ArcGIS Online: Using Map Styles to Discover and Define Your Web Map’s Purpose

Jeremy Bartley @mapdex
Jim Herries @jherries
Map Styles to Match Your Purpose

- Smart Mapping styles
- Data exploration
- Find a map’s signal
- More signal, less noise
- Finding a Purpose
- Smart Mapping styles
Smart Mapping

Explore your data

Smart mapping functionality will automatically analyze your data and make data-driven styling suggestions, meaning less guesswork for you. Just click on change style to quickly begin exploring your data.

Understand your data

Once you've settled on a map style, you can gain an understanding of your data by trying different visualization approaches. With smart mapping themes, you can visualize your data from high to low values, above and below a certain threshold, or particular ranges such as the extreme values.

Find meaning in your data

With smart mapping, your data, style, and visualization all come together to show the story you want to tell. Make a beautiful thematic map. You are able to discover meaning hidden within your data.

esri.com/smartmapping
Online and Enterprise
Smart mapping

• It should be easy to make visually stunning maps that tell the stories you want to tell
• Smart mapping analyzes your data and suggests the best ways to represent it
• Responsive, immediate feedback helps you explore your data, and focus on the story in your data and maps
Click on any map to view it.
Map styles for:
where, what, when, how much, who
Map “where” – the location of features

**Sonic restaurants**

**Visiting History in Ireland**
Map “what” – a dimension of features

- Your attribute data contains dimensions and measures

- Common dimensions:
  - Type
  - Name
  - Class
  - District
  - Territory
  - Zone
  - Route
  - Level
  - Category

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functional Class</td>
<td>Total Crashes</td>
</tr>
<tr>
<td>Urban Collector</td>
<td>12</td>
</tr>
</tbody>
</table>
Map “what” – a dimension of features

Fire Hydrants by water pressure zone

NYC Subways
*Open data + smart mapping styles = gold*

Aquifer Storage Threat Level

2017 Mid Year Priorities of State CIOs
Map “what” relationship exists between two attributes

Drinkers and Smokers
Map “what” is predominant among several attributes in your data

**Predominant Income Groups**

**Type of Crime Most Predominant**
Map “when” – a dimension of features

Show Time in Your Maps

Many datasets contain a date or time field, but showing them in the map can be a challenge. ArcGIS Online has new map styles that allow you to visualize information found in date and time fields. These new time styles reveal patterns of new and alive and show the age of things on the map.

These smart mapping styles allow you to view overall patterns of time.

For example, this map shows streets in Minneapolis based on when their condition was last inspected. White streets have been inspected more recently, while dark purple streets were inspected at an earlier date. You can immediately see a pattern of areas which might be due for another inspection.

To show time in your map, simply select the date/time attribute within your data.

Once you have selected your date/time field, you can choose to show time with a continuous timeline, or by the age of the features. The map you see here uses a continuous timeline style; the colors are shaded continuously across a range of date values.

For this map, ages are shown as years since the street was last inspected.
Map “when” – a dimension of features

Trail experience (time and slope)
Map “how much” – a **measure** of features

- Your attribute data contains dimensions and **measures**
- **Common measures:**
  - Counts
  - Totals
  - Percentages
  - Rates
  - Averages
  - Medians
  - Ratios
There are seniors everywhere, but clearly snowbirds are clustering in southern areas.

Nationally, only 15% of the population are seniors.
Map “how much” – a measure of features

Powerplant Production

Vehicle Collisions per Mile

Too much data? Focus.
E.g. use a map style with a filter to focus in on unprofitable sales

Population Change
Add clarity at each step, each iteration.
Despite best available data, sometimes people see what they want to see.
A Basis for Comparison Helps Clarify Proper Interpretation

<table>
<thead>
<tr>
<th>Attendee</th>
<th>Name</th>
<th>BodyTempF</th>
<th>BodyTempC</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>121</td>
<td>Jeremy Bartley</td>
<td>98.6</td>
<td>37.1</td>
<td>normal</td>
</tr>
<tr>
<td>122</td>
<td>Jim Herries</td>
<td>98.6</td>
<td>37.1</td>
<td>normal</td>
</tr>
<tr>
<td>123</td>
<td>S. Neez</td>
<td>99.1</td>
<td>37.5</td>
<td>fever</td>
</tr>
<tr>
<td>124</td>
<td>G.R. Ump-i</td>
<td>103</td>
<td>39.5</td>
<td>high fever</td>
</tr>
</tbody>
</table>

A map that compares

![Temperature Scale](image1)

![Seating Chart](image2)
What is your map’s basis for comparison?

“Everybody know that…”
“Some people know that…”
“Nobody knows this…”
“Is this even relevant?”

C-Level (CEO, mayor)
Gatekeepers (chief of staff)
Management
Workers
Public
Sometimes mapmakers bury the message
Map “how much” intensity in your data (counts and rates)

Water usage
Map “how much” intensity in your data

Energy Score app and scene

Voting results
Map “who” lives within or nearby

Enrich your locations to add value to your GIS data

Here, we enriched each library with population counts within a 1 mile walk of each library, and show growing populations in green.

Changing the style to white transparent symbols works well with this map of potential English learners.
Smart maps let the policy goal speak

CDC baseline 27.1%, HealthyPeople target goal: <24.3%
Blue indicates counties above or near target goal.
Smart maps let the problem speak
Smart maps let the layers talk to each other

Your popup in one layer can summarize data from another layer, no pre-processing required
So, ask a better question! **How many federal lands are found in this congressional district?**
A basemap for every purpose

- You are not limited to the basemaps in these pulldowns
- Creative vector basemaps group
- Build your own
Resources

Smart Map Tutorials
- How to Smart Map
- How to Smart Map Color
- How to Smart Map Color and Size
- How to Smart Map Heat Maps

Videos
- Data Driven Design for Your Maps
- Smart Mapping
- Smart Mapping for Election Results
- Smart Mapping in ArcGIS Online
- Building a Web App for Data Exploration
- Predominance

Resources
- Developers
- ArcGIS Pro
- ArcGIS Online
- ArcGIS Enterprise
- Learn ArcGIS

Blogs
- See our Blog

Arcade Expressions and You

Arcade expressions allow for customizations owned by lisa_berry

Description
This collection of maps are available as examples opened and reviewed, along with the expressions.

Arcade Expressions & You group

https://developers.arcgis.com/javascript

http://www.esri.com/smartmapping
Blogs and Story maps

https://www.esri.com/arcgis-blog/?s=#&tag=smart-mapping
Questions !
Please Share Your Feedback in the App

Download the Esri Events app and find your event

Select the session you attended

Scroll down to “Survey”

Log in to access the survey

Complete the survey and select “Submit”