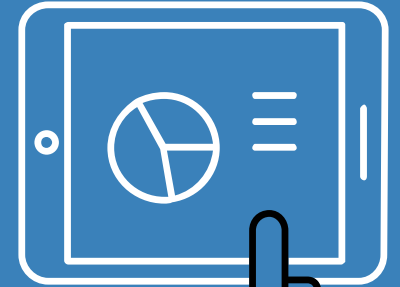
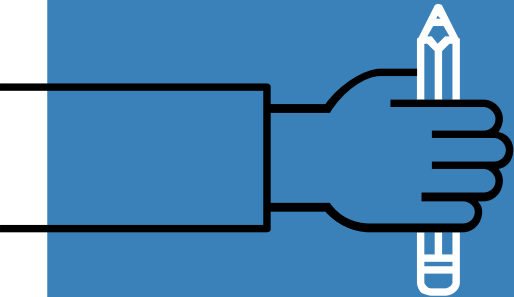
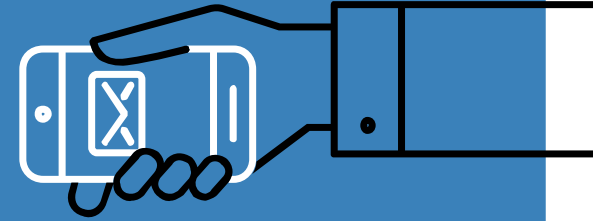
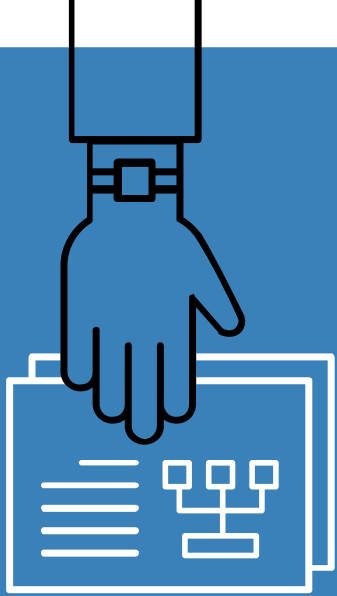


Data Visualization



HELLO!

I am Amanda Johnson

Data Analysis & Communications
Consultant at the State Library of North
Carolina

amanda.johnson@ncdcr.gov

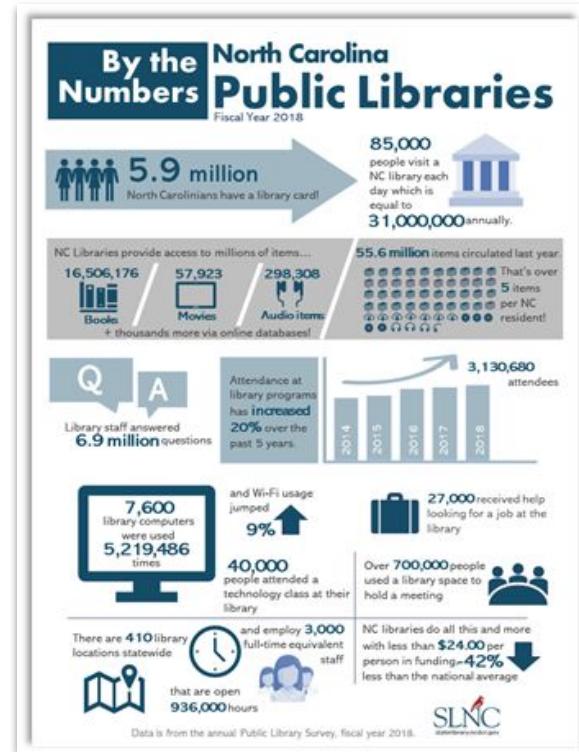


Public Library Data

**Five-Year Statewide Summary
2013-2018**
Statistical Report of North Carolina Public Libraries, July 1, 2017 - June 30, 2018

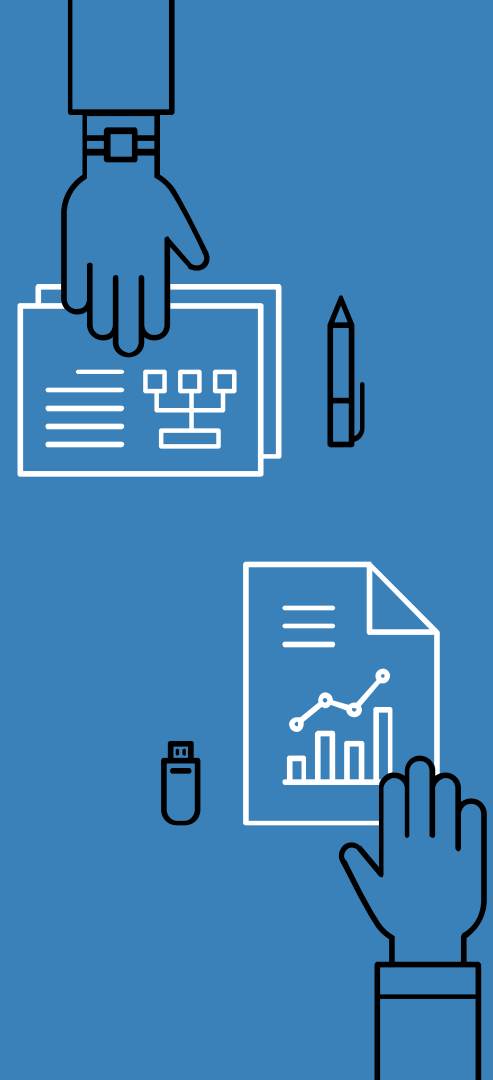
Collections/Circulation						
Year	Total Print Book Volumes	Print Book Volumes Per Capita	Total Print Book Circulation	Print Book Circulation Per Capita	Electronic Materials Usage*	Grand Total Collection Use**
2013-2014	16,791,726	1.67	40,655,365	4.04	2,555,501	3.83
2014-2015	16,035,113	1.59	39,279,024	3.91	3,279,927	4.89
2015-2016	15,563,317	1.55	37,214,186	3.71	11,200,066	3.89
2016-2017	15,523,774	1.52	36,562,723	3.57	13,496,305	5.68
2017-2018	15,446,036	1.50	35,962,805	3.50	12,615,238	4.37
Trend						
Operating Income						
Year	Local Income (\$)	Local Income Per Capita (\$)	Total State Aid (\$)	State Aid Per Capita (\$)	Federal Income	Total Total Income Per Capita (\$)
2013-2014	\$ 103,175,730	\$ 19.12	\$ 13,051,434	\$ 1.30	\$ 1,036,442	\$ 22,603,606
2014-2015	\$ 192,486,470	\$ 19.14	\$ 13,231,062	\$ 1.32	\$ 1,669,041	\$ 23,302,244
2015-2016	\$ 197,069,535	\$ 19.59	\$ 14,207,033	\$ 1.41	\$ 1,811,433	\$ 22,24
2016-2017	\$ 209,554,071	\$ 20.48	\$ 14,796,434	\$ 1.45	\$ 1,607,567	\$ 23,282,819
2017-2018	\$ 205,761,057	\$ 21.00	\$ 14,682,123	\$ 1.42	\$ 1,476,009	\$ 23,64
Trend						
Operating Expenditures						
Year	Personnel Expenses (\$)	Personnel Expenses Per Capita (\$)	Materials Expenses (\$)	Materials Expenses Per Capita (\$)	Other Expenses (\$)	Other Expenses Per Capita (\$)
2013-2014	\$ 142,247,644	\$ 14.14	\$ 21,679,327	\$ 2.16	\$ 38,479,911	\$ 3.83
2014-2015	\$ 140,950,276	\$ 14.72	\$ 22,816,653	\$ 2.27	\$ 39,458,025	\$ 3.93
2015-2016	\$ 151,554,562	\$ 15.07	\$ 23,218,977	\$ 2.32	\$ 41,607,747	\$ 4.12
2016-2017	\$ 157,518,616	\$ 15.39	\$ 25,630,509	\$ 2.50	\$ 42,826,570	\$ 4.19
2017-2018	\$ 162,742,139	\$ 15.84	\$ 26,903,327	\$ 2.62	\$ 43,275,525	\$ 4.21
Trend						
Service Measures						
Year	Reference Questions	Reference Questions Per Capita	Library Visits	Library Visits Per Capita	Registered Borrowers	Public Computer Usage Annual Hours
2013-2014	6,723,220	0.67	35,106,249	3.49	5,059,879	7,806,899
2014-2015	6,718,908	0.67	35,523,423	3.53	5,128,257	7,340,714
2015-2016	6,421,224	0.64	33,462,021	3.33	5,497,023	6,576,993
2016-2017	6,346,172	0.63	32,823,293	3.19	5,647,452	6,324,998
2017-2018	6,319,634	0.63	31,263,694	3.06	5,968,950	5,219,486
Trend						
Program/FTE Staff Measures						
Year	Total Programs	Program Attendance	Program Attendance Per Capita	Total ALA/MLS	FTE Staff	FTE Staff Per 25,000 Pop.
2013-2014	129,071	2,405,432	0.24	719	2,937	1.17
2014-2015	126,622	2,437,782	0.27	744	2,966	1.17
2015-2016	141,704	2,863,203	0.30	764	3,038	1.21
2016-2017	146,417	3,027,660	0.30	683	3,059	1.21
2017-2018	146,864	3,120,690	0.31	691	3,077	1.21
Trend						

*2015-16 includes database usage along with ebooks, downloadable audio, downloadable video, and eperiodicals for the first time.
**The number also includes database usage for the first time.



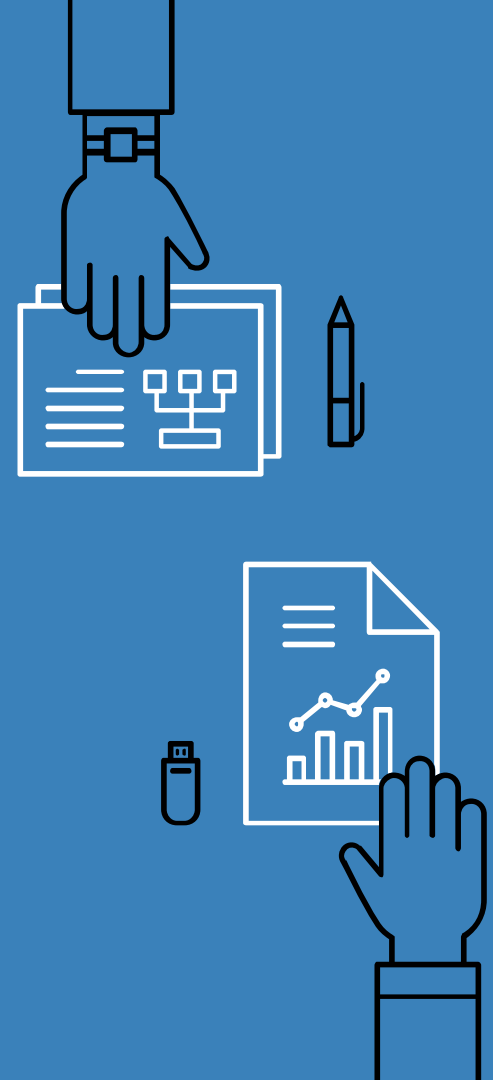
Agenda

- Effective visualization principles
- Quick and easy tips to improve any visualization
- Design principles

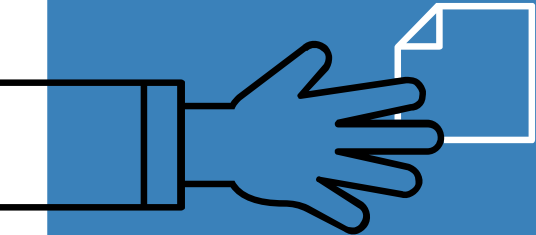
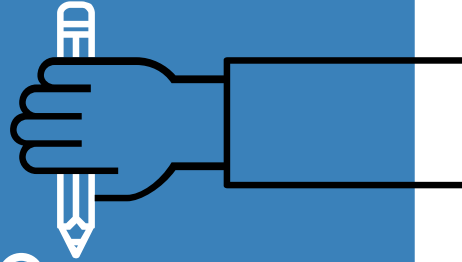


Why data visualization?

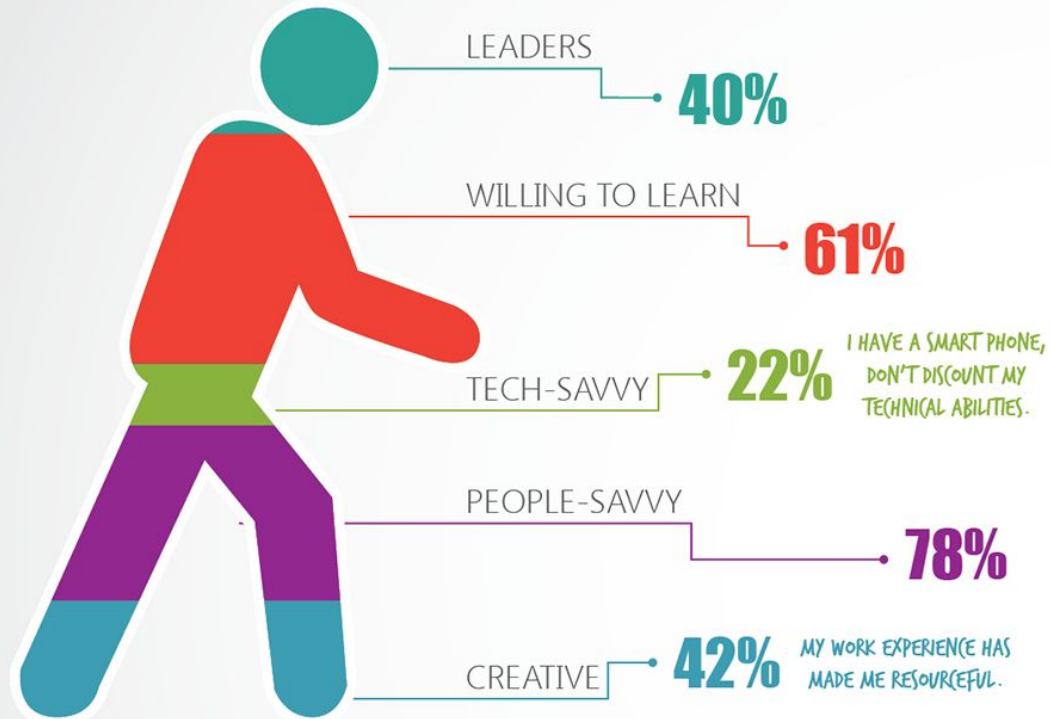
- ▶ Comprehend information quickly
- ▶ Find patterns & relationships in data
- ▶ Identify trends
- ▶ Communicate data



1. Building effective visualizations

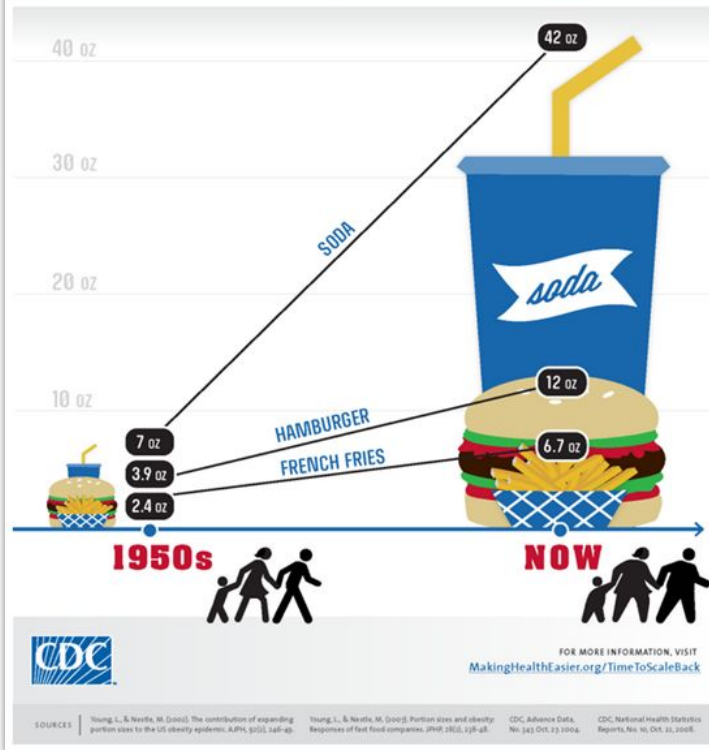


HOW BABY BOOMERS DESCRIBE THEMSELVES

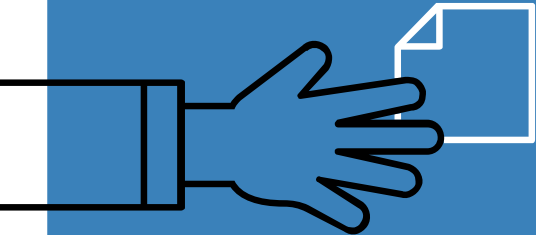
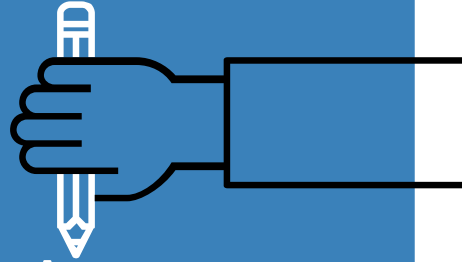


THE NEW (AB)NORMAL

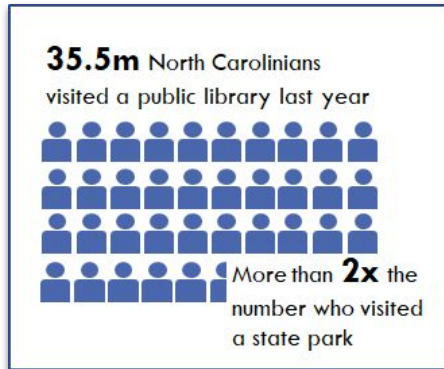
Portion sizes have been growing. So have we. The average restaurant meal today is more than four times larger than in the 1950s. And adults are, on average, 26 pounds heavier. If we want to eat healthy, there are things we can do for ourselves and our community: Order the smaller meals on the menu, split a meal with a friend, or eat half and take the rest home. We can also ask the managers at our favorite restaurants to offer smaller meals.



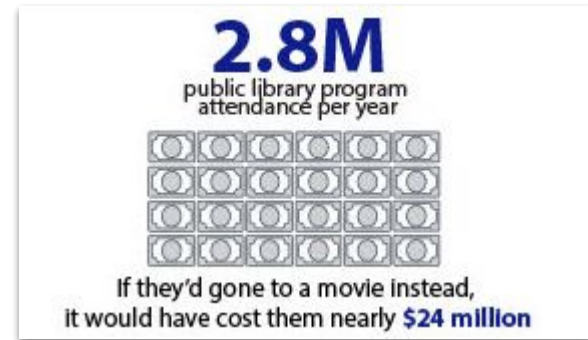
2. Quick and easy tips to improve any visualization



Tip: Provide context for numbers

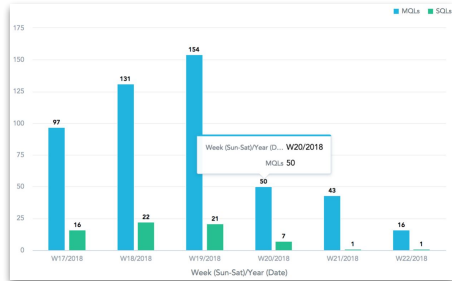


[Source](#)



[Source](#)

Tip: Choose charts wisely



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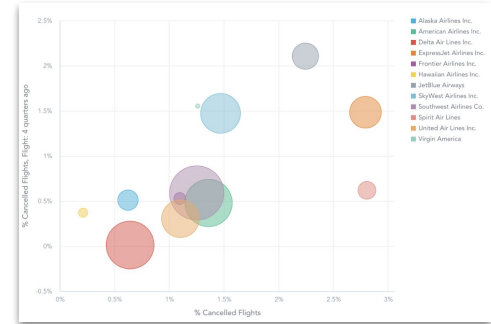


Chart Types: Line Chart

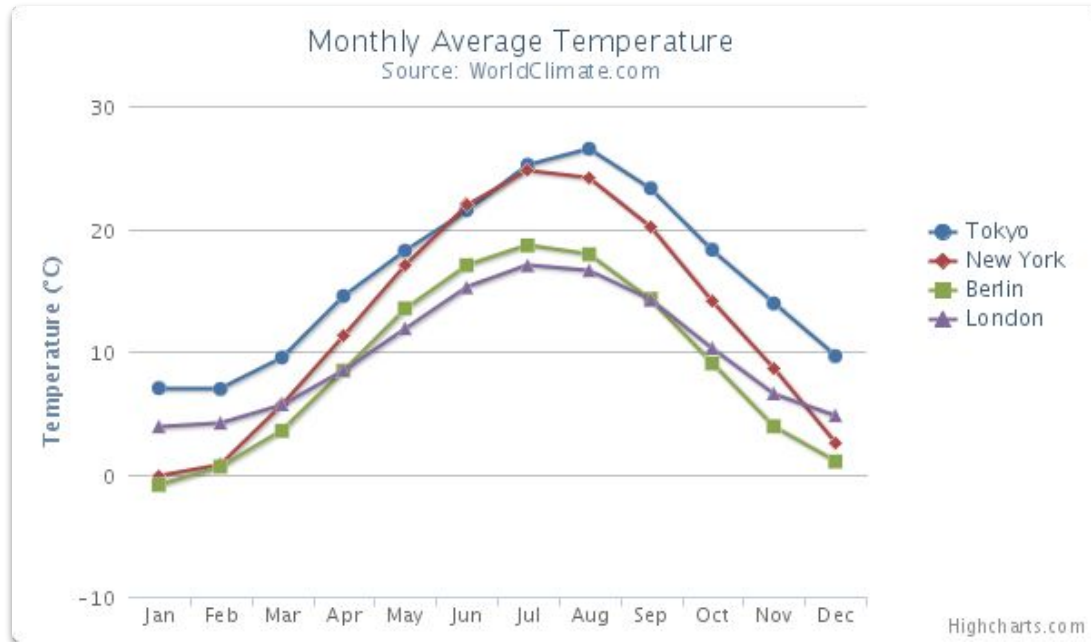
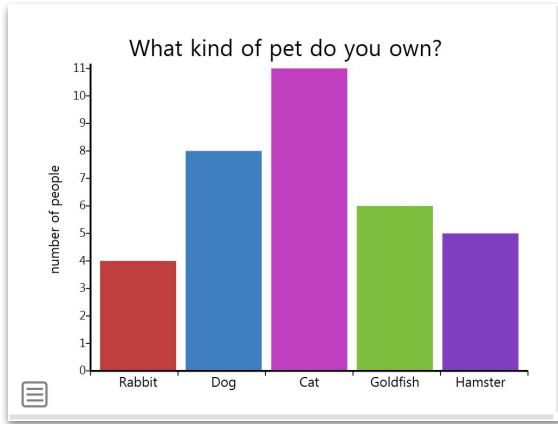


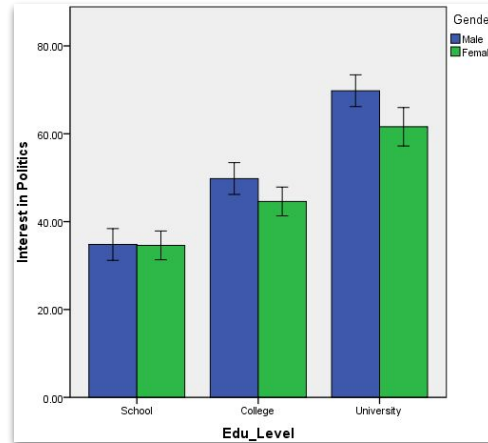
Chart Types: Bar Chart

Basic bar chart



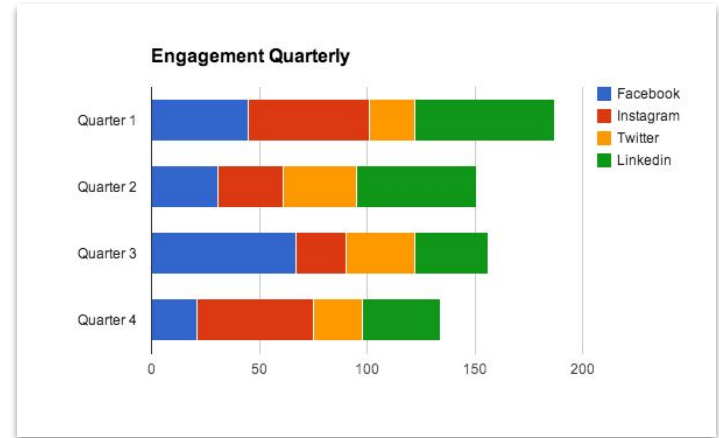
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Grouped bar chart



[Source](#)

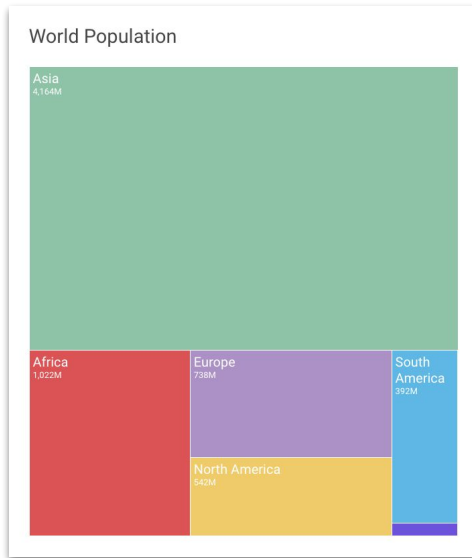
Stacked bar chart



[Source](#)

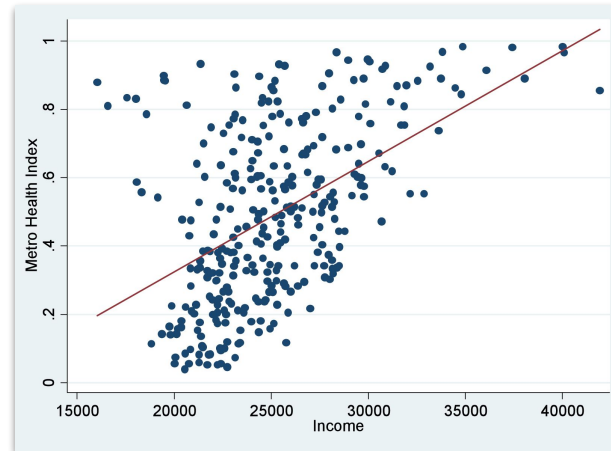
Chart Types: Other Charts

Treemap



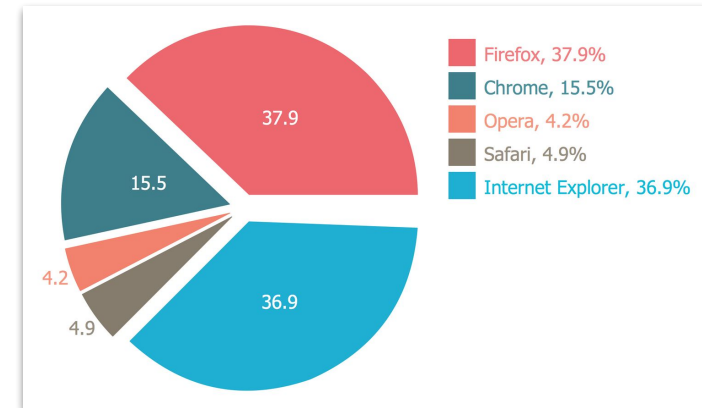
[Source](#)

Scatter Plot



[Source](#)

Pie Chart



[Source](#)

Chart Types: Excel

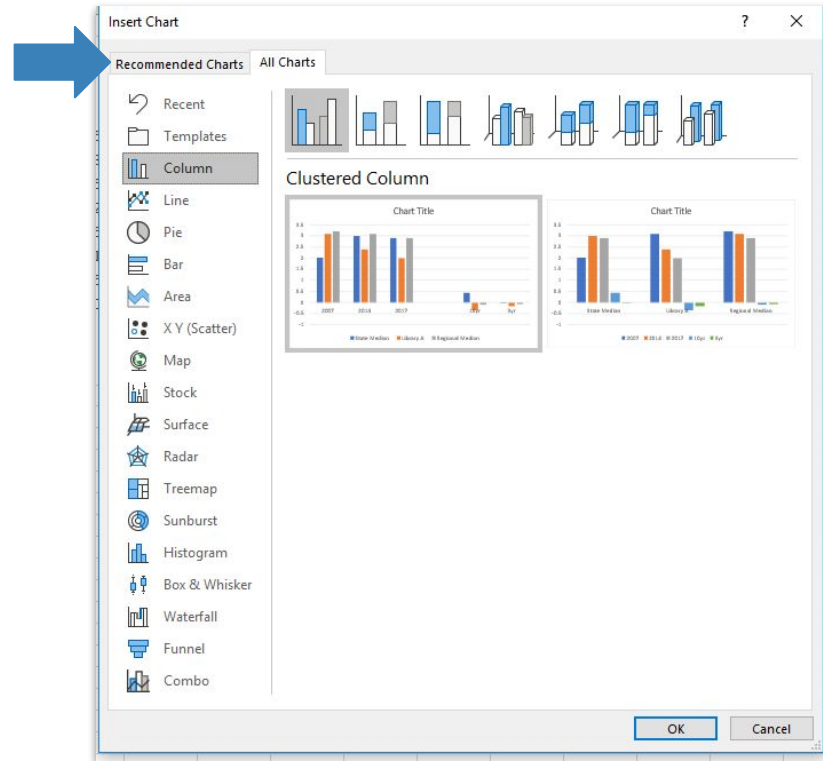
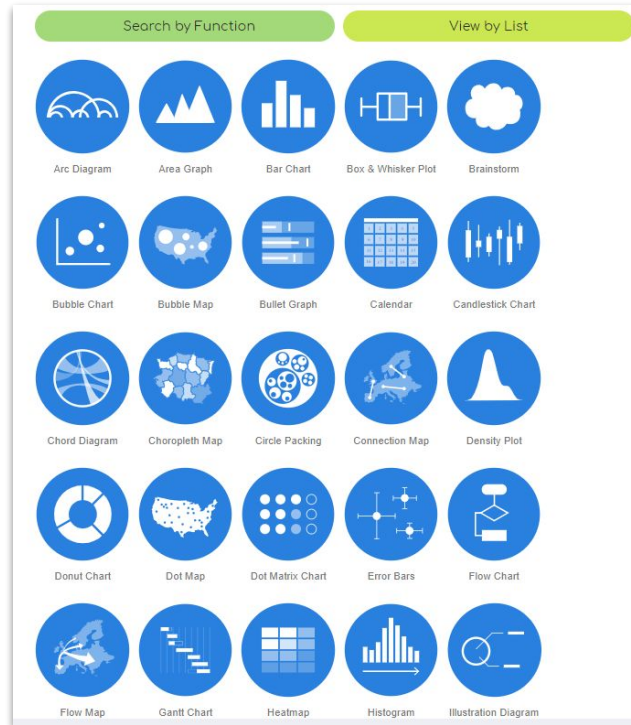
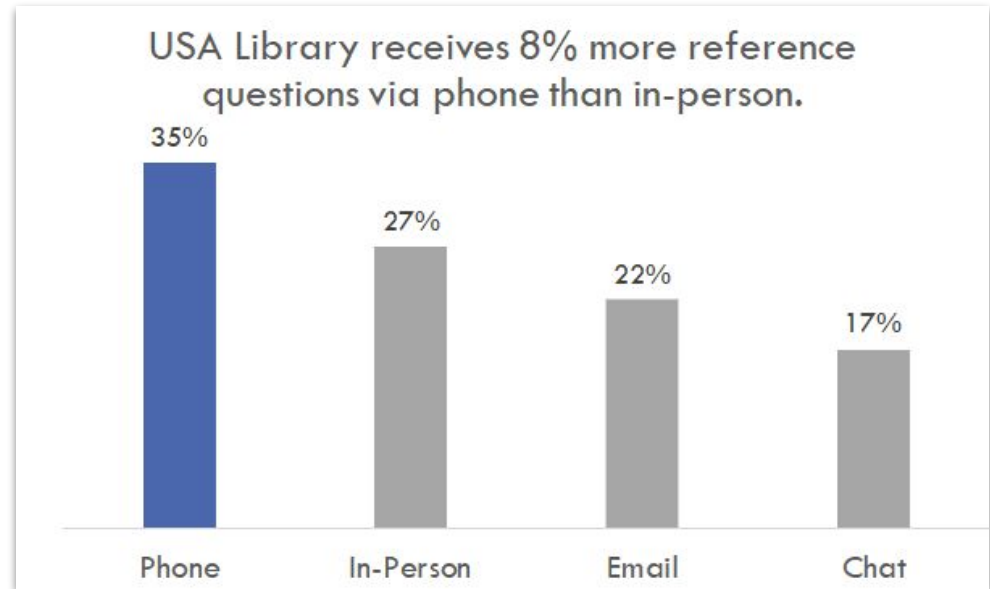
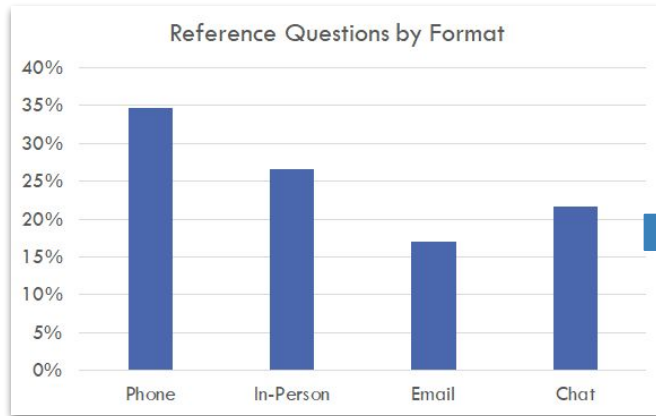


Chart Types: Even more

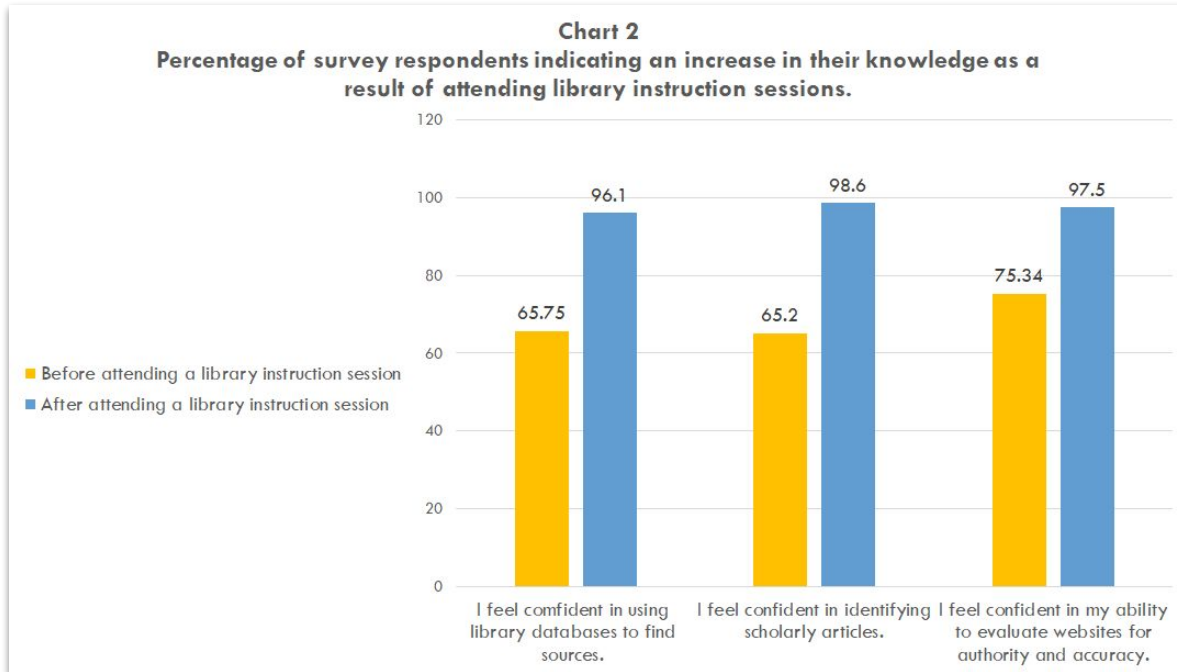
Data Viz Catalogue Chart Picker



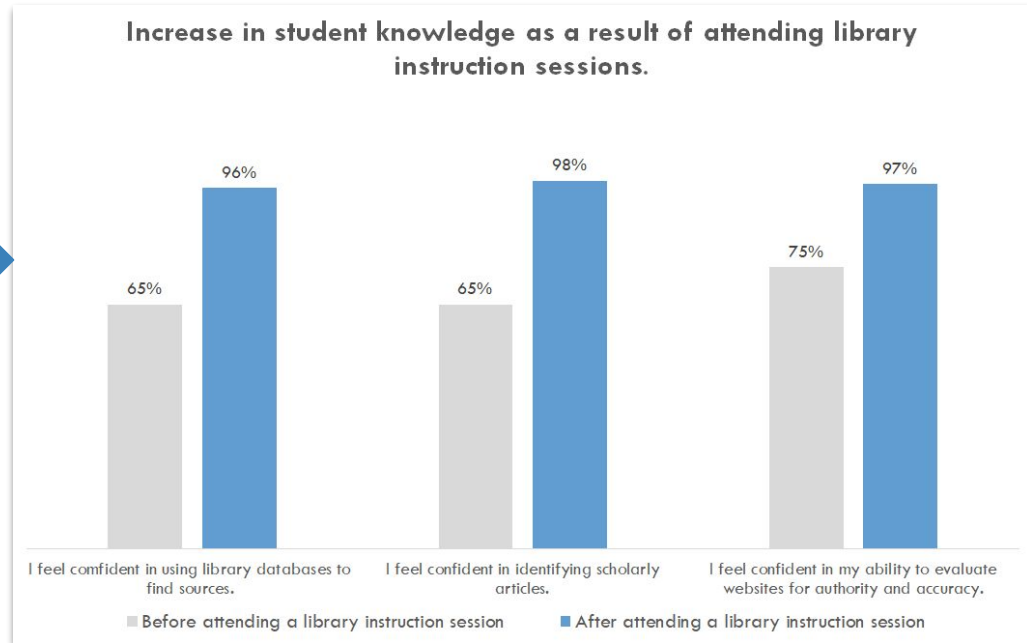
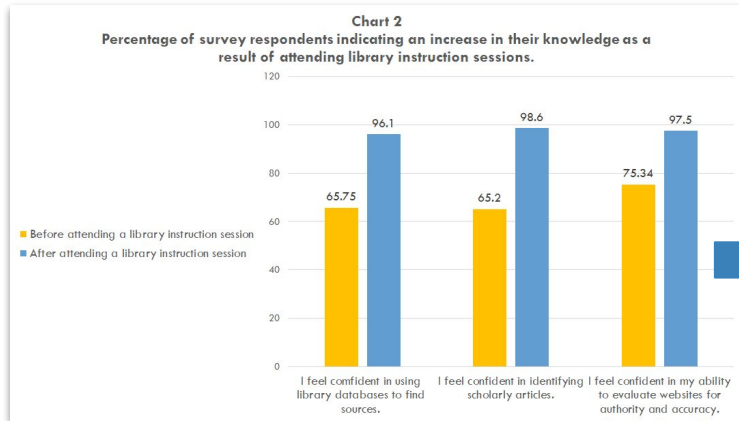
Tip: Do the work for your audience



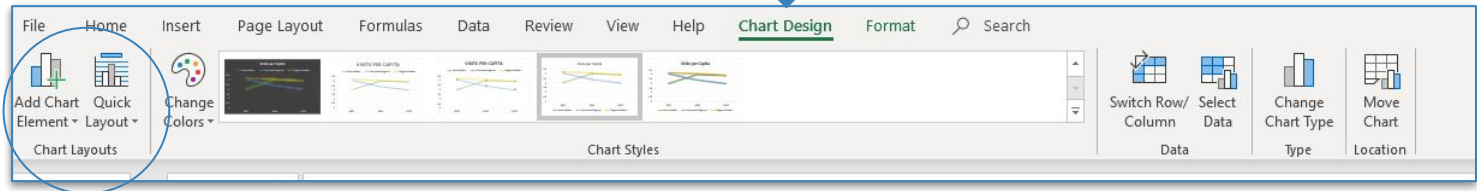
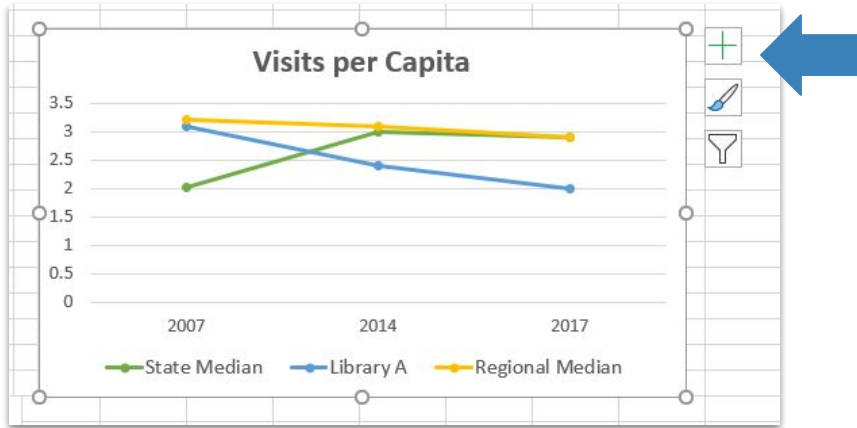
Tip: Do the work for your audience



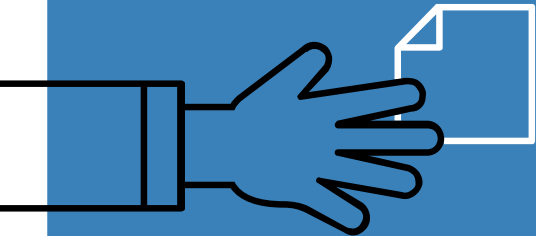
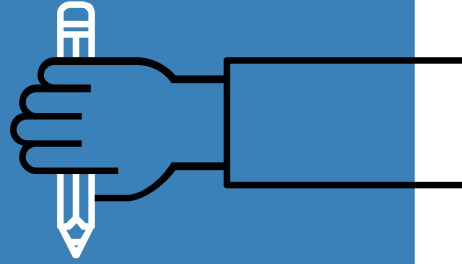
Tip: Do the work for your audience



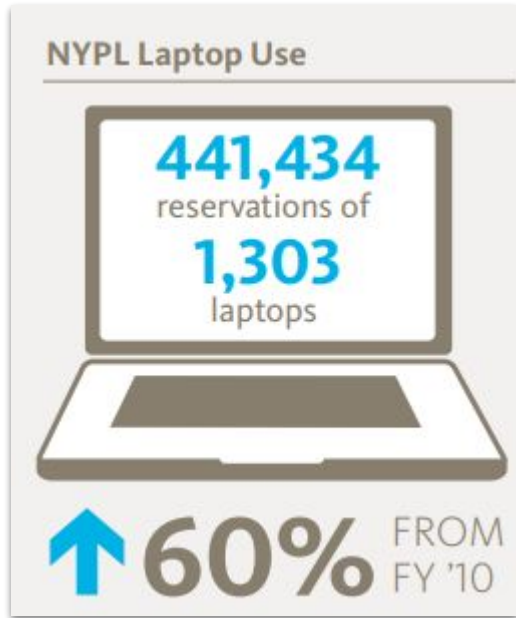
Tip: Do the work for your audience



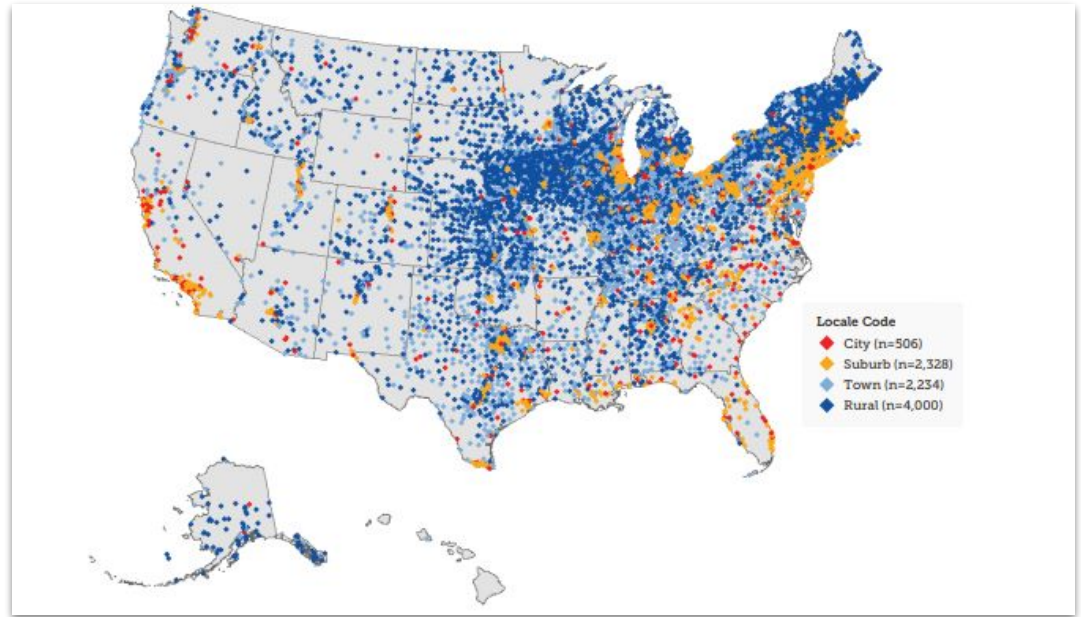
3. Design principles



Graphics: Show rather than tell



[Source](#)

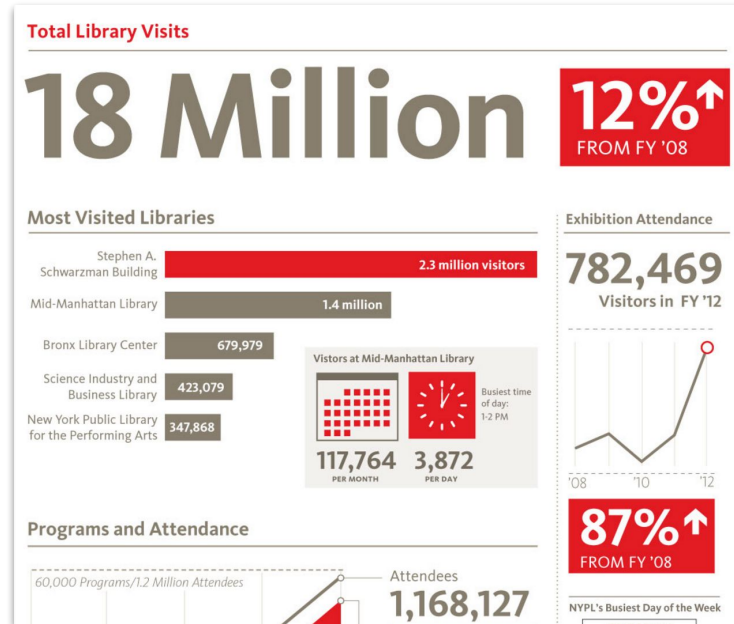


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Font: Limit to three

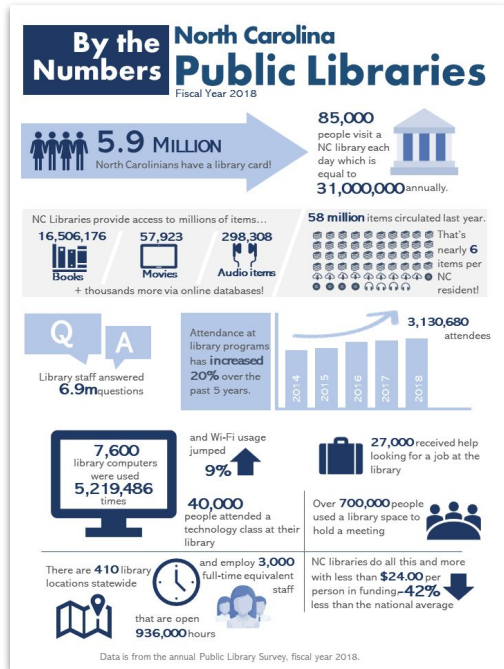


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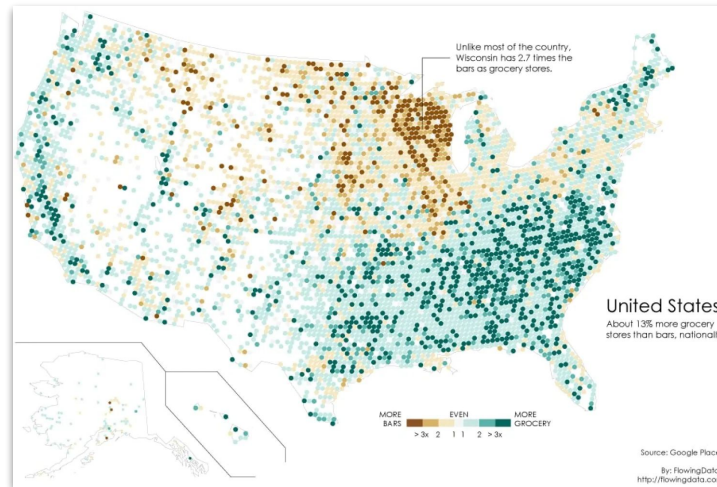


[Source](#)

Colors: Grab attention



[Source](#)



[Source](#)

ANSWERS

11,407,155
Views of library web pages in 2014

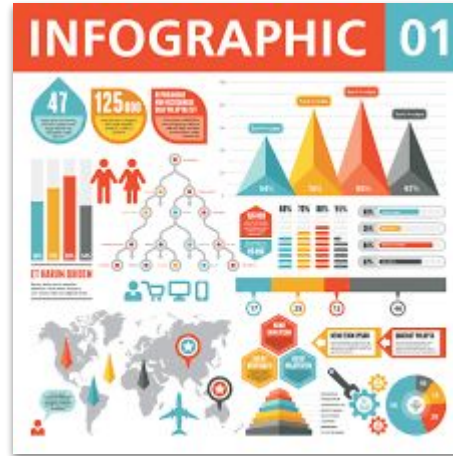
(That's a lot of answers!)

[Source](#)

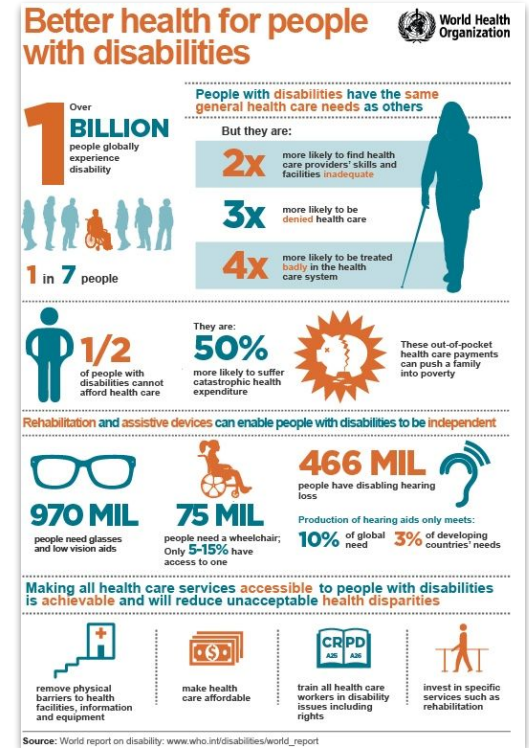
Arrangement: Visual organization



[Source](#)



[Source](#)



[Source](#)

Resources

Visualization tools:



Graphic design tools:

