UNIT 1, Lesson 1

Teacher’s name

Date

Class Number/Room

Introduction to Cartography

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| **OVERVIEW** | **Materials** |
| Engagement: Video on map design principles.Exploration: Student classroom mapping activity.Explanation: Review slides on map design principles and map elements.Elaboration: Continuation of student classroom mapping activity.Evaluation: Vocabulary or map element quiz.  | * Video and player
* Projector
* Paper (plain and graph)
* Colored pencils or markers
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| **Objective/Goals** | **Prerequisites** | **Outcome** |
| Students will:1. Understand the importance of map design.
2. Identify the key elements of a map.
3. Identify the key principles of cartography and the general process for designing maps.
 | Introduction to GIS | Students will identify the principles of cartography and map design, as well as the key elements of a map.  |
| **PLAN** | **Key Points for Teaching:** Key vocabulary:* Cartography
* Data frame
* Legend
* North arrow
* Title
* Scale bar
* Scale text
* Citation
* Border
* Neat line
* Orientation
* Inset map
* Typography
* Symbology

Traditional cartography vs. digital (computer) cartographyColor selection using ColorBrewer:<http://colorbrewer2.org/>Introduction to Map Design:<http://www.esri.com/industries/k-12/education/~/media/Files/Pdfs/industries/k-12/pdfs/intrcart.pdf> |
| **Engagement (15 min)** Video Warm-up: Exploring GIS: Designing Maps<https://www.youtube.com/watch?v=4s7FuinSaoQ>This video provides an overview of key map design considerations and principles, as well as the map design process.  |
| **Exploration (20 min)** Working individually, students will be instructed to draw a map of the classroom, being provided minimal instruction or direction on how their map should be created. Students should be provided 10-15 minutes to compose their maps, and should then break out into small groups of 4-5 students.In groups, students should share their maps and should be asked to compare their maps and discuss:* What types of features/objects were included?
* How were patterns, colors, or shading used?
* How was scale handled?
* What elements were included?
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| **Explanation (15 min)** Instructor slides:Cartography and map designDesign principles and considerations:* What is the theme or message to be conveyed?
* Geographic extent and coordinate system
* Symbology and harmony of map elements (colors, shapes, patterns, etc.)
* Composition and arrangement of map elements
* Data hierarchy
* Complexity and level of detail for data
* Typography and labels

Key elements of a map:* Title/subtitle
* Legend
* North arrow
* Scale bar
* Scale text
* Border/neat line
* Inset map
* Data frame
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| **Elaboration (30 min)**With the background provided from the instructor slides, students should be instructed to re-map their classroom. Students should be instructed to include map elements, data hierarchy, level of detail, and scale in their map composition. Students could also use the Esri course on Planning a Cartography Project: <https://www.esri.com/training/catalog/5763042e851d31e02a43edda/planning-a-cartography-project/>  |
| **Evaluation (10 min)**Students should be evaluated on their participation in the class activity and discussion, and a map element quiz. For this quiz, students could be provided with a sample map and asked to identify all of the present map elements. **Homework:** Students may finish their hand-drawn map at home if they require additional time to complete. Additionally, students could be assigned to draw a map of their house and/or yard for a supplementary assignment or extra credit activity. |