

CORE

Lab 9: The Map Elements Specification

Defeat LLM defaults by directing titles, extent, controls, hierarchy, layout, legends, and insets

Chapter Chapter 9	Level Intermediate	Time ~2.5-3 hr
Mode Individual or pair	Technology Any course-approved LLM	Deliverable Map mission brief

Why This Lab Matters

Chapter 9 treats map elements as design commitments that must be named in language. This lab trains you to catch the silent choices an LLM makes by default and replace them with an explicit map elements specification.

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: Map mission brief; Default autopsy table; Human-facing title and model-facing framing line.
Evaluation: Clear purpose, defensible cartographic judgment, concise prompting, and evidence of human verification where needed.

LAB WORK

Setup: Choose a Map Mission ~15 min

Choose one thematic web map scenario. Use a topic that can support real interpretation but does not require paid tools or specialized software.

- County-level unemployment in one state
- Heat risk and cooling access in a city
- Public library access by neighborhood
- Flood risk and evacuation routes in a county
- Food access and transit stops in a metro area
- Air quality alerts across a region

Map mission
Topic:
Place:
Audience:
Main question the map should answer:
Data resolution or likely data resolution:
What users should compare:
What users should not infer:
Tone and level of urgency:

PROCEDURE

Part 1 - Let the Defaults Speak ~25 min

Begin with an intentionally underspecified prompt. This creates a baseline you can critique.

Create an interactive web map concept for this mission. Include the title, legend, controls, layout, and any other map elements you think are appropriate.

Map mission:
[PASTE]

Then ask the LLM to make its hidden assumptions visible.

Explain every design assumption you made about this map. Use this table:

- title and framing
- mapped area and default extent
- zoom and pan behavior
- interface controls
- visual hierarchy
- layout system
- legend purpose
- insets or locator maps
- any assumptions about audience, data resolution, uncertainty, or interactivity

For each row, explain why you made that assumption and what could go wrong if it is inappropriate.

Mini-deliverable

Create a default autopsy table. Mark each default as harmless, risky, misleading, or unacceptable.

PROCEDURE

Part 2 - Write Titles for Humans and Models ~25 min

Titles do two jobs in prompt cartography. They orient human readers and they condition the LLM as it builds the map. Write both.

Create five possible human-facing titles and five model-facing framing lines for my map mission. The human-facing titles should be concise and rhetorically clear. The model-facing lines should be more directive and explicit about scope, audience, tone, and the intended comparison.

For each pair, explain what interpretation it invites and what interpretation it discourages.

Human-facing title	Model-facing framing line	Invites	Discourages
Example: Short note	Example: Short note	Example: Short note	Example: Short note
Example: Short note	Example: Short note	Example: Short note	Example: Short note
Example: Short note	Example: Short note	Example: Short note	Example: Short note

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

Design test

A strong title does not merely name the dataset. It tells users what kind of thinking the map expects.

PROCEDURE

Part 3 - Define Extent as an Argument ~30 min

Now define where the map's meaning holds and where it breaks down. Be especially strict when your data are aggregated to counties, census tracts, neighborhoods, or regions.

Help me write an extent and zoom policy for this map. The policy must explain:

1. the intended mapped area
2. the default opening extent
3. the smallest scale at which comparisons remain meaningful
4. the deepest zoom level users should be allowed to reach
5. whether panning should be constrained and why
6. what false precision or interpretive harm might occur if zoom and pan are unrestricted
7. one sentence that could be shown to users if the extent requires explanation

Map mission:
[PASTE]

Mini-deliverable

Write a 150-250 word extent policy. It should read like an ethical and interpretive justification, not a technical setting list.

PROCEDURE

Part 4 - Put Interface Elements on Trial ~35 min

Interface elements are promises. A filter, slider, search box, or layer toggle implies that the data can answer a question. Keep only the controls that earn their place.

Possible control	User question implied	Can the data answer it?	Risk if included	Verdict
Filter	Example: What changed recently?	Example: Mostly	Example: Could overstate certainty	Keep / revise / reject
Temporal slider	Example: What changed recently?	Example: Mostly	Example: Could overstate certainty	Keep / revise / reject

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

Review these possible interface controls for my map. For each, identify the user question it implies, whether the likely data can answer that question, accessibility considerations, and whether the control should be kept, revised, or rejected.

Map mission:

[PASTE]

Possible controls:

[PASTE TABLE OR LIST]

Rule

If you cannot name the question a control helps answer, the control is probably cognitive tax.

PROCEDURE

Part 5 - Specify Visual Hierarchy ~25 min

Visual hierarchy is the reading order of the map. Translate that order into language before the model chooses it for you.

Write a visual hierarchy directive for my map. Specify:

- what must dominate first
- what users should notice second
- what should remain available but visually subordinate
- how the title, legend, controls, annotations, and supporting text should behave
- which elements must never compete with the mapped data
- how contrast, size, opacity, and placement should support the reading order

Return the directive as a concise reusable paragraph.

Check the directive by asking the LLM to identify what will likely dominate visually if your paragraph is followed.

PROCEDURE

Part 6 - Choose a Layout Grammar ~30 min

Decide whether the map should feel fluid and immersive or compartmentalized and analytical. Then specify stable zones and mobile behavior.

Recommend a layout grammar for this map: fluid, compartmentalized, or hybrid. Explain the choice in relation to the audience and task. Then provide a layout specification that includes:

- desktop zones
- mobile zones
- where the legend lives
- where controls live
- whether panels may cover the map
- what remains fixed during interaction
- what may collapse or recede
- how empty space should be used

Map mission and interface verdicts:

[PASTE]

Mini-deliverable

Sketch the layout in words. Use regions such as map canvas, top title bar, side panel, bottom drawer, collapsible legend, or fixed controls.

PROCEDURE

Part 7 - Make the Legend Explain and the Inset Justify Itself ~25 min

Legends and insets should clarify meaning. They should not merely make a map look complete.

Design the legend and inset policy for my map. The legend must be explanatory rather than an inventory list. Specify whether it should explain classification logic, units, uncertainty, high/low meaning, missing data, or limitations. Then decide whether an inset is needed. If yes, state the exact question the inset answers. If no, explain why omitting it improves clarity.

Map mission:

[PASTE]

Extent policy:

[PASTE]

Element	Question it answers	Required content	Prominence	Decision
Legend	Example: Short note	Example: Short note	Example: Short note	Example: Use the simpler option
Inset	Example: Short note	Example: Short note	Example: Short note	Use / omit

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

PROCEDURE

Part 8 - Compile the Map Elements Specification ~30 min

Combine the previous decisions into a reusable directive that can be pasted into any prompt-built mapping pipeline.

Compile my decisions into a Map Elements Specification. Use these headings:

1. Human-facing title
2. Model-facing framing line
3. Mapped area and extent
4. Zoom and pan policy
5. Interface controls to include
6. Interface controls to exclude
7. Visual hierarchy
8. Layout grammar
9. Explanatory legend
10. Inset policy
11. Accessibility and user guidance
12. Defaults the model must avoid

Write this as a professional design specification, not as a chatty explanation.

Run the specification in a new chat by asking for a revised map concept. Then ask for one final critique.

Critique this map concept against the Map Elements Specification. Identify any remaining default-driven choices, missing constraints, or elements that look complete but do not explain enough. Recommend a minimal revision.

DELIVERABLE

Submission ~20 min

- Map mission brief
- Default autopsy table
- Human-facing title and model-facing framing line
- Extent and zoom policy
- Interface controls trial table
- Visual hierarchy directive
- Layout grammar specification
- Legend and inset policy
- Final Map Elements Specification
- Revised map concept and final critique
- 400-600 word reflection: Which default was most dangerous, and how did specifying it change the map?