

# Spatial Thinking

# What is Spatial Thinking?

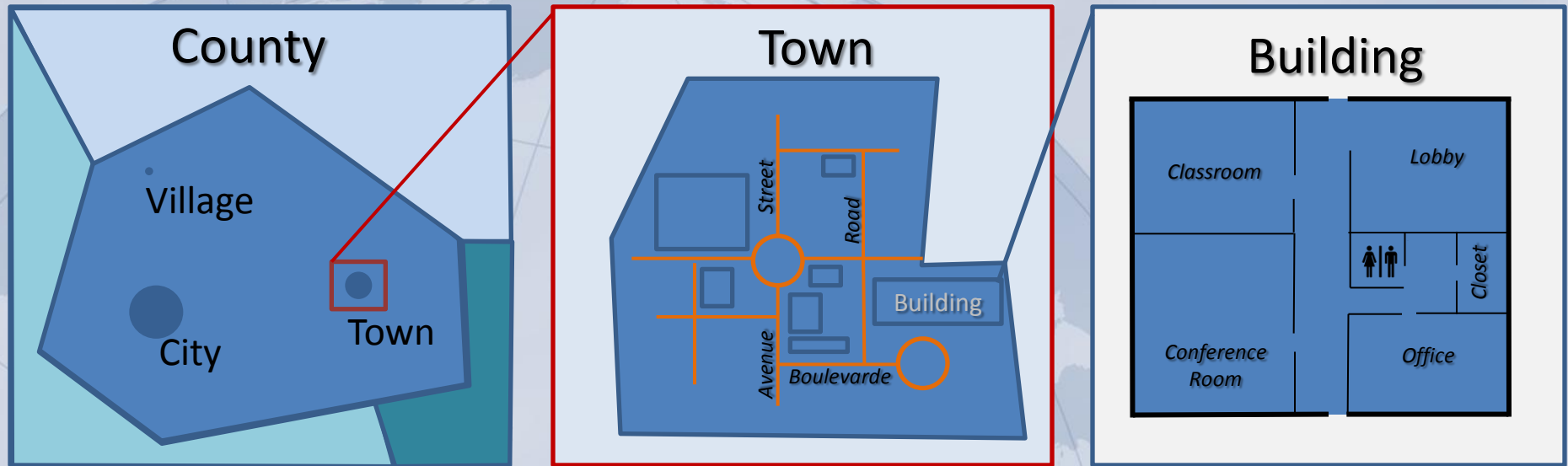
- Uses the properties of **space** as a vehicle for structuring **problems**, for finding **answers**, and for expressing **solutions**
- **Concepts of Spatial Thinking**
  - Scale
  - Location
  - Distance
  - Vector/Raster
  - Networks
  - Adjacency
  - Neighborhood
- **Spatial Thinking Methodologies**
  - 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



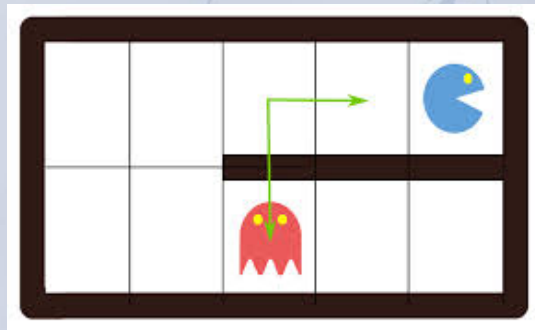
- How can scale impact data?
- Representation and generalization

# 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

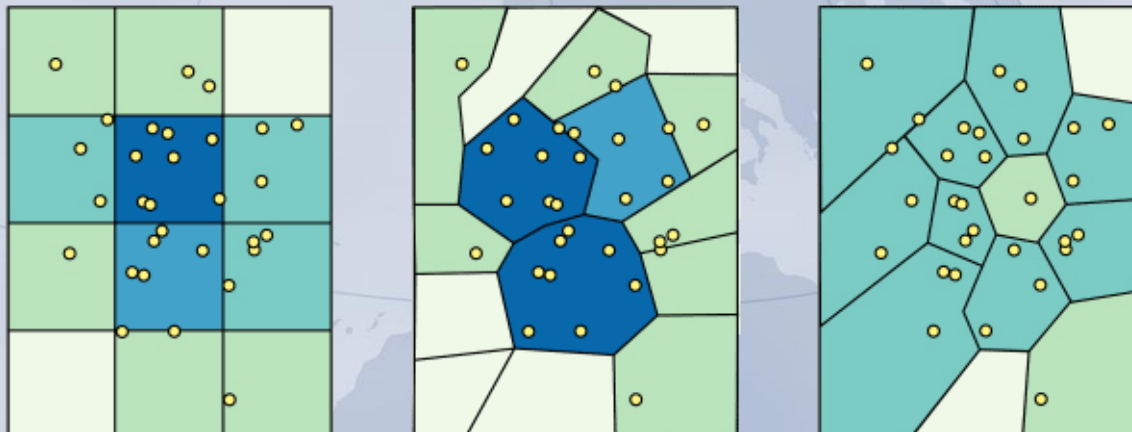
- Binary equivalent of distance – zero distance between two things or greater than zero distance

# 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