True Maps, False Impressions: Making, Manipulating, & Interpreting Maps

**DIRECTIONS:** Click on the website listed below. Under “Computerized Chapter Activities” please select 1.2 Thematic Maps (USA).

http://bcs.wiley.com/he-bcs/Books?action=resource&bcsId=5267&itemId=0470484799&resourceId=18408

You are looking at the distribution of African-Americans in the United States using different types of thematic maps. You will use some of the functions of GIS to look at various maps and choose the most useful ones. GIS is a powerful tool used by utility companies, city planners, engineers, cartographers, environmental scientists, and many others.

You will see on the right margin the name for all of the maps.

1. According to the **County Choropleth**, where would you say most African-Americans live in the United States?

   Estimate what percentage of African-Americans would you guess live in the dominant region?

   In fact, only about one-half of all African-Americans live in the South. About the same number live outside the South in large urban areas of the Northeast, Midwest, and West.

2. Click on the **County Circle** icon in the right margin. Now do you believe the previous statement? This map is called a **graduated circle map**. A graduated circle is a type of proportional symbol whose size varies with the value for each county. This graduated circle map shows magnitude with each circle a different size, depending on the total number of African-Americans per county.

   Based on this map, name four cities with the largest number of African-American residents. (Don’t forget, you can zoom in and also turn on City names).

3. Now you see that the way in which data are presented on maps can greatly alter your perception of the distribution of the information being mapped. By using a different type of thematic map and by presenting the data in absolute rather than percentage terms, the latter map’s message changes even though both maps are based on exactly the same data. What are the false impressions created by the **County Choropleth** and **County Circle** maps?

4. Zoom in on the Chicago area. What graphic or visual problems do you see with the way the graduated circle map represents the African-American population of the counties adjacent to New York City?

5. Click on the icon entitled **County Dot**. Dot maps are another way to present the distribution of African-Americans. According to the legend, each dot represents 15,000 people. Any county with fewer than 15,000 African-Americans has no dots, those with 15,000 to 29,999 get one dot, those with 30,000 to 44,999 get two dots, and so on.

   What is the drawback of using this kind of map to compare the number of African-Americans in different counties?
6. Change the THRESHOLD that sets the number of people per dot to 50,000 and then to 5,000 by clicking on the dot resolutions. Toggle between the 3 dot resolutions to see the different impressions they portray. Which map emphasizes urban areas while deemphasizing the rural South? Why?

7. The level of aggregation (i.e. the size of the spatial unit of analysis) is also important to the pattern depicted on the map. Click on the Country Choropleth map again to get a refresh image of it in your mind, and then click on the State Choropleth. This shows the same data but by state rather than by county. Note that as you move your mouse over each state, you see the state name and the percentage of African-Americans included in the state’s total population. What different impression of spatial pattern do you get from the state map as compared to the county map?

Which region of the United States has the least amount of African-Americans?

8. Click on State Isoline. ISOLINES connect points of equal value, in this case, equal percentages of African-Americans. Therefore, as you cross an Isoline, you are going into an area with either higher or lower percentages of African-Americans. By interpreting the spacing and configuration, you can “read” a third dimension portrayed on the map; an African-American “surface” with peaks of high percentage and valleys of low percentage.

The legend says the Isoline interval is 3%. Therefore, the map has isolines at 3%, 6%, and on up to 33%. Try to picture the surface that the map represents. As you move from very low percentages in South Dakota toward the “peak” in Mississippi, each time you cross an isoline, you are going up by 3%.

Identify two locations where the density gradient increases sharply.

Is the change more rapid between New Mexico and Louisiana or between New Mexico and California?

Look at the range within which most of Oklahoma falls. Based on this, what impression does the map give for the average percentage of African-Americans in Oklahoma?

9. Does the isoline surface accurately depict where African-Americans are concentrated? _______________

Look at the state and county Choropleth maps to get a feel for the concentration of African-Americans, and then compare your isoline peaks and valleys to see whether this concentration is accurately shown.

10. Think about TV shows and movies you have seen that prominently feature African-Americans. Based on the maps you have seen of the distribution of African-Americans, does Hollywood accurately represent where African-Americans live? What stereotypes are embodied in these media images?

11. Click on Other Ethnic Groups. Identify where the highest concentration of _________ live.

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<thead>
<tr>
<th>Ethnicity</th>
<th>Location</th>
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<tbody>
<tr>
<td>Asian</td>
<td>Click on Canada.</td>
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<td>Hispanic</td>
<td>Aboriginal Natives live.</td>
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