UNIT 1, Lesson 3

Teacher’s name

Date

Class Number/Room

Thematic Mapping

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| **OVERVIEW** | **Materials** |
| Engagement: Class discussion on thematic mapping.Exploration: Reading assignment and exercises from *Getting to Know ArcGIS* textbook.Explanation: Review slides on thematic map design and composition in ArcMap.Elaboration: Student exercise on thematic mapping in ArcMap.Evaluation: Student quiz on selecting the proper type(s) of thematic maps for specific purposes. | * Video and player
* Projector
* Personal computers with Internet access
* ArcGIS for Desktop software
* *Getting to Know ArcGIS* textbook
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| **Objective/Goals** | **Prerequisites** | **Outcome** |
| Students will:1. Understand the standard data classification and symbolization techniques.
2. Define the term thematic mapping and identify the most commonly used types of thematic maps and when they are best used.
 | Introduction to GIS | Students should become familiar with the concept of thematic mapping and identify some of the most commonly used types of thematic maps.  |
| **PLAN** | **Key Points for Teaching:** Key vocabulary:* Choropleth
* Isopleth
* Dasymetric
* Graduated colors
* Graduated symbols
* Proportional symbols
* Dot density
* Cartogram
* Manual classification
* Equal intervals
* Quantiles
* Natural breaks
* Standard deviations

Esri Thematic Mapping Gallery: <https://www.arcgis.com/home/item.html?id=c8707016b45f44ccb7bb76444e593fba> Types of Maps, U.S. Fish and Wildlife Service:<http://training.fws.gov/courses/csp/csp7203/resources/Types_of_Maps_2013.pdf> |
| **Engagement (15 min)** Class discussion:Thematic mappingInstructors should lead a class discussion on thematic mapping and how they differ from reference maps. Instructors can show examples of various types of thematic maps, including choropleth, graduated colors, graduated symbols, proportional symbols, dot density, and cartograms. Students should be asked to discuss their interpretation of the provided maps and ways that each of these types of maps could be effectively used. Reference the Esri Thematic Mapping Gallery. |
| **Exploration (20 min)** Students should read the Chapter 8 introduction from the *Getting to Know ArcGIS* textbook, and complete the following exercises:* 8a: Classifying features by standard methods
* 8b: Mapping Density
* 8c: Using graduated and chart symbols
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| **Explanation (15 min)** Instructor slides:Thematic mapping and map classificationTypes of thematic maps:* Choropleth mapping
* Isopleth mapping
* Dasymetric mapping
* Graduated colors
* Graduated symbols
* Proportional symbols
* Dot density
* Cartogram

Data classification techniques:* Manual
* Equal interval
* Quantiles
* Natural breaks/Jenks
* Standard deviations

Using the correct technique for your data:* Attribute type (categorical or numeric)
* Data type (ranked or count)
* Normalization (normalized or non-normalized)
* Geometry type (point, line, or polygon)
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| **Elaboration (30 min)**Students should complete a technical exercise on thematic mapping and data classification within ArcGIS for Desktop. For this exercise, data should be provided to students, which should be used to classify and symbolize data using various techniques.  |
| **Evaluation (10 min)**Students should be evaluated on their completion of the thematic mapping exercise in ArcMap, as well as a quiz/matching exercise on selecting the appropriate type of mapping technique. The quiz should provide students with a data description and require them to identify the most appropriate type of thematic map or symbolization. Samples could include:* Polygon features displaying population density (choropleth, graduated colors)
* Point locations emergency service locations by type of service (unique values)
* Point locations displaying chemical spills, ranked by spill volume (graduated symbols)

**Homework:** None.  |