Introduction to Information Design

**A Brief History** 

# **Information Design**

Conveying information through visual storytelling.

### Storytelling

At its best Information Design is a story driven experience that educates and makes complex concepts VISIBLE, UNDERSTANDABLE and USABLE.

The concept of storytelling entails a **beginning**, **middle**, and **end**. Good information design is storytelling that allows you to a enter the story in your own time and at your own pace.

# **Information Design is Communication**

The interdependent threads of communication design:

- 1. Problem/Assignment (process, procedure, phenomenon, or object)
- 2. Audience who are you communicating to?
- 3. Client who you are communicating for (and potentially beholden to)

### Visual Perception - the Principles of Design

6 Gestalt Principles. According to Gestalt psychology, we need to organize what we see to make sense of the world. Without using patterns to order our vision, our brains would be overwhlemed.

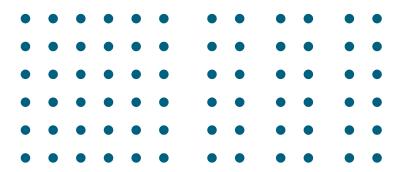
These patterns were formalized by psychologists Max Wertheimer, Wolfgang Köhler, and Kurt Koffka and are known as the Gestalt principles of perception.

The Gestalt principles of perception are part of the most important design theories. Organizing information means understanding. A designer's task is to make content as easy to understand as possible.

- 1. Proximity 4. Closure
- 2. Similarity 5. Figure/Ground
- 3. Continuity 6. Symmetry and Order

# 1. Principle of Proximity

The principle of proximity states that things that are close together appear to be more related than things that are spaced farther apart.





### 2. Principle of Similarity

The principle of similarity states that when things appear to be similar to each other, we group them together. And we also tend to think they have the same function. Similarity can be achieved using basic elements such as shapes, colors, and size.



# 3. Principle of Continuity

The principle of continuity states that elements that are arranged on a line or curve are perceived to be more related than elements not on the line or curve. The human eye follows the paths, lines, and curves of a design, and prefers to see a continuous flow of visual elements rather than separated objects.

### 4. Principle of Closure

The principle of closure states that when we look at a complex arrangement of visual elements, we tend to look for a single, recognizable pattern. In other words, when you see an image that has missing parts, your brain will fill in the blanks and make a complete image so you can still recognize the pattern.





# 5. Principle of Figure/Ground

The human eye isolates shapes from backgrounds. Your brain will distinguish between the objects it considers to be in the foreground of an image (the figure, or focal point) and the background (the area on which the figures rest).



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### 6. Principle of Symmetry and Order

Design should be balanced and complete; otherwise, the user will spend time and effort trying to perceive an overall picture. This principle says that your brain will perceive ambiguous shapes in as simple a manner as possible. Your brain will interpret the image on the left as a rectangle, circle, and triangle, even when the outlines of each are incomplete because those are simpler shapes than the overall image.







#### "The Exhibit of American Negroes"

A social study about African-American life for the Exposition Universelle, the Paris World Fair of 1900.

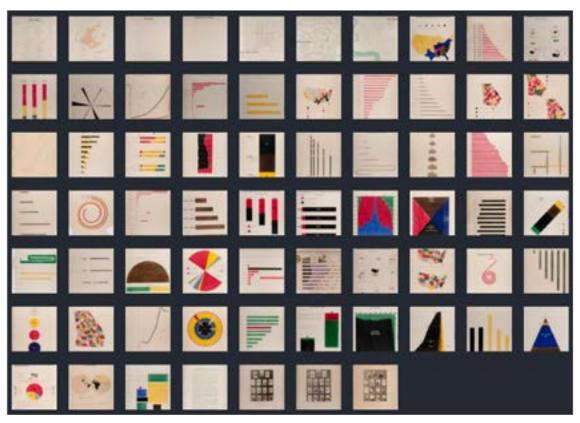
W. E. B. Du Bois worked in collaboration with Booker T. Washington, prominent black lawyer Thomas J. Calloway, the assistant librarian at the Library of Congress Daniel Murray, and students from historically black college Atlanta University.

Du Bois began assembling the exhibit on December 28, 1899. The Paris Exposition began on Apr 15, 1900 and the travel would take at least 6 weeks by ship. Du Bois did not have very much time.

**SOURCE**: A photograph from the exhibit, on view inside the Palace of Social Economy at the 1900 World's Fair in Paris. *Library of Congress* 

#### **A Note About Data Visualization**

Data visualization is a component of Information Design. It is a representation of 'data' that (ideally) calls attention to patterns, details and/or relationships within data, that might otherwise not be easily discernible from a spread sheet. Charts and graphs are forms of data visualizations.

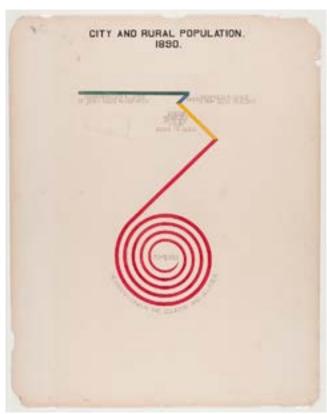


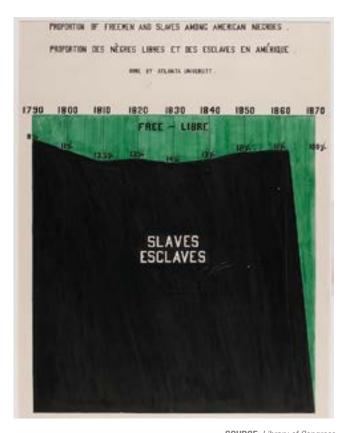
**SOURCE**: Library of Congress

"Thirty-two charts, 500 photographs, and numerous maps and plans form the basis of this exhibit. The charts are in two sets, one illustrating conditions in the entire United States and the other conditions in the typical State of Georgia."

- W. E. B. Du Bois

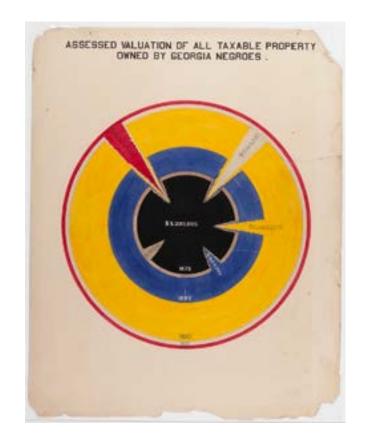


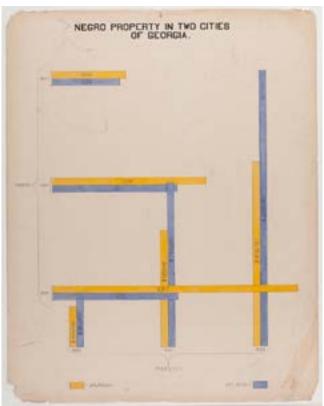


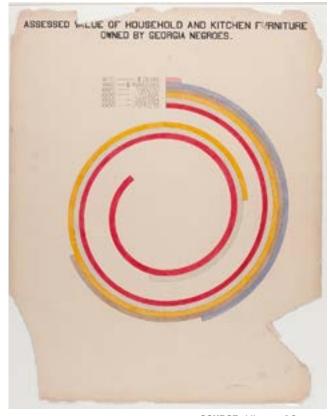


**SOURCE**: Library of Congress

Du Bois's statistics were rendered into a series of hand-painted ink and watercolor charts, diagrams, and figures. Some argue a precursor to modernism.



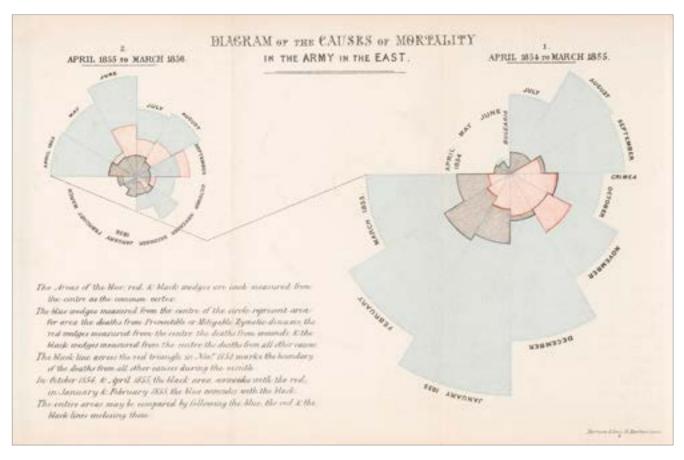




**SOURCE**: Library of Congress

They focused on four key dimensions of the black experience: "...the history of the American Negro, his present condition, his education, and his literature" – W. E. B. Du Bois

#### **Nightingale Rose Diagram**



**SOURCE**: "Diagram showing mortality in hospitals at Scutari & Kulali" Florence Nightingale, 1858.

Florence Nightingale examines the causes of high Army mortality during the Crimean War in her most famous pair of roses. Showing how many more soldiers die of preventable disease (blue) than battle wounds (red) over a two year period.

Her skillful visualizations helped persuade Queen Victoria to adapt her recommendations for better sanitary practices that saved countless lives and paved the way for modern hospitals.

50 years prior to Du Bois.

#### **John Snow**



**SOURCE**: Dr. John Snow, 1854 (CC BY 4.0 https://creativecommons.org/licenses/by/4.0)

John Snow (1813-1858) was a brilliant British physician. Since young he stood out for his acute observation capacity, logical thinking and perseverance, first in anesthetics and later in epidemiology. The successive outbreaks of cholera that affected London, motivated him to study this disease from a population point of view.

In the world of the 1850s, cholera was believed to be spread by miasma in the air, germs were not yet understood and the sudden and serious outbreak of cholera in London's Soho was a mystery.

So Snow mapped the cases. The map essentially represented each death as a bar, and you can see them in the smaller image above.

# **Representing Data Accurately**

How content, especially complex content, is displayed visually impacts how likely we are to make an effort to understand what we are looking at.

When visualizing information, existing **GRAPHS** and **CHARTS** have evolved over time, to help organize and structure quantitative information through graphic representation in ways that make concepts easier to understand. There are roughly four main categories:

- 1. Inform
- 2. Compare
- 3. Transform
- 4. Organize



#### **Data Visualization Representations**

1786 William Playfair, argued that charts communicated better than tables of data. He has been credited with inventing the line, bar, area, and pie charts.

1984 William Cleveland and Robert McGill studied overall patterns in the data and developed a scale for different ways to represent data from highly accurate to more general.

Present The Data Visualization Catalogue is a project developed by Severino Ribecca to create a (non-code-based) library of different information visualization types. The website serves as a learning and inspiration resource for those working with data visualization.

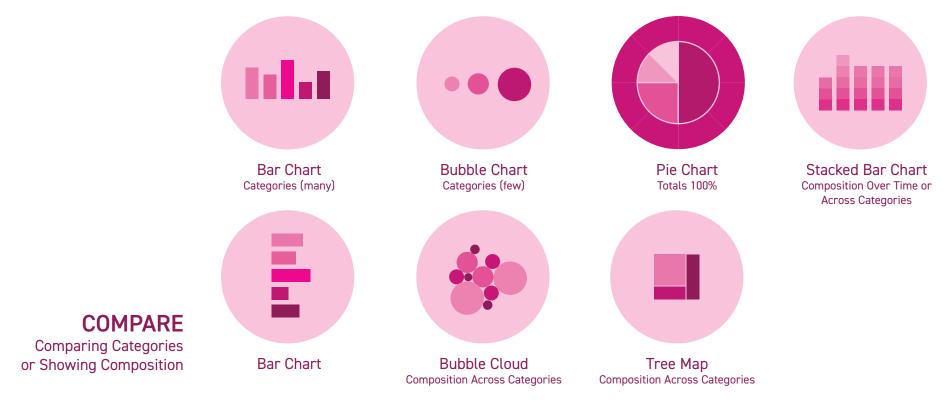
>> www. datavizcatalogue.com

**SOURCE**: Severino Ribecca -- www.datavizcatalogue.com



#### 1. Inform

There is no one single way to visually describe any given problem. The goal is to find a good one. Here are three different representations of the same information.



# 2. Comparisons

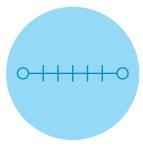
If you have categorical data (distinct data) that you need to compare, these charts display how they match up side by side. The Bubble Cloud Chart and the Stacked Bar Chart are examples that show multiple data points. For example in the Stacked Bar Chart, each bar represents a whole, and segments in the bar represent different parts or categories of that whole.



Line Chart Many Series Over Time



Area Chart Few Series Over Time



Timeline
Distinct Dates Over Time



Map Series Based on Location

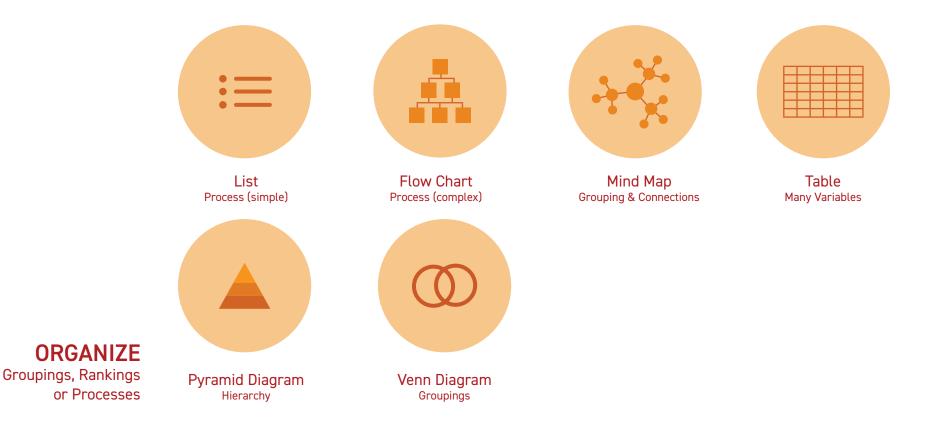
### 3. Transformations

**CHANGE** 

or By Location

Change Over Time

These types of charts are used for showing and comparing data that is continuous. Line charts display this type of information nicely and can also highlight transformations over time or pin point differences between locations.



# 4. Organization

Here are just a few examples of the many different ways information can be organized and categorized to help make if more accessible to viewers. These charts help to establish visual hierarchy so that the eye can more efficiently scan and make sense of content heavy data through structure, groupings, and connections.

# Narrative (What is the Story?)

Depending on your topic and your target audience, which of the following will best enable you to tell your story?

- 1. Process
- 2. Procedure
- 3. Phenomenon
- 4. Complex idea/object

### **Developing a Narrative:**

- 1. Research and Analysis
- 2. Content Development and Articulation of Story
- 3. Concept and Design Development
- 4. Selecting appropriate Visual Presentation and Explanation

### **The Design Process**

Also known as the 4Ds, the design thinking methodology involves a series of stages to help determine the right narrative to tell the *right* story.

- 1. Discover: Research and Narrative Development
- 2. Define: Analysis and Documentation -- Pinpoint Your Thesis
- 3. Develop: Design Development
- 4. Deliver: Selecting appropriate Visual Presentation and Explanation

#### **A Note About Research**

Infographics are only as good as the quality of source information. They require a good amount of research, often going back to the original sources. Always credit your sources.

# **Types of Visual Presentations**

#### 1. Data Visualizations

Visuals intended to display patterns, details and relationships in data.



Global Plastics - Nadieh Bremer - www.visualcinnamon.com



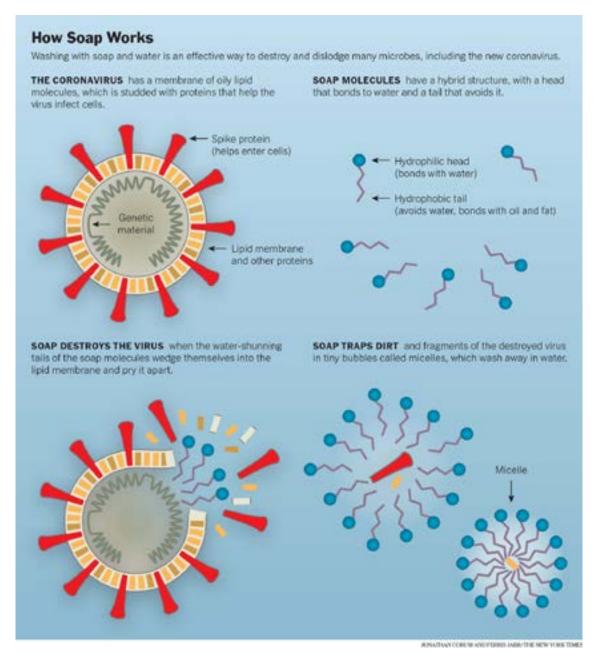
Global Plastics - Nadieh Bremer - www.visualcinnamon.com



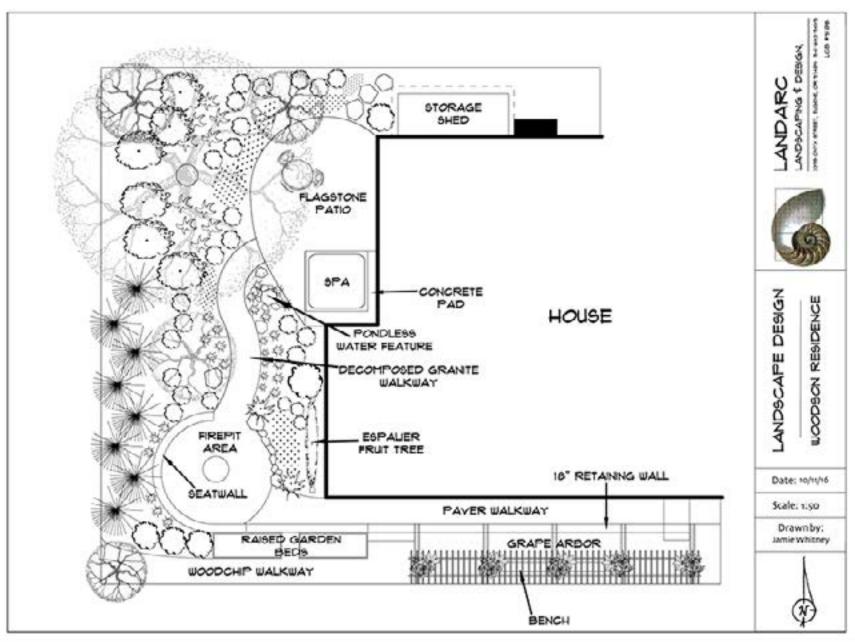
Information Is Beautiful - https://informationisbeautiful.net

# **Types of Visual Presentations**

2. Schematics and Diagrams
Visuals intended to explain how something works.

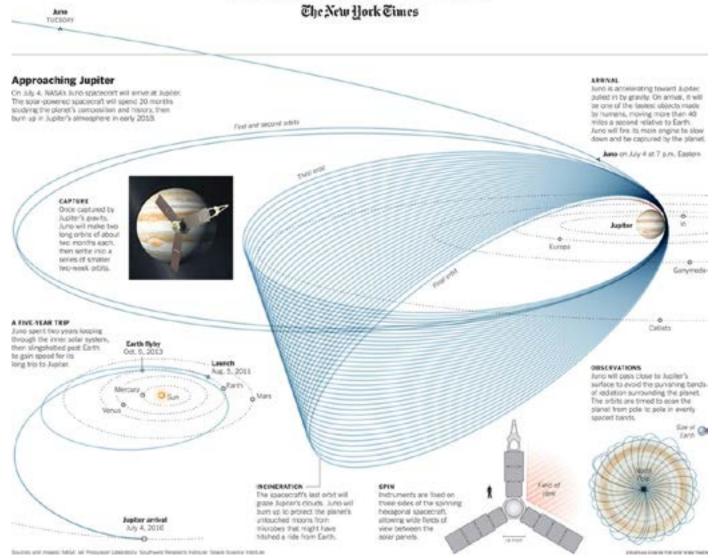


How Soap Works - Jonathan Corum is the science graphics editor at The New York Times and founder of 13pt LLC - <a href="http://13pt.com/projects/nyt200311/">http://13pt.com/projects/nyt200311/</a>

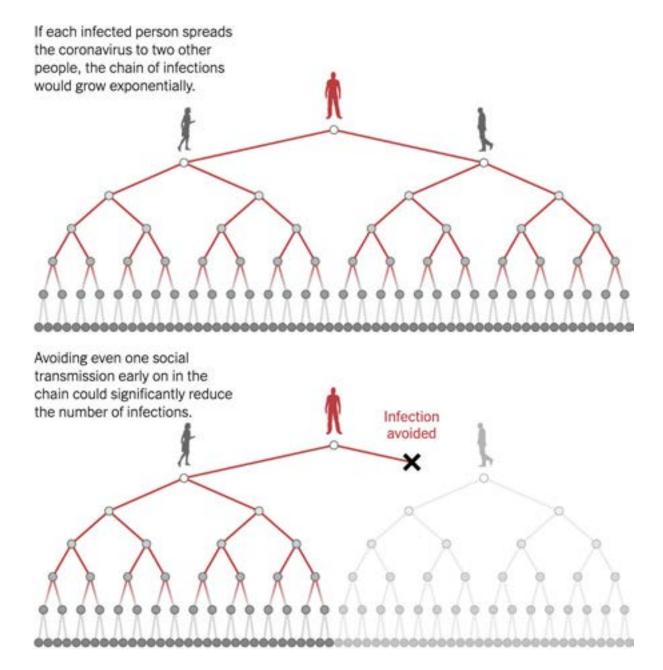


Landscape Schematic - <a href="https://landarclandscape.com/">https://landarclandscape.com/</a>

## **ScienceTimes**

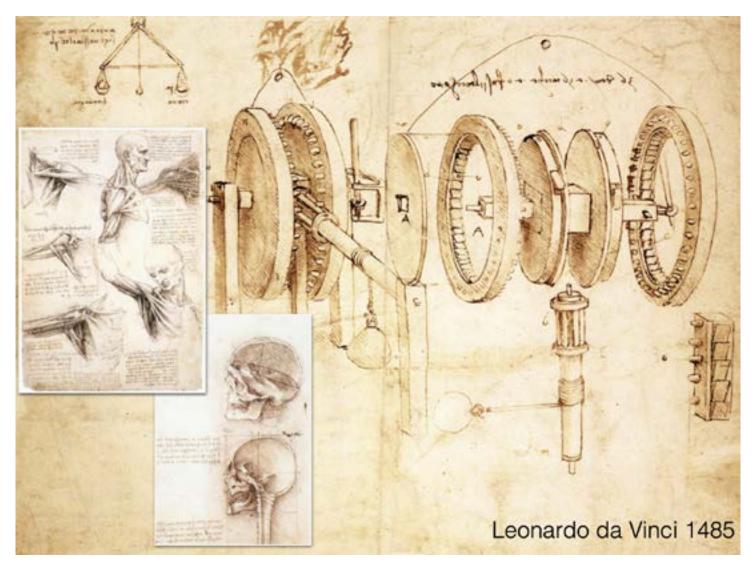


Approaching Jupiter - Jonathan Corum is the science graphics editor at The New York Times and founder of 13pt LLC - http://13pt.com/projects/nyt200311/

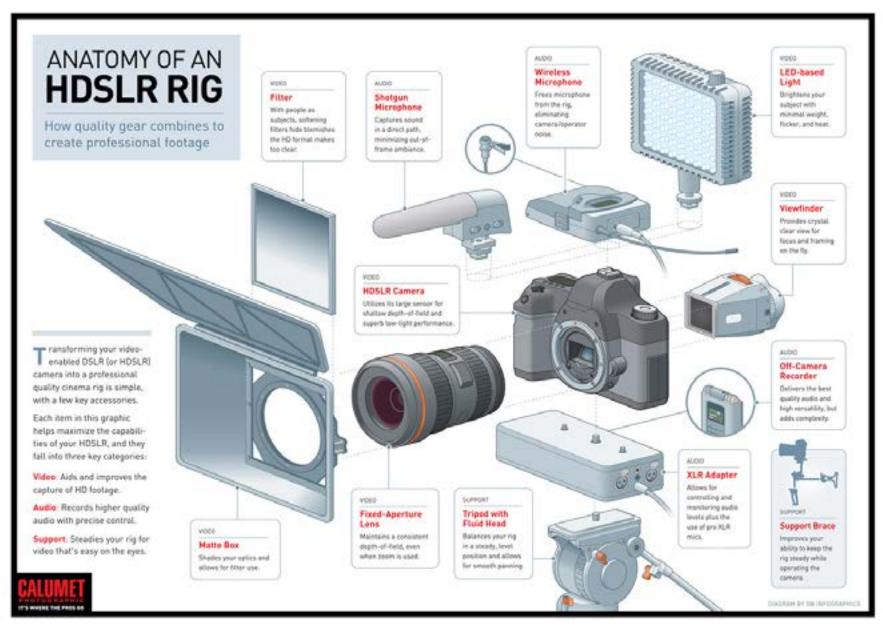


Chain of Transmission - Jonathan Corum is the science graphics editor at The New York Times and founder of 13pt LLC

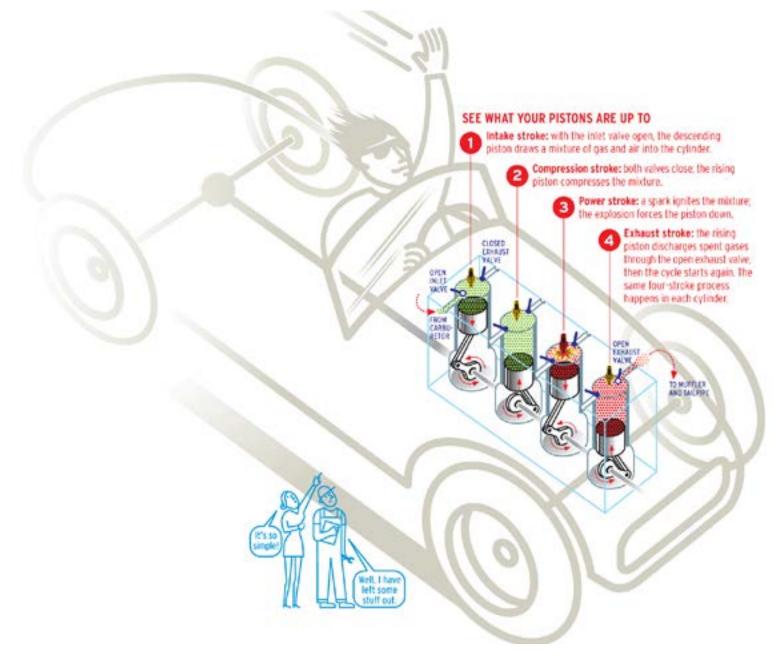
3. Dissections or Cutaways
Visuals detailing what an object is made up of.



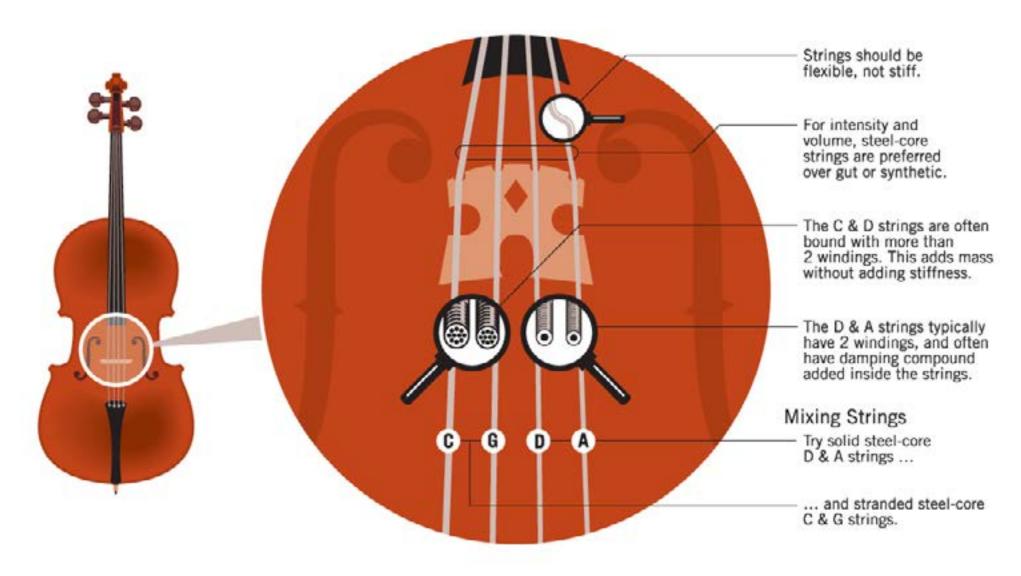
Leonardo da Vinci - Inventor of many things including the Bicycle and Flying Machines



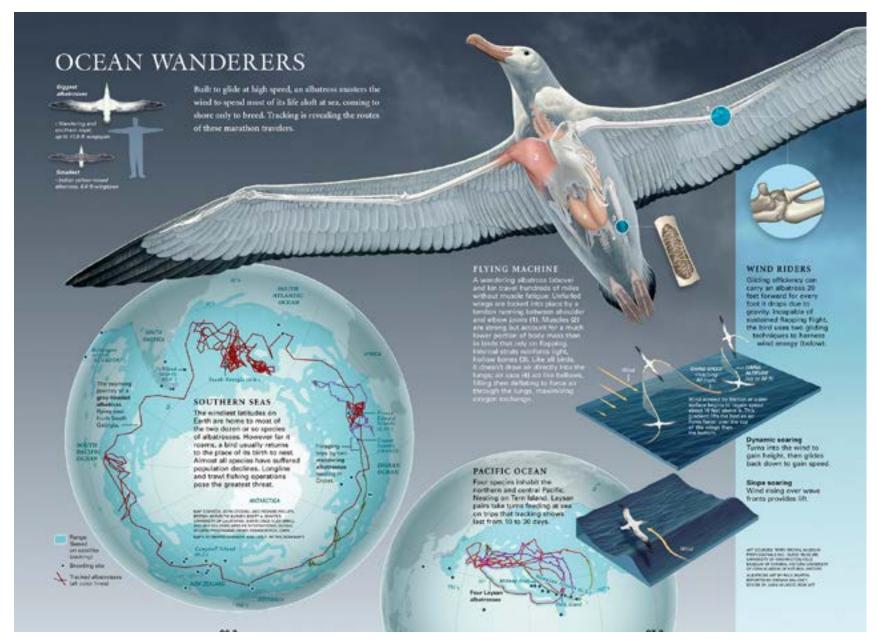
Anatomy of a Camera - 5WGraphics https://www.5wgraphics.com



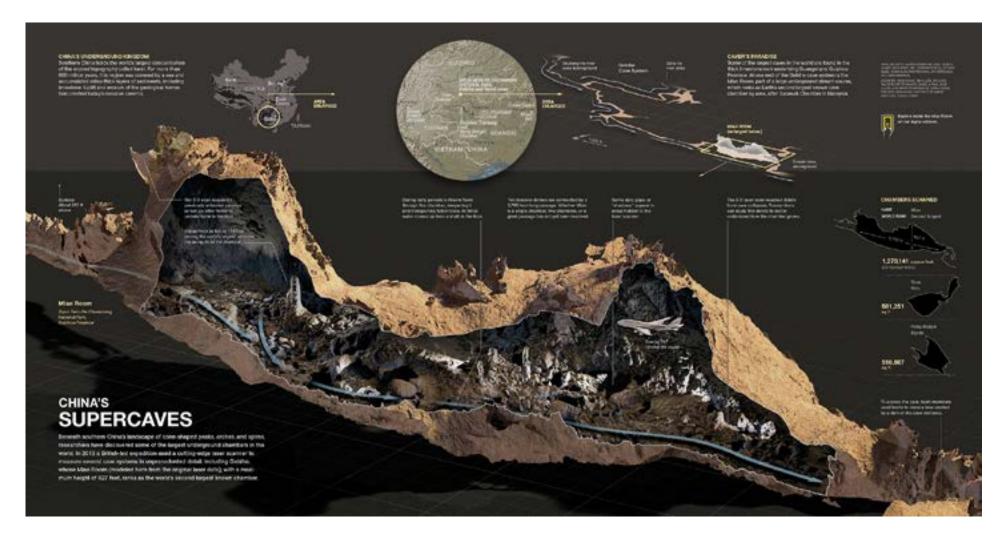
See What Your Pistons Are Up To - Nigel Homes <a href="http://www.nigelholmes.com/gallery/">http://www.nigelholmes.com/gallery/</a>



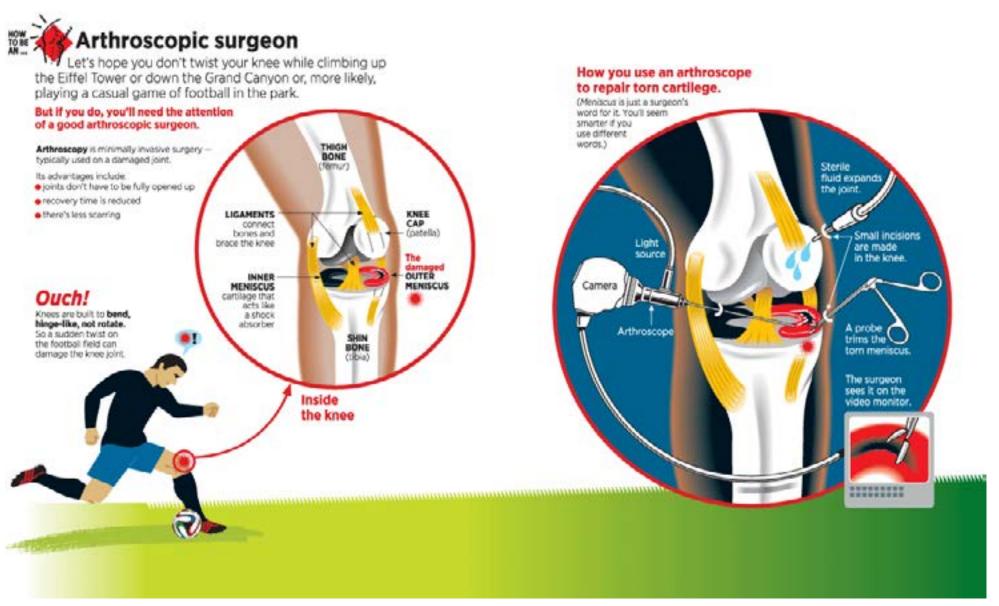
Guitars - Nigel Homes http://www.nigelholmes.com/gallery/



Ocean Wanderers - 5WGraphics <a href="https://www.5wgraphics.com">https://www.5wgraphics.com</a>



China's Supercaves - 5WGraphics <a href="https://www.5wgraphics.com">https://www.5wgraphics.com</a>

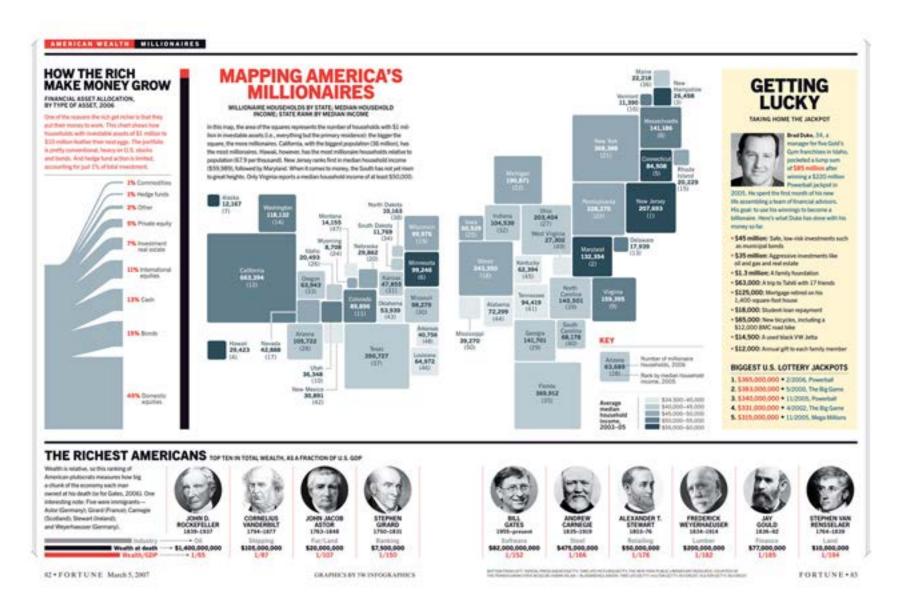


Arthroscopic Surgeon - Nigel Homes <a href="http://www.nigelholmes.com/gallery/">http://www.nigelholmes.com/gallery/</a>

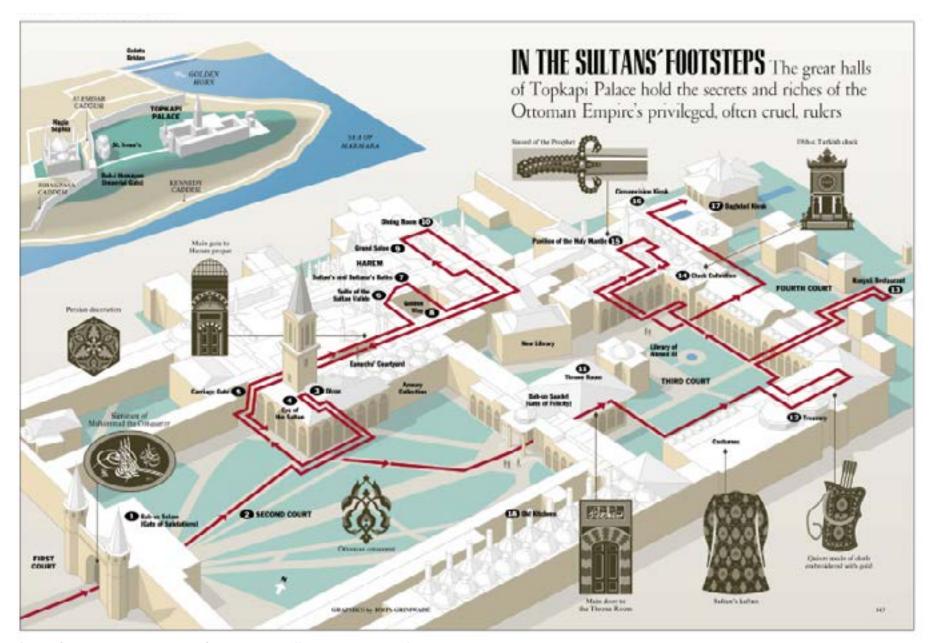
**3. Geographic**Visuals that use location to tell a story.



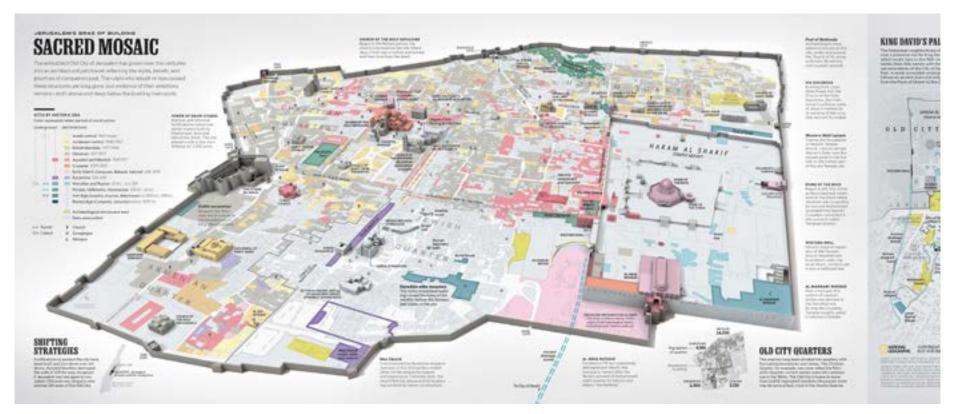
China Rising - John Grimwade https://johngrimwade.com/



The Rich - 5WGraphics <a href="https://www.5wgraphics.com">https://www.5wgraphics.com</a>



in The Sultan's Footsteps - John Grimwade <a href="https://johngrimwade.com/">https://johngrimwade.com/</a>



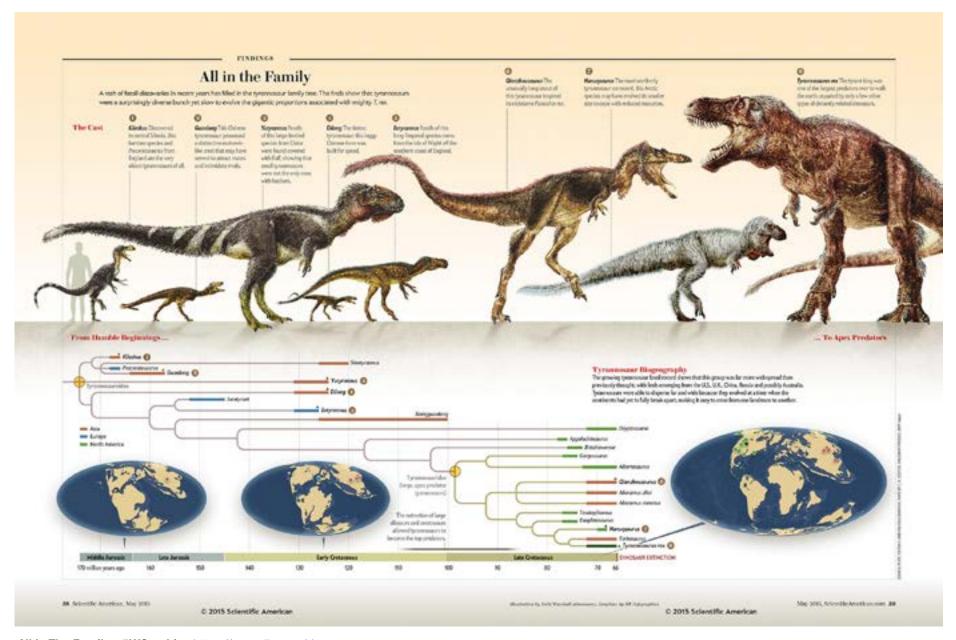
Modern Jerusalem - Alberto Lucas Lopez https://www.lucasinfografia.com/Under-Jerusalem

#### 4. Flow Charts

Presenting factual information sequentially (not necessarily linearly)



The Road Less Traveled - 5WGraphics <a href="https://www.5wgraphics.com">https://www.5wgraphics.com</a>

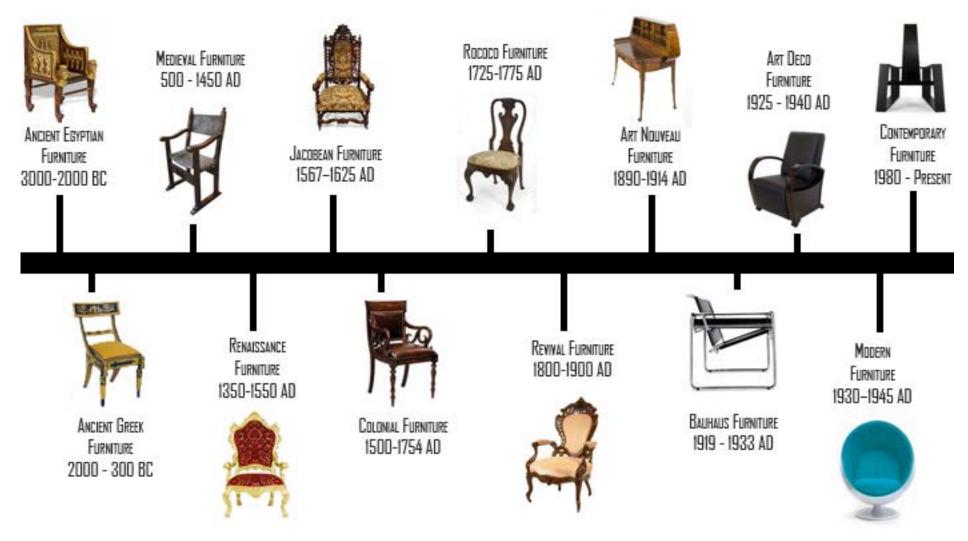


All In The Family - 5WGraphics <a href="https://www.5wgraphics.com">https://www.5wgraphics.com</a>

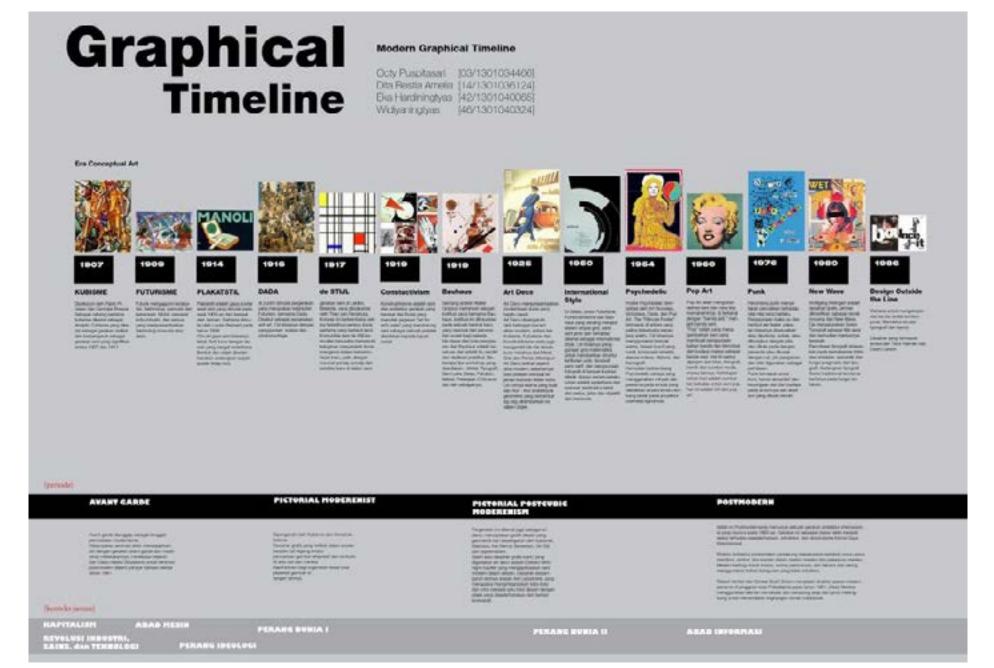
5. Timelines

Presenting factual information sequentially (not necessarily linearly)





**Furniture Design - Timeline** 



Timeline Modern Graphical Yasu Yassyash

# THANK YOU!