

Spatial Thinking

What is Spatial Thinking?

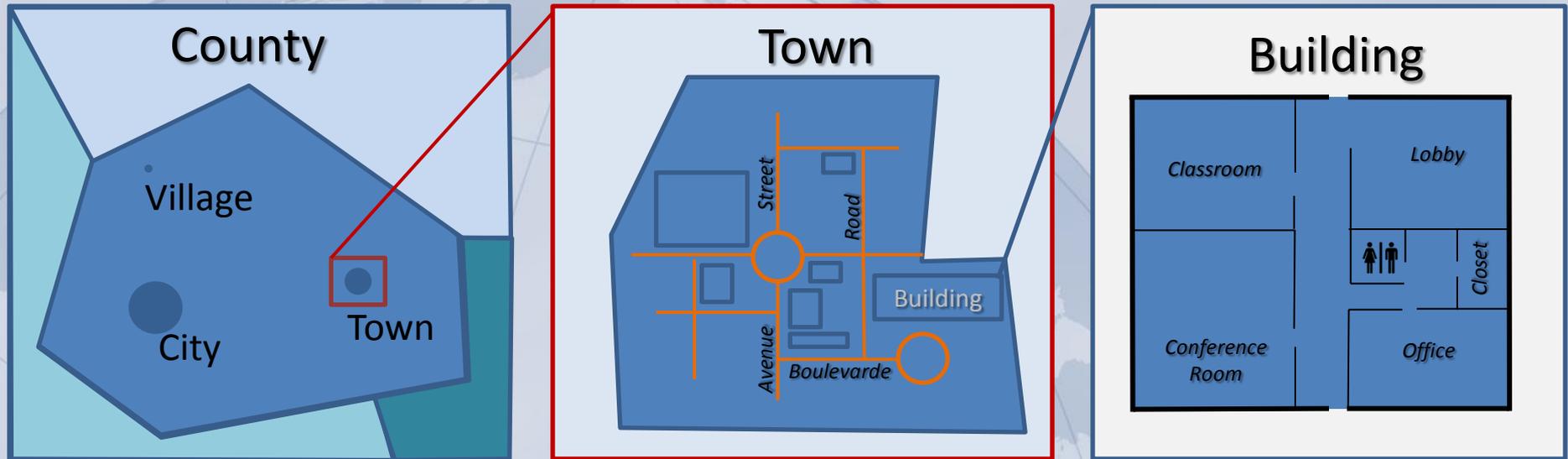
- Uses the properties of **space** as a vehicle for structuring **problems**, for finding **answers**, and for expressing **solutions**
 - **Concepts of Spatial Thinking**
 - Scale
 - Location
 - Distance
 - Vector/Raster
 - Networks
 - Adjacency
 - Neighborhood
 - **Spatial Thinking Methodologies**
 - Pattern Recognition
 - Multi-dimensional
 - Navigation / Movement
 - Multi-Criteria / Overlays
- Space / Time



Spatial Thinking Concepts

Scale

- Level of detail in considering, collecting, analyzing, and depicting information



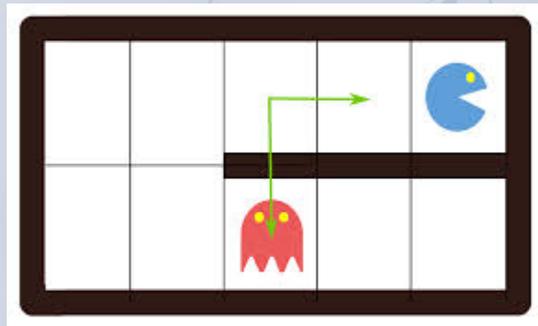
- How can scale impact data?
- Representation and generalization

Location

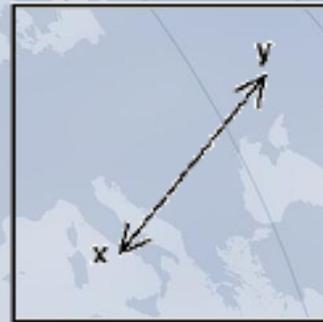
- Everything is somewhere! Relative vs Absolute

Distance

- How far from one place to another...methods?



Manhattan



Euclidean

Vector & Raster

- Discrete vs Continuous phenomena

Networks

- How things are connected in time, space, and method

Adjacency

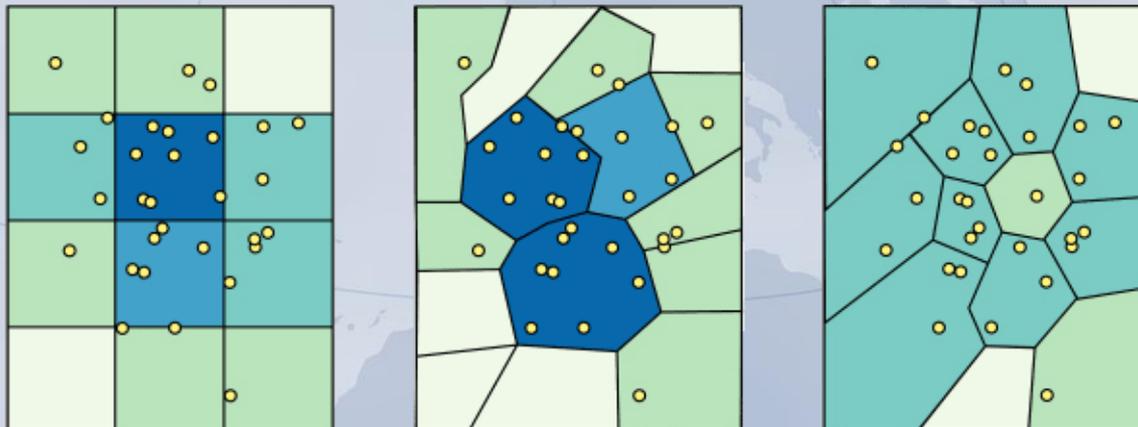
- Binary equivalent of distance – zero distance between two things or greater than zero distance

Neighborhood

- Characteristics of the area containing another geographic feature

Modifiable Areal Unit Problem (MAUP)

- Scale MAUP and Zone MAUP



Spatial Thinking Concepts Exercise

- 10 Minutes
- In your group, come up with an example of how your assigned Spatial Concept could apply to each of your academic or professional fields
- Designate a spokesperson to share your examples.



Spatial Thinking **Methodologies**

Pattern Recognition

- Visual detection
- Mathematical detection

Multi-dimensional

- 3D: elevation, altitude...other values
 - Time and speed

Time

- Changes over time
- Consider temporal Scale

Navigation and Movement

- Networks and surfaces
- Obstructions and routes

Overlays

- Relationships between different datasets