GIS + AI Prompting Cheat Sheet

General Prompt Structure

1. Task: What do you want to do?

2. Data Type: Vector, raster, imagery, tabular, etc.

3. Tool/Platform: ArcGIS Online, QGIS, Google Earth Engine, etc.

4. Domain Context: Urban planning, agriculture, climate, etc.

5. Spatial Detail: CRS, scale, granularity, temporal range.

6. Output: Map, chart, report, layer, table, etc.

Prompt Examples by Task Type

Spatial Analysis:

'Perform a hotspot analysis on crime data in downtown Chicago using a kernel density estimation method.'

Remote Sensing:

'Classify 2020 Sentinel-2 imagery of central California for cropland detection using NDVI and Random Forest.'

Urban Planning:

'Analyze walkability in downtown Toronto by calculating network distances to amenities.'

Transportation:

'Visualize commute patterns by clustering GPS ride-share data using DBSCAN.'

Environmental Modeling:

'Model flood risk zones in coastal Louisiana using DEM, precipitation, and land cover data.'

ArcGIS Online Prompt Templates

1. Create Web Map:

'Create a public-facing web map of Texas air quality using PM2.5 data and custom symbology.'

2. Feature Layer Symbolization:

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'Modify symbology to classify points by 'RiskScore' using traffic light colors.'

3. Field Calculations:

'Write an Arcade expression for PopulationDensity = TotalPopulation / AreaKm2.'

4. Dashboard Setup:

'Design a dashboard with wildfire time-series chart, map view, and gauge for acres burned.'

5. Sharing Settings:

'Configure sharing to make a map public but editable only by a group.'

6. ArcGIS Hub Idea:

'Create a Hub site for community engagement around urban tree planting.'

Adjacent Industries to Learn

1. Remote Sensing & Earth Observation:

- Satellite, drone, and aerial imagery interpretation.
- NDVI, LiDAR, multispectral bands.

2. Cartography & Geodesy:

- Coordinate systems, projections, and symbology.

3. Urban Planning & Transportation:

- Zoning, transit modeling, smart cities.

4. Environmental Science:

- Land use, watershed modeling, environmental impact.

5. Civil Engineering:

- Infrastructure mapping, flood models, asset management.

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6. Spatial Statistics:

- Moran's I, interpolation, clustering, spatial regression.

7. Machine Learning:

- CNNs for imagery, supervised/unsupervised learning.

8. Big Data & Spatial Databases:

- PostGIS, spatial indexing, tiling.

9. Geospatial APIs & Standards:

- GeoJSON, WMS/WFS, REST APIs.