Chapter 1: Map design principles

# Objectives

* Symbolize maps using qualitative attributes and labels.
* Use definition queries to create a subset of map features.
* Symbolize maps using quantitative attributes.
* Symbolize maps using graduated and proportional point symbols.

# Introduction

In this chapter, you’ll learn how to design and symbolize thematic maps. A thematic map strives to solve or investigate a problem, such as analyzing access to urgent health-care facilities in a region. A thematic map consists of a subject layer or layers (the theme) placed in spatial context with other layers, such as streets and political boundaries. In this chapter, you will learn to use good cartographic (symbolization) principles as you build several vector-based thematic maps.

Map

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<alt>A thematic map showing land use in Namibia, using green for forest, orange for farmland, purple for state parks, and hatch red for private property.</alt>

Figure 1-1. Thematic map of Namibia with various land uses labeled.

Courtesy of Namibia Park Service.

# Tutorial 1-1: Design labels for your map

You will create labels for your map based on a variety of attributes and set the labels to turn on and off depending on how zoomed in you are. Keeping the map from getting cluttered with text is an important part of cartography.

## Set up an ArcGIS Pro project

You will open the project and familiarize yourself with it.

1. Browse to Chapter1\Tutorials, and open Tutorial1-1.aprx.
2. Go to the West Village bookmark.
3. Review the Attribute Table for the Streets feature class.

This bookmark will zoom you to the area of interest.

Bookmarks are a useful tool for sharing locations of interest and presenting a particular view.



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<alt>Snapping tool options with snapping turned on and default settings highlighted.</alt>

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<alt>Label Class group with Class set to Class 1, Label Features In This Class check box checked, Label unchecked, and Field set to ArrFName.</alt>

1. On the Imagery tab, in the Analysis group, click Function Editor.
2. Right-click the Jersey\_Streets layer, and click Attribute Table.



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<alt>First five records for the X\_Coor and Y\_Coor fields in the attribute table.</alt>

## Project your layer

The Sidewalks\_2021 feature class has an unknown coordinate system. You will specify the desired coordinate system with the Input Coordinate System parameter and create a new projected feature class with the Project tool.

Note: You will frequently encounter unknown coordinate systems in your data. You should learn the three or four most commonly used coordinate systems in your industry to most effectively specify the most suitable system.

1. On the Analysis tab, in the Geoprocessing group, click Tools.
2. In the Geoprocessing pane, type Project in the search box.
3. Click the Project tool.
4. In the Project tool pane, apply the following settings:

* For Input Dataset Or Feature Class, select JC\_Assault\_Post.
* For Output Dataset Or Feature Class, type Post\_Assault.
* For Output Coordinate System, select NAD\_1983\_StatePlane\_New\_Jersey\_FIPS\_2900\_Feet.

Tip: The parameter for Geographic Transformation will autopopulate based on the tool’s determination of the best transformation, so you will rarely need to modify this.

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<alt>Project tool pane with parameters added. Geographic Transformation set to NAD\_1983\_To\_WGS\_1984\_1.</alt>

**Make “Mistakes” Now**

Try picking a projection from another geographic location, for example from Antarctica. Use your AOI bookmark to see if the projection shifted your points. It’s a good practice to check your projected features to catch if anything went wrong. Remove the incorrectly projected feature class from you Contents Pane and delete it from your Catalog. Deleting data can’t be undone, so you should be sure you want to, in this case we’ll delete it since we definitely don’t need that bad data cluttering up our project.

On your own

Project the remaining layers in your map using the skills you just learned. Think about how this may change the acreage you are investigating.

This image is a result of steps 6-8.

Map

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<alt>ArcGIS StoryMap choropleth map of the US with state boundaries. States are in shades of green for population, with graduated purple points for income level. The three largest points are shown in California, New York, and Maryland.</alt>

Editor- Please check the name of this Esri product, ArcGIS StoryMap

# Take it to the next level

You aren’t stuck picking from the set of stock vector graphics, you can use a picture marker of your own making/finding. Here’s how!

# Summary

In this chapter, you learned . . .

## Exercise workflow

1. Add the ACLED data for the African continent.
2. Examine the dataset’s attributes.
3. Follow preconfigured tasks to perform the following:
4. Limit the layer’s definition so that it shows only conflicts in a single country during specific years.
5. Rename and symbolize the defined layer.
6. Select only those conflicts classified as “violence against civilians.”
7. Create a new task to perform the following:
8. Summarize the number of fatalities within the selected set of features.

**Information at your fingertips**

**Resources**

# User Story