

CORE

Lab 13: The Thematic Method Trial

Choose the right thematic representation and make its default lie visible

Chapter Chapter 13	Level Intermediate	Time ~2.5-3 hr
Mode Individual or pair	Technology Any course-approved LLM	Deliverable Dataset description

Why This Lab Matters

Chapter 13 argues that thematic method selection is a representational decision, not a styling preference. This lab teaches you to match data structure, phenomenon, and communication goal to a thematic method while naming the method’s predictable distortions.

Essential question

What cartographic decision should you be able to defend by the end of this lab?

Learning Objectives

- State the cartographic purpose, audience, evidence, and constraints.
- Use an LLM or assistant as a collaborator while preserving human judgment.
- Revise the artifact or prompt based on explicit critique.

At a glance

Inputs: Lab scenario, prompts, data notes, or map concept supplied in the activity.

Outputs: Dataset description; Phenomenon vs. data analysis; Three method candidates and default lies.

Evaluation: Clear purpose, defensible cartographic judgment, concise prompting, and evidence of human verification where needed.

LAB WORK

Setup: Choose a Dataset Description ~15 min

Use a dataset you know, a public dataset description, or a hypothetical dataset. You do not need GIS software; the work is method reasoning and prompt specification.

- County opioid overdose rates
- City tree inventory points
- Monthly temperature readings from weather stations
- Migration flows between countries
- State population totals and population density
- Neighborhood housing burden and eviction counts

Dataset description
Phenomenon:
Data fields and units:
Geometry: point / line / polygon / origin-destination / raster
Data type: raw count / rate / category / ordinal / continuous / movement
Collection method:
Spatial resolution:
Temporal resolution, if any:
Communication goal:
Audience:
What the map must not imply:

PROCEDURE

Part 1 - Separate Phenomenon from Data ~25 min

Analyze this dataset description. Distinguish the real-world phenomenon from the data collected about it. Identify whether the phenomenon is discrete or continuous, abrupt or smooth. Then identify whether the data representation is discrete or continuous, abrupt or smooth. Explain any mismatch and why it matters for thematic mapping.

Dataset description:
[PASTE]

Question	Answer	Mapping consequence
Phenomenon nature	Example: The pattern shifted east	Example: Use small multiples
Data nature	Example: The pattern shifted east	Example: Use small multiples

Starter examples only; expand this in your own notes or submission document.

PROCEDURE

Part 2 - Ask for Three Method Candidates ~30 min

Recommend three thematic representation methods for this dataset and communication goal. Consider choropleth, proportional symbols, graduated symbols, dot map, heat map, hexbin/grid aggregation, isarithmic map, flow map, cartogram, multivariate map, linked views, or small multiples. For each method, explain why it fits, what it reveals, what it hides, and the default lie it carries.

Dataset and goal:
[PASTE]

Mini-deliverable

Create a method candidate table with method, fit, default lie, guardrail, and rejection risk.

PROCEDURE

Part 3 - Stress Test the Wrong Method ~25 min

Choose the most tempting but inappropriate method for this dataset. Put it on trial. Explain what false impression it would create, which data property it violates, which audience expectation it exploits, and what harm could result if it were published.

Design habit

The easiest method is often the most dangerous one, especially when it is familiar enough that nobody questions it.

PROCEDURE

Part 4 - Specify the Best Method ~35 min

Write a detailed thematic method specification for the best method. Include:

- method and justification
- data field and units
- classification or scaling approach, if applicable
- projection requirement, if applicable
- color or symbol encoding
- legend requirements
- tooltip content
- uncertainty or limitation note
- interaction or reference view needed
- default lie and guardrail
- what method alternatives were rejected and why

Write this as a professional specification.

PROCEDURE

Part 5 - Compare Classification, Scaling, or Aggregation Choices ~35 min

Choose the choice most relevant to your selected method: choropleth classification, proportional symbol scaling, heat-map smoothing/binning, isarithmic interpolation, flow filtering, cartogram distortion, or multivariate load.

Generate three design variants for my selected thematic method by changing the key representation decision. For each variant, explain what story it emphasizes, what it obscures, and whether it supports my communication goal.

Selected method specification:

[PASTE]

Decision to vary: classification / scaling / smoothing / interpolation / filtering / distortion / multivariate load

Variant	Story emphasized	Story obscured	Risk	Verdict
1	Example: Short note	Example: Short note	Example: Could overstate certainty	Example: Keep if explained
2	Example: Short note	Example: Short note	Example: Could overstate certainty	Example: Keep if explained
3	Example: Short note	Example: Short note	Example: Could overstate certainty	Example: Keep if explained

Starter examples only; expand this in your own notes or submission document.

PROCEDURE

Part 6 - Add Guardrails as Map Elements ~25 min

Add structural guardrails to this thematic map. Consider cautionary language, reference toggles, raw-value tooltips, standard map toggles, data collection point overlays, uncertainty layers, classification notes, smoothing parameters, or layer filters. Explain where each guardrail should appear and how it reduces overconfidence.

PROCEDURE

Part 7 - Build the Thematic Representation Prompt ~30 min

Compile my work into a production-ready thematic map prompt. Include data description, method selection with justification, rejected methods, classification/scaling/aggregation choices, palette or symbol rules, projection requirements, legend requirements, tooltip content, guardrails, accessibility requirements, and a self-check asking the assistant to identify the method's default lie before implementation.

DELIVERABLE

Submission ~20 min

- Dataset description
- Phenomenon vs. data analysis
- Three method candidates and default lies
- Wrong-method trial
- Best-method specification
- Variant comparison
- Guardrails as map elements
- Final thematic representation prompt
- 400-600 word reflection on why method selection precedes styling