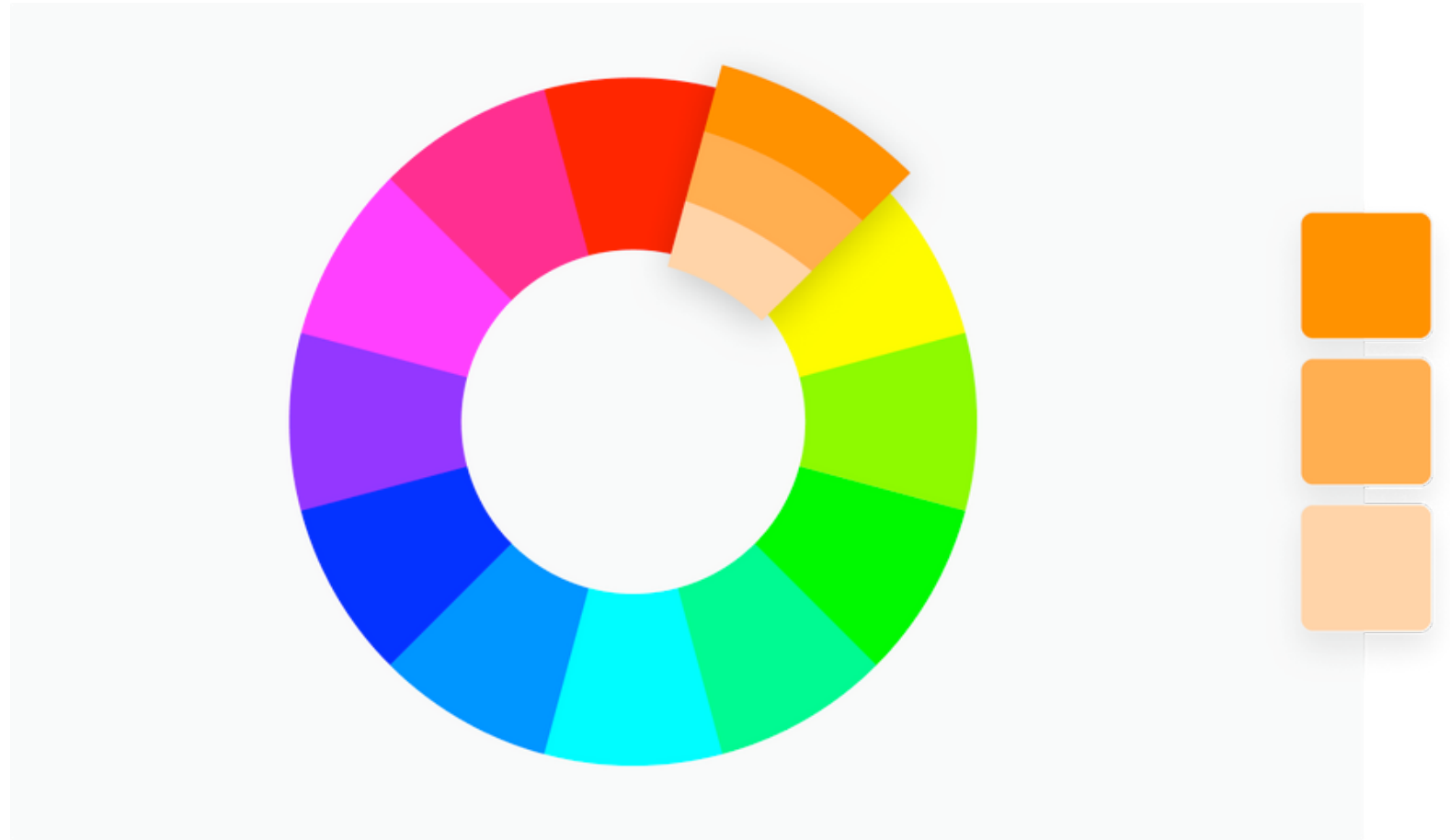
Tertiary colors

Tertiary colors are created by combining a secondary color with a primary color. There are six tertiary colors.

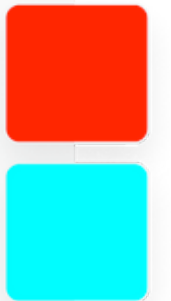# The color wheel

Monochromatic

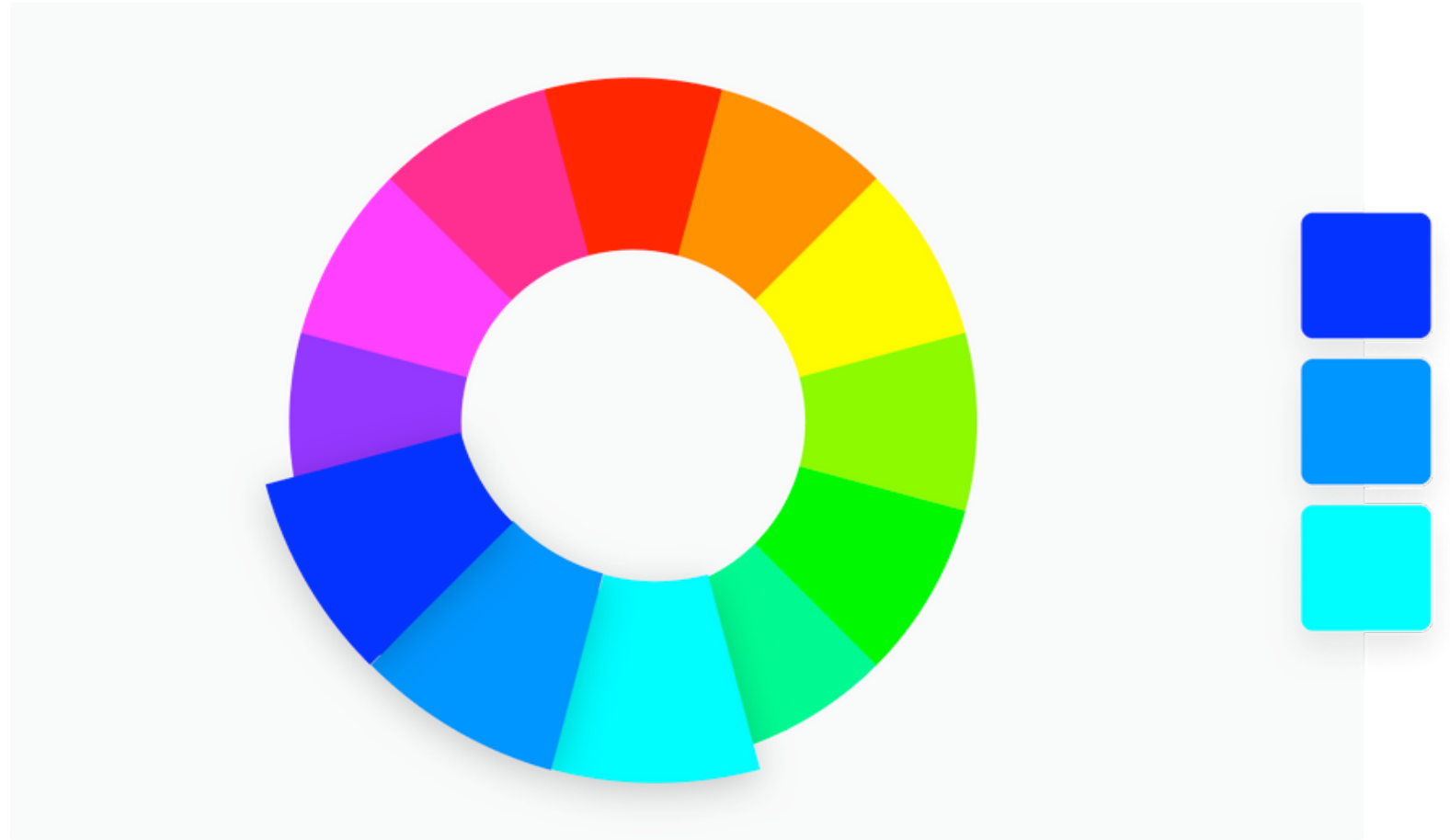Monochromatic palettes are created by establishing variations on a shade of a single color.

Complementary

Complementary color palettes are created by selecting two colors directly opposite of each other on the color wheel.
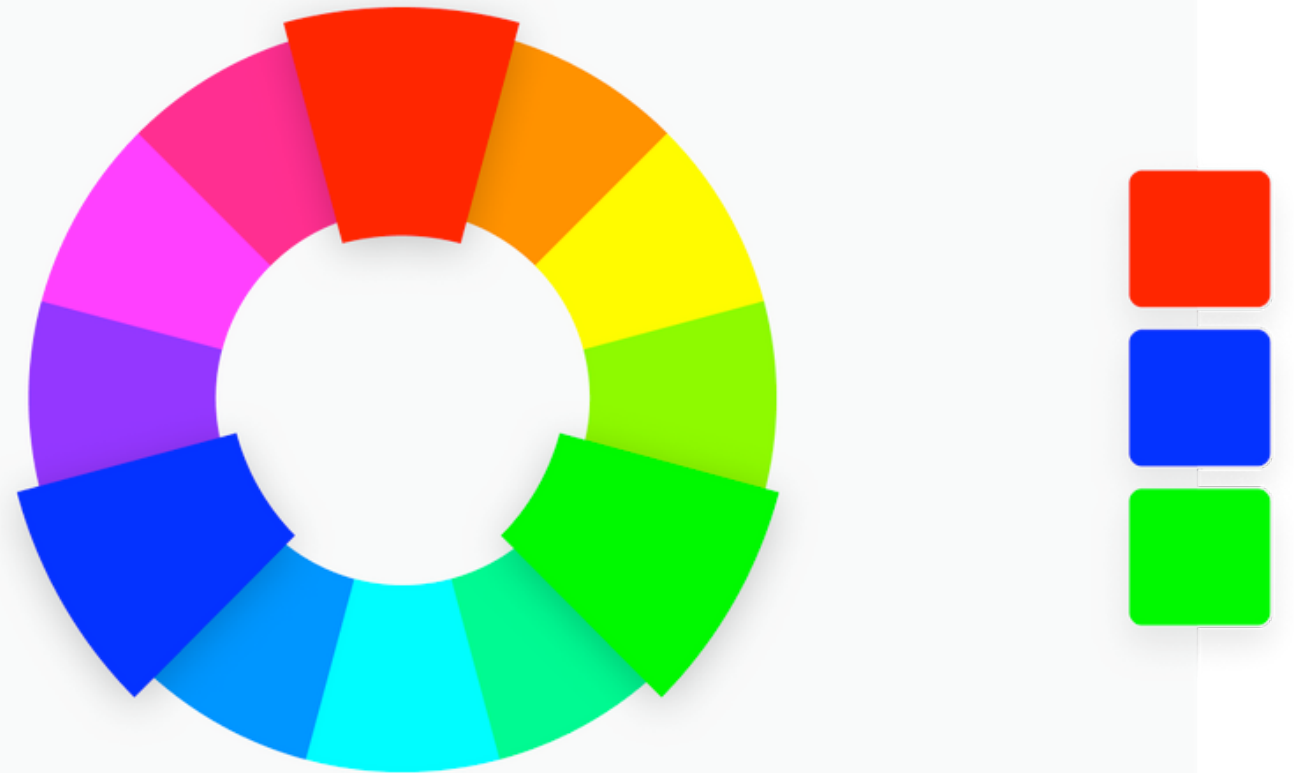
Analagous

Analogous color palettes
are created by selecting
three colors which are side
by side on the color wheel.

Triadic

Triadic color palettes are created by selecting three evenly-spaced colors from around the color wheel.

Color terminology
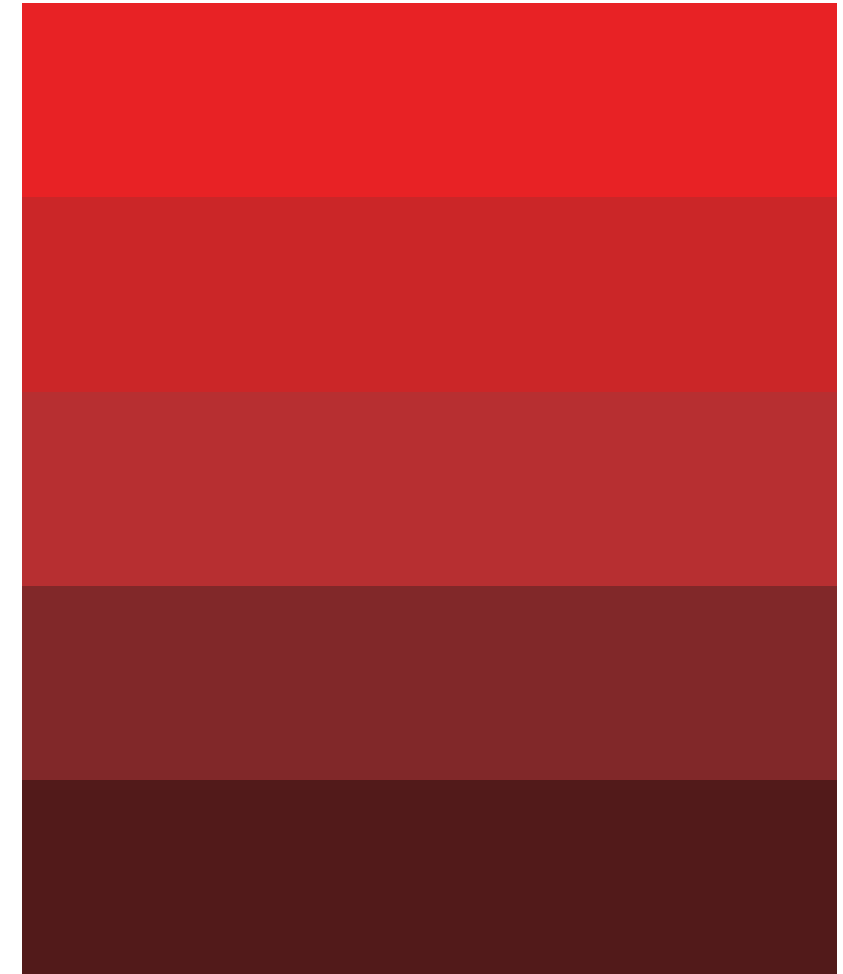
Hue

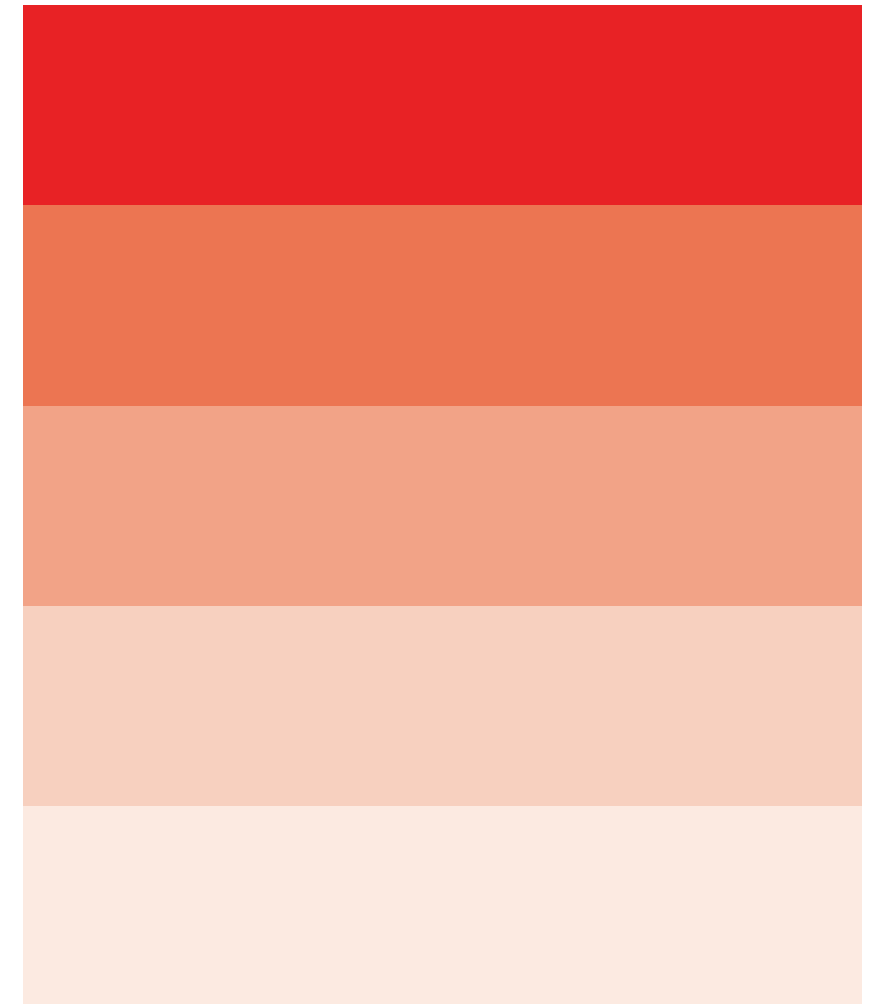Any color on the color wheel.

Saturation

The intensity or purity of
a color.

Luminance

The amount of brightness,
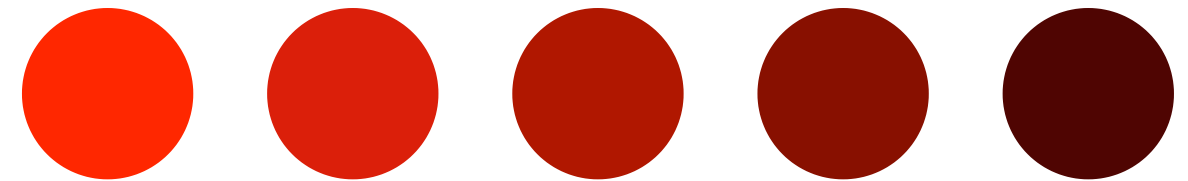or light, in a color.

Shade

A shade is created by incorporating black to a base hue, which darkens the color.

Tint

A tint is created by adding white to a base hue, which lightens the color.
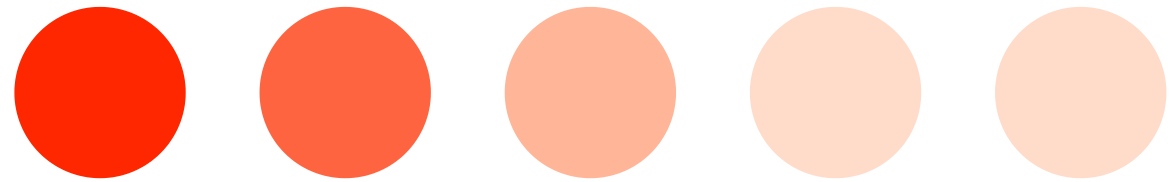
Tone

A tone is created by
combining black or white
(gray) with a base hue.

Tones are subtle variations
of the original color.
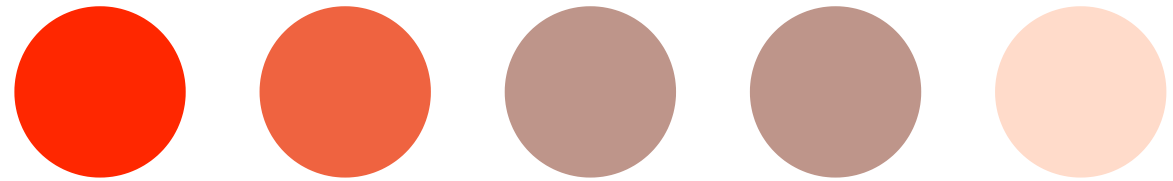
Color semantics

Red

Fire
Violence
War
Love
Passion

Orange

Vibrant
Earth
Autumn
Change
Movement
Creativity
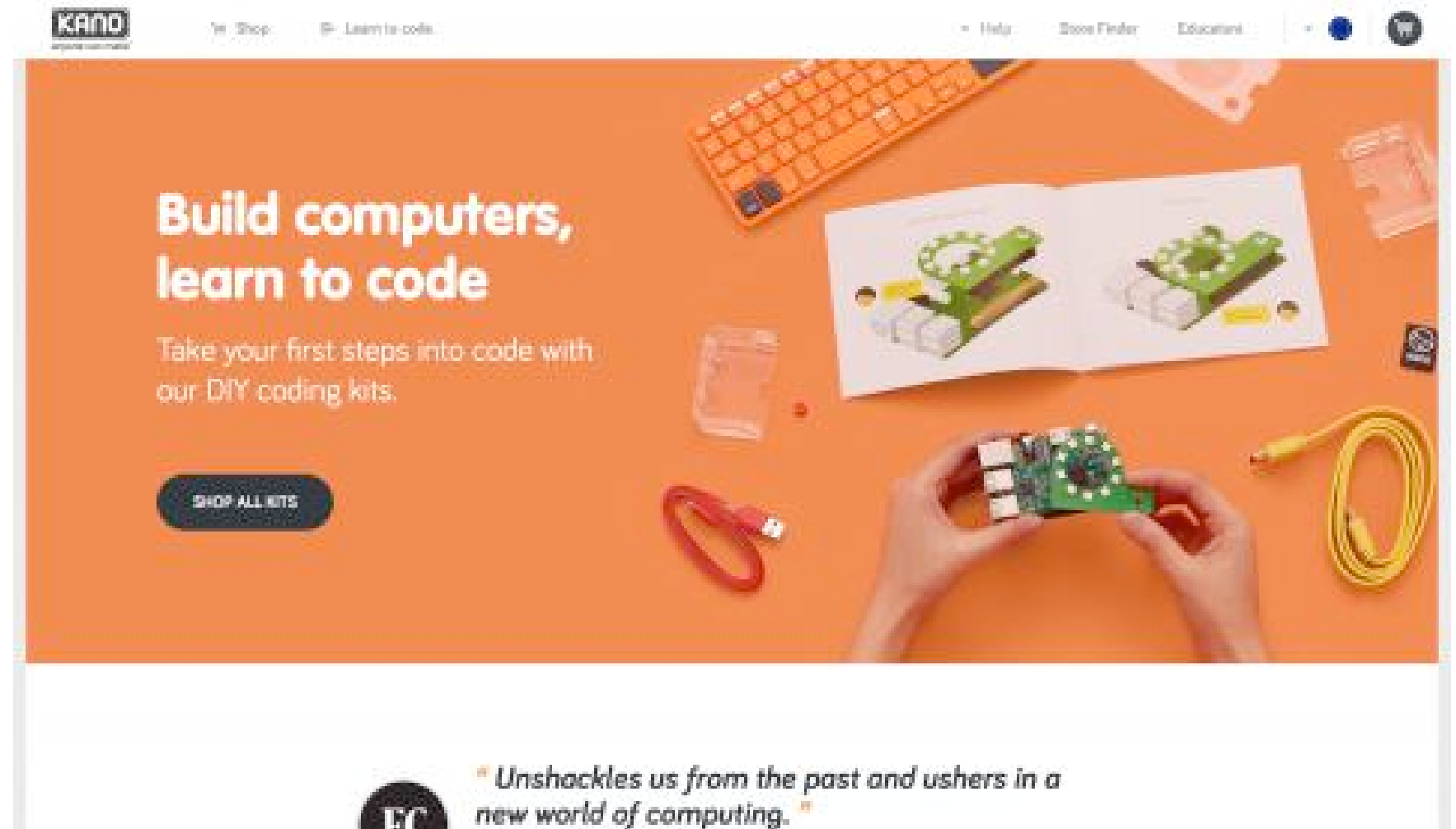
Yellow
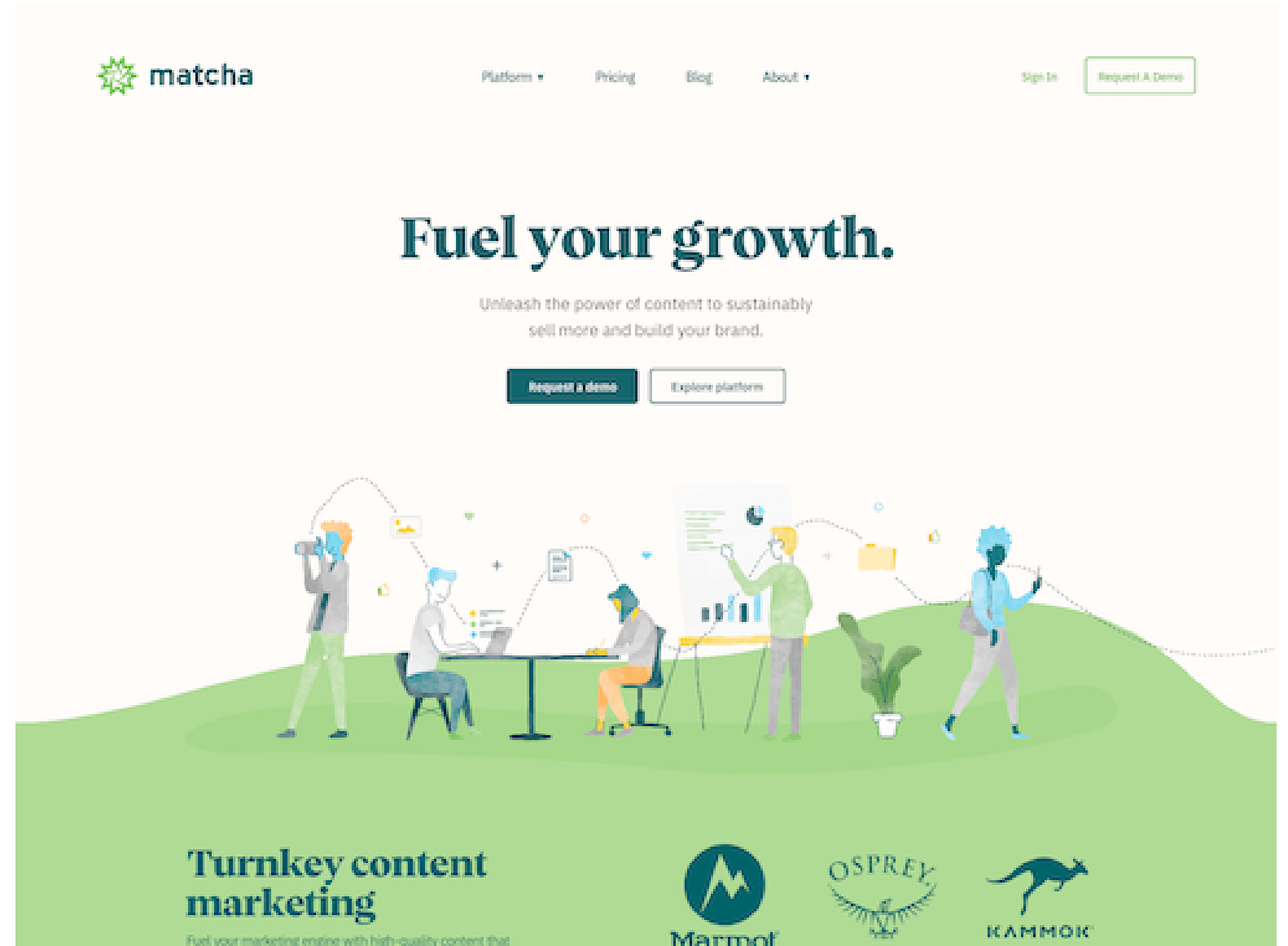
Happiness
Sunshine
Deceit
Cowardice
Cheer
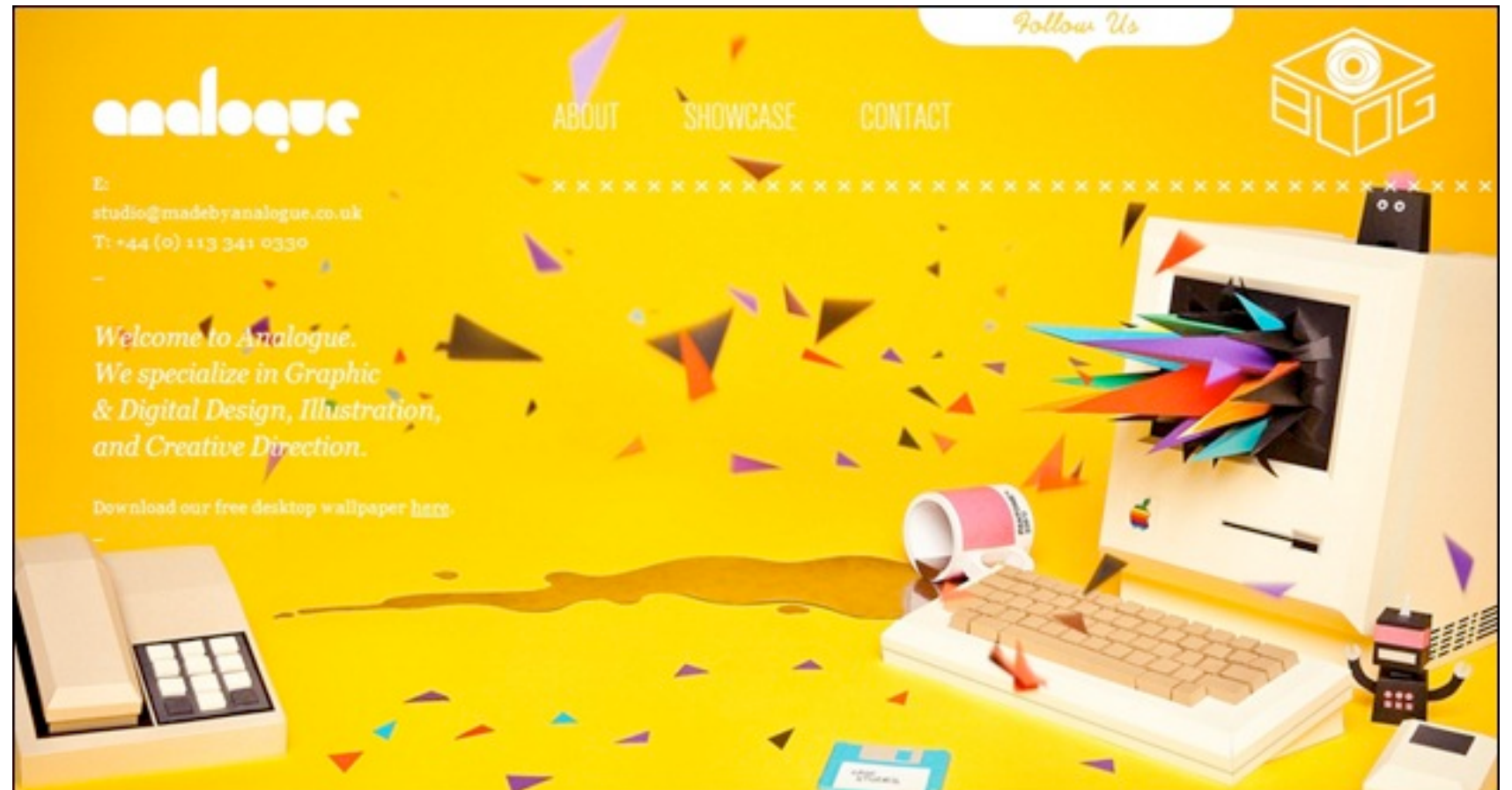
Green

Growth

Renewal

Abundance

Envy

Jealousy

Blue

Sadness
Calmness
Responsibility
Reliability
Peace
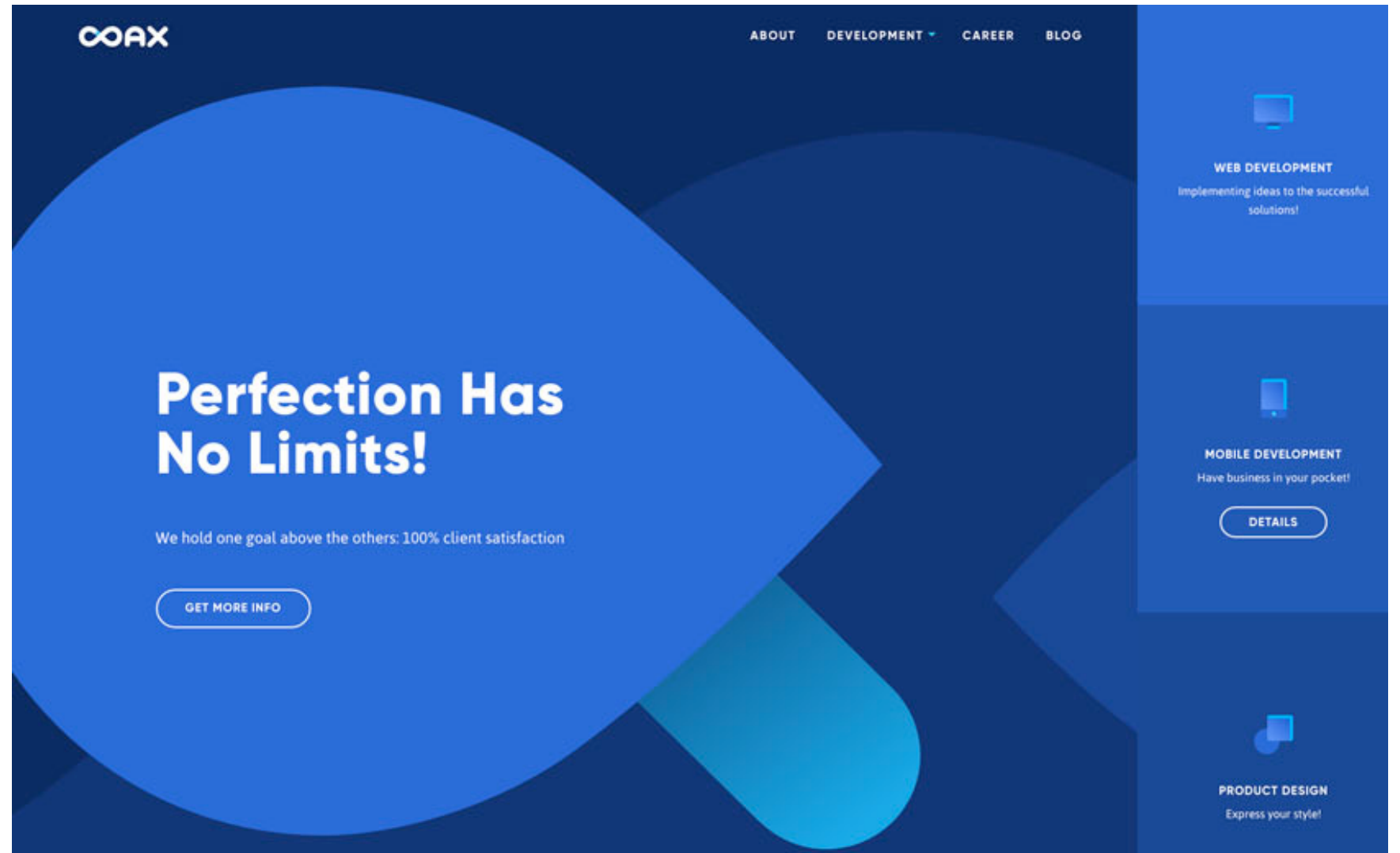
Purple

Luxury
Royalty
Wealth
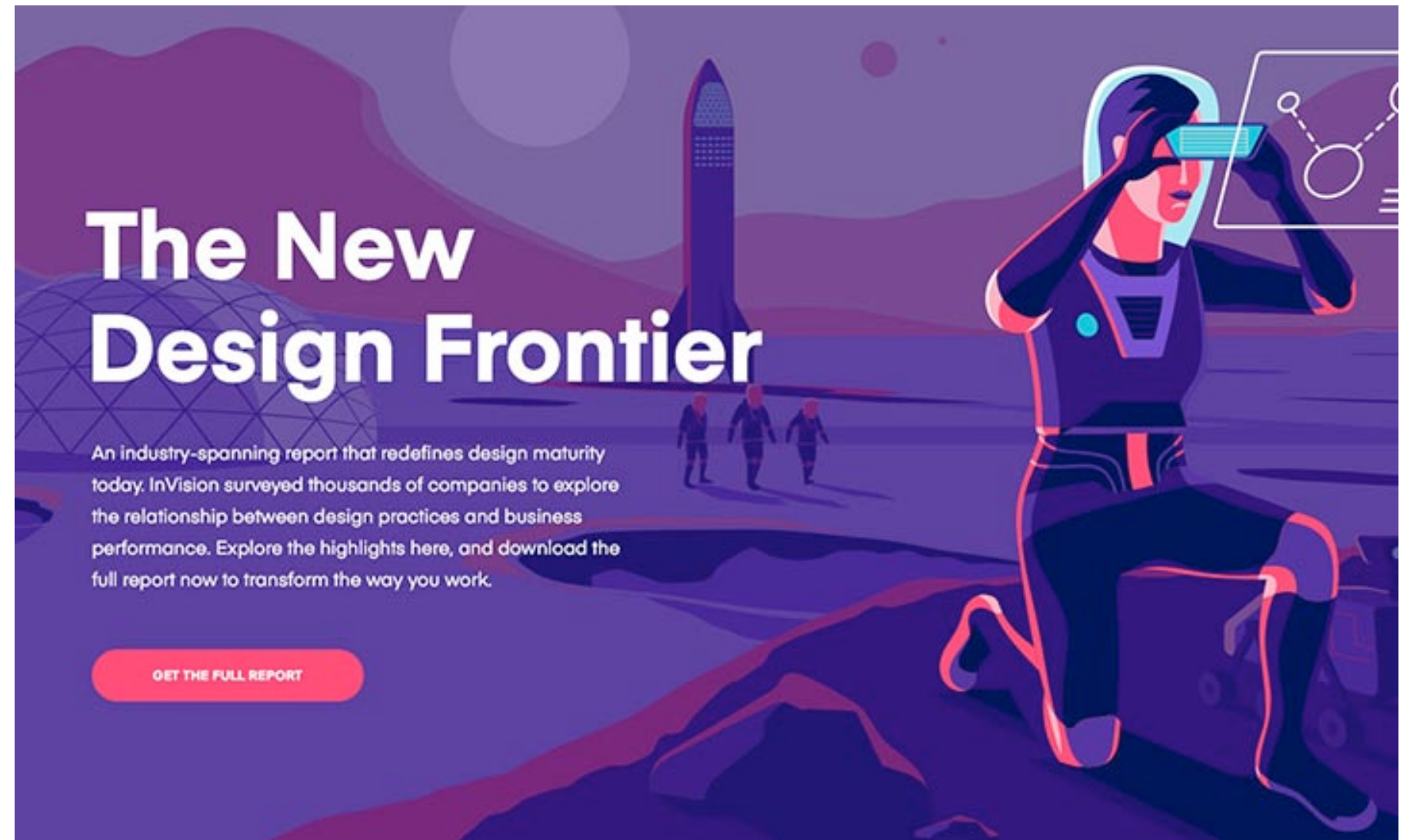
Black

Power
Elegance
Formality
Evil
Death
Mystery
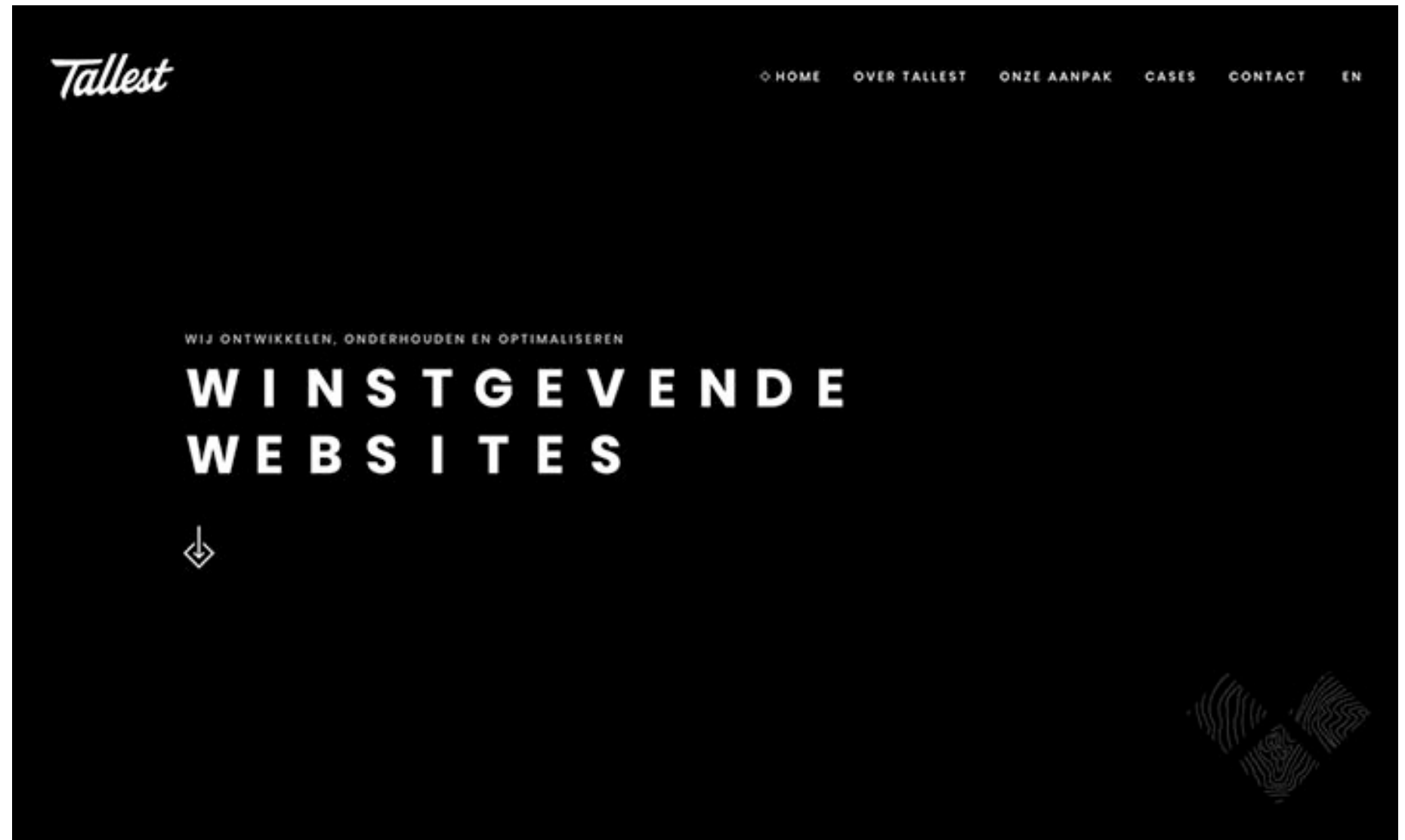
White

Purity
Cleanliness
Virtue
Goodness

http://bit.ly/3cFAdYo
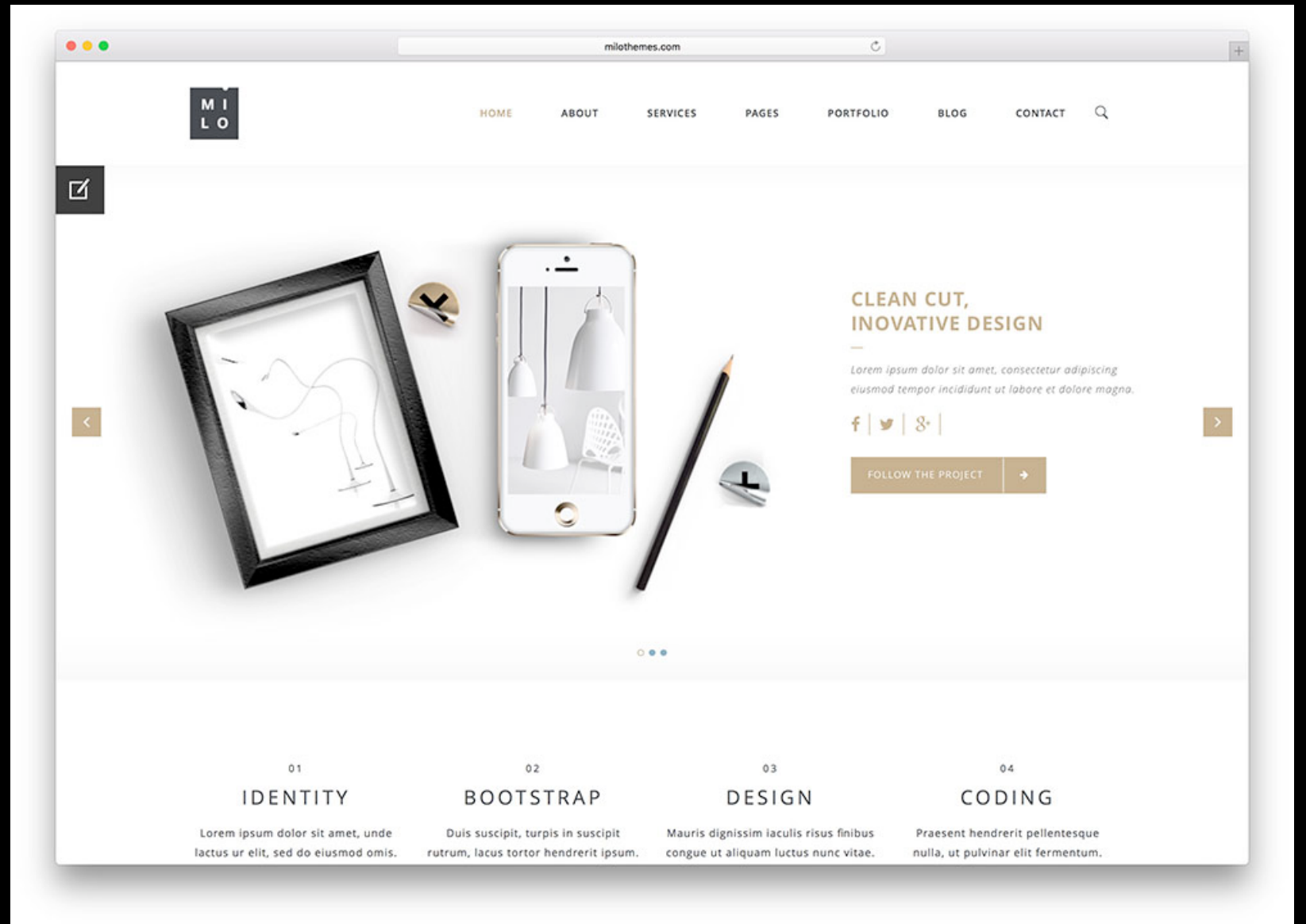
Gray

Moodiness
Depression
Conservative
Formal
Modern

Brown

Dependability
Reliability
Earthiness
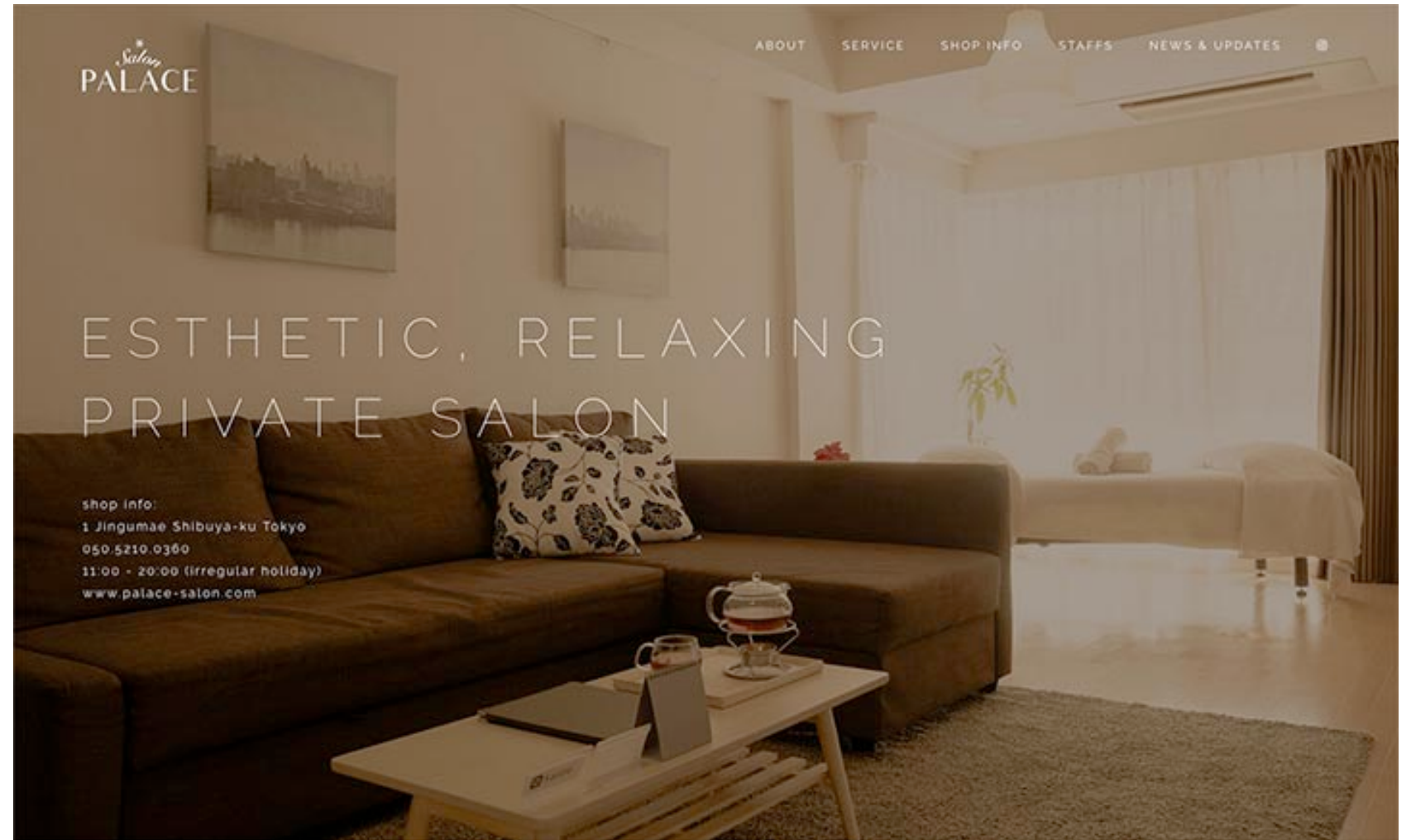
Color values

Color values

HEX

The base-16 representation of a color where each value can range from 0-9 and A-F.

RGBA

The additive color mixing model which allows you to create colors by mixing red, green, and blue light sources, but incorporates a fourth value, alpha which represents opacity.

RGB

The additive color mixing model which allows you to create colors by mixing red, green, and blue light sources.

CYMK

The subtractive color mixing model used in print design.

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Creating a color palette

http://bit.ly/2IrSsCL

Typography

Ascender

The piece of a letter which rises above the x-height.

Ascender

paycheck

Descender

The piece of a letter which dips below the baseline.

Descender

paycheck

Baseline

The imaginary line on which most letter characters sit.

Cap line

The imaginary line that marks the upper boundary of capital letters and some lowercase letters' ascenders.

Cap Line

Hello there.

X-height

Height of the typeface's lowercase letters.

X-Height

Hello.

Tracking

The uniform amounts of spacing between characters in a complete section of text.

Tracking

NORMAL
The rain in Spain falls mainly in the plain.

TIGHT
The rain in Spain falls mainly in the plain.

LOOSE
The rain in Spain falls mainly in the plain.

Kerning

The horizontal spacing between two consecutive characters.

Leading

The vertical spacing between lines of text (from baseline to baseline).

http://bit.ly/2TKGHwr
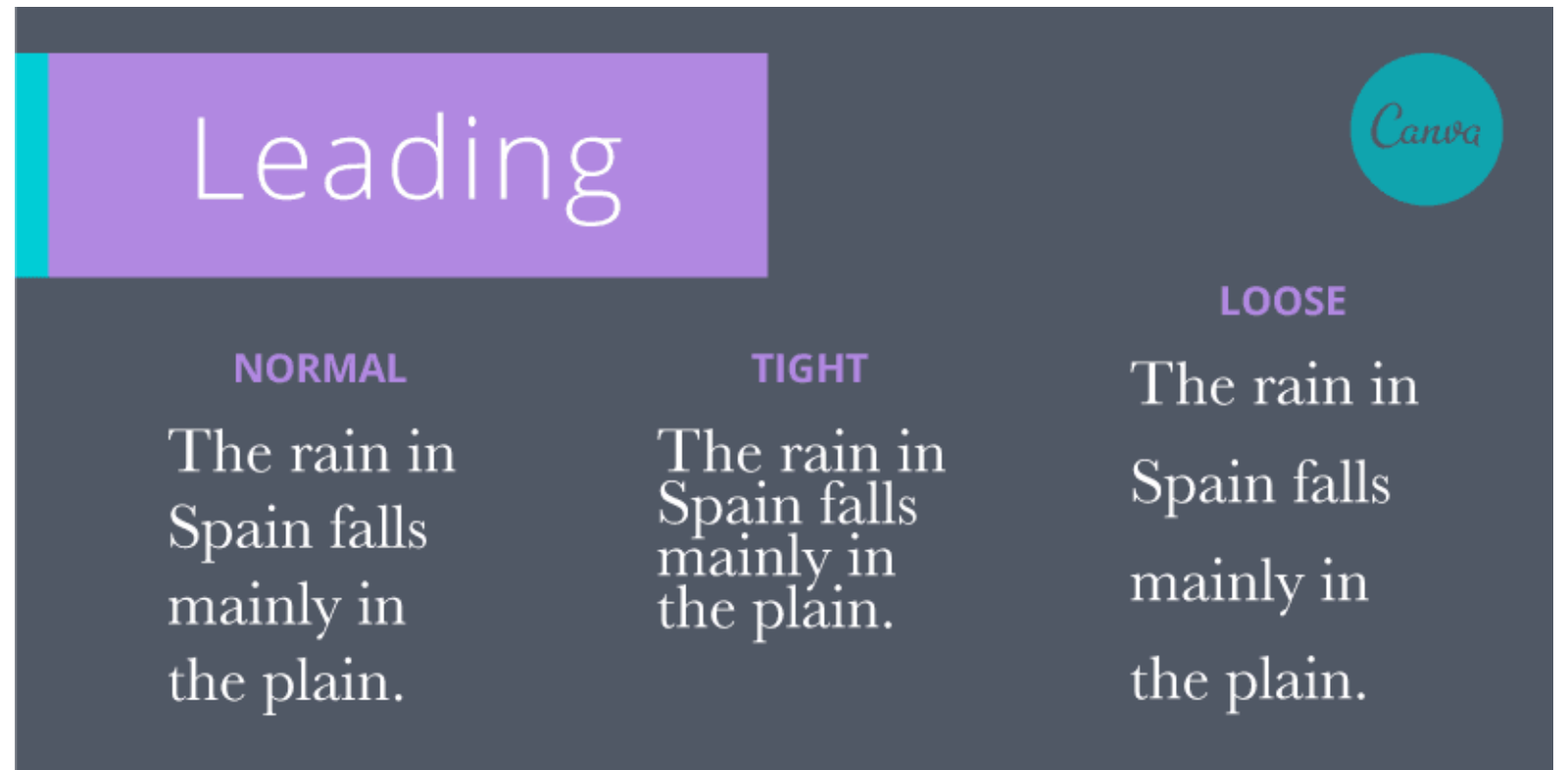
Types of fonts

Serif

Serif fonts have short lines or strokes on the open ends of letters.

Times New Roman

Droid Serif

Playfair Display

Sans-serif

Sans-serif fonts, in contrast to serif fonts, do not have short lines or strokes on the open ends of letters.

Helvetica

IBM Plex Sans

PT Sans
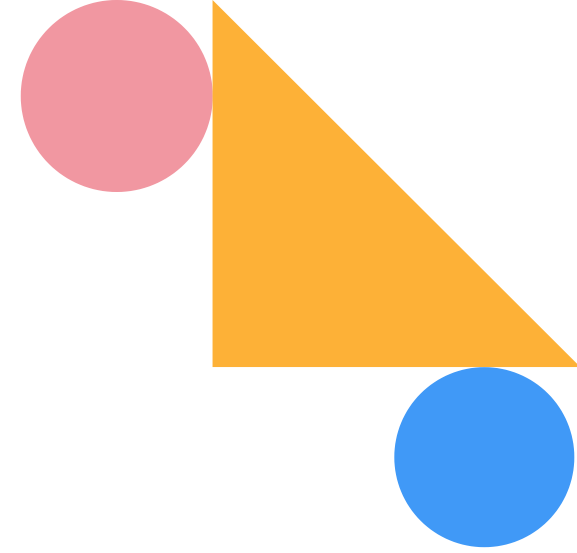
Monospaced

Monospaced fonts have letters and characters which occupy the same amount of horizontal space.

Anonymous Pro

IBM Plex Mono

Roboto Mono
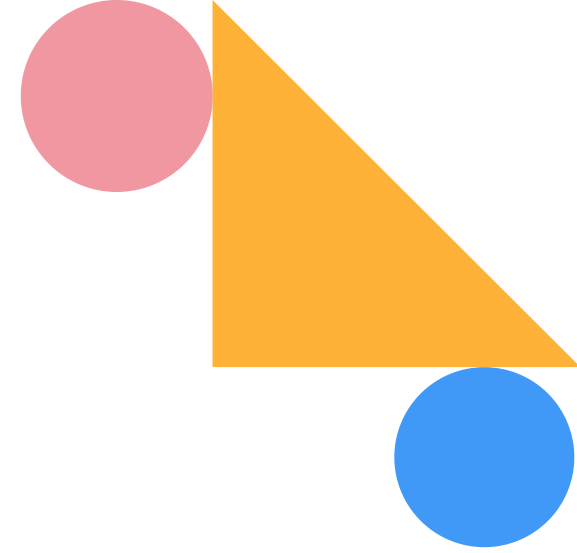
Font measurements

Font measurements

Pixels

The units used by designers,
however they shouldn't be used to
define a type scale.

Font measurements

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The units used by designers, however they shouldn't be used to define a type scale.

Em

The unit of typography equal to the currently specified point-size.

Font measurements

Pixels

The units used by designers, however they shouldn't be used to define a type scale.

Em

The unit of typography equal to the currently specified point-size.

Rem

The unit of typography equal to the currently specified point-size.

Typescale

Major Third
Major Second
Perfect Fourth
Golden Ratio
Perfect Fifth

Carbon Design System

Get started ∨
Tutorial ∨
Guidelines ∧
  2x Grid
  Accessibility
  Content
  Color
  Icons
  Pictograms
  Motion
  Spacing
  Themes
  Typography
Components ∨
Patterns ∨
Experimental ∨
Data visualization ∨
Resources
How to contribute ∨
Updates ∨
Help ∨

Design kit
GitHub ⬈

Overview   Productive   Expressive

rem	px
0.75	Plex 12
0.875	Plex 14
1	Plex 16
1.125	Plex 18
1.25	Plex 20
1.5	Plex 24
1.75	Plex 28
2	Plex 32
2.25	Plex 36
2.625	Plex 42
3	Plex 48
3.375	Plex 54
3.75	Plex 60
4.25	Plex 68
4.75	Plex 76

Creating a type scale

http://bit.ly/2IrSsCL
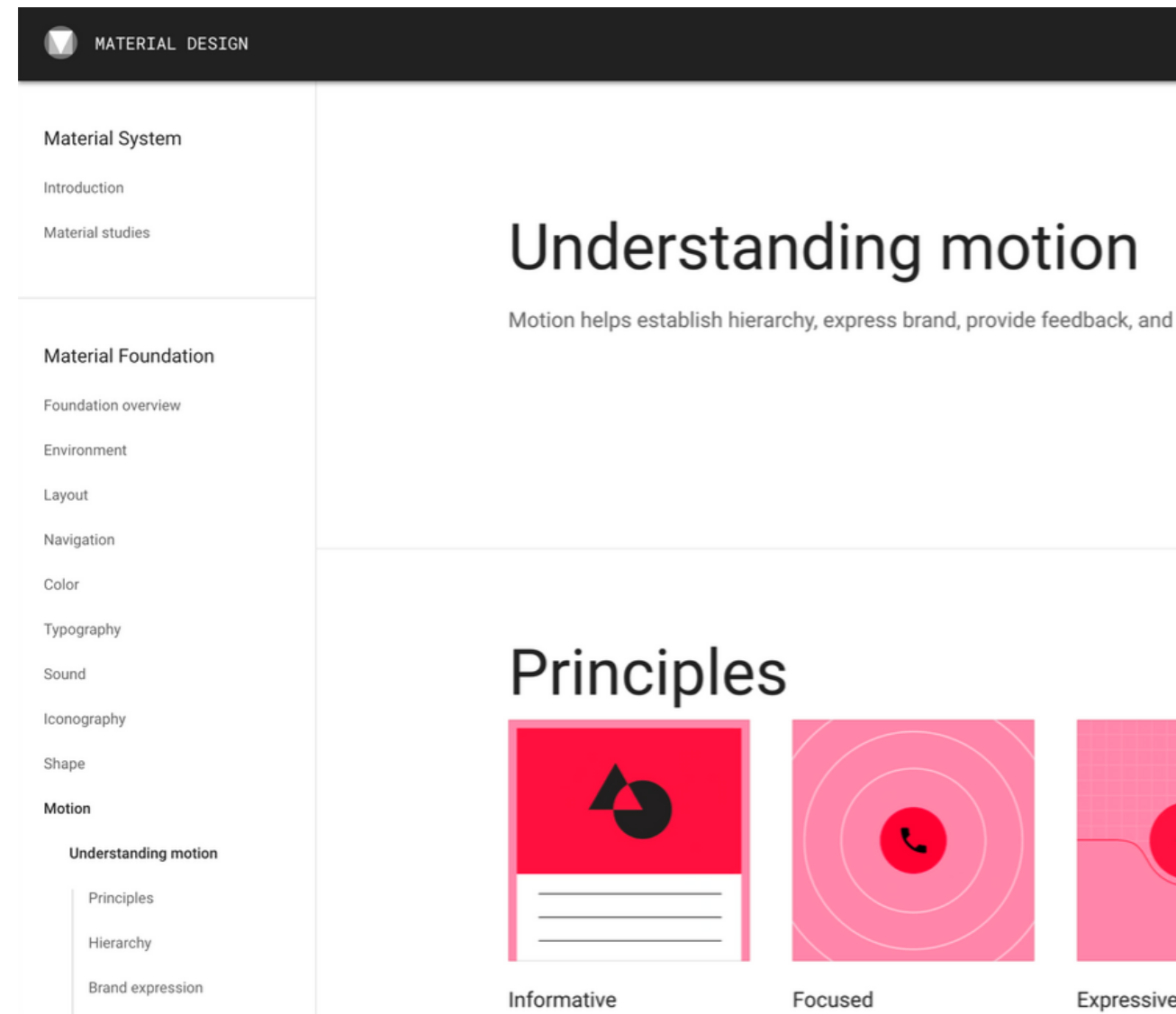
Other areas of design

Grid
Spacing
Accessibility
Motion
Iconography

Resources

[Design For Developers by Sarah Drasner](#)

[Canva Color Wheel](#)

[Smashing Magazine Color Theory](#)

[Em vs. Rem vs. Pixel](#)

[Type Scale: A Visual Calculator](#)