NORTH CAROLINA IN MAPS:
Map Activities

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North Carolina Average Precipitation

North Carolina Geographic Alliance
1995
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EDITOR’S NOTE

Maps are one of the important tools of geography. A child might use maps for any number of purposes: to find his or her way from one place to another; to find the location of a place; to gather information about a place; to compare characteristics of two places; or to visualize what a place is like by inferring information from symbols and patterns. It is critical that children be able to use maps as a tool for understanding the world around them. The National Geography Standards, released in the fall of 1994, recognizes the importance of maps. The very first standard states that a geographically informed person knows and understands “How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.” Unfortunately, teachers and their students often overlook maps as part of their studies.

In 1993, the Department of Geography and Planning at Appalachian State University published Geographic Perspectives of North Carolina, the first in a series of map sheets examining characteristics of the state. Subsequent map sheets have focused on North Carolina's economy, North Carolina's climate, and Watauga County. Cartographers at ASU are preparing new map sheets about higher education in the state and North Carolina's place in the world (the last in cooperation with the Geographic Alliance). These maps are colorful, interesting, and informative; the maps would be valuable resources in any classroom in the state. Recognizing the potential value of the maps, the North Carolina Geographic Alliance asked Dr. Bill Imperatore to prepare a set of exercises to accompany the maps. What you have in your hands is the results.

This book will provide teachers and their students with a set of activities that will introduce them to the wonders and joy of working with maps. It should serve as a solid first step in using maps as geographic tools, but it is only a first step. Teachers will want to modify and expand these lessons in order to explore the full potential of maps. Be creative and have fun.

I would like to thank several people for their assistance in preparing this book. Dr. Doug Wilms (East Carolina University), Steve Pierce (Pleasant Garden Elementary School, Marion), Patsy Hill (Allen Joy Elementary School, High Point), and Arvil Sale (Green Valley Elementary School, Boone) reviewed the document and provided valuable suggestions. Lori Wells (Vilas) typed and did the final design of the document.

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FOREWORD

The North Carolina Geographic Alliance is committed to promoting and enhancing geography instruction in our state. Through its summer institutes and workshops it has enlisted the assistance of several thousand public school teachers and administrators. Its newsletter, received by more than 6,000 members, announces Alliance events, provides lesson plans, book reviews, geography quizzes and other articles of help and interest to teachers.

The Alliance's instructional materials development efforts has produced Geography Awareness Week activity packets and North Carolina Water: Can We Keep It Fit For Life, a book of water related classroom activities and Atlas of North Carolina water features.

This activity book provides an alternative way of learning about our state. It is supplemental and complimentary to available social studies texts. It is based upon map products of the computer cartography laboratory at Appalachian State University. A state-of-the-art facility, the lab has image processing and geographic information system capabilities. Maps are the basic tool of the geographer, and map skills are an important component of our state's social studies curriculum. Maps provide a unique way of acquiring information about and gaining understanding of North Carolina.

William Imperatore is the past co-coordinator of the NCGA and a retired professor of geography at Appalachian State University.

For information about NCGA activities and publications contact Dr. Doug Wilms at ECU 919-758-4163 or Dr. Jim Young at ASU, 704-262-2689
ABOUT THESE ACTIVITIES

Most of the information on the three map sheets is based on county data. Some, like the maps about hurricanes and tornadoes, elevation and drainage, are isoline maps or are based on the geographic regions of North Carolina. Caution your students to read each question carefully to determine if a question is referring to the state’s geographic divisions (Mountains, Piedmont or Coastal Plain) or climatic divisions (such as Southern Mountains Northern Coastal Plain, etc.). Make certain students read the text beneath each map. The text explains what the map is about or provides some factual information. Some questions can be answered only with the information provided beneath the maps.

The map/graph interpretation activities can be done in any order. Each activity stands alone. It is not recommended that you do all the activities in a short time span (consecutively in one or two weeks). These activities are designed to reinforce the topics you are studying in your textbook. The maps provide information which will extend, clarify, and amplify textual materials. Interaction with the maps will help develop a spatial sense of our state.

The activities contain only questions which can be answered by interpreting the data displayed on the map sheets. You can extend each activity by asking questions about how and why the various distributions developed. Students can do additional research on some of the topics.

Geographic information system activities should be done after activities 1-21 are completed.

Bill Imperatore
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Activity 1

Constructing Choropleth Maps

Choropleth (shaded area) maps are simple but effective devices for displaying geographic information. Data for choropleth maps can be obtained from many sources including an almanac, an atlas, the U.S. Census Bureau, or the Population Reference Bureau.

The following 1990 data from the U.S. Census Bureau shows the percentage of each county’s population which is urban (cities of 2,500 people or more). All these counties are entirely or partly in the mountains of North Carolina.

<table>
<thead>
<tr>
<th>County</th>
<th>% Urban</th>
<th>County</th>
<th>% Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander</td>
<td>12</td>
<td>Jackson</td>
<td>6</td>
</tr>
<tr>
<td>Alleghany</td>
<td>0</td>
<td>McDowell</td>
<td>15</td>
</tr>
<tr>
<td>Ashe</td>
<td>0</td>
<td>Macon</td>
<td>10</td>
</tr>
<tr>
<td>Avery</td>
<td>0</td>
<td>Madison</td>
<td>0</td>
</tr>
<tr>
<td>Buncombe</td>
<td>65</td>
<td>Mitchell</td>
<td>0</td>
</tr>
<tr>
<td>Burke</td>
<td>33</td>
<td>Polk</td>
<td>0</td>
</tr>
<tr>
<td>Caldwell</td>
<td>40</td>
<td>Rutherford</td>
<td>26</td>
</tr>
<tr>
<td>Cherokee</td>
<td>12</td>
<td>Surry</td>
<td>20</td>
</tr>
<tr>
<td>Clay</td>
<td>0</td>
<td>Swain</td>
<td>0</td>
</tr>
<tr>
<td>Graham</td>
<td>0</td>
<td>Transylvania</td>
<td>18</td>
</tr>
<tr>
<td>Haywood</td>
<td>22</td>
<td>Watauga</td>
<td>23</td>
</tr>
<tr>
<td>Henderson</td>
<td>19</td>
<td>Wilkes</td>
<td>11</td>
</tr>
</tbody>
</table>

To display this data on a choropleth map it needs to be divided into data classes because it would be difficult to have a separate color on the map to represent each county.

A logical arithmetic method can be used. If you subtract the lowest percentage, (0%), from the highest percentage, (65%), you get the range of values of 65. Divide 65 by the number of data classes you want (usually not more than 5). Try 5. 65 divided by 5 = 13. Subtract 13 from 65. 65-13 = 52. So the first data class would be 52-65. Now subtract 13 from 52. 52-13 = 39. The second data class would be 39-51. Subtract 13 from 39. 39-13 = 26. The third data class is 26-38. Subtract 13 from 26. 26-13 = 13. Data class four is 13-25. The fifth data class is 0-12. Plot these data classes on MAP 1.
Another way to set the data classes is to “eyeball” the data. You might decide to use values of 10% to divide the data. The classes would be 0-9, 10-19, 20-29, 30 or more. Plot these data classes on MAP 2.

You might decide you want to emphasize only those counties with the highest values. Your data classes might be 30 percent or more and less than 30 percent. Plot these data classes on MAP 3.

Modern computer mapping programs allow you to choose any data classes you want. Or the computer mapping program will set the data classes for you.

1. Which of the three maps you created looks and “feels” best to you?

   Why?

2. What cities are found in the three counties with the highest percentages?

   a. _________________________________________

   b. _________________________________________

   c. _________________________________________
Activity 2

Around and About North Carolina

Answer the following by using the three larger maps in the center of the map sheet Geographic Perspectives of North Carolina.

1. Into how many major landform regions is N.C. divided? __________

2. Name the regions. ____________________________________________

3. In what part of the state are the highest elevations found (North, South, East, West)? __________________________________________________________________________

4. How many counties are entirely in the mountains? ________________

5. In what landform region is your county? __________________________

6. In what landform region are most of the state's reservoirs (lakes) located? __________________________________________________________________________

7. Most of North Carolina's rivers flow in what direction? __________

8. Which rivers are exceptions? ____________________________________

9. How many interstate highways are in North Carolina? __________
   Name them. ____________________________________________
10. Which interstate is the longest? _________________________

11. Which interstate runs through five of North Carolina's largest cities? _________________________

12. Name those cities.
   a. _________________________
   b. _________________________
   c. _________________________
   d. _________________________
   e. _________________________

13. Which Interstate highway is closest to where you live? ______________
Activity 3

Population Characteristics

Answer the following by using the blue shaded maps on the map sheet Geographic Perspectives of North Carolina.

1. What is the total population of North Carolina? ________________

2. In what population range is the county where you live? ____________

3. In what areas (East, West, North, South) of the state are counties with the smallest populations located? ______________________

4. Why do these counties have the smallest populations? ____________

5. On the map below, color RED those counties which have the largest populations.
6. In what region of North Carolina are most of the counties with large populations located? ________________________________

7. Name the counties.

____________________________________
____________________________________
____________________________________
____________________________________
____________________________________
____________________________________
____________________________________
____________________________________

8. Why do these counties have the largest populations? ______________

____________________________________

9. Is your county one of these? ________________________________
Activity 4

Age Characteristics

Answer or do the following by using the blue shaded maps on the map sheet Geographic Perspectives of North Carolina.

1. On the map below, color RED those counties with the highest percentage of persons age 16 and younger.

![Map of North Carolina with counties]

2. Name the counties.

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
3. Is your county one of these? ________________________________

4. In what region of the state are most of these counties located?
   ________________________________

5. Can you think of any reason why these counties are distributed the way they are?
   ________________________________

6. Is your county above or below the state average? ______________

7. On the map color BLUE those counties with the highest percentage of persons age 65 and older.

8. Is your county one of these? ________________________________

9. In what region of the state are most of these counties located? ____
   ________________________________

10. Can you think of any reason why these counties are distributed the way they are?
    ________________________________