Exercise: Mapping your shapefile

Remember: to upload your shapefile, it *must* be zipped.

1. Open up ArcGIS Online. Use the shapefile from the first exercise (In the New Map, click 'Add' →'Add Layer from File' and then browse to the location of the zip file. Click on 'Import Layer' at the bottom of the dialogue box. If it is already loaded into your ArcGIS Online map, just use that.

2. Hover your mouse over the layer name and click the 'Change Style' icon ( )

3. Choose an Attribute (scroll down and select choose the *PopDensity* attribute)

4. You'll see 4 different styles:

   Counts and amounts (Size)
   Counts and amounts (color)
   Location (Single Symbol)
   Types (Unique Symbols)

   The previously discussed *Dot Density* style is not available.
   Location and **Types** have no relevance with Population Density, so we won't use those methods. Using **Count and Amounts** (Size) is typically used with point data and is a good example of using *Proportional Symbols* to map data; since this data is polygonal, let's use **Counts and Amounts** (Color) – a *Choropleth Mapping* style. The map may have defaulted to this style; click the **'Select'** or **'Options'** button now **Counts and Amounts** (Color).

5. The first two options – **'Divided By'** and **'Theme'** we can leave alone for now. 'Divided By' can be used to adjust values so that they can be compared equally. 'Theme' is used to highlight different ranges in the data. Check the '**Classify Data'** box – if you are used to using ArcGIS, this relates well to the options available in ArcMap. By clicking this you are expanding the grouping options available. Choose **'Quantile'**, and increase the classes to '5'.

6. You can adjust the colors and color ranges by clicking on the 'Symbols' icon (Symbols) in the upper right of the symbology pane. Remember the advice from earlier – use monochromatic color schemes, with darker color ramp for higher values

7. Click 'OK' when finished, and then 'Done' on the next panel if you're satisfied with your map.

8. If time allows, feel free to explore the other classification options other than 'Quantile', such as 'Natural Breaks' or 'Equal Interval'.

. **Exercise: Using MVRPC Published Data**

Drive-time Areas

1. Go your AGOL account and open up a new map
2. Add a layer *'From the Web', 'Search for Layers'* and type "*MVRPC Census Training*" into the search box. This is a feature service of Census Block Group data with some basic demographics attached. It is published by MVRPC via ArcGIS Server. If you have an **ArcGIS Organizational** account, you can run analysis on this layer that consumes credits.
3. Select the "*2010 Census Block Group Demographic*" layer by clicking the '**Add**' text, and then click the **"Done with Adding Layers"** button at the bottom.
4. Before you create a Buffer or Drive-time area you need a point or area to work with. To do this, you'll first need to create a Map Notes layer. Click '**Add'** and choose **'Add Map Notes'**. Map Notes are lightweight layers that can be used for different functions. Click the **'Create'** button.
5. Create a point in the Map Notes layer by clicking one of the point symbols at the top of the **'Add**

    Features' panel
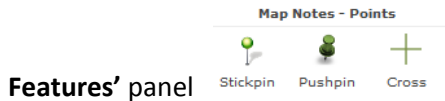
    This point represents some sort of facility that we want to create a buffer around. Zoom into an area of interest and pretend that it is a new park, grocery store, office building,   etc. After placing your point, click **'Details'** in the upper left to return to your layer list.

6. **This analysis step can only be completed if you are using an Organizational account**; if you aren't, perhaps a neighbor is. Hover your cursor over the Map Notes layer and click the Analysis button.

    Click '**Use Proximity'** and then **'Create Drive-Time Areas'**.
    For Step 1, choose the Map Notes layer.
    For Step 2, click **'Driving Time'**, and note that the selection expands to include many other options. Still, choose **'Driving Time'**. Let's choose something small and leave the distance at 5 miles.
    Click the text that says *'Show credits'* to preview credit consumption.
    If it is a small amount of credits (less than 2) then click "**Run Analysis**". The result is a new layer that represents the 5 minute driving time from the Map Notes point.

    You can now Summarize Data from the demographic layer that intersects the drive-time area.

Summarizing Data

1. You map has your Map Notes layer and Drive-Time layer from the previous step. To Summarize demographic data that is inside the Drive-time layer, hover your cursor over the Drive-time layer and click the Analysis button.

2. Click on **'Summarize Data'** and then '**Summarize Within'**.
   For Step 1, choose your drive-time layer.
   For Step 2, choose the Census Block Group Demographic layer as the layer to summarize.
   For Step 3, choose a couple of fields to sum – for 'Field' choose POP and for 'Statistic' choose 'Sum'; do the same for 'TotalHU' (Housing units) and again choose 'Sum'.
   You can leave Step 4 alone, and name whatever you want it to for Step 5.
   As before, Click the text that says *'Show credits'* to preview credit consumption.
   If it is a small amount of credits (less than 2) then click "**Run Analysis**".
   The results are a new layer that contains the summarized data of population and housing units for the drive-time polygon you created earlier.
   This demographic information can be reported back to the interested party (How many people live within a 5 minute of this new location? ,for example).