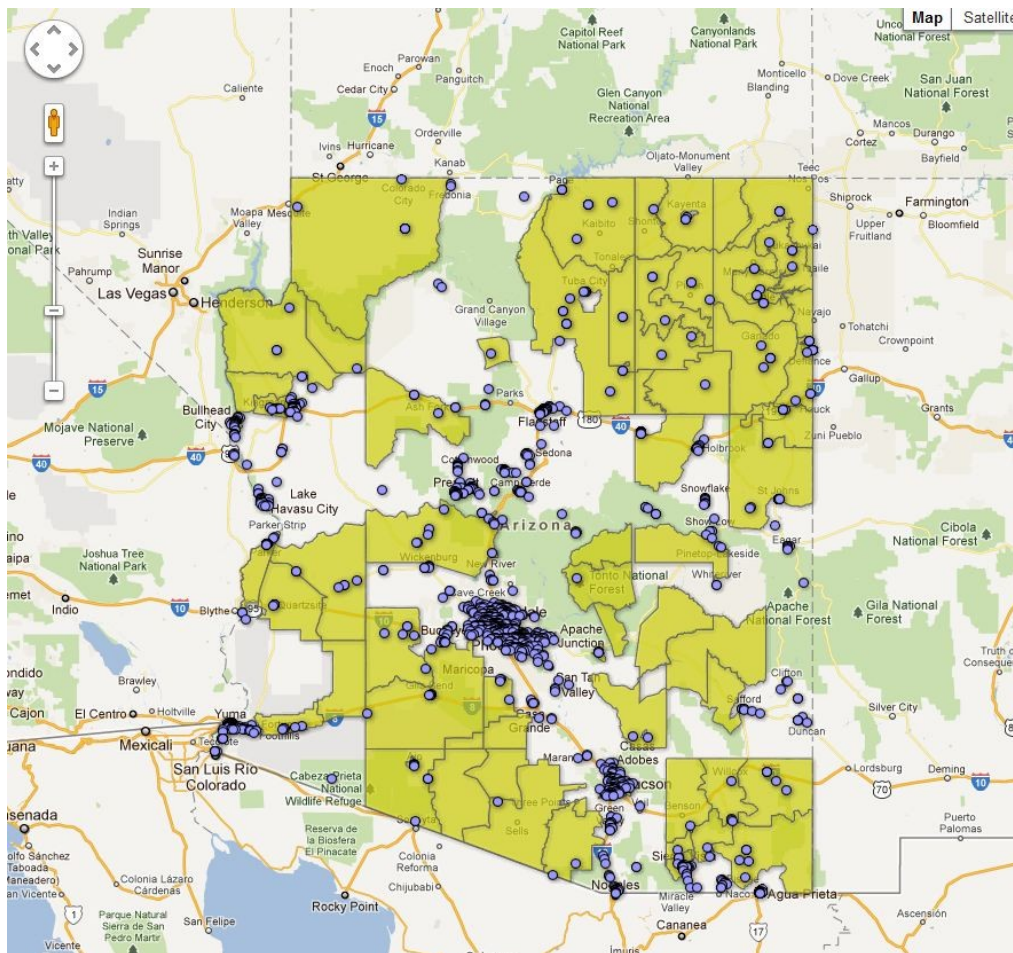


# Data Visualization with Google Fusion Tables

a.k.a Don't Be Scared. It's Not That Hard.

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Google Fusion Tables. It's just a phrase that means you can take data and display the data on a map so that it looks like this:



All those blue dots are various stores in Arizona that accept food stamps. For the whole article that was written about this, go to <http://cronkitenewsonline.com/2011/12/eating-healthy-in-a-desert-many-on-government-assistance-struggle/>. I put this map together as a visual for a reporter's story about food deserts in Arizona. Building the map didn't take much time – in fact, it was fixing the Excel sheet that took more than 10 hours. So, let's start with the Excel sheet,

which is Step 1 in creating a map. Your map, of course, will be much simpler than the map I just showed you.

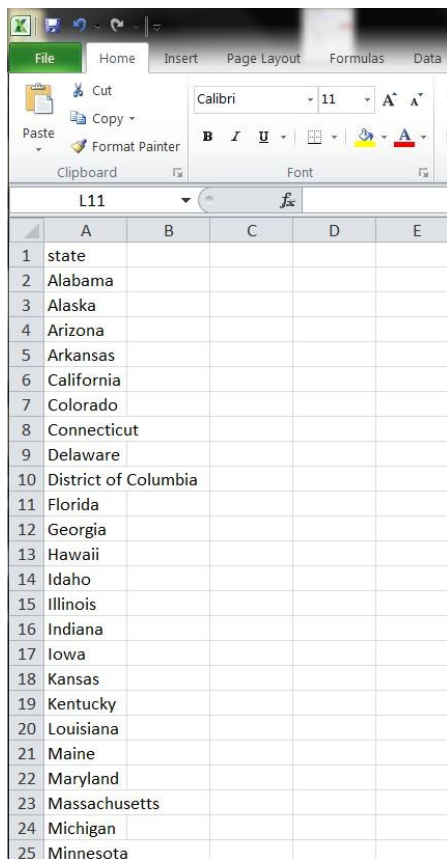
## Step 1: Open Excel

## Step 2: Create new document

## Step 3: Insert your data

Maps visualize all sorts of data. For this map, you are going to show where Arizona ranks in terms of available and affordable low income housing (ELI per 1000 is the official term)

To collect your data, you sometimes don't have it all in one nice place. In this case, we have a list of the numbers associated with each state already, which is nice. So, start inserting the state names into your Excel document like this:



The screenshot shows the Microsoft Excel interface. The ribbon is set to 'Home', and the 'Font' group is visible, showing 'Calibri' font and '11' size. The active cell is L11. The spreadsheet contains a list of US states in column A, starting from row 1. The states listed are: state, Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, and Minnesota.

	A	B	C	D	E
1	state				
2	Alabama				
3	Alaska				
4	Arizona				
5	Arkansas				
6	California				
7	Colorado				
8	Connecticut				
9	Delaware				
10	District of Columbia				
11	Florida				
12	Georgia				
13	Hawaii				
14	Idaho				
15	Illinois				
16	Indiana				
17	Iowa				
18	Kansas				
19	Kentucky				
20	Louisiana				
21	Maine				
22	Maryland				
23	Massachusetts				
24	Michigan				
25	Minnesota				

Continue until you have all of them. Now, create a new list to the right titled "ELI per 1000". This list is the numbers part. Type in the numbers as you see here. The final list should look like this:

	A	B	C
1	state	ELI per 1000	
2	Alabama	38	
3	Alaska	39	
4	Arizona	20	
5	Arkansas	34	
6	California	21	
7	Colorado	26	
8	Connecticut	38	
9	Delaware	33	
10	District of Columbia	40	
11	Florida	23	
12	Georgia	28	
13	Hawaii	33	
14	Idaho	33	
15	Illinois	28	
16	Indiana	30	
17	Iowa	39	
18	Kansas	35	
19	Kentucky	35	
20	Louisiana	37	
21	Maine	51	
22	Maryland	37	
23	Massachusetts	42	
24	Michigan	27	
25	Minnesota	40	
26	Mississippi	37	
27	Missouri	35	
28	Montana	48	
29	Nebraska	34	
30	Nevada	17	
31	New Hampshire	37	
32	New Jersey	30	
33	New Mexico	30	
34	New York	32	
35	North Carolina	33	
36	North Dakota	45	
37	Ohio	31	
38	Oklahoma	38	
39	Oregon	22	
40	Pennsylvania	36	
41	Rhode Island	49	

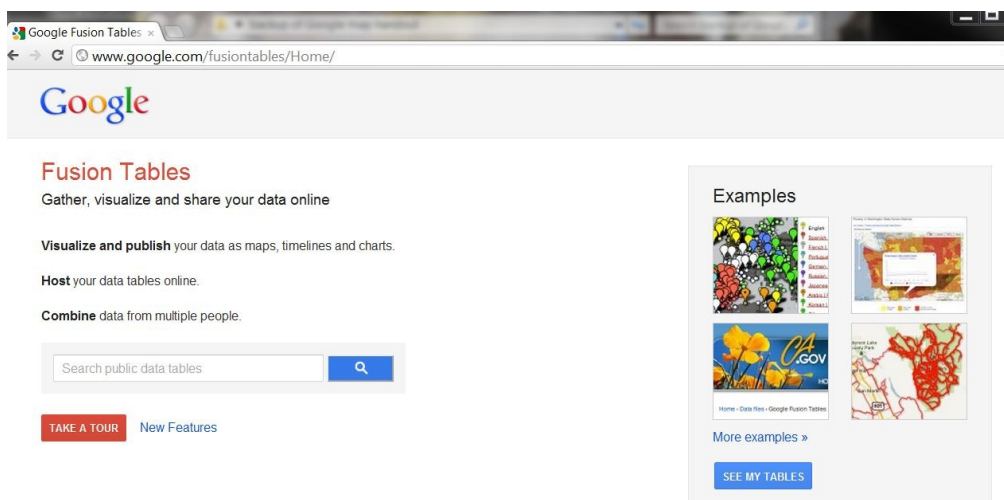
41	Rhode Island	49	
42	South Carolina	4.3	
43	South Dakota	46	
44	Tennessee	34	
45	Texas	26	
46	Utah	26	
47	Vermont	35	
48	Virginia	32	
49	Washington	28	
50	West Virginia	46	
51	Wisconsin	28	
52	Wyoming	55	
53			

If you misspell “Arizona” or “Virginia” then those states won’t show up on the map because the computer won’t recognize misspellings. So make sure to edit your data before you upload. Now, save the document as an Excel file. Label it “low-income” and save as an “Excel Workbook” file.

Sometimes you have to save as a “csv” file when there are commas/periods in your data set. We don’t have to do this here so we won’t worry about it.

## Step 5: Sign into Google Fusion Tables

Now, go ahead and Google “Google Fusion Tables” and click on the first item listed. This takes you to a page that looks this this:



Click on the blue box labeled “See My Tables” and sign in with your gmail account. Now you can create a map.

## Step 6: Create a map

First, click on the red box labeled “Create” in the top left corner and drag your mouse down to the “Table (beta)” option.

+You Search Images Maps YouTube News Gmail Documents Calendar More

Google Tables x

Sort [v] [g]

CREATE [img]

Home Starred Owned by me All Items Trash My collections No collections Collections shared with me

TITLE	OWNER	LAST MODIFIED
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> Low-income final map Shared	me	Mar 9 me
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> low-income.xlsx	me	Mar 9 me
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> SB1070_final_graphic2.csv	me	Feb 7 me
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> tract6500.shp Shared	me	12/3/11 me
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> copy - vendor list2.csv Shared	me	12/3/11 me
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> test	me	12/3/11 me
<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> copy - vendor list2.csv	me	12/3/11 me
<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> SNAP vendors	me	11/29/11 me

This should open up a screen that looks like this:

Import new table [x]

From this computer Choose File No file chosen

Google Spreadsheets You can upload spreadsheets, delimited text files (.csv, .tsv, or .txt), and Keyhole Markup Language files (.kml) [Learn more](#)

Create empty table

Cancel « Back Next »

Click “Choose File” to upload your Excel file you just created about low income data. When the data uploads, it should look like this:

Import new table ✕

Specify the columns to import.

Column names are in row 1 ▾

Import	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
1	state	ELI per 1000
2	Alabama	38
3	Alaska	39
4	Arizona	20
5	Arkansas	34
6	California	21
7	Colorado	26
8	Connecticut	38
9	Delaware	33
10	District of Columbia	40
11	Florida	23
12	Georgia	28

Rows before the header row will be ignored.

Make sure that your column names are located in row 1. Upload file by clicking “Next. This is the next page that appears:

Import new table ✕

Table name

Allow export  ?

Attribute data to  ?

Attribution page link

Description

For example, what would you like to remember about this table in a year?



Go ahead and fill out the information, attributing the data, and describing the data. Then hit finish. Now, your page looks this this:

state	ELI per 1000		
Alabama	38		
Alaska	39		
Arizona	20		
Arkansas	34		
California	21		
Colorado	26		
Connecticut	38		
Delaware	33		
District of Columbia	40		
Florida	23		
Georgia	28		
Hawaii	33		
Idaho	33		
Illinois	28		
Indiana	30		
Iowa	39		
Kansas	35		
Kentucky	35		
Louisiana	37		
Maine	51		
Maryland	37		
Massachusetts	42		

Now that your Excel data is in, we need to tell the computer how to visualize this data. Right now, there are no geographical locations such as zip codes, states, etc. So, we have to bring in a KML shapefile, basically a map from somewhere else on the Internet that is ready to be inserted into this program. I'm still learning about shapefiles myself so I'm sure a Google search will teach you more than I know. But I know that a wonderful shapefile that I constantly use is one of the United States.

Each shapefile has a code, or a number as its name. The shapefile for the United States that I want to use is "227275" and I will merge my excel data with the "227275" shapefile to create a complete map.

First, click "Merge" on the drop down menu.

Second, type in "227275" (or whatever shapefile you are using) into the "Merge With" box on the right hand side just like pictured below (the box is by the large "2") and then click "Get":

**Merge with another table** ✕

**1** Choose the column to use for matching data across the two tables

**2** Merge with    
Enter a table name, ID, or URL

low-income.xlsx

- state
- ELI per 1000

Select subset of columns

State KML

- id
- name
- geo
- FIPS

Select subset of columns

Save as a new table named

The merged table will be computed dynamically from the two base tables, using the rows from the first table. Changes to the base tables will be reflected in the merged table and vice versa.

After you type in “227275”, a list of items comes up under “State KML.” Go ahead and click on “Name” on the left hand side so that it matches what you have on the right hand side (i.e. click on “state” in the left box and then click on “name” to match it. The compute recognize this as “Alabama = Alabama”). So, both of the columns should match now. Click on the bottom square button titled “Select subset of columns. Now, uncheck any and all boxes that aren’t geo. Now, your screen should look this this:

**Merge with another table** ✕

**1** Choose the column to use for matching data across the two tables

**2** Merge with    
Enter a table name, ID, or URL

low-income.xlsx

- state
- ELI per 1000

Select subset of columns

State KML

- id
- name
- geo
- FIPS

Select subset of columns

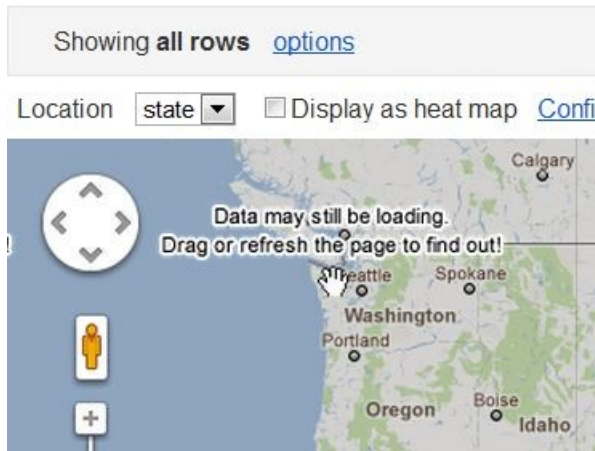
Save as a new table named

The merged table will be computed dynamically from the two base tables, using the rows from the first table. Changes to the base tables will be reflected in the merged table and vice versa.

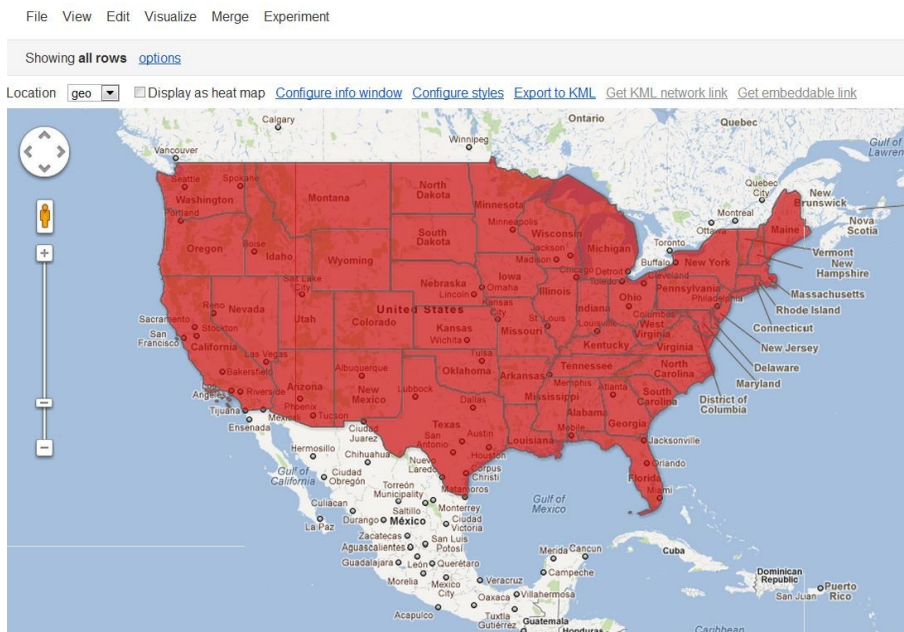


Finally, give the table a name in the bottom box and then click “Merge Tables” in the bottom left.

You are now back on the same page of your data set. Now, to visualize the data, go to “Visualize” in the menu bar and click on “Map.” This will take you to a map of the world. The map looks normal until you change the top left box labeled “Location.” Right now, the drop down box is on “state” but it needs to be on “geo.”



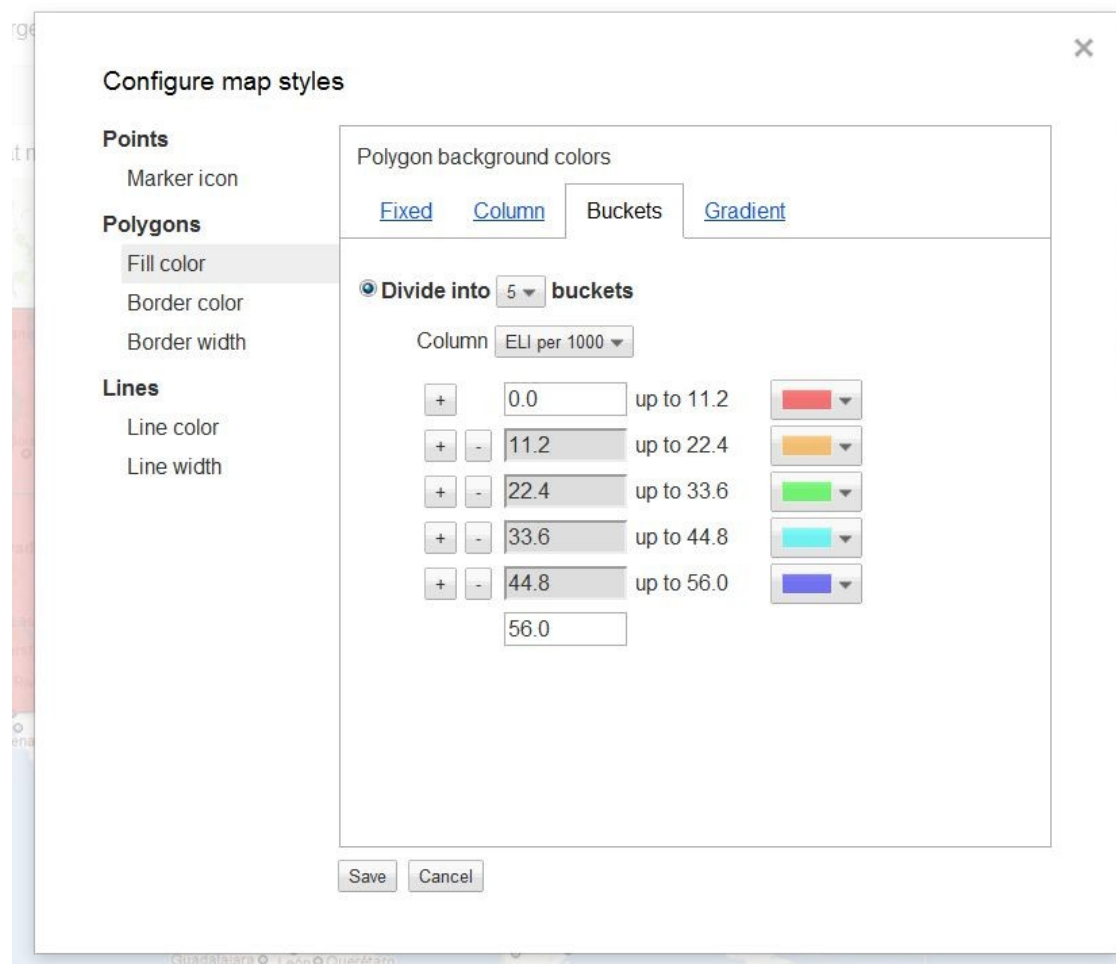
So, change the “Location” box to “geo” so the computer knows to combine your map data with your numbers data. Now, the United States should have a full color:



This is what we want. Roll your mouse over a state, click on it and read the box that comes up. You can customize this box later but going into the “Configure Info Window” and messing with the html code. The map is now displaying data but it’s just not customized right now or readable. What you want to do so that people can look at the map and see varying colors divided into groups, is click on the blue “Configure styles” link above the map.

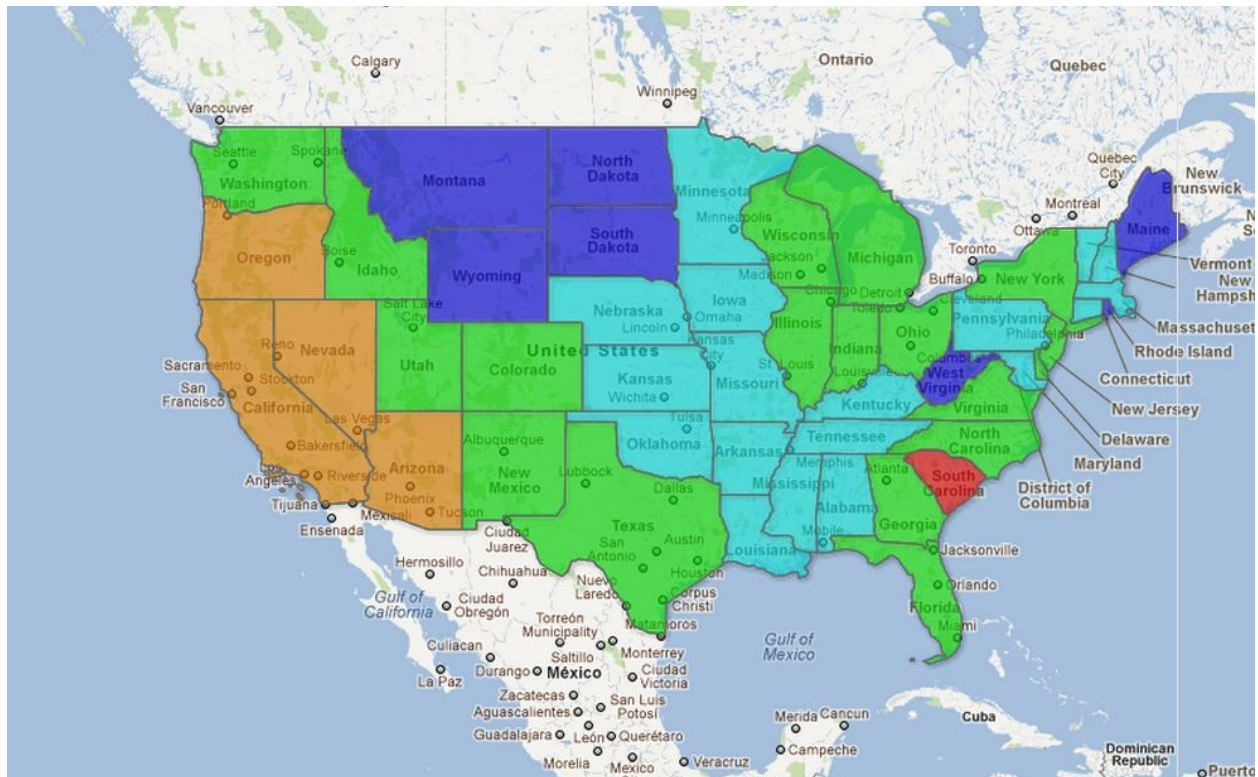
This link makes your map look cool. You can mess around with it if you want but for now, this is what I want you to do.

1. Underneath “Polygons” click on “Fill color”
2. Now, click on “buckets” to the right
3. Click the radio button by “Divide into BLANK buckets” and use the dropdown menu to divide into “5” buckets (you can choose how many you want but the map is more informative with more buckets at this point.)
4. Pick your colors



5. Finally, write the number “56” in the bottom box because your “ELI per 1000” data numbers ends at 55. If the numbers ended at 102, then we would put in 103, etc. The computer will automatically figure out how many numbers to put in each color (i.e. let’s put 1-10 in the red box, 11-20 in the purple box, etc.).
6. Make sure under the drop down “Column” box that you have clicked on “ELI per 1000” otherwise you won’t be able to save your changes.
6. Hit Save.

## YOU HAVE A MAP!



To make this map public so that you could put it on a news site with a story, you have to change the permissions in the top right to “public.” Also, every good map needs a legend. I usually create my legends in InDesign because it’s easy for me to and I am familiar with the program. Some create them in Photoshop, some create the legends with html, and some create them in Google maps. I encourage you to find your own program of comfort and make a legend through that program.

Finally, to embed this map you need to know the following html:

```
<a href> tag  
<img src> tag
```

When I display maps for my news stories, I put in the embeddable link for my a href tag (located in the “Embeddable Link” tab above the map. But I first take a screen shot of my map to put as a graphic next to a story, and THEN I make that little screenshot a link to a whole new page with my interactive (a href tagged) map.

Go to the original map link on page one of this handout to see what I mean.