Making a Choropleth Map of Australia

A choropleth map is a thematic map that uses different colours and shades to represent statistical data. A choropleth map is split into a geographic area, whether it is a country, city, region or statistical area.

Step 1

The first step in this process is the find your data. A great place for data specific to Australia is ABS Stat: http://stat.data.abs.gov.au/

Before our data is ready to use, we need to 'clean' the data by deleting unnecessary information.

Below, you can see that I only need a few columns out of my entire data set.

Need more help with data cleaning? Click here.

	A	B	C	D	E	F	G	H	I	J		L	M
1	MEASU	Measur	REGION	Geogra	LGA_20	Region	FREQUE	FREQUE	TIME	TIME	Value	lag Co	Flags
17	ERP	Estimated	LGA2016	Local Gove	10050	Albury (C)	A	Annual	2016	2016	52171		
33	ERP	Estimated	LGA2016	Local Gove	10130	Armidale	A	Annual	2016	201	30313		
49	ERP	Estimated	LGA2016	Local Gove	10250	Ballina (A)	A	Annual	2016	20 5	42993		
65	ERP	Estimated	LGA2016	Local Gove	10300	Balranald (	A	Annual	2016	20 6	2330		
81	ERP	Estimated	LGA2016	Local Gove	10470	Bathurst R	A	Annual	2016	2 .6	42244		
97	ERP	Estimated	LGA2016	Local Gov	10550	Bega Valle	A	Annual	2016	2 16	33941		
113	ERP	Estimated	LGA2016	Local Gov	10600	Bellingen (	A	Annual	2016	2 16	12951		
129	ERP	Estimated	LGA2016	Local Gov	10650	Berrigan (A	A	Annual	2016	2 16	8609		
145	ERP	Estimated	LGA2016	Local Gov	10750	Blacktown	A	Annual	2016	2 16	348030		
161	ERP	Estimated	LGA2016	Local Gov	10800	Bland (A)	A	Annual	2016	2 16	6024		
177	ERP	Estimated	LGA2016	Local Gov	10850	Blayney (A	A	Annual	2016	20 6	7343		
193	ERP	Estimated	LGA2016	Local Gove	10900	Blue Moun	A	Annual	2016	20 5	78835		
209	ERP	Estimated	LGA2016	Local Gove	10950	Bogan (A)	A	Annual	2016	20	2764		
225	ERP	Estimated	LGA2016	Local Gove	11100	Botany Ba		Annual	2016	201	48797		
					11150	Bourke (A	A	Annual	2016	2016			

I need these two columns because it contains the locations
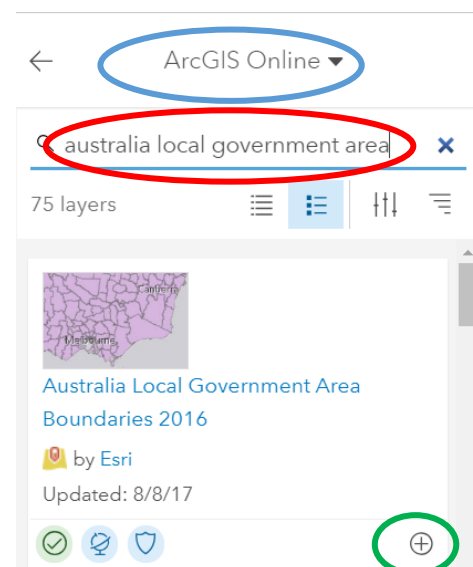
I need this column because it contains my statistics

To clean the data, I am going to delete all of the unnecessary columns, until it looks like the below. Save the file as a CSV.

	A	B	C
1	LGA_2018	Region	Value
2	10050	Albury (C)	53767
3	10130	Armidale Regional (A)	30707
4	10250	Ballina (A)	44208
5	10300	Balranald (A)	2340

Step 2

The second step in the process is to find the map with the correct boundaries. My data is using Local Government Areas (LGA) so I need to find a map with an outline of all LGAs.

1. Log into ArcGIS Online and select Map
2. Select Add, Search for Layers
3. From the drop down, choose ArcGIS Online
4. Search for your boundary layer
5. Add to map

← ArcGIS Online ▾

australia local government area ✕

75 layers

Australia Local Government Area Boundaries 2016
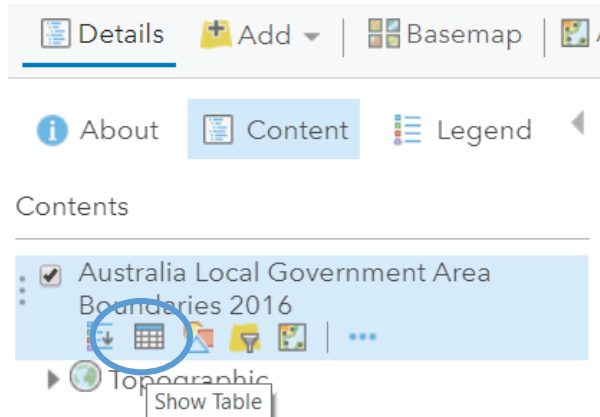
by Esri

Updated: 8/8/17

STOP

Our boundaries change every year as urbanisation occurs. If your data is from 2016, you need to make sure your boundary layer is from 2016. If you do not – your choropleth map will have gaps.

We are going to join our data layer with our boundary layer based on a common feature. For my layer, I know it can either be the LGA code or the LGA name. To check what the boundary layer has used, we can view the table.

1. Select Details, Content
2. Press the table icon under your boundary layer

The table will appear down the bottom. Check to see what features you can join.

📄 Details   ➕ Add ▾ | 🔳 Basemap | 🖼️

ℹ️ About   📄 Content   📋 Legend   ◀

Contents

☑ Australia Local Government Area Boundaries 2016

▶ 🌐 Topographic

Show Table

Australia Local Government Area Boundaries 2016 (Features: 545, Selected: 0)	
ID	NAME
10050	Albury (C)
10130	Armidale Regional (A)
10250	Ballina (A)
10300	Balranald (A)
10470	Bathurst Regional (A)
10550	Bega Valley (A)

I have both the ID and Name in my own data set so I can choose either. It is important to note; the data must be **EXACTLY** the same. My data has abbreviations at the end to indicate whether it is a town (T), city (C), or area (A). My own Excel data **must** have these too otherwise it will not work. In some cases, you must manually fix this data – no matter how time consuming it is.

Step 3

The third step involves uploading our data from Australia.

1. Select Add > Add layer from File
2. Choose the correct file
3. Select Import Layer

When you add a layer straight to the map, it needs to have a location. This could either be coordinates or an address. ABS data typically only has a unique ID or the name of a statistical area – so we can't add it straight to the map.

4. Select None, add as table

Locate features by:

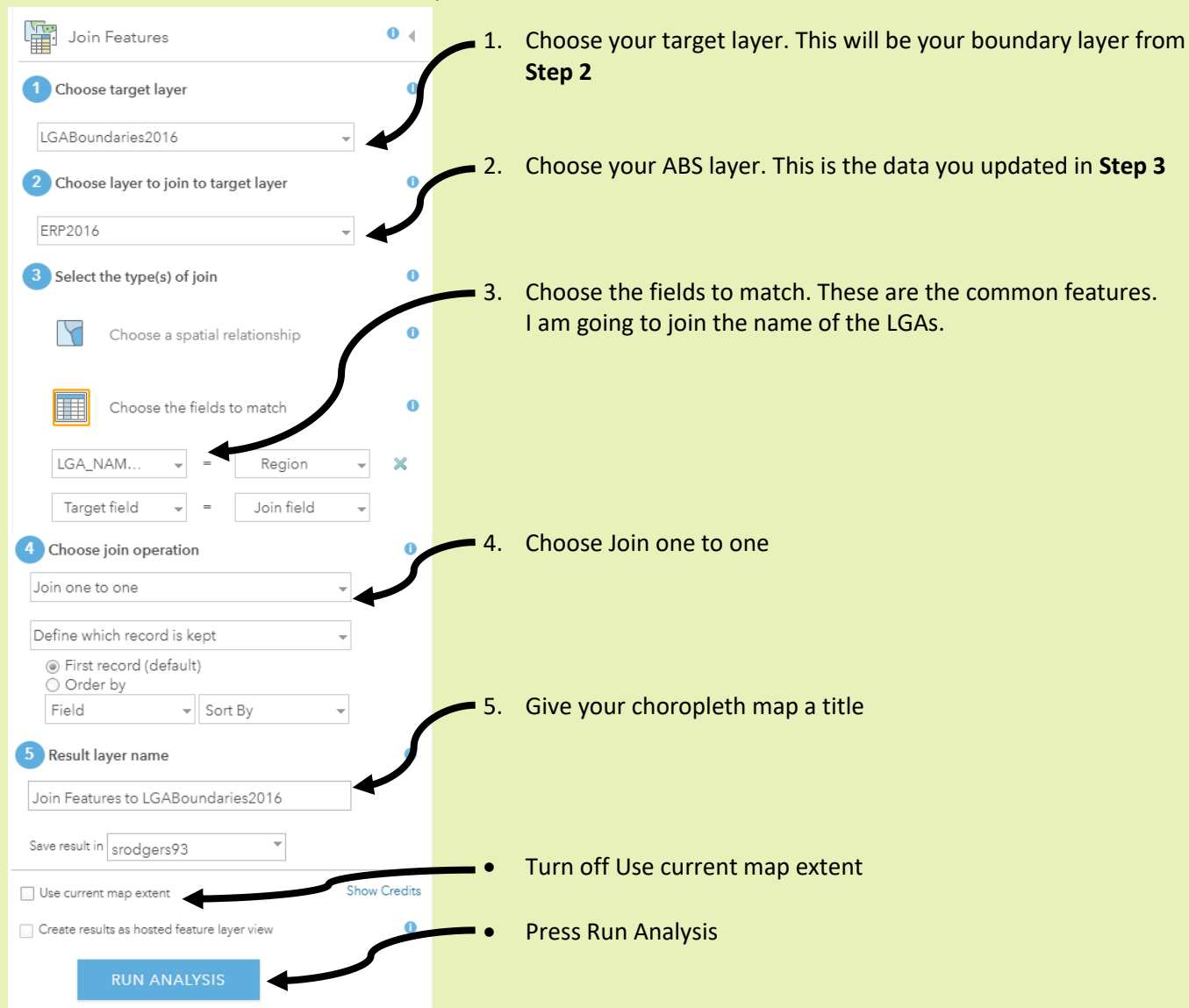○ Coordinates   ○ Addresses or Places   ● None, add as table

5. Select Add Layer

Step 4

The next step is to join our two layers together – the ABS boundaries and the ABS data.

1. Select Analysis
2. Select Summarize Data > Join Features

To join the data with the boundaries, we need to join them via a common feature. My layer has two options: the ID and the name of the LGA. Each of these steps are numbered the same in ArcGIS Online


1. Choose your target layer. This will be your boundary layer from **Step 2**

2. Choose your ABS layer. This is the data you updated in **Step 3**

3. Choose the fields to match. These are the common features. I am going to join the name of the LGAs.

4. Choose Join one to one

5. Give your choropleth map a title

- Turn off Use current map extent

- Press Run Analysis

You will know it has worked when you can see your layer name in the Contents pane OR when Australia is coloured in completely blue.
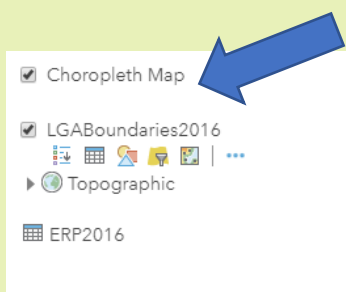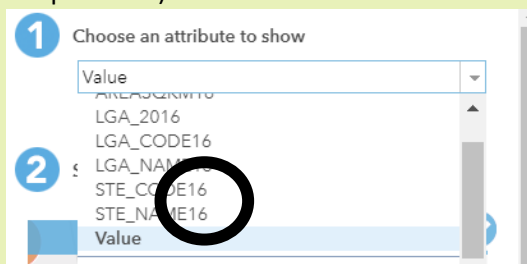
Step 5

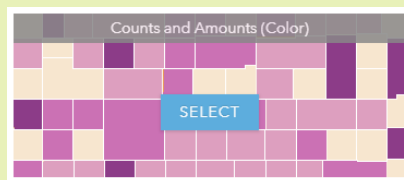The final step in this process is to display our data and style our map. This is the fun part!

1. Click on your layer name until a series of icons appear underneath
2. Click the Change Style icon (circle, square, triangle)
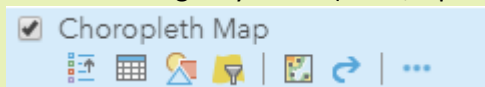
☑ Choropleth Map

3. From the drop down, you can decide what data you show. You should see the headers from Excel (as well as a couple more). Look for the one that has the your data in it and select that

1 Choose an attribute to show

Value

AREASQKM16
LGA_2016
LGA_CODE16
LGA_NAME
STE_CODE16
STE_NAME16
Value

Counts and Amounts (Color)

SELECT

4. Your map should automatically change. To create a choropleth map, make sure you choose Counts and Amounts (Color) – *did you pick up on the American spelling?!*
5. To edit the colours, select Options

OPTIONS

Part of making maps is choosing the correct colour and scale – the art of map making! In this menu you can do all these things, so make sure you put your artist hat on.

6. One of the first things you should do, is classify your data. Select Classify data

☐ Classify Data
☐ Draw features with no value.
☑ Show in legend

1,184,752

575,303
177,276
63,017

0

7. To change your scale, you can drag the sliders or type over the numbers. In geography, scale is very important as it can manipulate the data
8. Once you have your classification correct, select Symbols to change the colour ramp. See the notes below about colour ramps.

Symbols
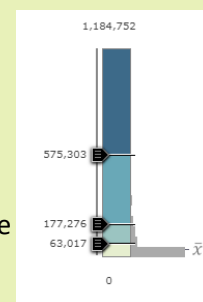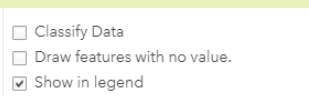
9. When you are happy with your changes, you can select Ok then Done
10. If you want to go back and change the style, simply select the Change Style button again
11. When you are done with your map, be sure to press SAVE and give your map a Title and a Tag

💾 Save ▾
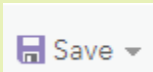
12. Your teacher will be able to see your map without Sharing, but if you need to Share it externally, select Share

Choosing Colours – Rules of Thumb

✓ Typically, the **higher a statistic, the darker the colour**. If I was creating a map about total cases of Malaria in Sub-Saharan Africa, only one of these options is correct. You can reverse the colour orders in Symbols. This rule is abandoned if the lower statistic is worse i.e. total hospital beds per country

Incorrect   Correct

✓ Make sure if you choose blues or greens, it does not interfere with your basemap (choose your basemap first)
✓ If you have other layers on your map, make sure you choose colours that won't clash