

# Visual Design

# Building User Interfaces

**Cole Nelson**

Make a copy of today's ICA and share it with your group members!

# Learning Objectives

1. Understand the elements and principles of design.
2. Understand the influence of color, type, and images.
3. Apply these concepts to the visual design of a webpage.

# Elements of Design

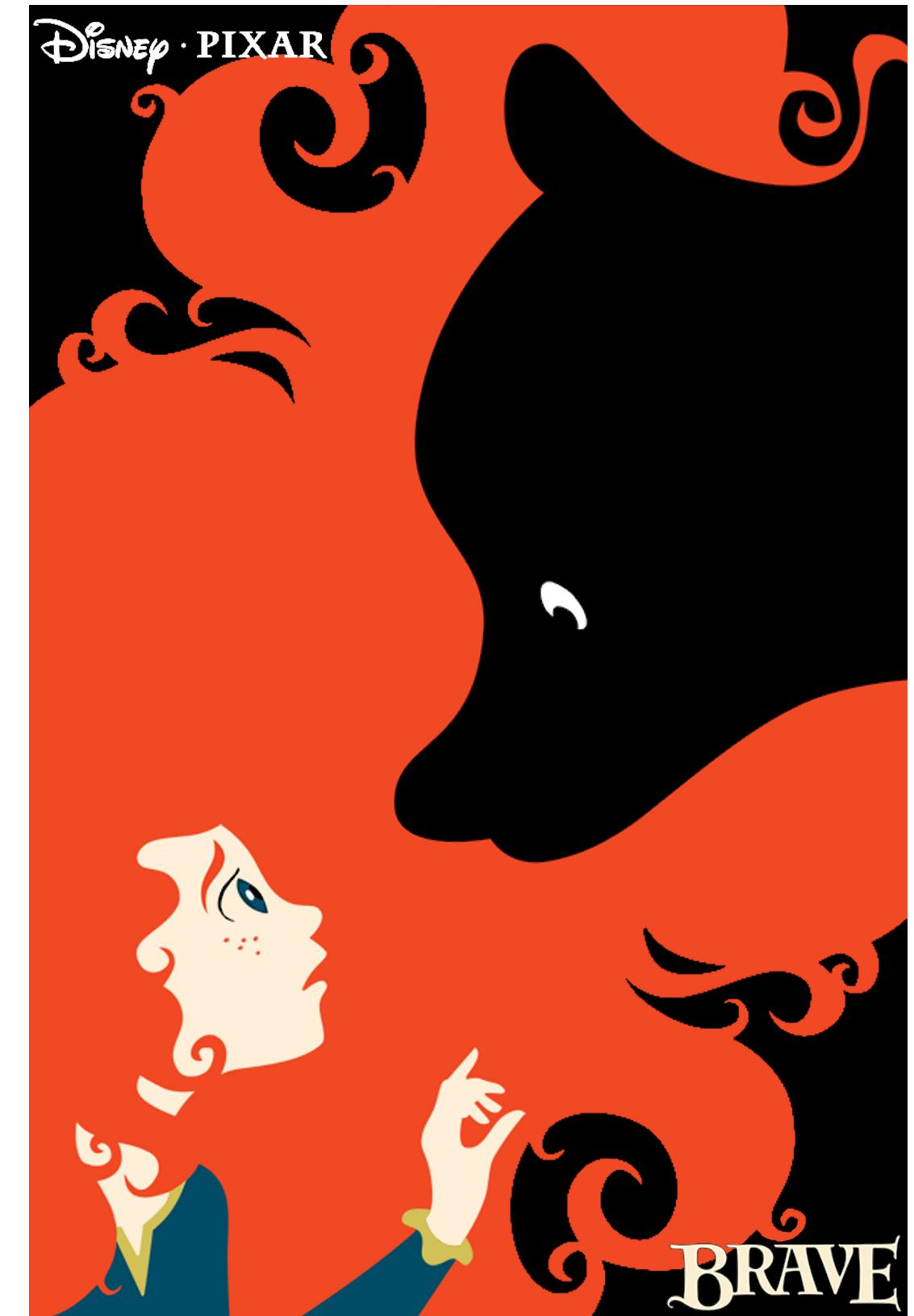
# Elements of Design

1. Space
2. Line
3. Shape
4. Size
5. Pattern
6. Texture
7. Value

# Space<sup>1</sup>

**Definition:** Space is the canvas on which visual elements are placed.

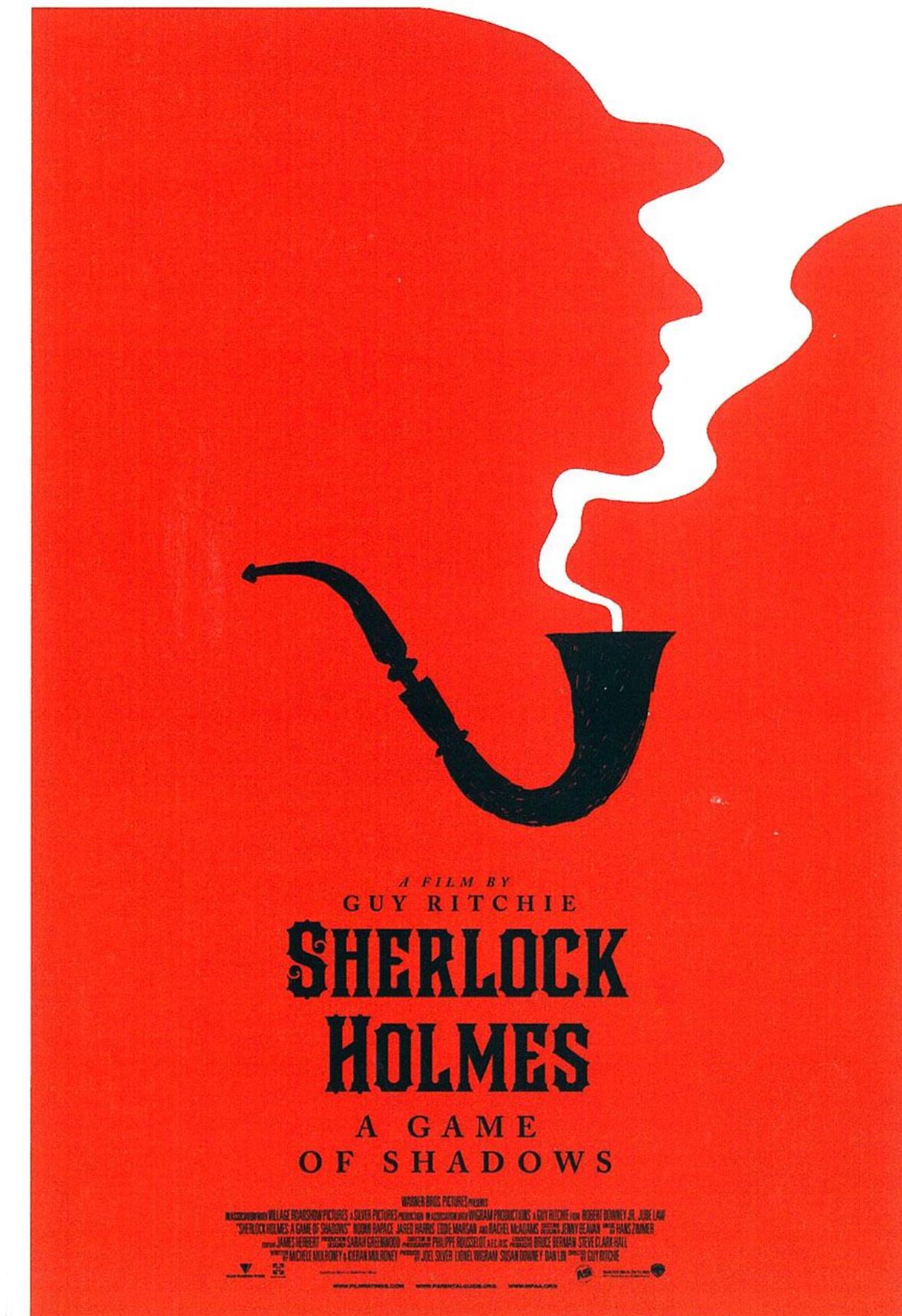
- Space can be *positive* or *negative*
- *Positive*: where the subject is positioned
- *Negative*: the space surrounding the subject
- Negative space can be used as positive



<sup>1</sup>Image sources: [this slide](#), next slide: [left](#), [right](#)

# Now data helps pinpoint more oil.

In Venezuela, IBM deep computing processes seismic data, helping Tricon Geophysics pinpoint new oil and gas using 40% less energy. [ibm.com/smarterplanet](http://ibm.com/smarterplanet)



# Line<sup>2</sup>

**Definition:** The most primal design element that can divide space, call attention to, organize, and make up other elements.

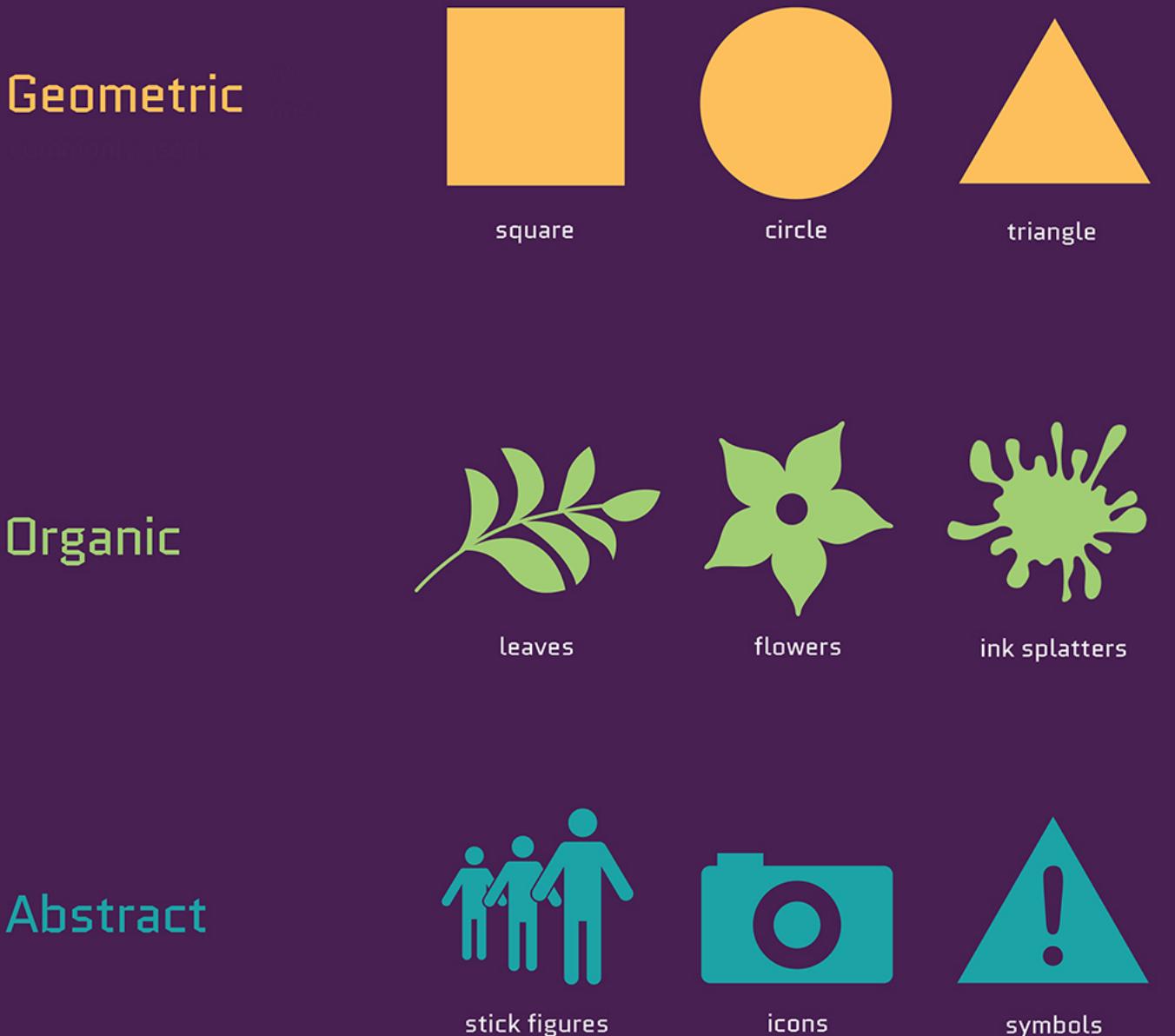


<sup>2</sup>Image source

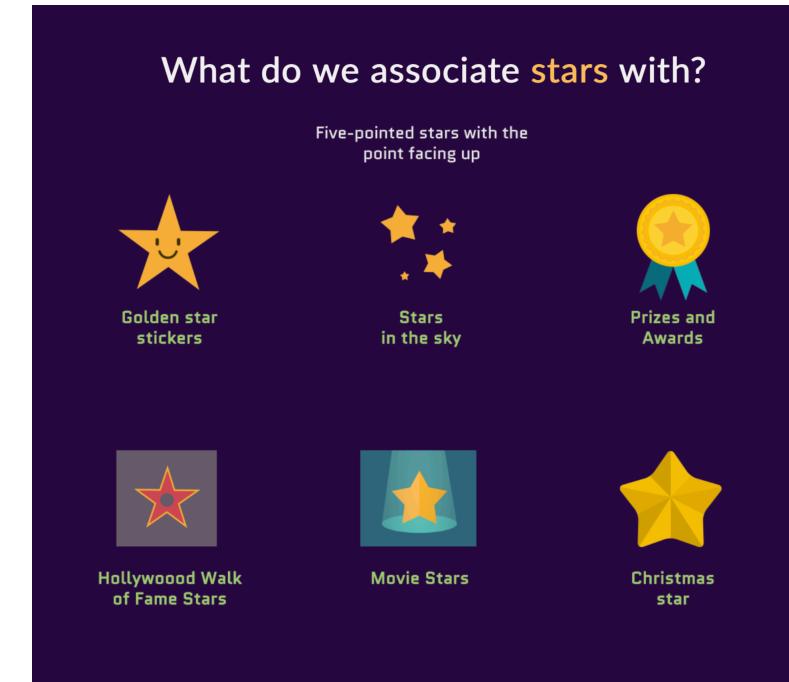
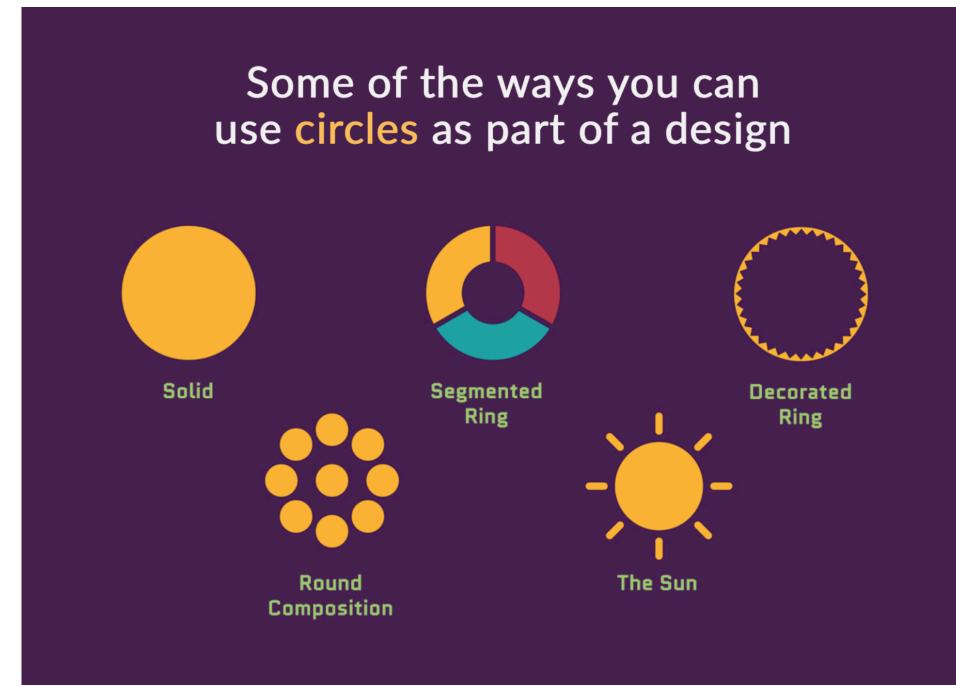
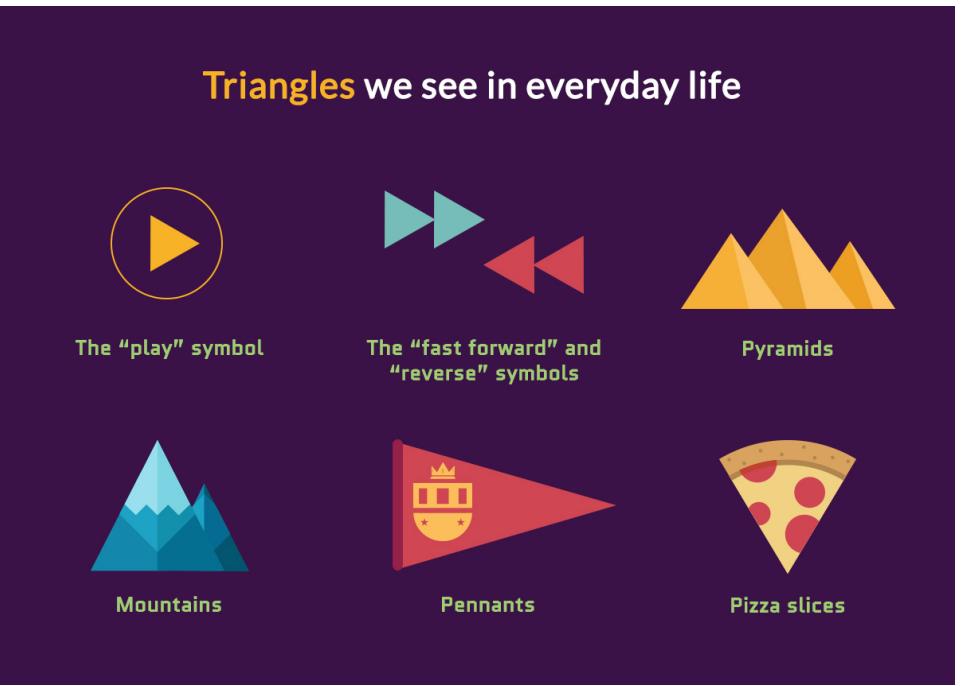
# Shape<sup>3</sup>

**Definition:** Space outlined by a contour.

— *Organic vs. inorganic shapes*



<sup>3</sup> Image sources: [this](#) & [next](#) slides



# Size<sup>4</sup>

**Definition:** Size, or *scale*, is the relative extent of the design elements such as shapes and lines.



<sup>4</sup> [Image source](#)

# Pattern<sup>5</sup>

**Definition:** Pattern, or *repetition*, systematic duplication of other design elements such as shapes and lines.



<sup>5</sup>Image source

# Texture<sup>6</sup>

**Definition:** Tactile and visual quality of a shape or space made up of different colors, materials, and different structures.



<sup>6</sup>Image source

# Value<sup>7</sup>

**Definition:** The intensity in which a design element is expressed.



<sup>7</sup> Image source

# Principles of Design

# Principles of Design

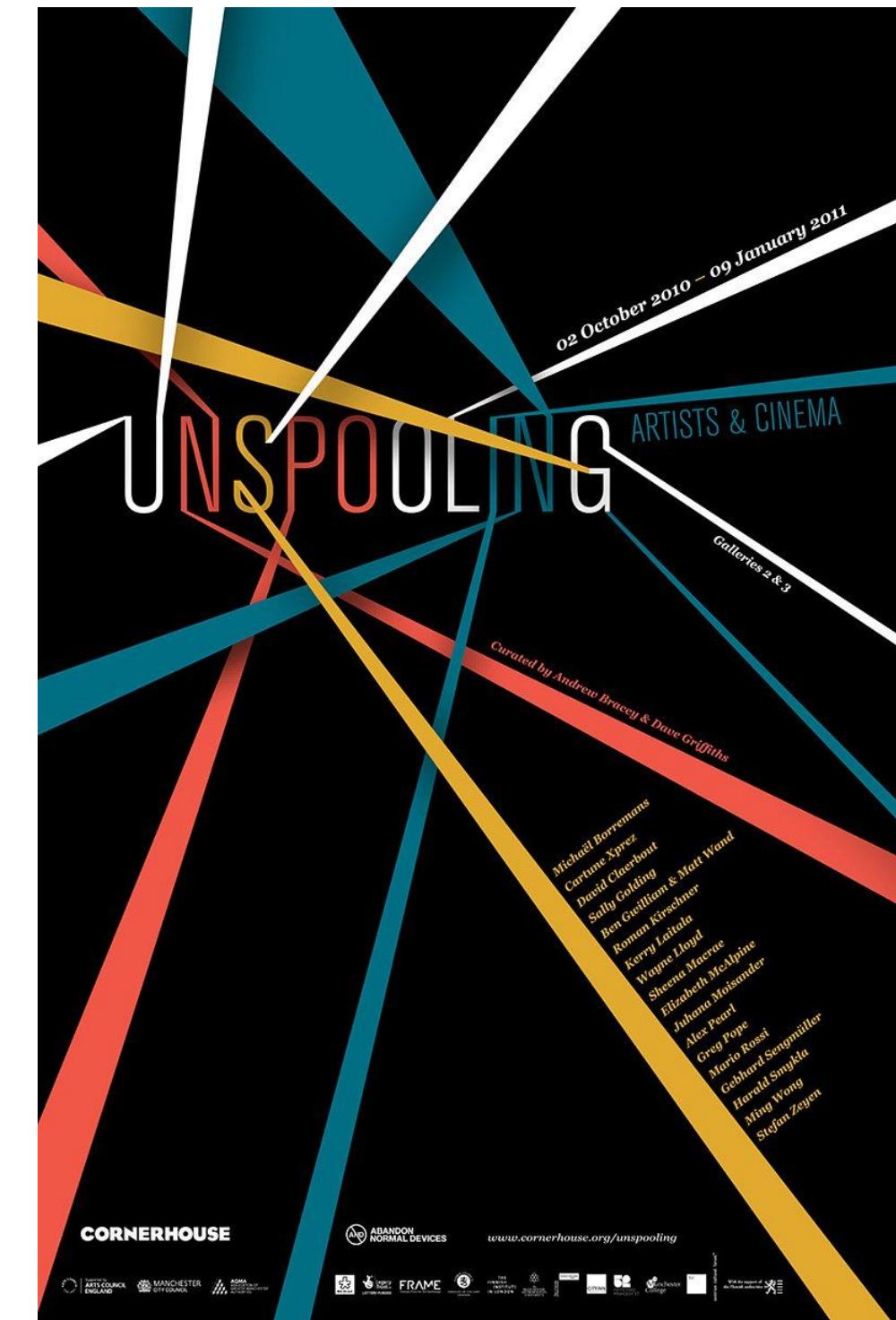
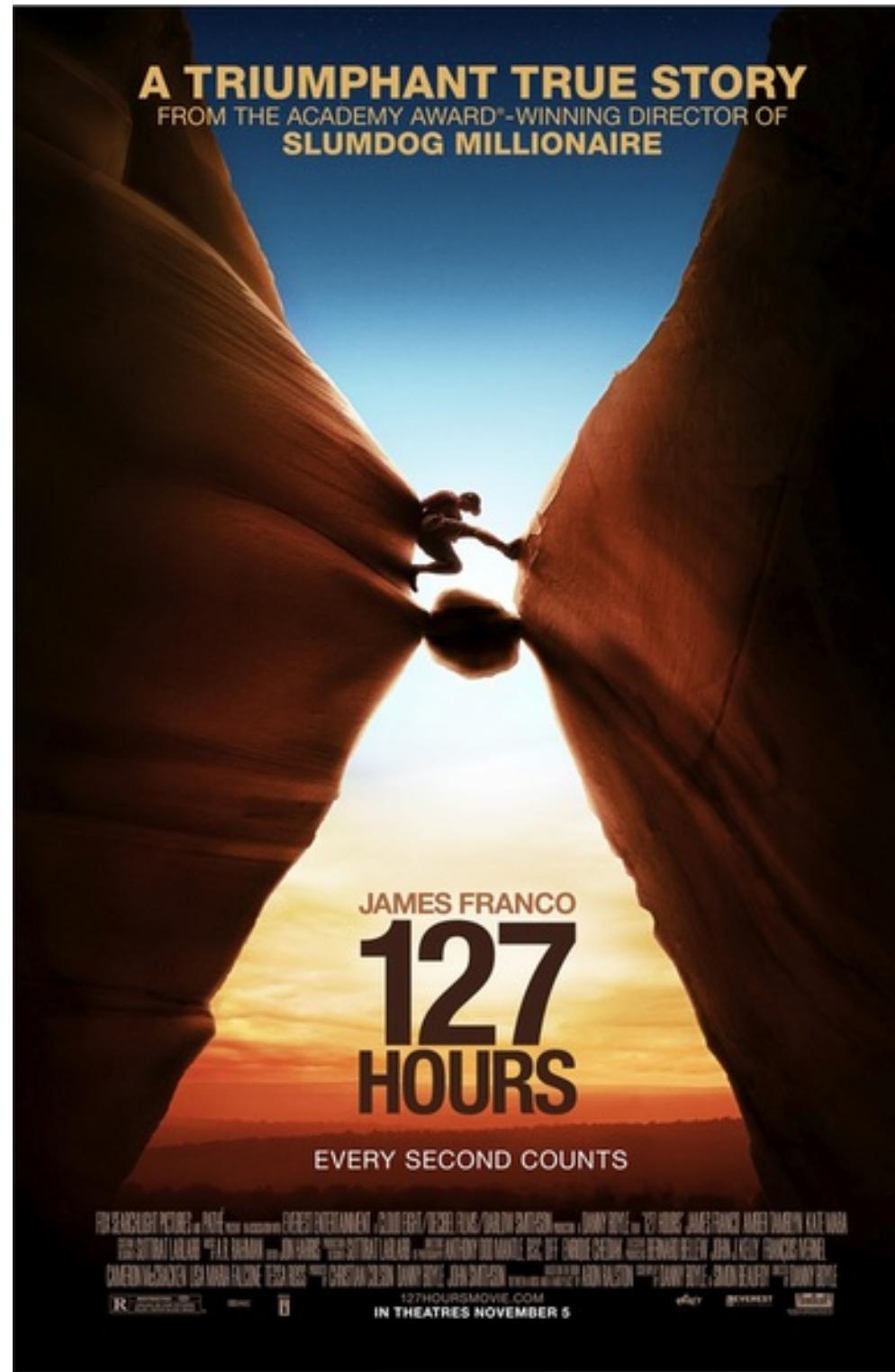
1. Focal Point
2. Contrast
3. Balance
4. Movement
5. Rhythm
6. Perspective
7. Unity

# Focal Point<sup>8</sup>

**Definition:** Focal point, or the area of visual interest, is where the design directs the attention of the viewer first.

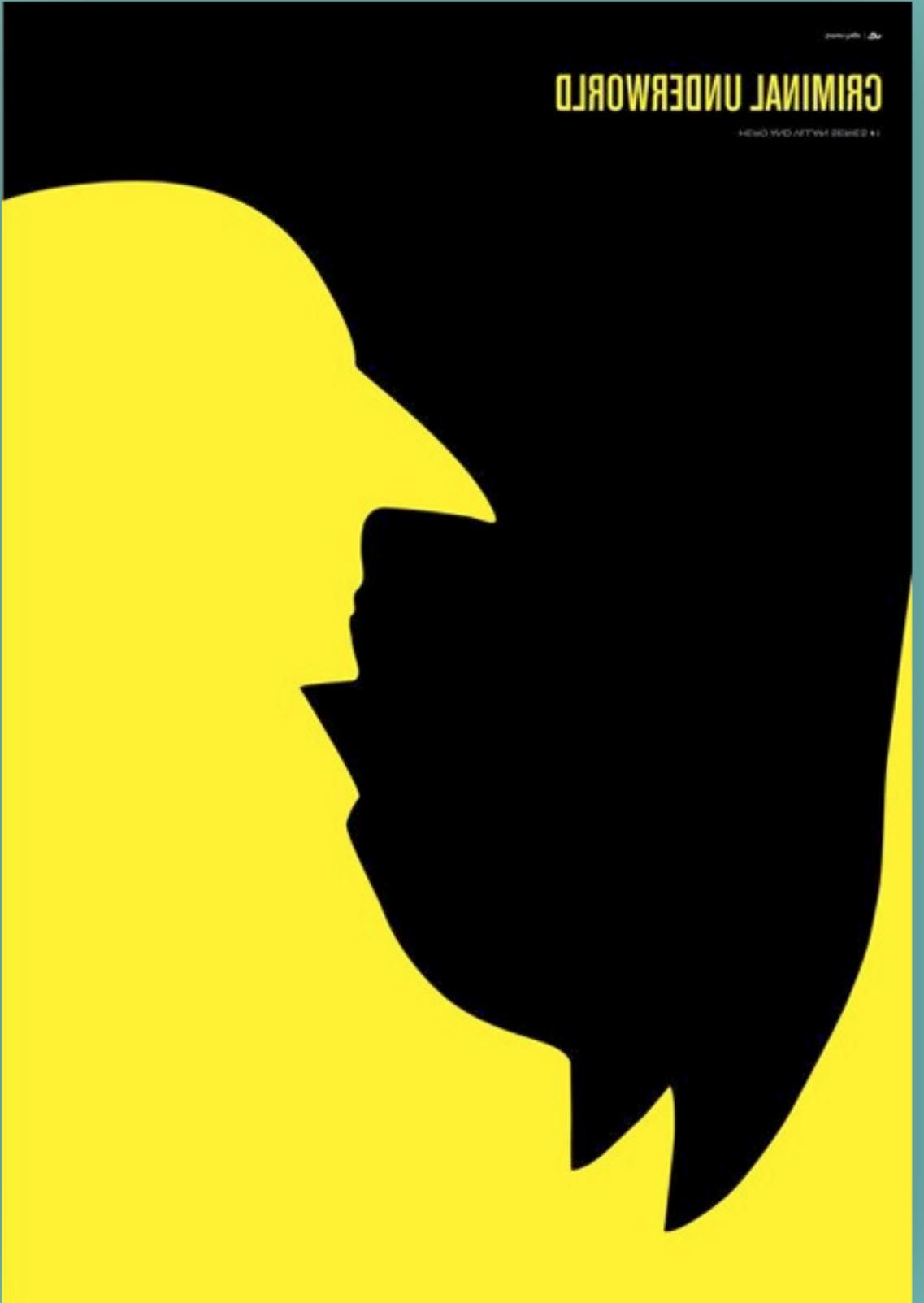


<sup>8</sup> Images sources: [this slide](#), next slide: [left](#), [right](#)



# Contrast<sup>9</sup>

**Definition:** Contrast, is the juxtaposition of design elements that strikingly differ from each other to guide user attention and action.



<sup>9</sup> Image sources: [this slide](#), next slide: [left](#), [right](#)



# Balance<sup>10</sup>

**Definition:** The organization of design elements on a canvas to provide a sense of visual balance or imbalance.

*Pro Tip:* Balance can be achieved through symmetry or asymmetry.

<sup>10</sup> Image source

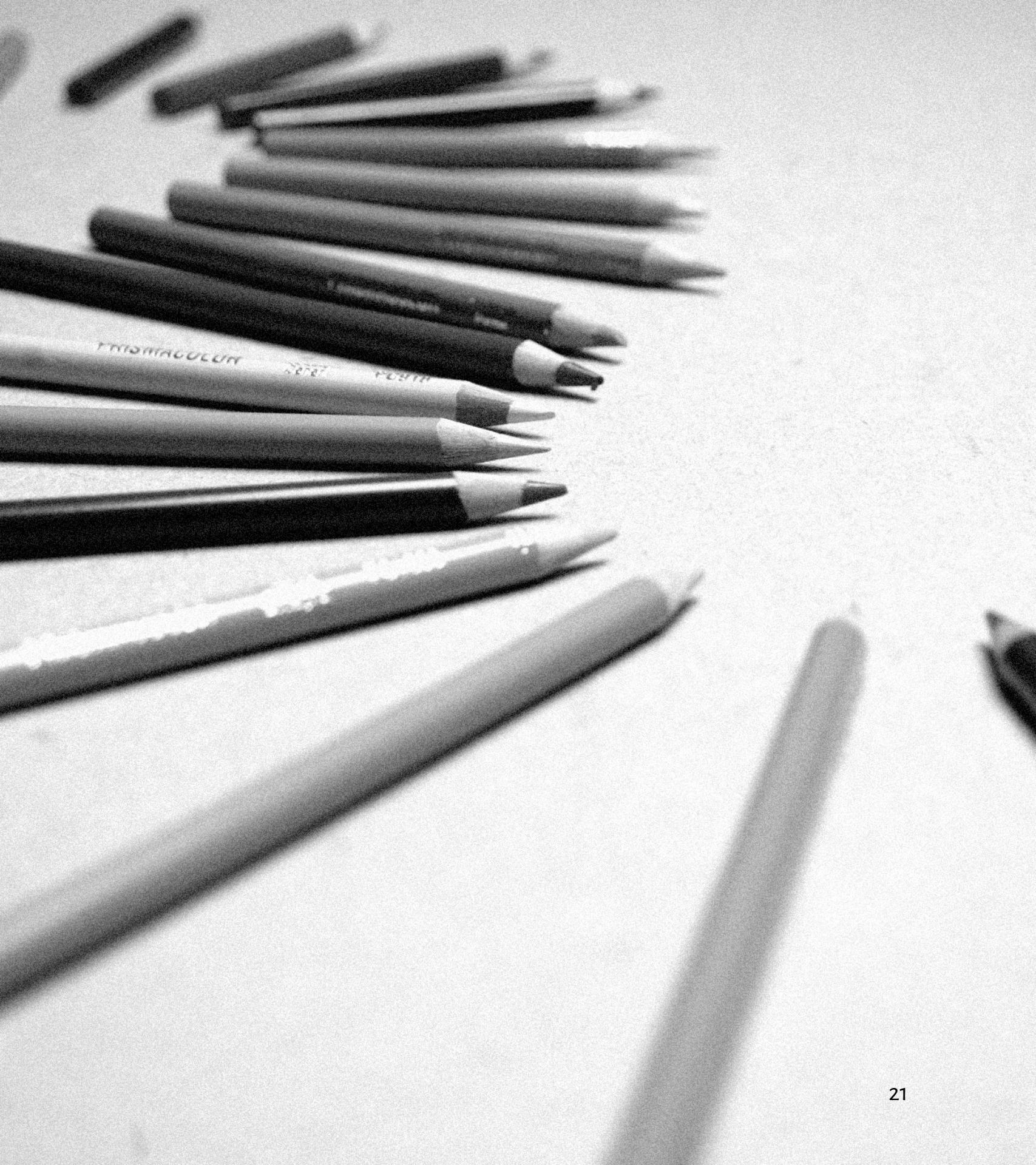
**lively!** Goes like a greyhound  
with a hotfoot . . . curves 'round corners like a  
sports car . . . packs more power than you'll ever expect!  
No other small car gives you such terrific  
performance—up to 60 miles per gallon—  
and seats 4 in such easy comfort .

**Austin 850**



# Movement<sup>11</sup>

**Definition:** The organization of design elements in a way that suggests a particular flow on the canvas to direct the user's attention.



<sup>11</sup> [Image source](#)

# Rhythm<sup>12</sup>

**Definition:** Patterned use of design elements in a way that communicates movement or order.



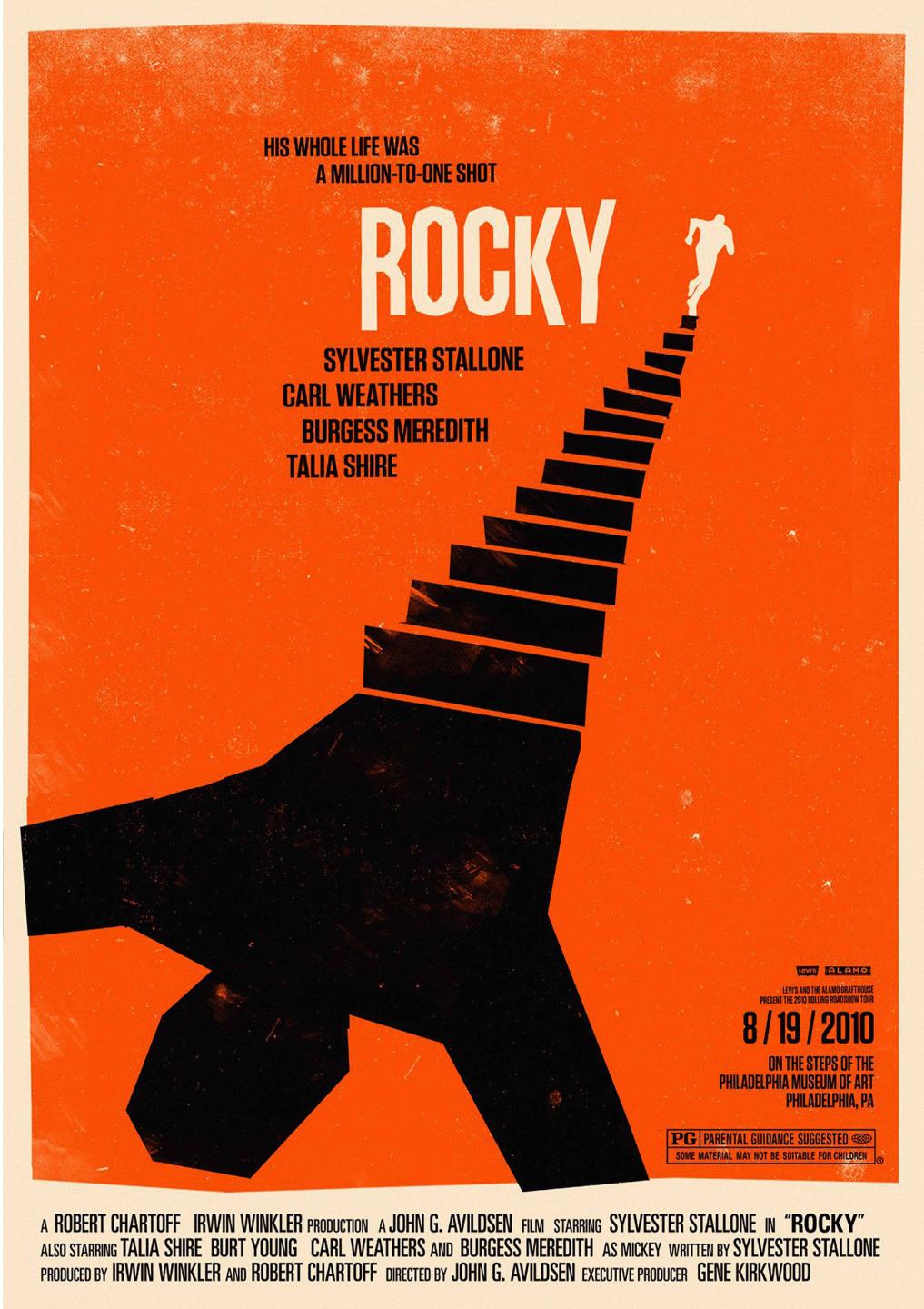
<sup>12</sup> [Image source](#)

# Perspective<sup>13</sup>

**Definition:** Creating a sense of horizon and movement along the depth axis of canvas.

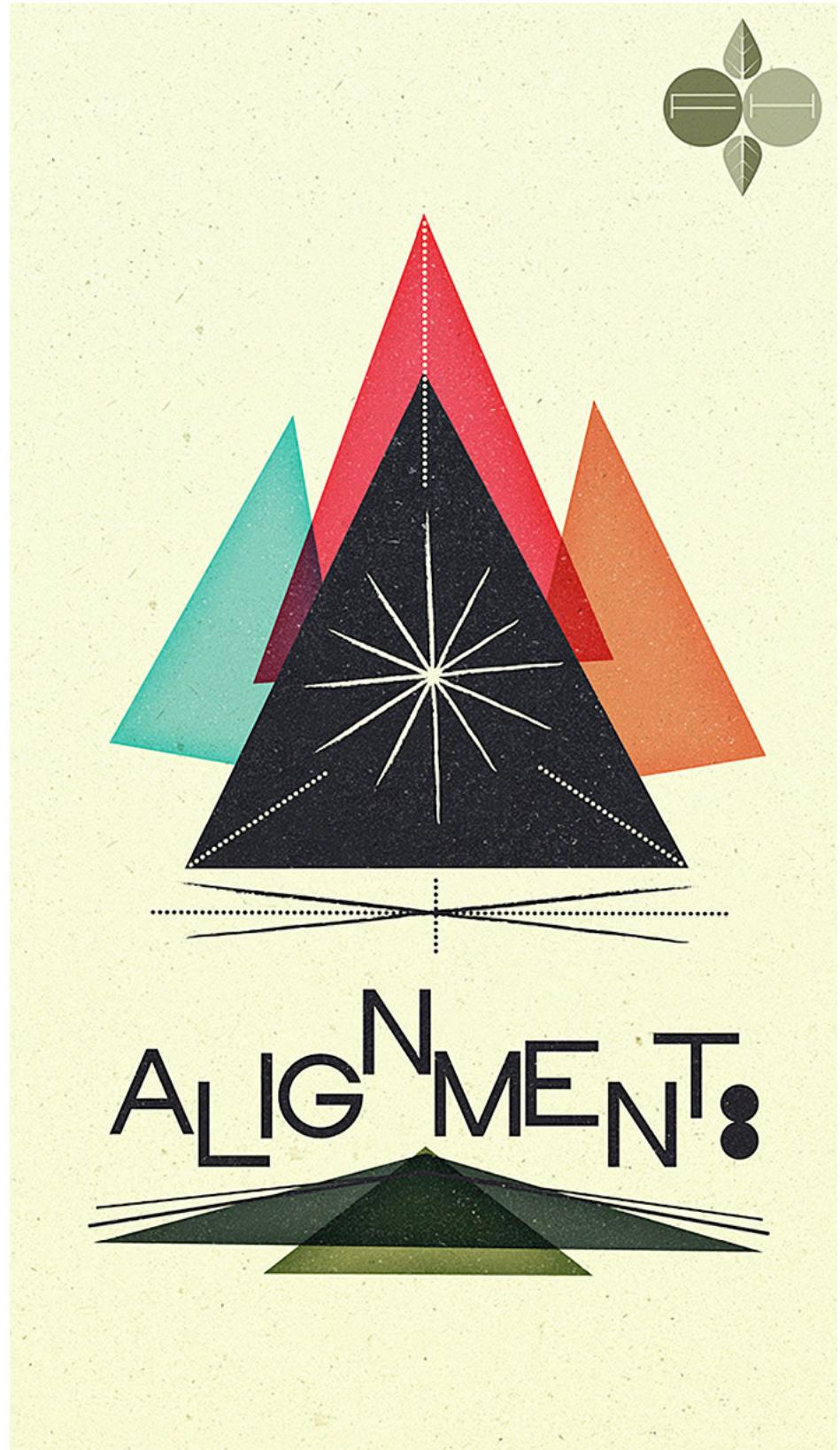


<sup>13</sup> Image sources: [this slide](#), next slide: [left](#), [right](#)



# Unity<sup>14</sup>

**Definition:** Unity reflects the holistic consistency in the use of design elements.



<sup>14</sup> Image sources: [this slide](#), next slide: [left](#), [right](#)



**This all sounds good. But how do we actually use these?**

# Some Strategies

- Create *cheat sheets*, and *checklists*
- Analyze existing designs using these tools to build visual analysis skills
- *Practice* designing using the principles
  - *Pro Tip:* Your canvas should have no elements that do not follow an overall principle

# ICA B: Visual Design

Analyze an existing page using the design elements and principles

- What elements can you see in use?
- What principles can you see in use?
- What problems do you see that can be addressed using design principles?

The screenshot shows the homepage of the Wisconsin State Journal website. At the top, there's a navigation bar with links for News, Sports, Food & Fun, Opinion, Obituaries, Politics, and Buy & Sell. On the right side of the header, there are buttons for Log In and Become a Member. Below the header, the weather is displayed as 65° Fair. The main title "WISCONSIN STATE JOURNAL" is prominently shown with a small icon of the state capitol building. Below the title, it says "Wednesday, September 16, 2020 | Print Edition". There are several promotional banners: one for migratory birds found dead in New Mexico, one for an exclusive meditation app offer, one for local politics updates, and one for supporting local businesses. A large central banner for "POLO RALPH LAUREN" features a couple in summer attire. Below this, a "JUST IN" section highlights "US outlines sweeping plan to provide free COVID-19 vaccines. Get the highlights." A "Breaking News" section features the headline "Big Ten announces football returning Oct. 23-24" by Colten Bartholomew. Another news item discusses Governor Evers' mask order. A sidebar on the left lists other news stories. On the right, there's an advertisement for "#AloneTogether" encouraging people to take care of themselves and others. At the bottom, there's a "Trending now" section with two items.

# Key Components for UX Design

# Key Components for UX Design

We will focus on *type, color, and images.*

# Type

**Definition:** Printed letters and characters of language.



# Associated Concepts

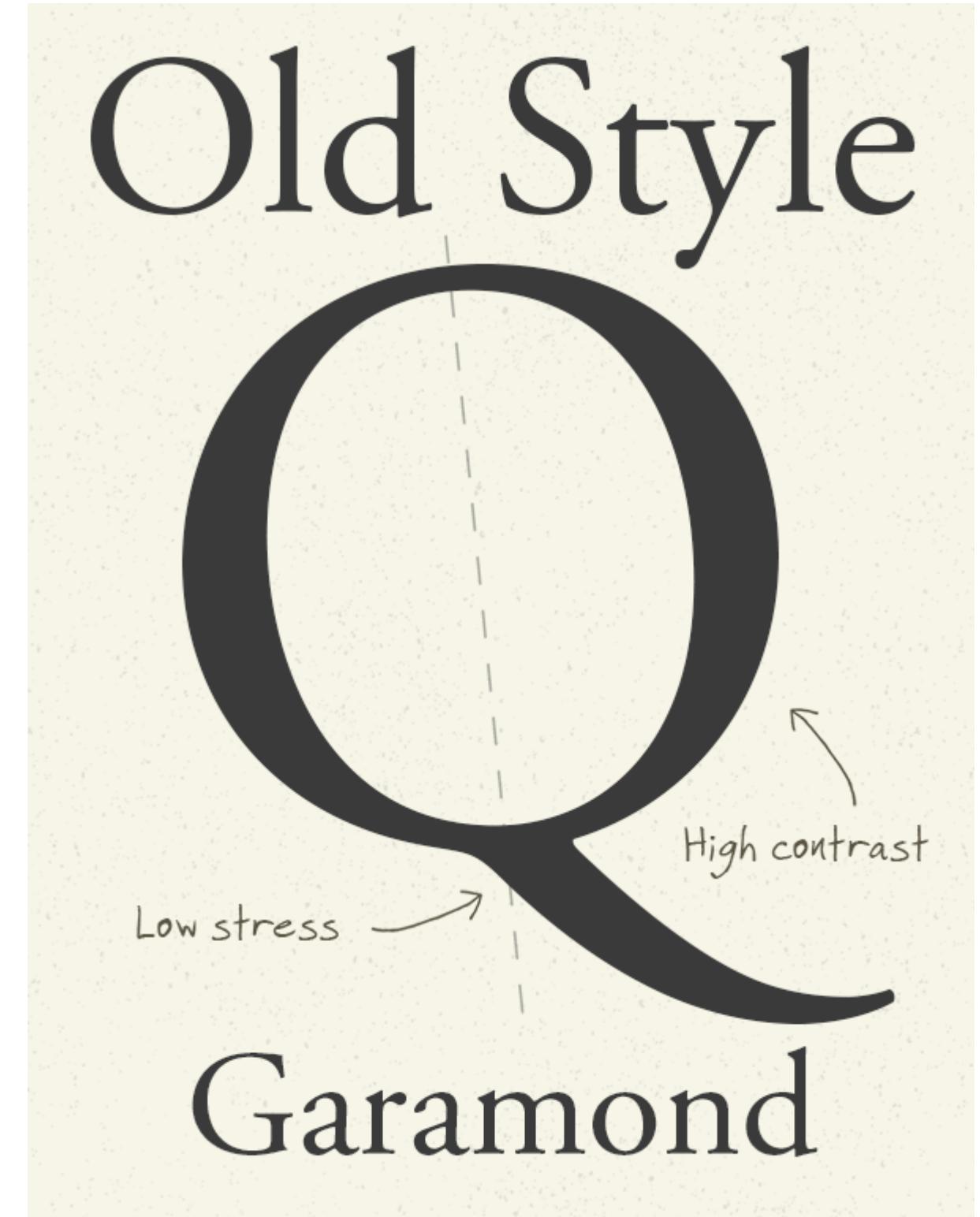
- A **font** is the style in which type is created.
- A **typeface** is a font family that includes fonts of different variations that follow the same style.
- A **glyph** is a particular character.

# Categories of Typefaces

1. Old style
2. Modern
3. Slab serif
4. Sans serif
5. Script
6. Decorative

# Old-style fonts

**Definition:** Old-style fonts have "serifs" at the tips of a glyph that taper closer to the tip.



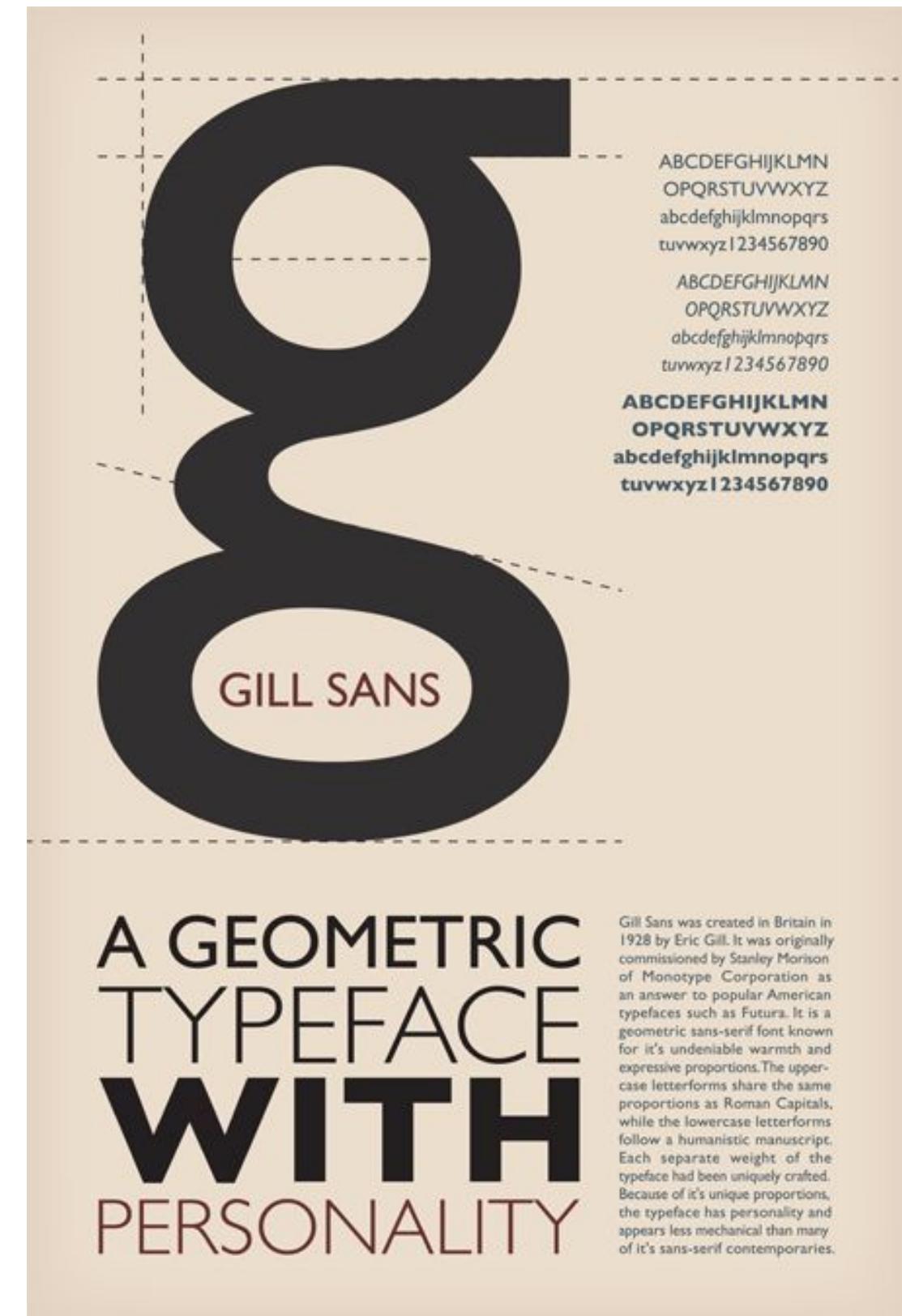
# Modern & slab-serif fonts

**Definition:** Modern and slab-serif fonts have very thin or very thick serifs.



# Sans-serif fonts

**Definition:** Sans-serif fonts lack the serif at the tips of the glyphs, and their strokes follow uniform weight.



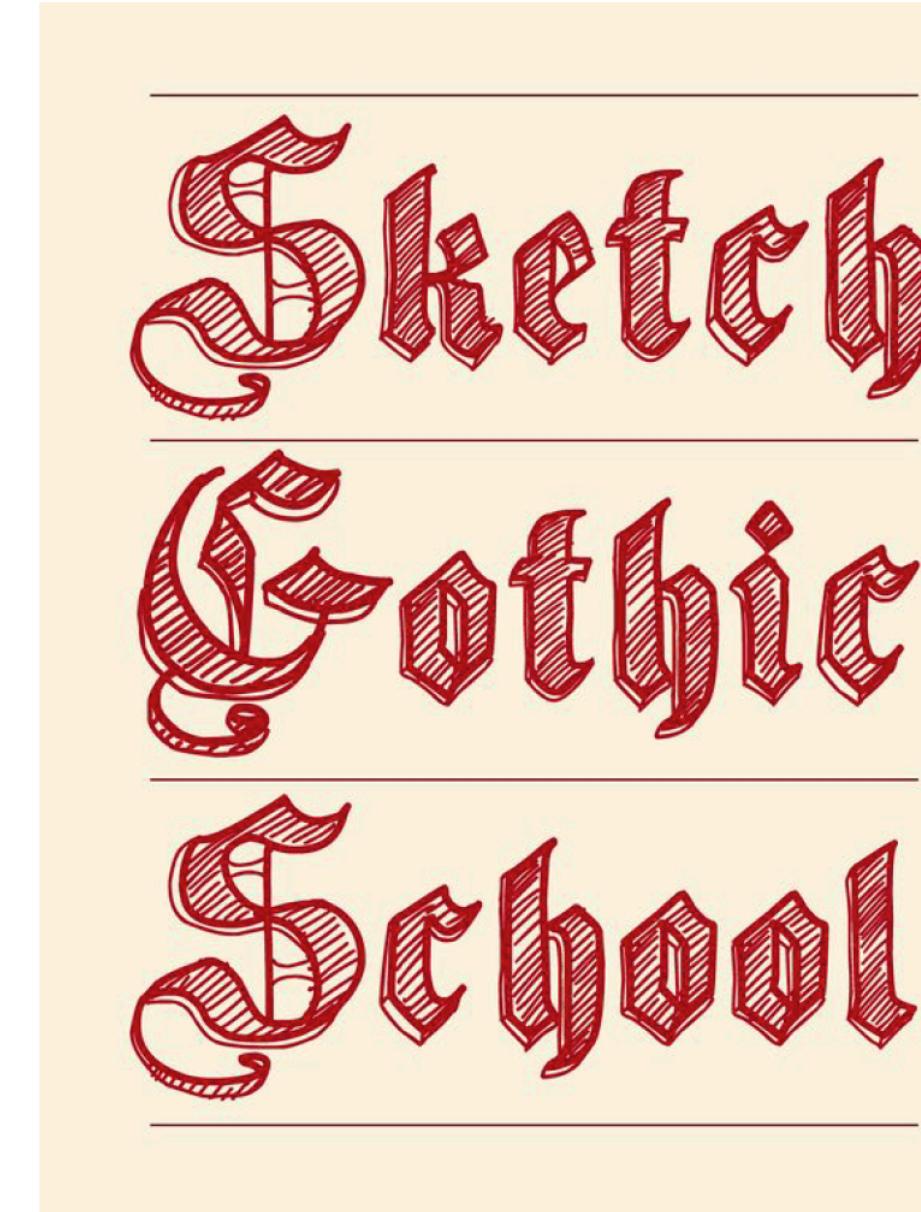
# Script fonts

**Definition:** Script fonts simulate cursive writing where glyphs connect with each other at the downstroke.



# Decorative fonts

**Definition:** Decorative fonts are designed specifically to convey a particular context or elicit a particular feeling, e.g., "gothic."



orem ipsum dolor  
sit amet, consecetur  
adipiscing elit.  
sed do eiusmod tempor inci-  
didunt ut labore et dolore  
magna aliqua. Ut enim ad  
minim veniam, quis nostrud  
exercitation ullamco labo-  
ris nisi ut aliquip ex ea  
commodo consequat. Duis  
aute irure dolor in reprehen-  
derit in voluptate velit esse  
cillum dolore eu fugiat  
nulla pariatur. Excepteur  
sint occaecat cupidatat  
non proident, sunt in culpa  
qui officia deserunt mollit  
anim id est laborum.

Galdino Otten

# Font parameters

- **Style variations:** bold, italic, oblique
- **Caps:** all caps, small caps
- **Weight:** extra light, light, medium, bold

Muller™ Styles Overview  
**Weights**

Hairline & Hairline Italic

Antimon

Thin & Thin Italic

Beryllium

UltraLight & UltraLight Italic

Californium

Light & Light Italic

Sauerstoff

Regular & Italic

Dysprosium

Medium & Medium Italic

Unununium

Bold & Bold Italic

Quecksilber

ExtraBold & ExtraBold Italic

Kohlenstoff

Black & Black Italic

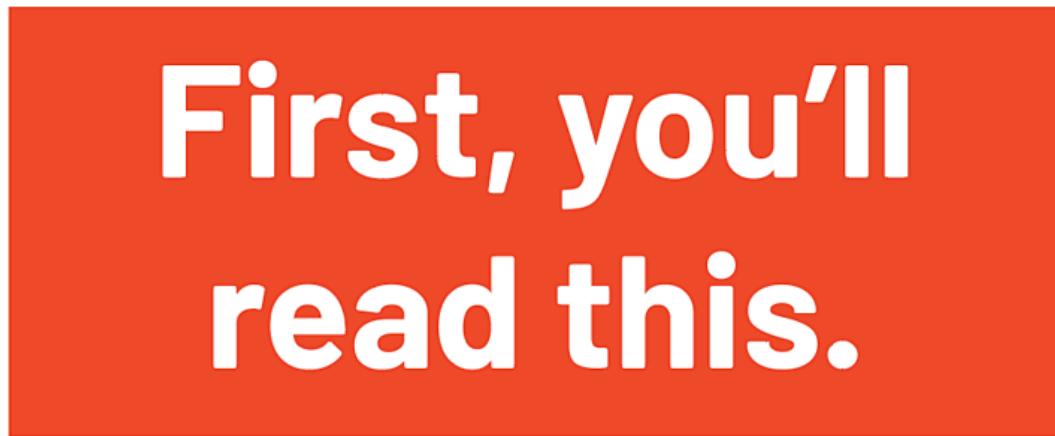
Wolfram

Heavy & Heavy Italic

Seaborgium

*Pro Tip:* Type alone can be used to achieve design principles, such as hierarchy and movement.

You'll probably see this last.



# Then, you'll read this.

And then this.



*Pro tip:* For good typography, become familiar with *leading*, *tracking*, *kerning*, *widows*, *orphans*, *rags*, *rivers*.



kerning  
tracking  
leading  
point size  
typeface  
justification  
line width

what is typography?

# Color

**Definition:** Human visual perception of light reflecting from an object.

- Creates emphasis
- Organizes content
- Evokes emotion





# Marketing Proposal

Digital Content Team

Client: UNIVERSITY OF WATERLOO

Presented by: GEORGE ZANDER

“Don’t settle: Don’t finish crappy books. If you don’t like the menu, leave the restaurant. If you’re not on the right path, get off it.”

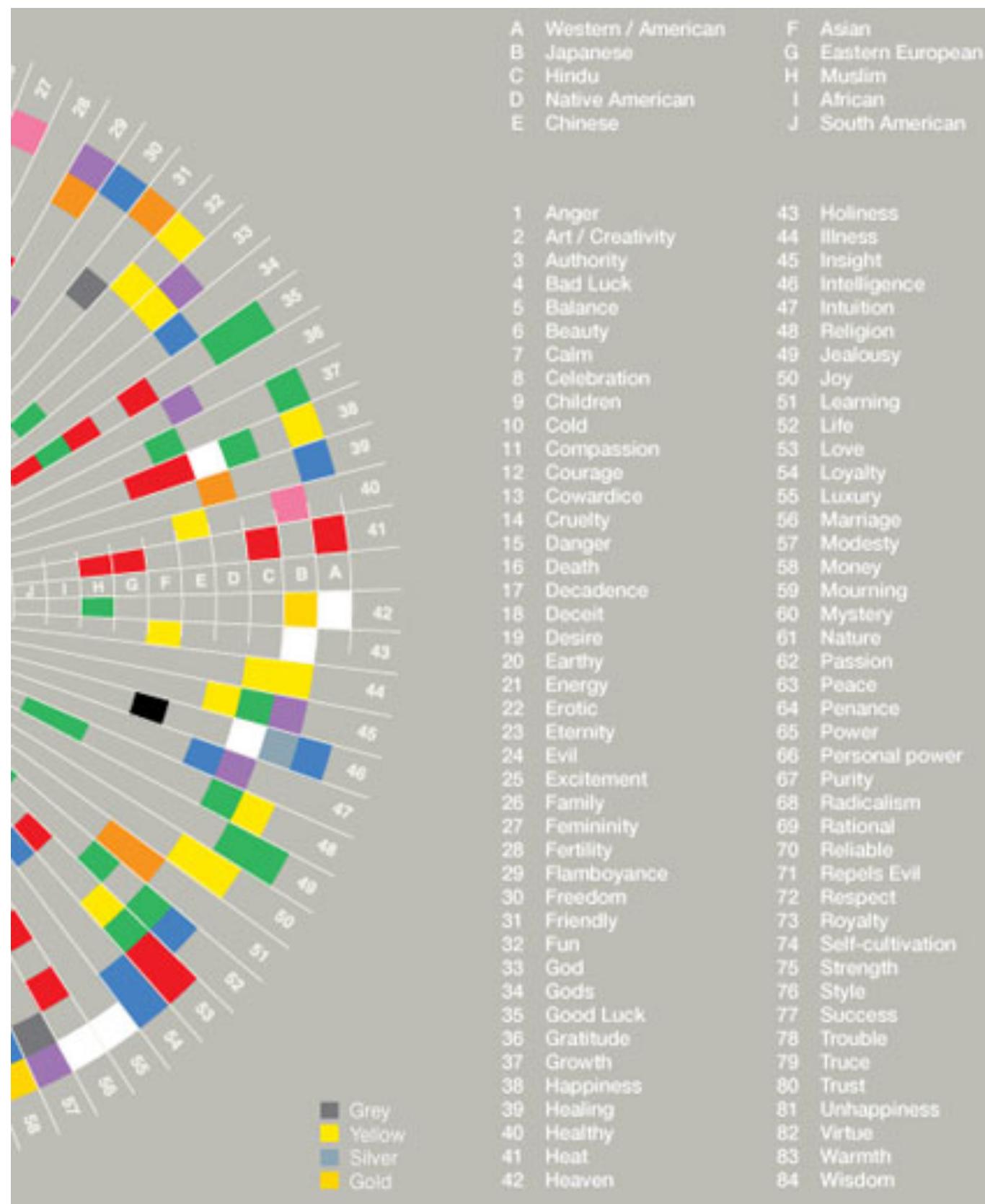
## Our Objectives

- To develop creative, high-impact executions that reach large groups of consumers and maximize viewership.
- To deliver cost effective business to consumer communications that builds a strong consumer relationship.

## Our Overview

Your marketing plan should start with an executive summary. The summary gives a quick overview of the main points of the plan.

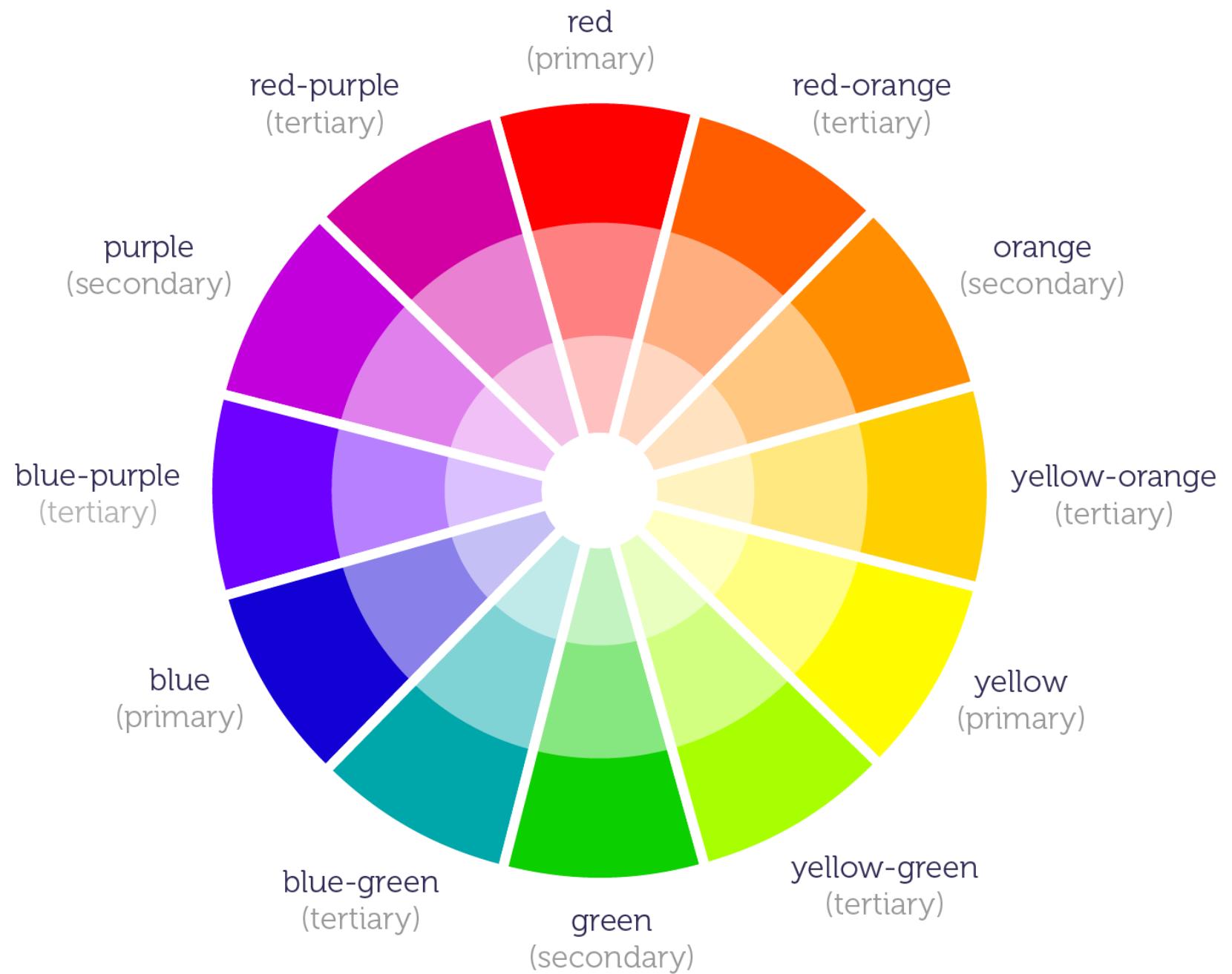
Although the executive summary appears at the beginning of the plan, you should write it last. Writing the summary is a good opportunity to check that your plan makes sense and that you haven’t missed any important points.

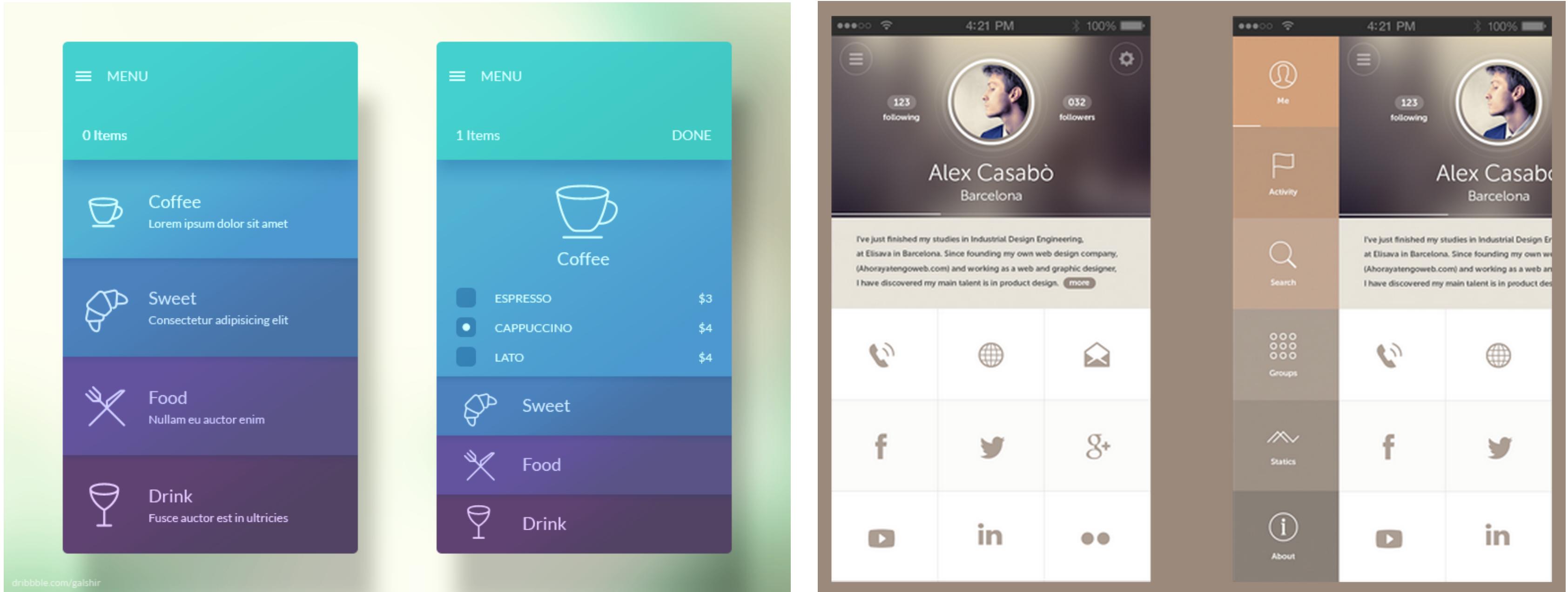


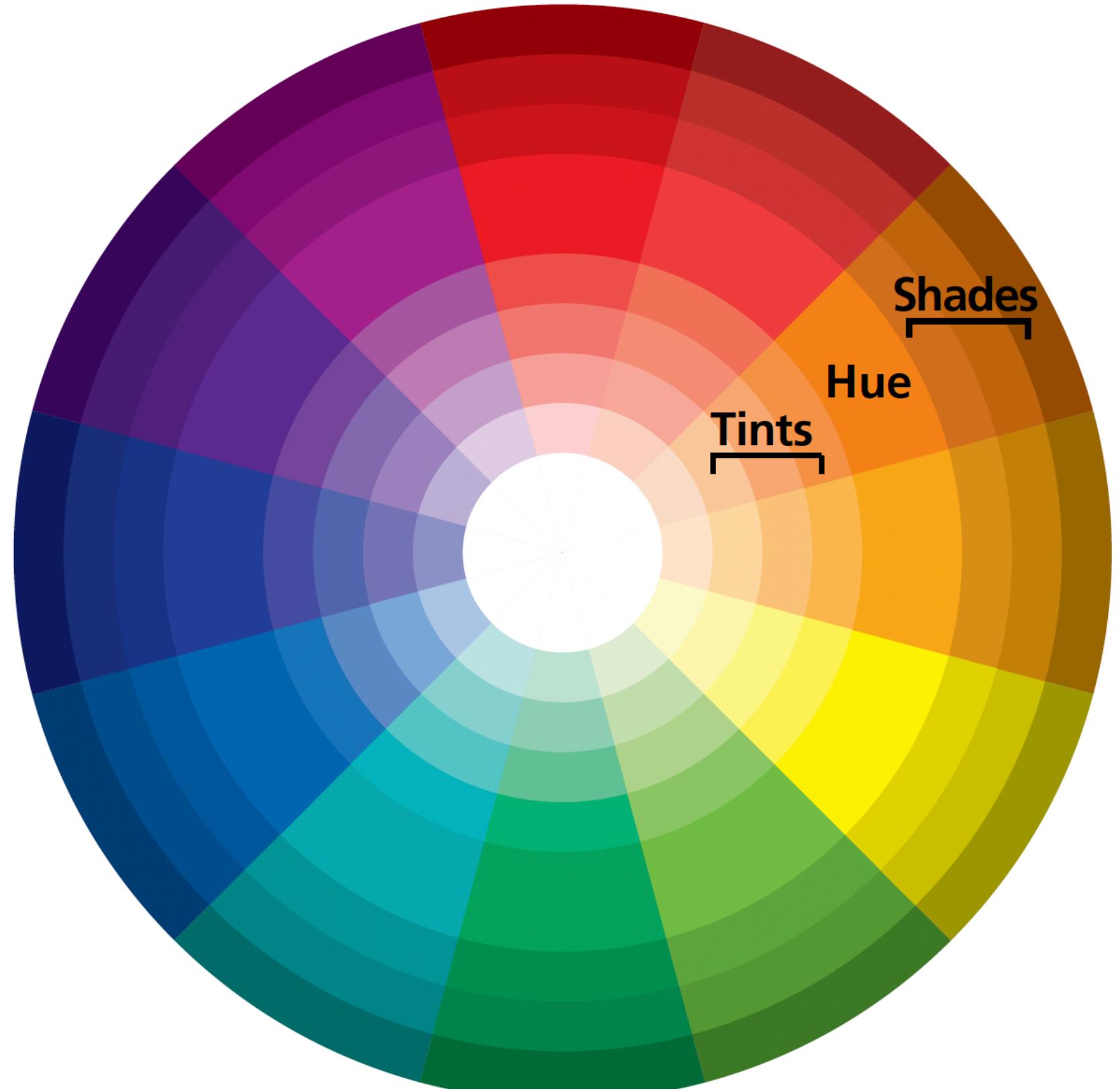
# The Color Wheel

- Primary, secondary, tertiary colors
- Tints, shades, tone
- Complementary colors
- Warm, cool colors

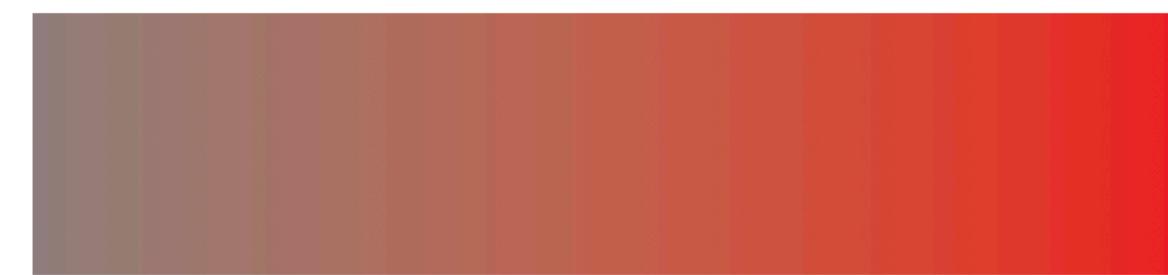
## The basic colors







Hue



Saturation



Value

# UNDERSTANDING COLOR THEORY

## Color Palettes

1. Analogous
2. Complementary
3. Split Complementary
4. Triadic
5. Monochromatic
6. Achromatic



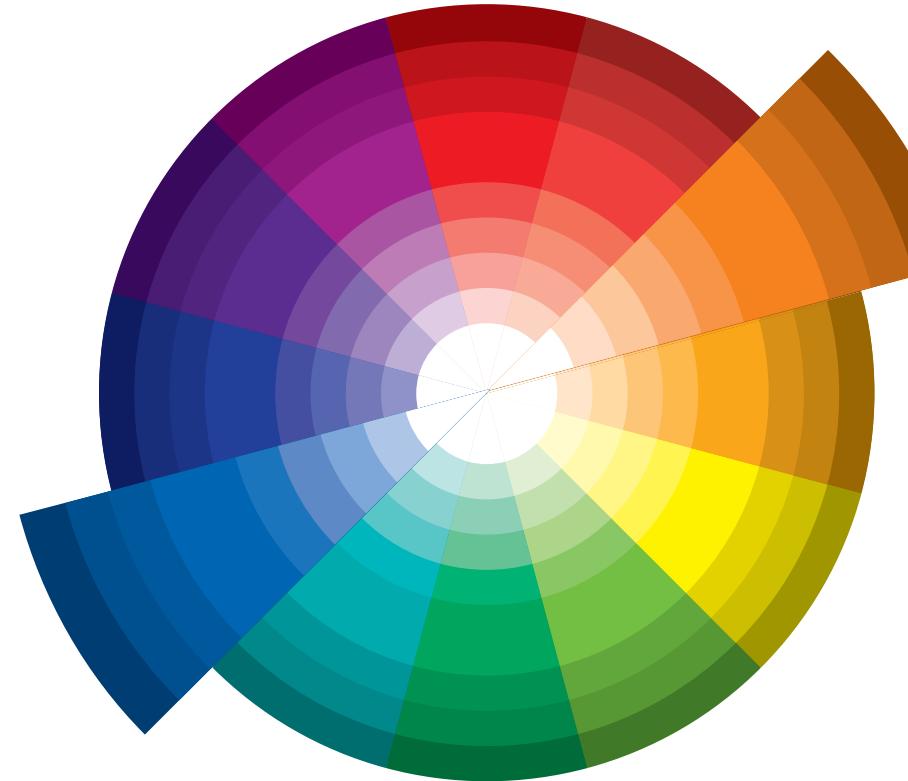
# ANALOGOUS



#1b75bb #00a9ac #8ccfb6

#adc5e6 #00888a #00888a

# COMPLEMENTARY



#1b75bb #fcc69a #c06615

#004f8f #1b75bb #f5821f

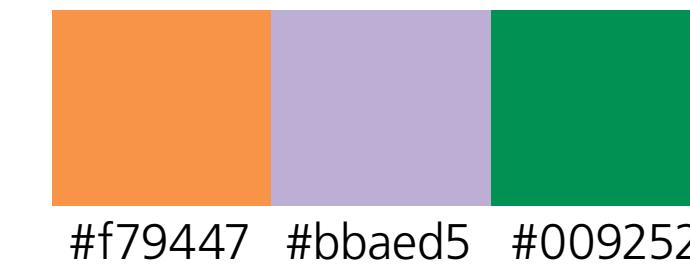
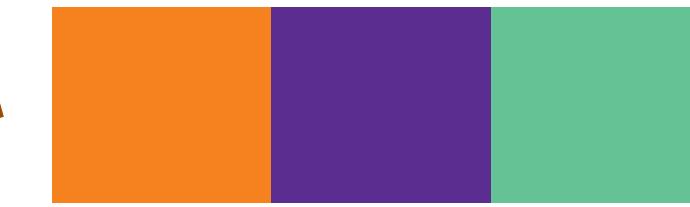
# SPLIT-COMPLEMENTARY



#004f8f #fcb94c #bb302d

#7da7d8 #ffd9a1 #f58d76

# TRIADIC



# MONOCHROMATIC

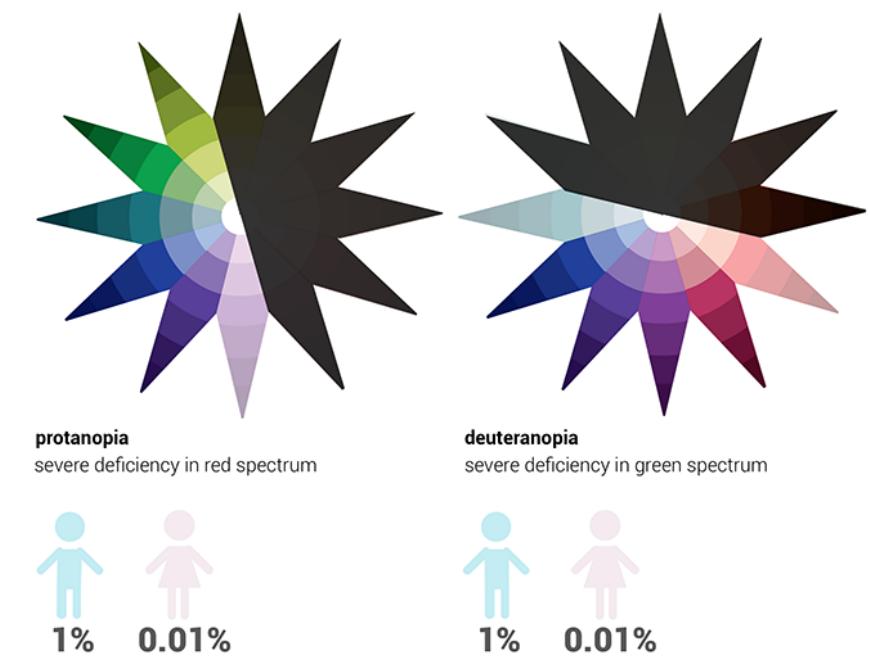
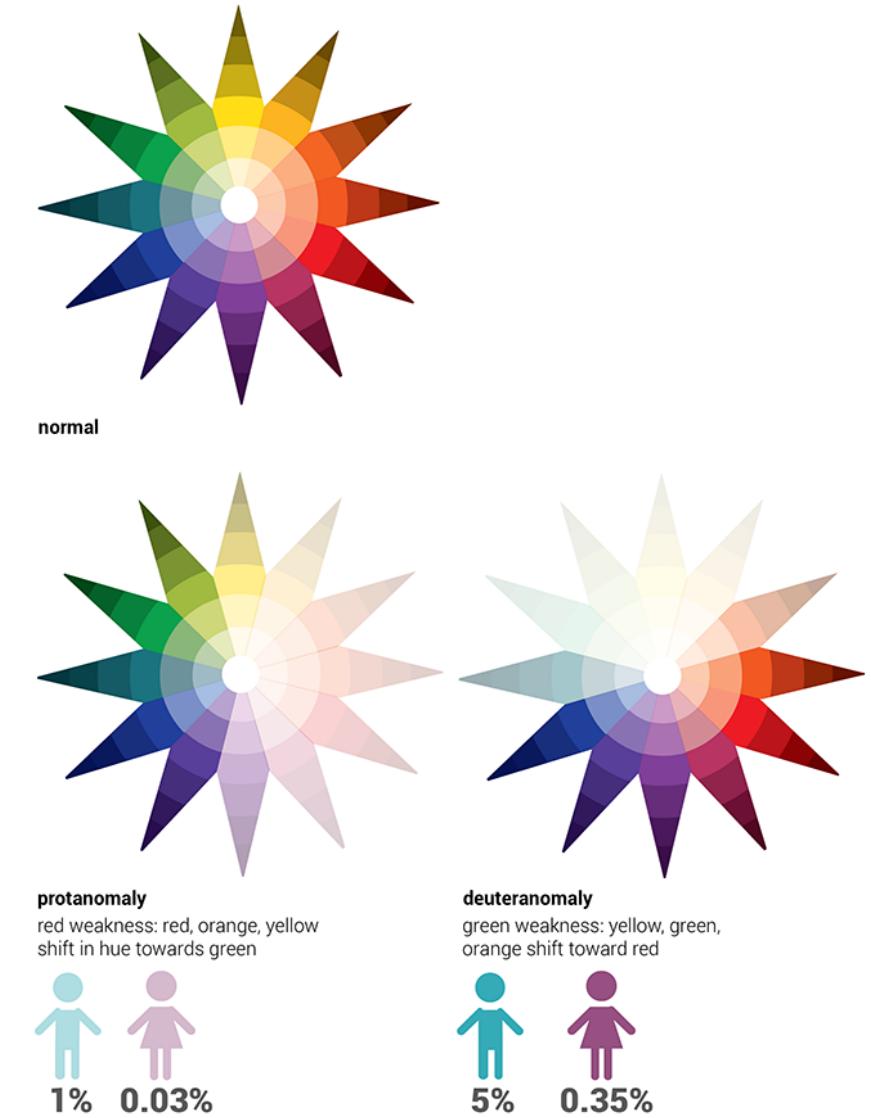


# ACHROMATIC



# Color Vision Deficiencies

- Affects 8% of males, 0.5% of females
- Consider alternatives
  - *Intensity vs. hue* for emphasis
  - *Size* of colored elements
  - *Proximity* of similar colors
- Use tools to check designs



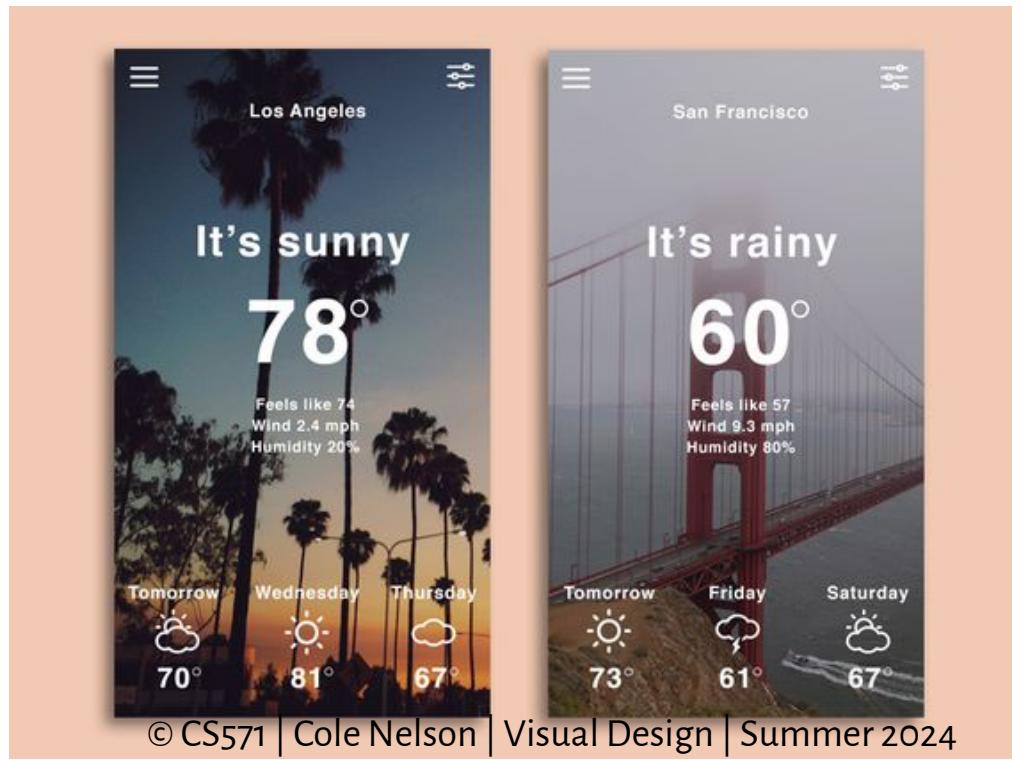
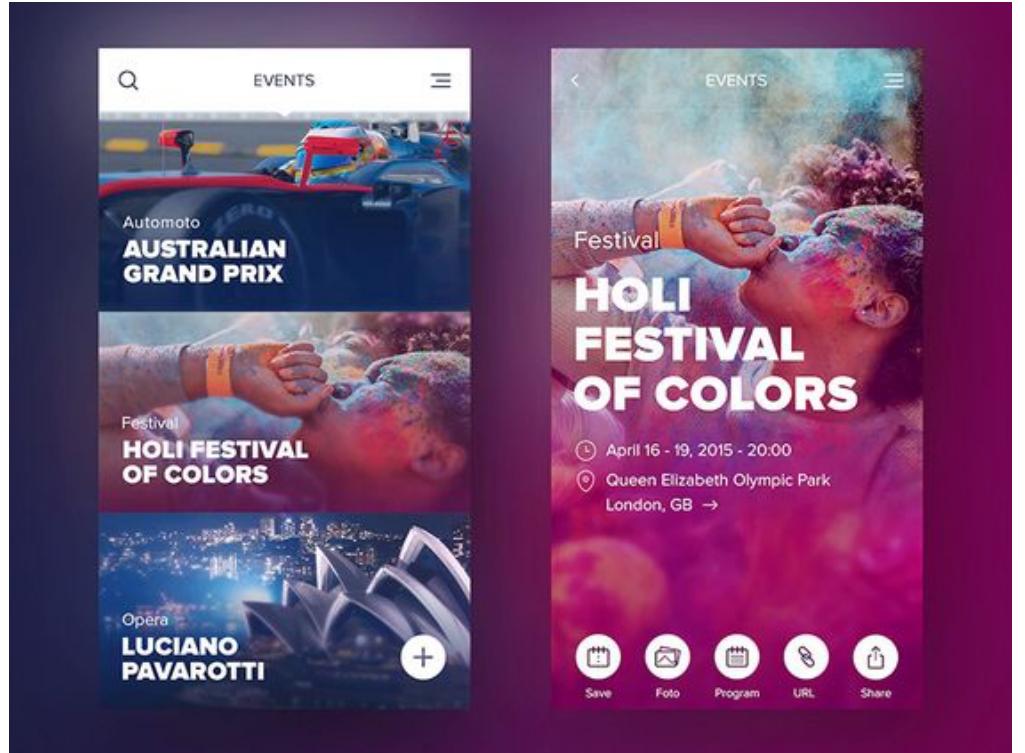
# Images

**Definition:** Photographs, illustrations, three-dimensional art, silhouettes, icons, dingbats, infographics, and simpler shapes that convey rich information or context.

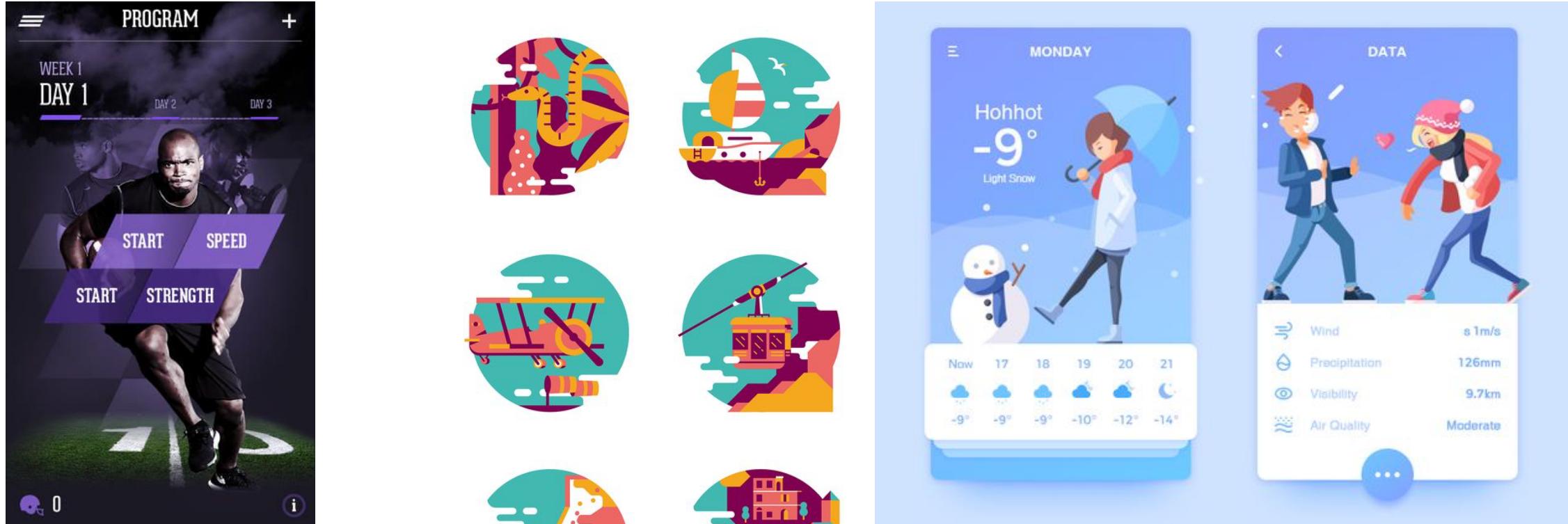
TABLE 5.1. Graphic types to use for varied goals.

Instructional or Communication Purpose	Consider These Graphic Types
Depict concrete objects	Photograph 3-D graphic Illustration Clip art (particularly in diagrams and as game elements)
Tell a story or provide a scenario	Sequence of photographs Sequence of illustrations Timeline
Persuade an audience	Sequence of photos or illustrations to tell a story Photographs that evoke emotions Visualization of statistics and data
Explain unfamiliar or complex concepts and theories	Visual metaphor Diagram showing connections
Demonstrate a procedure	Show the steps in a sequence of photos or illustrations Flow chart Series of screen captures for software simulation
Explain a process	Diagram the stages or operations of the process Icons or simple illustrations to represent each component
Point out something specific	Arrow or pointed shape Highlight Outline of a circle
Depict components of a system	Illustrated object with labels Diagram of the structure
Make comparisons	Bar graph Pictograph Line graph with multiple lines Table (when specific values are important)
Demonstrate trends in data	Line graph Scatter plot
Organization of information	Various chart types (hierarchical, radial, etc.) Concept map
Demonstrate motion without animation	Show object moving along a path Illustrations with motion lines Illustrations with arrows or dashed lines depicting movement
History or changes over time	Timeline (these don't have to be arrows) Sequence of photos or illustrations

# RASTER GRAPHICS



# VECTOR GRAPHICS





◀ More Realistic

Less Realistic ▶



**YouDost**

Experts Motivational Stories Distressing Techniques Self Help Login

Get Free, trusted help from an expert right now. Sometimes you need someone to talk to. we're here for you.

START NOW

520 People are currently seeking guidance.

Private and Confidential Anonymous discussions 24/7 hours support 3000+ Sessions Since 2015

Three Ways YouDost can Help

- 1 Meet your Personal Expert
- 2 Learn the Techniques
- 3 Achieve your Goals

Your conversation with the experts are completely confidential and never shared with any third party.

200+ Experts with years of experience in counseling and successfully helping people overcome their emotion.

© CS571 | Cole Nelson | Visual Design | Summer 2024

Find instant support

200+ Experts with years of experience in counseling and successfully helping people overcome their emotion.

**wondr**

SUNDAY 23.08 SHANGHAI DEC 31 SNOW -6° 上海 SHANGHAI

23.08 BEIJING DEC 31 SANDSTORM -3° 北京 BEIJING

23.08 SUZHOU DEC 31 2 苏州 SUZHOU

**wondr**

live coming soon on App Store

share coming soon on App Store

wondr coming soon on App Store



# ICA B: Visual Design

Analyze an existing page with an eye for color, type, and image.

- What can you see?
- What are their purposes (if any)?
- How could you improve the design?

# Applications

- Request Absence
- No Leave Taken Reporting
- Summer Appt. Leave Reporting
- Absence Balances
- View / Edit Requests
- Cancel Absences
- Leave Reports

## Summer Appointment Leave Reporting

No summer session appointments found.

Year

By clicking submit, I verify I have no additional leave to report for the summer or I have not taken any leave.

### Record Summer Appointment Sick Days Below

1 row



Date	Hours

II



New! Not a UW Student? You can still get access! [Get your Badger ID here.](#)

# Welcome to CS571 Spring 2024!

Taught by [Cole Nelson](#)

This class aims to introduce CS undergraduates to the wonderful world of **User Experience (UX) development**.

But what is UX development? Sometimes called front-end development, UX development is between traditional software development and UX design. Let's hear about it from an **actual UX developer...**

The realm of the UX developer exists somewhere between that of the traditional developer and the designer. We're not really designers, yet to be a good UX developer you certainly need to have an eye for design. In the same vein, we're not traditional developers but we certainly need to have development experience and expertise. Often this experience spans multiple technologies, languages, and platforms.

It falls on the UX developer to bridge the gap between design and technology. We need to be able to think and speak the language of designers. It's our job to help translate their vision to the development team in a way that they can understand and accept. This can be a critical piece of the puzzle in a project, especially if the design and the interactions behind it are complex.

**Cookie Notice** 😊

CS571 uses cookies to store your Badger ID and perform other essential operations. By continuing to use the website, you consent to this notice.

[Don't Show Me Again](#) [Disallow](#)

With UX development skills, you can become better software developers with an eye for

## Schedule

All course content is available [via GitHub Classroom!](#) You may download [the syllabus here](#). Course grading details **are provided below the schedule**. (N) links to notes and (R) links to recording of the lecture.

Week Of	Topics	Homework	ICA
Jan 22	Intro to CS571 <a href="#">(N)</a> <a href="#">(R)</a> & Design Thinking <a href="#">(N)</a> <a href="#">(R)</a>	<a href="#">HW0</a> (1 pt)	<a href="#">ICA A</a>
Jan 29	Web Dev Basics 1 <a href="#">(N)</a> <a href="#">(R)</a> & Web Dev Basics 2 <a href="#">(N)</a> <a href="#">(R)</a>	<a href="#">HW1</a>	No ICA
Feb 5	Web Dev Basics 3 <a href="#">(N)</a> <a href="#">(R)</a> & Visual Design	<a href="#">HW2</a>	ICA B
Feb 12	Web Dev 1 & Web Design	<a href="#">HW3</a>	ICA C
Feb 19	Web Dev 2 & Interaction Design	<a href="#">HW4</a>	ICA D
Feb 26	Web Dev 3 & Expert Evaluation	<a href="#">HW5</a>	ICA E
Mar 4	Web Dev 4 & Accessibility	<a href="#">HW6</a>	ICA F
Mar 11	Web Dev 5 & <b>Midterm Exam</b>	No HW	No ICA
Mar 18	Mobile Dev 1 & Prototyping	<a href="#">HW7</a> (2 pts)	ICA G
Mar 25	<b>Spring Break!</b>	No HW	No ICA

iPhone SE

**Love the power.  
Love the price.**

From \$429 or \$17.87/mo. for 24 mo.<sup>2</sup>

Buy

[Learn more >](#)



# **ICA B: Visual Design**

Create your own!

# Questions?