

Data Visualization Tools and Resources

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OFFICE ON SMOKING AND HEALTH

OSH S&E Coffee Break • July 11, 2017

The findings and conclusions in this presentation are those of the author and do not necessarily represent those of the Centers for Disease Control and Prevention.

Disclaimer

This presentation includes examples of widely used data visualization tools and resources. These are listed for the convenience of the user and do not constitute endorsement by the Centers for Disease Control and Prevention.

The purpose of data
visualization is to
communicate.

Design Process

- 1** Who is your audience?
- 2** Which chart is best for your data and key message?
- 3** How will you share your data?

Ann K. Emery

The DataViz Design Process

<http://annkemery.com/dataviz-design-process/>

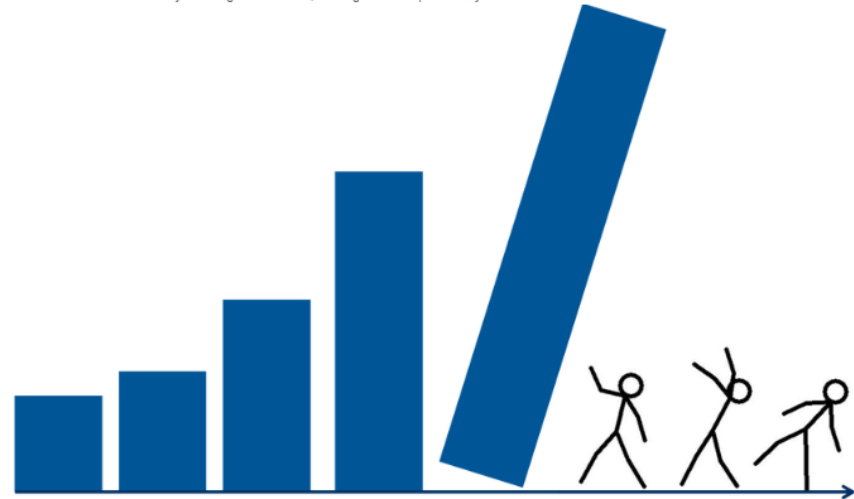
ANN K. EMERY

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THE DATAVIZ DESIGN PROCESS: 7 STEPS FOR BEGINNERS

Does data visualization leave you feeling like this? If so, this beginner-level post is for you!



annkemery.com

Data visualization requires two skillsets: **technical skills** to create visualizations in a software program and **critical thinking skills** to match your visualization to your audience's information needs, numeracy level, and comfort with data visualization.

If you're interested in learning more about technical skills, check out my [Excel for Evaluation](#) chart tutorials and my [Dataviz Challenges](#).

If you're interested in learning more about critical thinking skills, read on! This post outlines a 7-step Dataviz Design Process. My goal is to give you a behind-the-scenes look into the design process so that you feel armed and ready to begin editing your own charts.

Step 1: Select a single message to highlight in your chart

This is, admittedly, the least linear of all the thinking steps in the design process. Rather than relying on computer software or your programming skills, this step involves the most valuable computer of all—your brain. Here are several questions for you to consider: Who is my audience? Which chart is right for my data? How much precision is necessary?

Who is your audience?

Your audience should be your primary consideration. A chart designed for a group of foundation program officers will not be appropriate for a group of high school principals, and vice versa.

Chart Types

Stephanie Evergreen

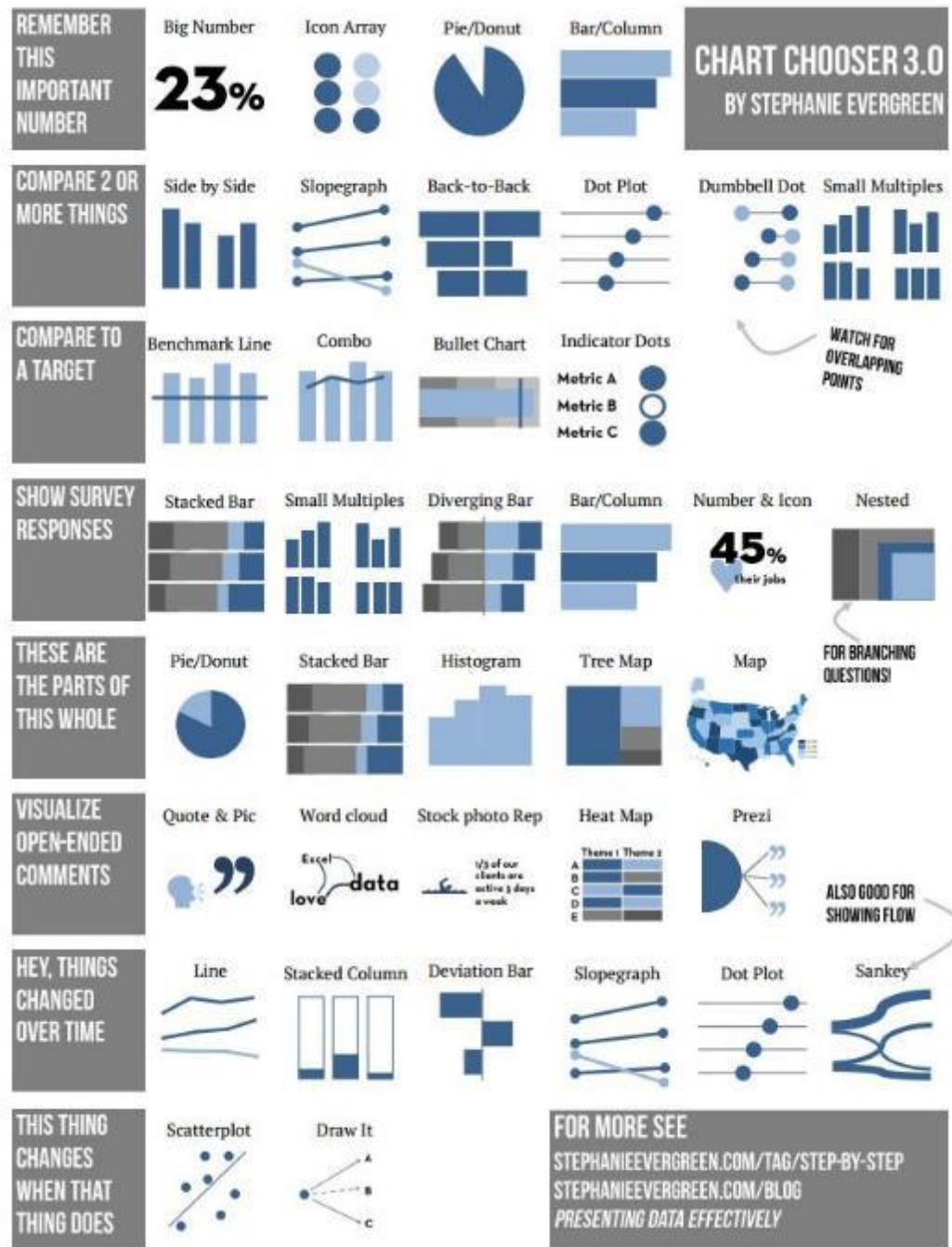
Chart Chooser 3.0

<http://stephanievergreen.com/>

Other: Stephen Few

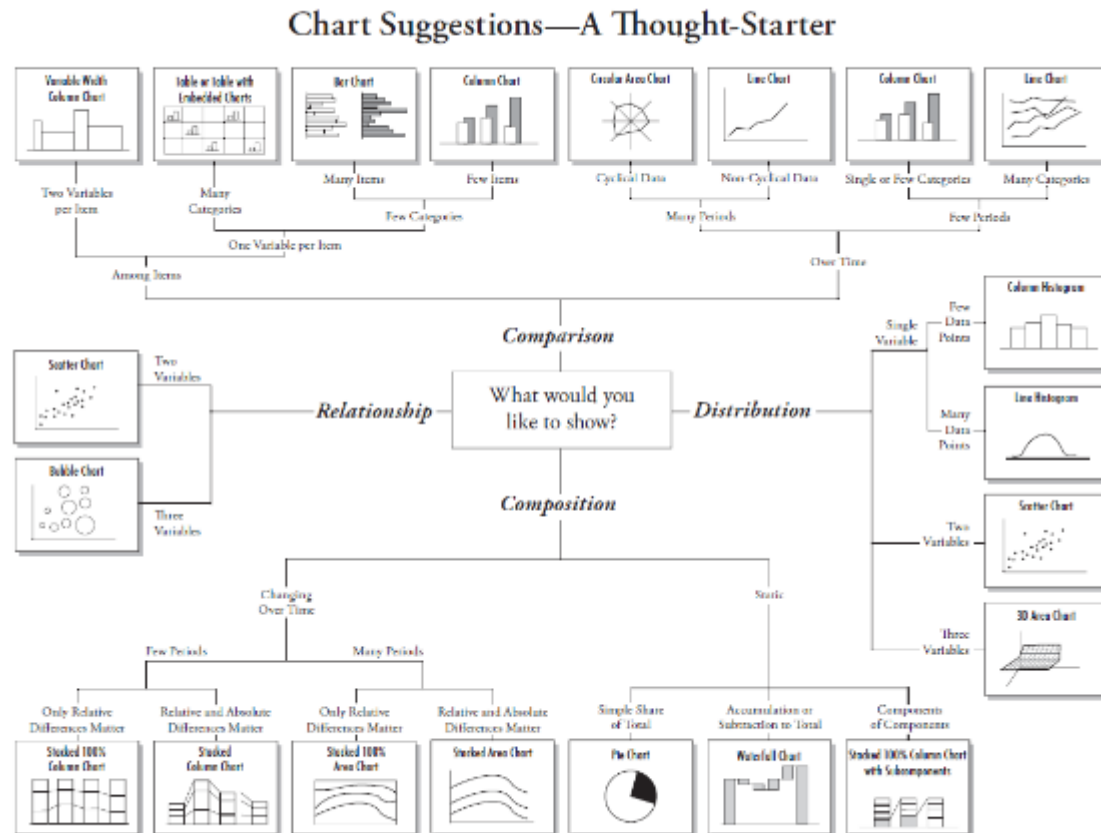
Graph Selection Matrix

<http://www.perceptual-edge.com/library.php#Other>



Abela Folly

Chart Suggestions - A Thought Starter



http://extremepresentation.typepad.com/blog/2006/09/choosing_a_good.html

Jennifer Lyons and Stephanie Evergreen Qualitative Chart Chooser 2.0

The image displays a collection of qualitative chart types organized into several categories:

- DIAGRAMS:** Cluster Map, Flow/Path Diagram, Graphic Recording, Concept Mapping, Venn Diagram, Spectrum Display, Network Mapping, Ripple Effect Mapping, Mind Mapping, Dendrogram, Timeline.
- PICTURES:** Quote and Picture, Indicator Dots, Icons & Color Coding, Change Photos/Diagram.
- QUOTES & WORDS:** Callout Box, Phrase Net, Word Tree, Word Clouds.
- TABLES:** Evidence Matrix, Heat Map.
- Other:** Rating, Histogram.

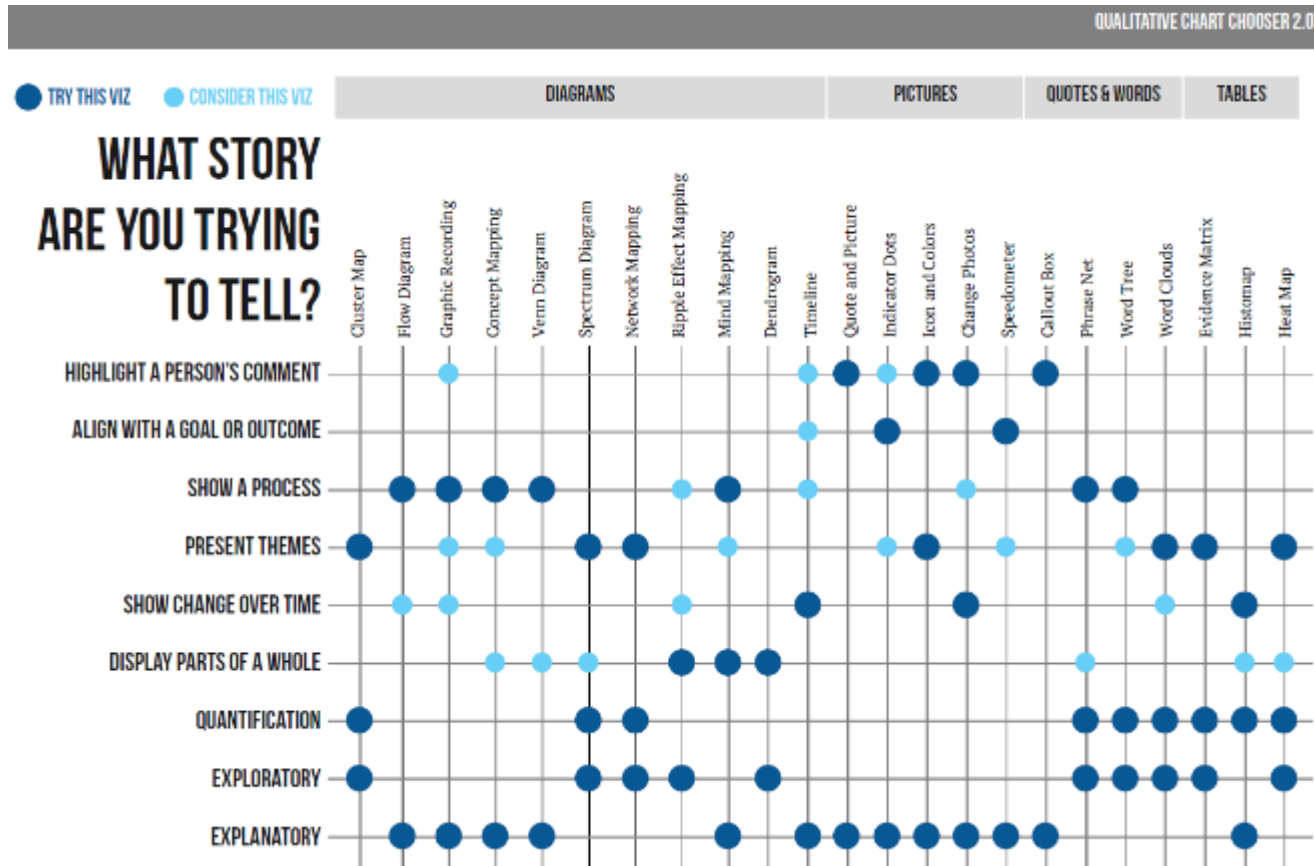
QUALITATIVE CHART CHOOSER 2.0
BY JENNIFER LYONS & STEPHANIE EVERGREEN

FOR MORE SEE
[STEPHANIEEVERGREEN.COM/BLOG](http://stephanieevergreen.com/blog)
PRESENTING DATA EFFECTIVELY
EFFECTIVE DATA VISUALIZATION

<http://stephanieevergreen.com/qualitative-chart-chooser/>

Jennifer Lyons and Stephanie Evergreen

Qualitative Chart Chooser 2.0



<http://stephanieevergreen.com/qualitative-chart-chooser/>

Charts & Dashboards

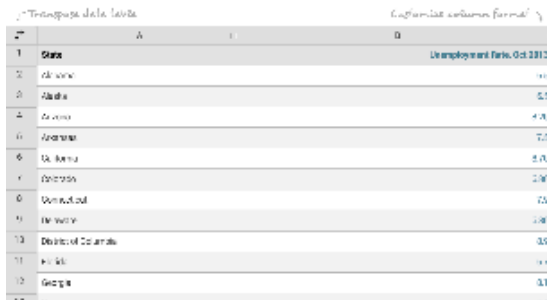
Datawrapper

Create amazing charts yourself in minutes with Datawrapper.

1.

Copy & Paste your data.

You can feed Datawrapper with any data from Excel, CSVs, PDFs or the web.



State	Unemployment Rate, Oct 2013
Alabama	11.1
Alaska	6.5
Arizona	4.8
Arkansas	7.5
California	5.7
Colorado	2.9
Connecticut	7.9
Delaware	3.8
District of Columbia	3.9
Florida	7.1
Georgia	3.1

2.

Select your visualization.

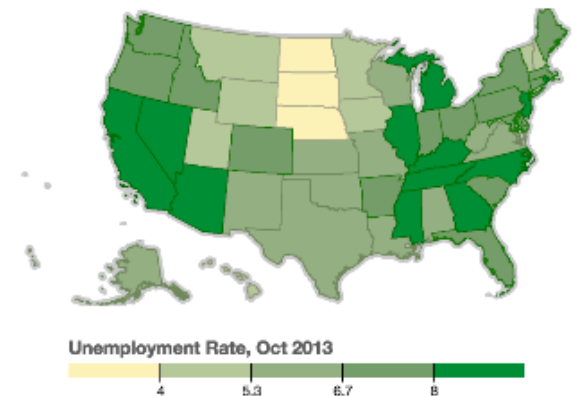
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3.

Watch your engagement rise!

Datawrapper graphs can be embedded into any website or CMS with ready-to-use embed codes.



<https://www.datawrapper.de>

Plot.ly

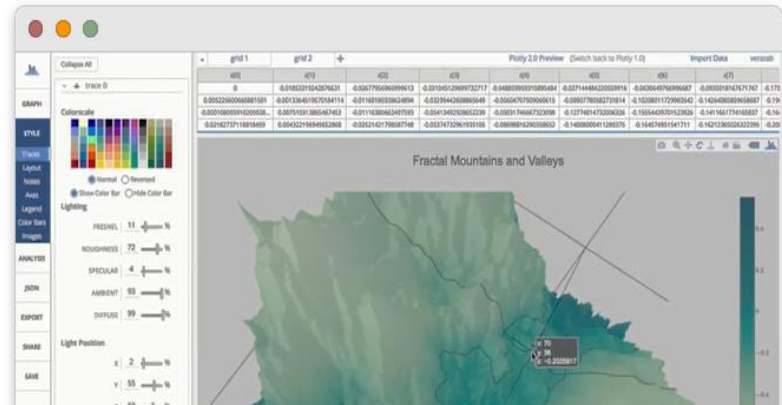
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Create charts

Easily create stunning and informative graphics using our sophisticated, open source, visualization library and our online chart creation tool.

Take a look at the chart types that our APIs support and view our community feed.



<https://plot.ly/>



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The R Project for Statistical Computing

Getting Started

R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To **download R**, please choose your preferred CRAN mirror.

If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

News

- **The R Journal Volume 9/1** is available.
- **R version 3.4.1 (Single Candle)** has been released on Friday 2017-06-30.
- **R version 3.3.3 (Another Canoe)** has been released on Monday 2017-03-06.
- **The R Journal Volume 8/2** is available.
- **useR! 2017** (July 4 - 7 in Brussels) has opened registration and more at <http://user2017.brussels/>
- Tomas Kalibera has joined the R core team.
- The R Foundation welcomes five new ordinary members: Jennifer Bryan, Dianne Cook, Julie Josse, Tomas Kalibera, and Balasubramanian Narasimhan.
- **The R Journal Volume 8/1** is available.
- The **useR! 2017** conference will take place in Brussels, July 4 - 7, 2017.
- **R version 3.2.5 (Very, Very Secure Dishes)** has been released on 2016-04-14. This is a rebadging of the quick-fix release 3.2.4-revised.

<https://www.r-project.org/>

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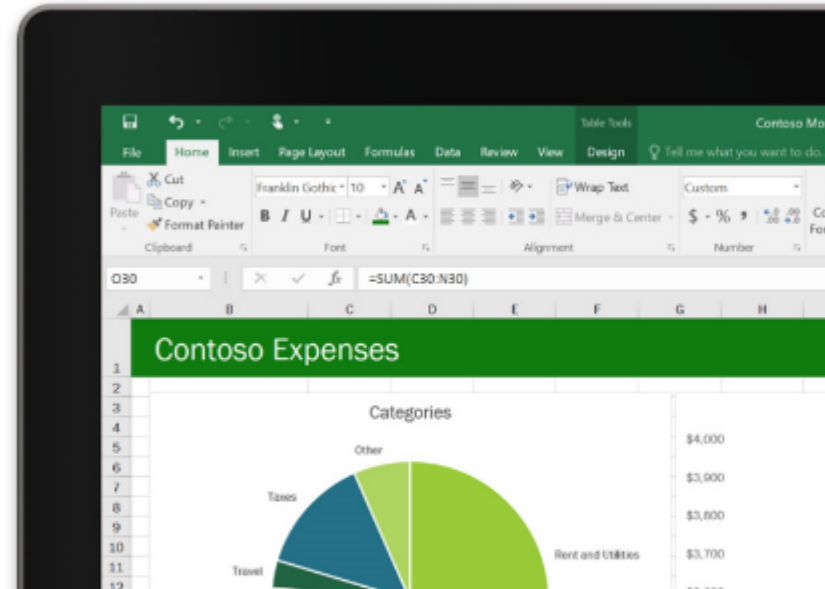
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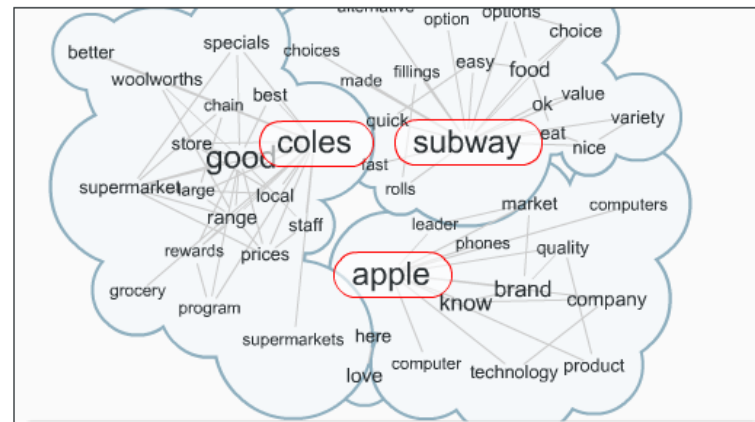
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InstantAtlas

The screenshot shows the InstantAtlas website with the following elements:

- Header:** InstantAtlas logo with tagline "visualize | communicate | ENGAGE". Navigation links for "Products", "Expertise", "Solutions", "Support", "Clients", and "About Us". Language options: "DE | ES | FR | IT | NL | PT | 日本語". "Contact Us" and "Log in" buttons. Esri logo.
- Call to Action:** "CLICK HERE AND TRY FOR FREE" button.
- Product Overview:** "Use Online Tools or Desktop to design and publish atlases, dashboards and reports and link them to your web site or blog." and "Integrate your atlases, dashboards and reports with Server to create a complete community or local information system."
- Product Cards:**
 - Online (A):** "Software as a Service". Includes a "Learn more" button.
 - Desktop (A^D):** "Software bundle for Microsoft Windows, you download and install on your pc or laptop." Includes a "Learn more" button.
 - Server (A^S):** "Hosted service providing data and metadata storage, user management and a customisable web front end." Includes a "Learn more" button.

<http://www.instantatlas.com/products.html>

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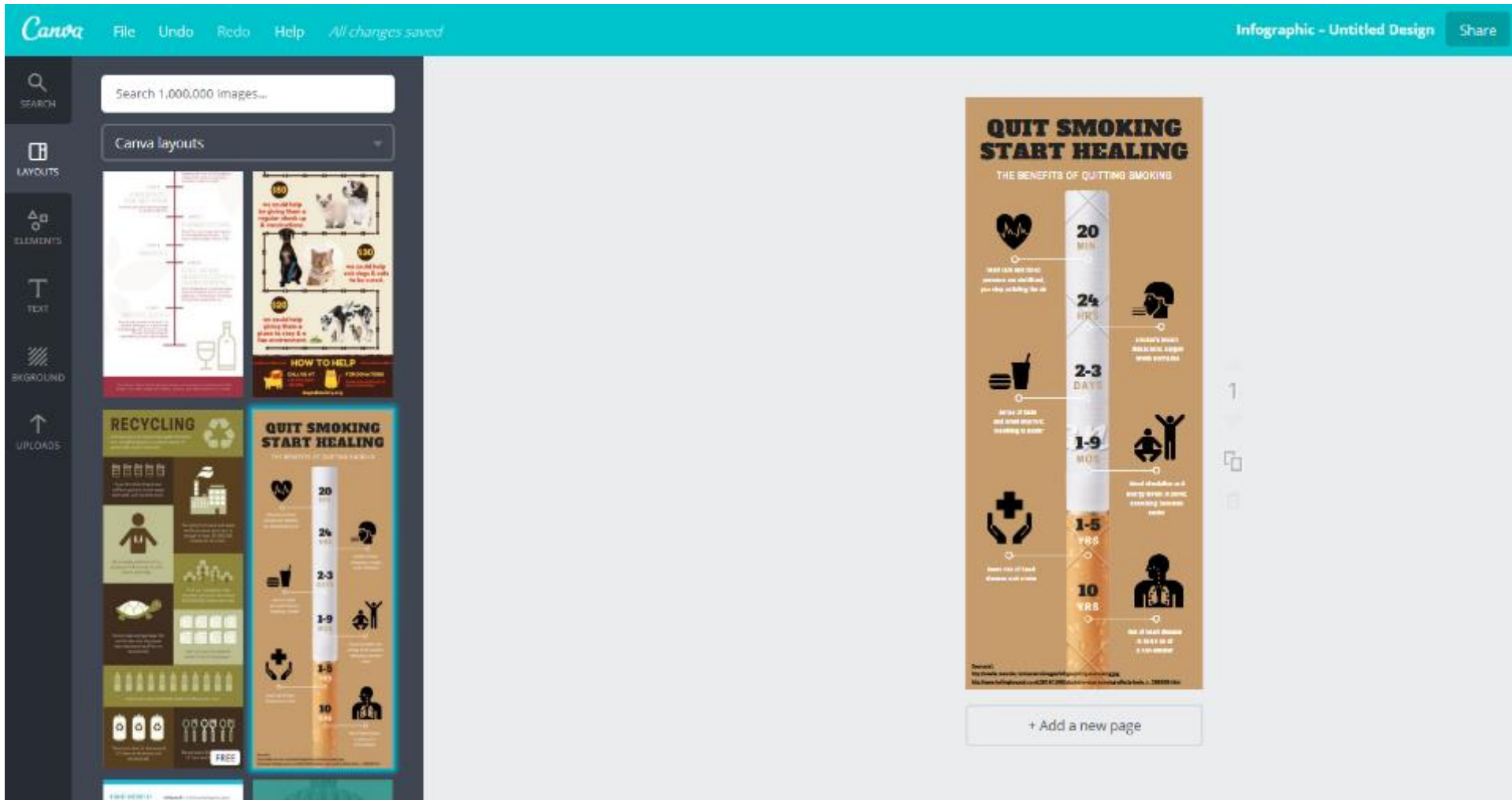
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Chart or Graph



Map

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All Projects



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2016

Category	Value (approximate)
Culture	95
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Woodland	75
Training	65
Art	55
Music	45

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Resources

Colors/Fonts

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- Color Brewer
- Adobe Kuler
- Instant Eyedropper

Fonts

- Font Squirrel
- WhatTheFont

Colorblindness

- Vischeck
- Color Oracle
- Checkyourcolours

Books

Presenting Data Effectively – Stephanie Evergreen

Storytelling with Data – Cole Nussbaumer Knaflic

Effective Data Visualization – Stephanie Evergreen

Show me the Numbers: Designing table and graphs that enlighten – Stephen Few

Now You See It – Simple Visualization Techniques for Quantitative Analysis – Stephen few

The Visual Display of Quantitative Information – Edward Tufte

Websites

Ann Emery

<http://annkemery.com/visualization/>

Stephanie Evergreen

<http://stephanieevergreen.com/>

Stephen Few

<https://www.perceptualedge.com/about.php>

Cole Nussbaumer

<http://www.storytellingwithdata.com/>

Edward Tufte

<https://www.edwardtufte.com/tufte/>

OSH S&E Archive

Intentional Data Visualization – Jennifer Lyons
June 15, 2017

Data Visualization – Katherine Roswell
October 23, 2013

<http://www.tacenters.emory.edu/resources/SEwebinars/>

Questions?

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For more information, contact CDC
1-800-CDC-INFO (232-4636)
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

