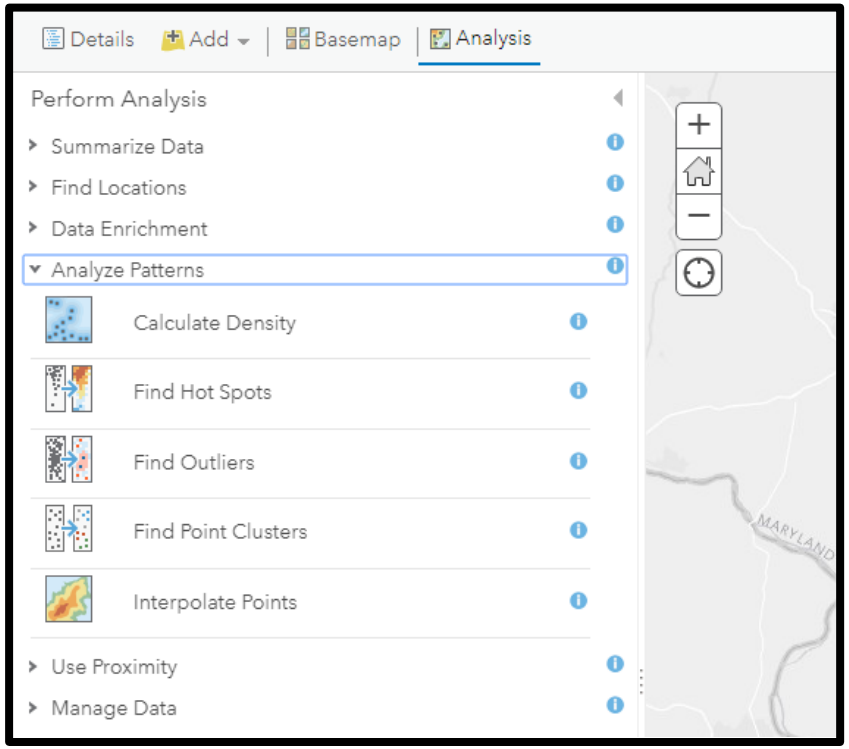
Lesson 3.1

Spatial Analysis Tools

Spatial Analysis in ArcGIS Online

Analysis tools allow us to:

- Calculate counts and statistics
- Analyze patterns
- Append tables to spatial layers
- Overlay layers
- Find what's nearby
- Apply queries

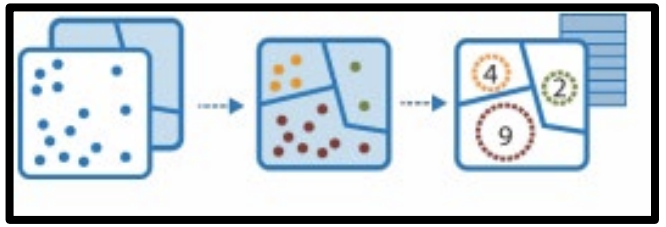


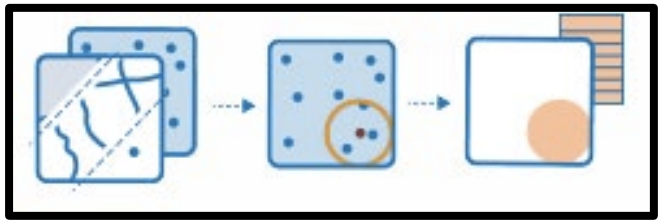
https://doc.arcgis.com/en/arcgis-online/analyze/perform-analysis.htm

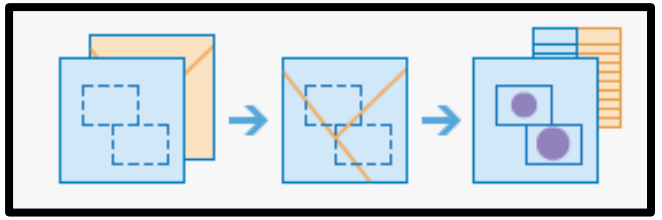
Calculate counts and statistics.

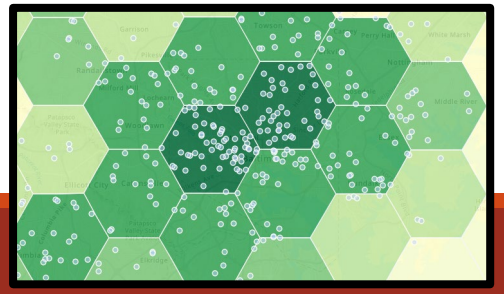
Summarize Data

- **Aggregate Points** generates counts of features by area
- **Summarize Nearby** generates counts or statistics based on a specified distance
- **Summarize Within** generates counts or statistics based on another layer







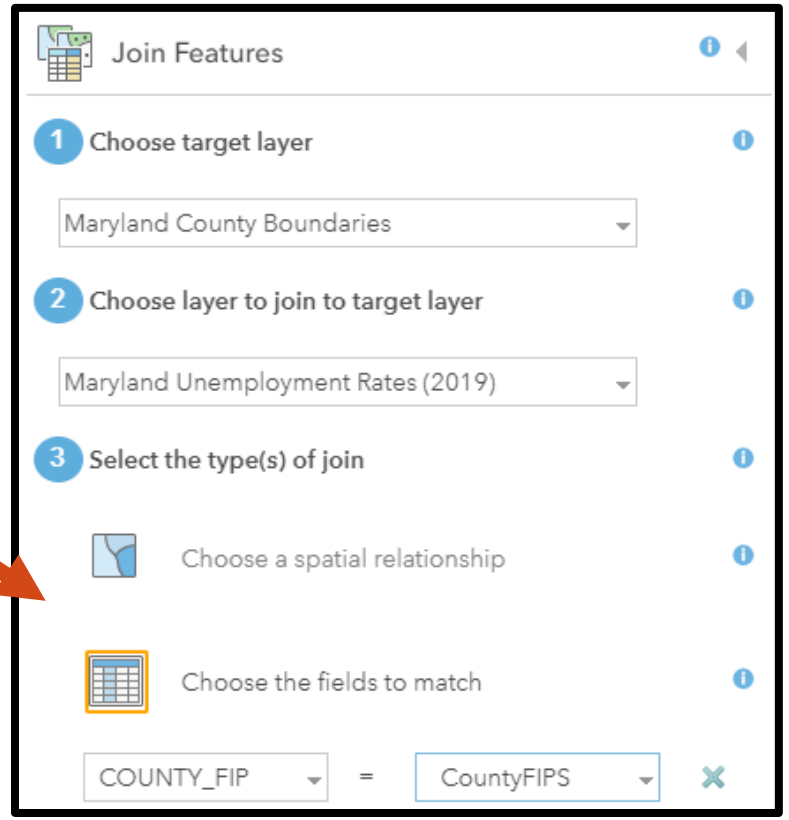


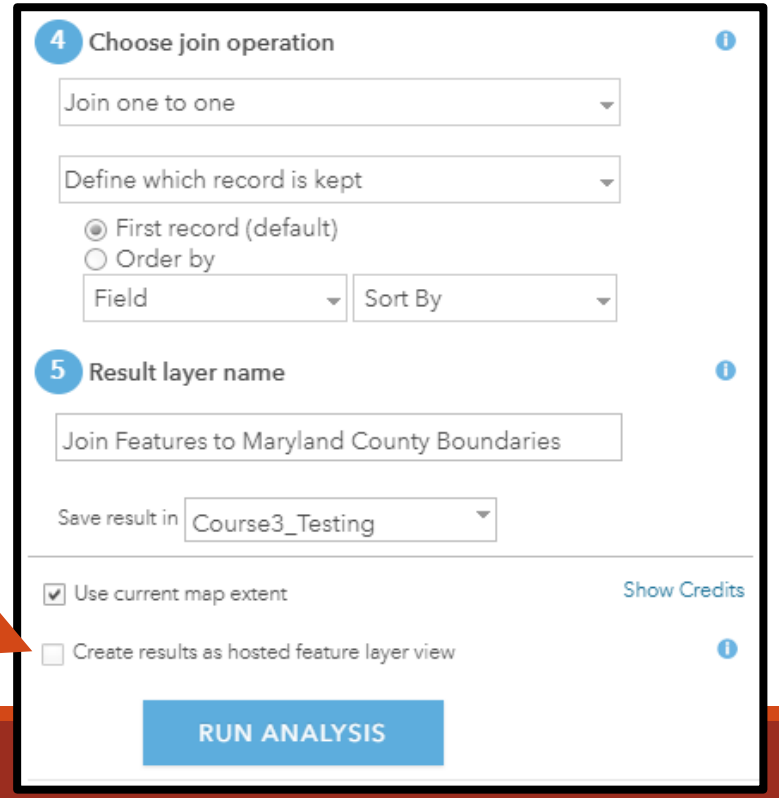
Aggregate Points and **Summarize Within** can also summarize by auto-generated grid cells or hexagon bins

Summarize Data: Join Features

Transfer attributes from one layer to another by **spatial relationship** or common **field** in the attribute table

Dynamic joins are now possible

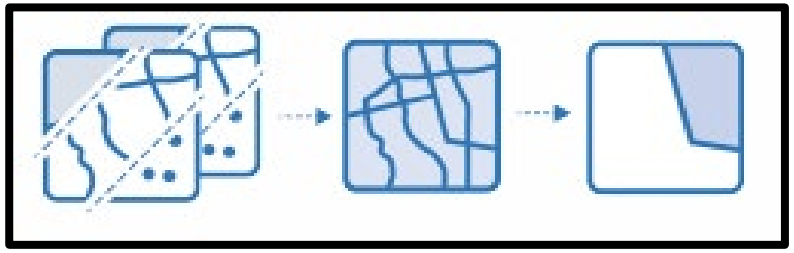


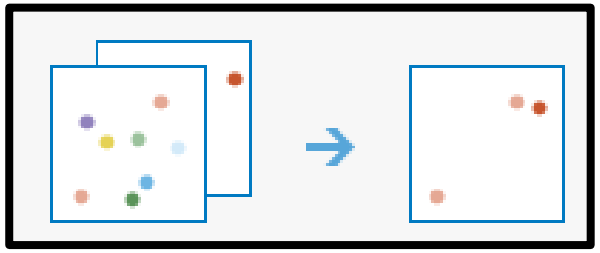


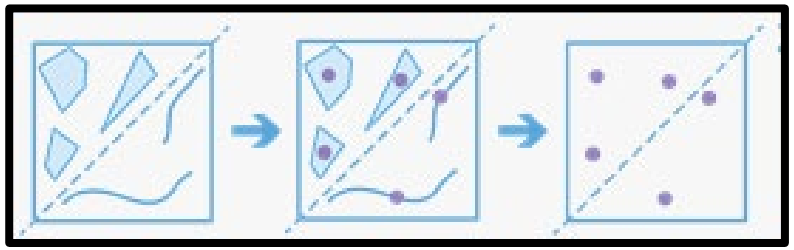
Find Locations

Identify existing features and create new ones based on location or attribute values.

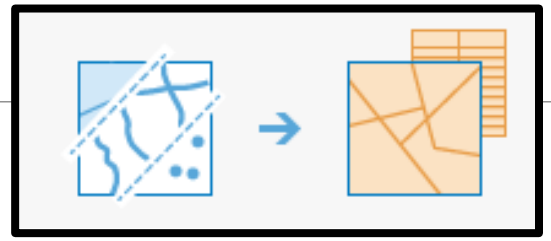
- **Find Existing Locations** queries data by location or attribute value
- **Find Similar Locations** identifies similar features based on reference features
- **Find Centroids** converts polygons or lines to points





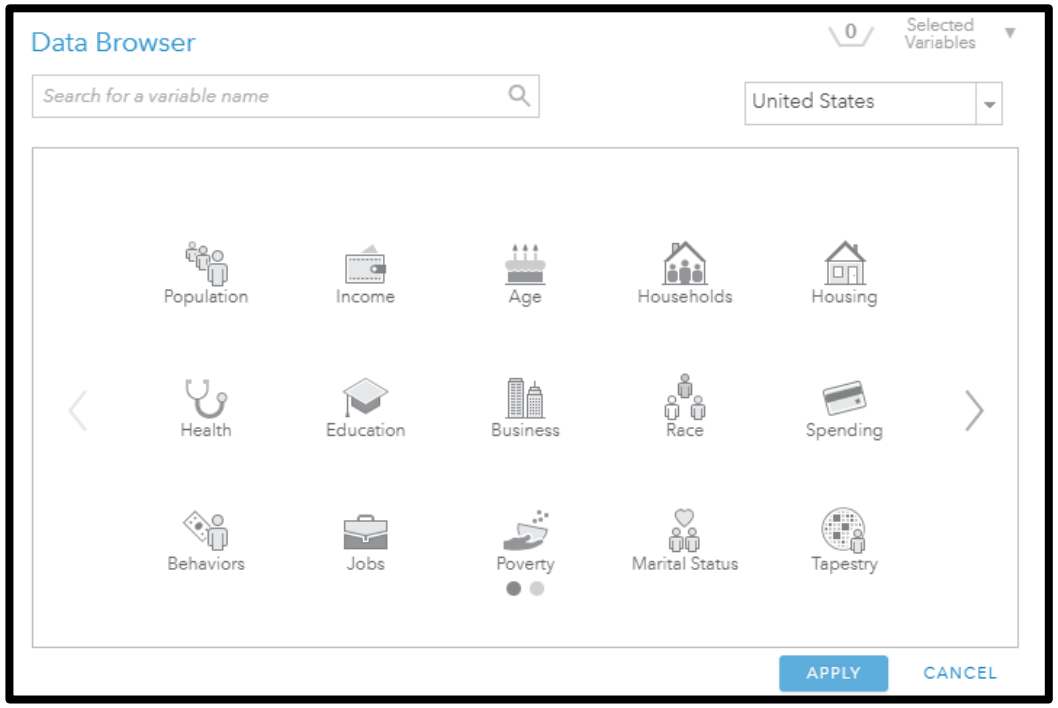


Data Enrichment



Enrich Layer retrieves information about the people, places, and businesses within a specified area

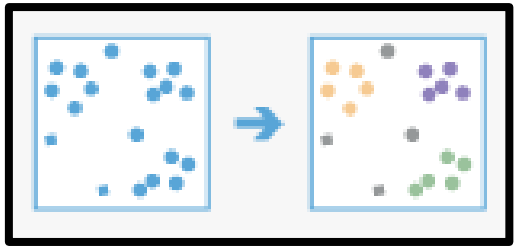
Areas can be set with polygon layer, or specifying a travel time or straight-line distance



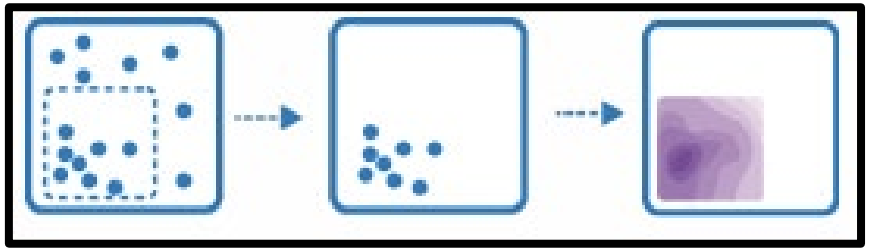
Analyze Patterns

Map concentrations, clusters and density.

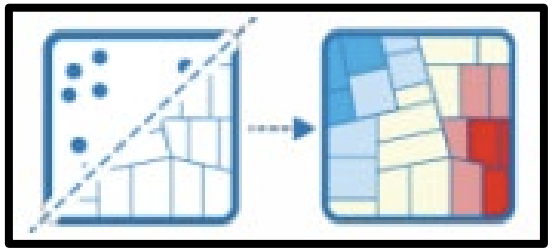
- **Find Point Clusters** identifies spatial clusters



- **Calculate Density** maps concentrations of point or line features



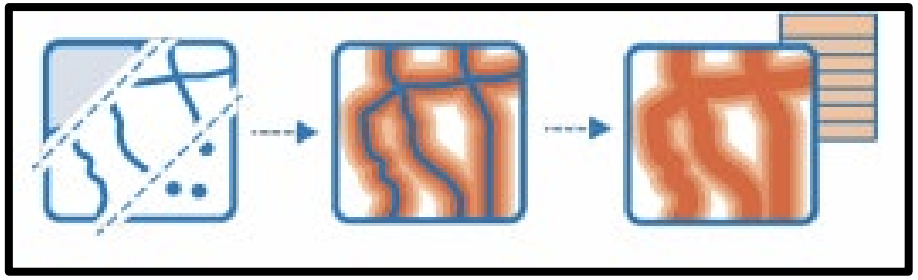
- **Find Hot Spots** maps statistically significant spatial clusters of high values (hot spots) and low values (cold spots).



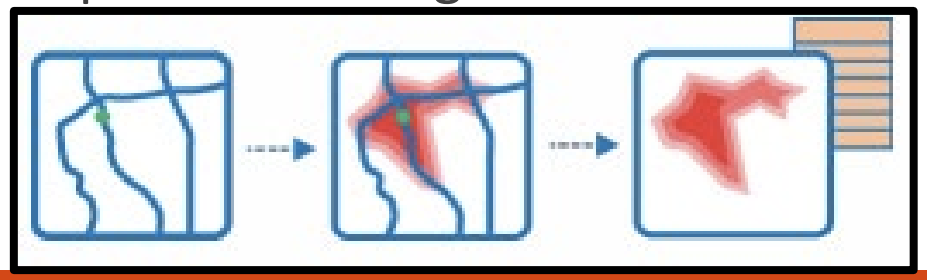
Use Proximity

Determine what's nearby.

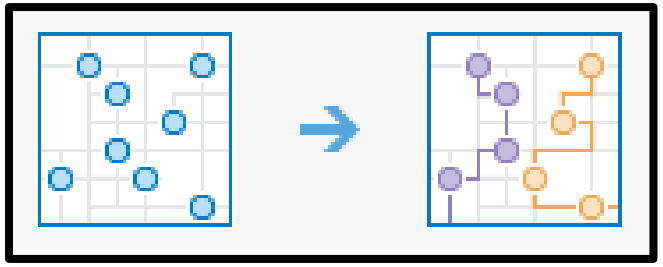
- **Create Buffers** maps a specified buffer distance



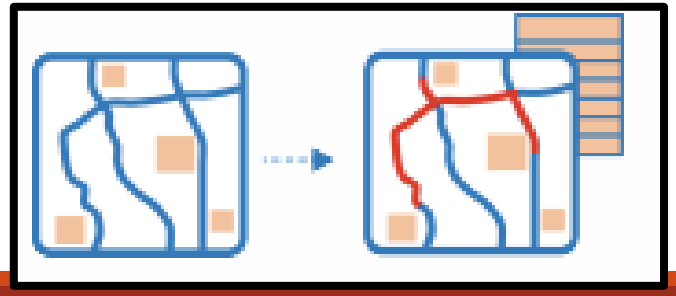
- **Create Drive-Time Areas** maps the area that can be reached based on a specified driving time or distance



- **Plan Routes** generates spatially organized routes to a set of locations



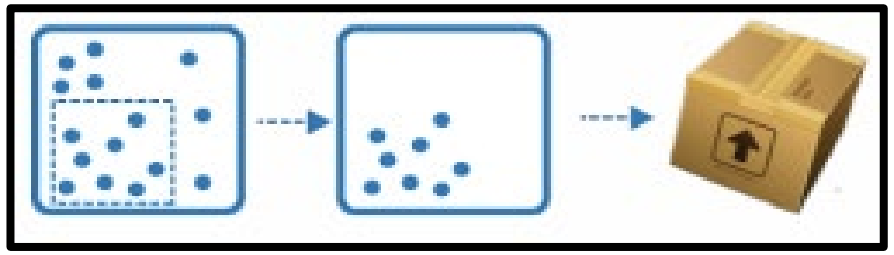
- **Find Nearest** matches a set of features from one layer with the nearest feature in another layer



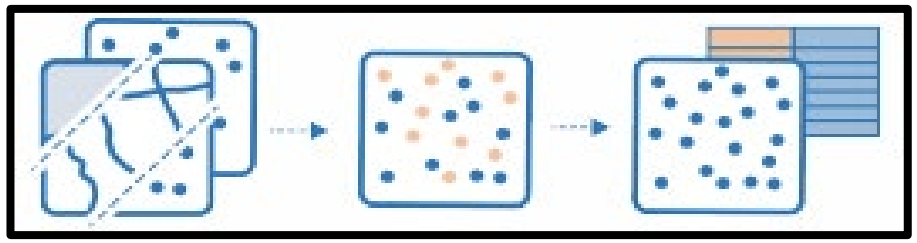
Manage and combine layers

Manage Data

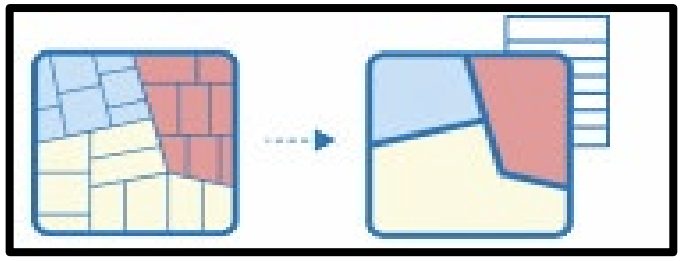
- **Extract Data** clips and ships data



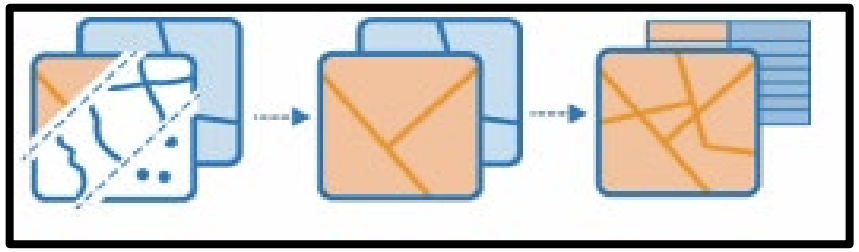
- **Merge Layers** combines two layers; feature geometry will not be altered



- **Dissolve Boundaries** merges polygon features that share a common boundary



- **Overlay Layers** combine multiple layers into one; feature geometry will be altered at points of intersection



Summary

- Use analysis tools to map clusters, summarize features, and find out what's nearby
- Running tools uses ArcGIS Online credits. Credit usage is based on the number of features being processed https://doc.arcgis.com/en/arcgis-online/administer/credits.htm
- When using tools:
  - Click the i for more information.
  - Check **Use current map extent** to only include features in the current map view.
  - Click **Show Credits** to see how many credits will be used.
  - Tool outputs will be saved to your Content.