Population Distribution in Year 1

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Lesson Overview: Students use population data for world regions to create a map of population distribution in Year 1, describe the distribution of population in the Year 1, and relate the patterns to ancient urban settlements, temperature, and latitude.

Essential Questions:
- How was population distributed in Year 1 among world regions?
- What might explain the regional distribution of population in Year 1?
- How does population distribution in Year 1 relate to other topics?

Objectives: Students will be able to:
- Construct a map using population data.
- Describe population distribution among regions in Year 1.
- Describe spatial associations between population distribution in Year 1 and related topics.

Subject/ Target Grade: World History and Geography, Grades 6-8

Duration: 1-2 Class periods

Student Materials
- World Regions Population in Year 2000
- *World Regions Basemap (11 x 8.5)
- *World Regions Basemap (11 x 17)
- Population by Regions
- Temperature Activity
- 100 small counters per group
- Colored Pencils (red, blue, green)

Teacher Materials:
- World Regions Population in Year 1 (answer map)
- *Ancient Cities and Temperature (pdf)
- *Extension: Human Migration Countdown (pdf)
- *Population Distribution PPT

NOTE: Activities and questions are referenced to Spatial Thinking modes in the lesson and the PPT.

Michigan Grade Level Content Expectations
- 6 – G1.2.3 Use data to create thematic maps and graphs showing patterns of population, physical terrain, rainfall, and vegetation, analyze the patterns and then propose two generalizations about the location and density of the population.
- 6 – W1.2.2 Describe the importance of the natural environment in the development of agricultural settlements in different locations
- 7 – G1.2.4 Draw the general population distribution of the Eastern Hemisphere on a map, analyze the patterns, and propose two generalizations about the location and density of the population.
- 7 – W1.1.1 Explain how and when human communities populated major regions of the Eastern Hemisphere and adapted to a variety of environments.

National Geography Standards
- Standard 3: How to analyze the spatial organization of people, places and environments on earth’s surface
- Standard 4: The physical and human characteristics of places
- Standard 9: The characteristics, distribution, and migration of human populations on Earth’s surface

National World History Standards
- Era 1: Standard 1B: The student understands how human communities populated the major regions of the world and adapted to a variety of environments.
- Era 2: Standard 1A: The student understands how Mesopotamia, Egypt, and the Indus valley became centers of dense population, urbanization, and cultural innovation in the fourth and third millennia BCE.

Common Core Literacy Standards
Text Types and Purposes:
- 2. Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

Common Core Math Standards
- 6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
Procedure

1. **Opening Activity**: Give students **World Regions Population in Year 2000**. Describe present-day distribution of population among world regions using this map. *(Slides 4-6)* Transition to main question for this lesson: Where did people live in Year 1 and why in those places?

2. **Map Activity**: To create a map visualization of population distribution in Year 1, give each student group the following materials: **World Regions Base map** (options 8.5 x 11 or 11 x 17), **Population by Region** table, and 100 counters. Use data in the Percent column for Year 1 of the table to distribute counters into regions.

3. **Class Discussion**: Orally and then in written form, students should describe where the highest and lowest percentages are located using region names *(Slides 7-8)* *(You may also display an answer map, World Regions and Population in Year 1.)* *(Slide 9)*
   - Where are the 3 highest percentages? *(South Asia, East Asia, Western Asia)* Note the location of these high percentage regions in relation to the Tropic of Cancer (dashed line north of the Equator).
   - Where are the 2 lowest percentages? *(Australia & Oceania, North America)*

4. **Guided Practice**: Why did some parts of the world have more people in Year 1? *(Slide 10)* We will use other maps to investigate this question. *(Slide 11)* Option: Use the **Ancient Cities and Temperature** clickable PDF map.
   - First, discuss *large ancient cities*. *(Option: Click the layers symbol on left (bottom symbol), and then turn on the layers “Year 430 BCE cities” and “Year 100 CE cities.”)*
     - Ask students to describe the arrangement of these ancient large cities. Are they scattered throughout the world? Are they arranged in a line? *(Most cities seem to be in a line or band.)* Did the locations change much in 500 years between Year 430 BCE and 100 CE?
     - Ask students to describe the pattern of cities in relation to latitude lines. *(Slides 12-13)* *(Most of these large ancient cities seem to be in a line or band above the Tropic of Cancer, between 20 and 40 degrees north latitude. Also note that the band of large ancient cities corresponds to high population regions.)*
   - Next, discuss *temperature*. *(Option: Turn on the “Temp Activity” and “Temperature text” layers)* Distribute the **Temperature Activity Sheet** *(Slide 14)*
     - Following instructions below the map, students color temperatures into 3 categories (cold, mid, and hot). *(Slide 15)*
     - Ask students to describe the general locations of cold, mid, and hot temperatures in relation to latitude. *(Option: In the **Ancient Cities and Temperature** clickable PDF, turn on the “answer” layers: “Temp hot,” “Temp mid,” and “Temp cold.”)* *(Slide 16)* *(Hot temperatures are near the Equator; cold are far north or south of the Equator {closer to North and South Poles}. Most mid temperatures are between hot and cold {either north of the Tropic of Cancer or south of the Tropic of Capricorn}. In general, temperature decreases away from the Equator except for high elevation places that tend to have cooler annual average temperatures than their low elevation neighbors.)*

**NOTE**: Regions were determined by the data available for population in Year 1. Teachers may need to review the regions before completing this activity.
Ask students to describe which temperature category matches the band of large ancient cities and the high population regions. (Option: You may click the “cities” layers to review their locations.) (Slides 17-18)

(The ancient large cities and the high population regions in Year 1 match the middle temperature category rather than the cold or hot categories. Ancient civilizations with large populations tended to develop in “middle” temperature regions.)

5. Concluding the lesson: Use the World GeoHistoGram on Slide 19. Ask students to find the Year 1 time period on it. Next, name the civilizations that had high population percentages in the World Regions and Population in Year 1 map. (Rome, Parthia, Maurya, Han) How do these civilizations compare to the high population percentages? (located in Western Asia {Middle}, Southern Asia {C&S Asia} and Eastern Asia)

Assessment Options (Slide 20)
Use the World Regions Basemap, and ask students to
- Locate and name 3 regions that had the highest population percentages in Year 1. (South Asia, East Asia, Western Asia)
- Shade the latitude band that had most of the largest cities in 430 BCE and 100 CE. (Most of these large ancient cities seem to be in a line or band just above the Tropic of Cancer, between 20 and 40 degrees north latitude.)
- Shade the latitude band that had “mid” temperatures (rather than cold or hot). (Most mid temperatures are either just north of the Tropic of Cancer or just south of the Tropic of Capricorn. Middle temperatures are not near the Equator but also not far north or south near the Poles.)
- Write an explanatory paragraph to describe the spatial association between population distribution in the Year 1 and temperature. (Regions that had higher percentages of world’s population in Year 1 tend to occur in “middle” temperatures {e.g., 50’s rather than 80’s} and not in the colder temperatures. Students should explain further – e.g., inability to grow food and keep warm in colder temperatures; too hot or dry makes living more difficult south of the Tropic of Cancer; remember – this was before electricity, air conditioning, medicines and insect repellent, etc.)

Adaptations/Extensions/Enhancements (Slides 21-22)
- Adaptation: Provide answer maps to selected pairs of students to ease discussion of activities for struggling students.
- Extension: Use the Human Migration Countdown (clickable PDF) or Slide 22 to see that ancient migrations reached the Americas last (which helps to explain the low percentages of world population in Year 1 for the North America and Latin America regions).
- Extension: Use Slides 23 and 24 to examine the association between present-day landcover and Year 1 Population. Notice that the “lightest yellow” cropland category in both South Asia (India) and East Asia (China) is associated with high population percentages in Year 1.

References
Population data:
Angus Maddison, The World Economy and http://www.ggdc.net/maddison/maddison-project/home.htm
Colin McEvedy & Richard Jones, Atlas of World Population History
Temperature data: http://www.puente-del-inca.climatemps.com/
Largest cities in 430 BCE and 100 CE:
- Tertius Chandler-*Four Thousand Years of Urban Growth: An Historical Census*
## Population by Regions

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 1</th>
<th>Year 2000</th>
<th>Year 2000</th>
</tr>
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<tbody>
<tr>
<td>Total**</td>
<td>Rounded*</td>
<td>Region</td>
<td>Percent</td>
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<tr>
<td>760</td>
<td>0.3</td>
<td>North America</td>
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<td>5,600</td>
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<td>Latin America</td>
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<td>Southern Europe</td>
<td>3.0</td>
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<td>13.0</td>
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<td>75,000</td>
<td>33.0</td>
<td>South Asia</td>
<td>22.0</td>
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<tr>
<td>360</td>
<td>0.2</td>
<td>Australia &amp; Oceania</td>
<td>0.4</td>
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<tr>
<td>225,520</td>
<td>99.5</td>
<td>World</td>
<td>100.4</td>
</tr>
</tbody>
</table>

*Percentages are rounded to nearest whole number except if less than .5%.

**Multiply Totals by 1,000.

***Percentages do not sum to 100 because of rounding.

Data sources:

- [http://www.ggdc.net/maddison/maddison-project/home.htm](http://www.ggdc.net/maddison/maddison-project/home.htm)
- [http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=7](http://sasi.group.shef.ac.uk/worldmapper/display.php?selected=7)
World Regions Population in Year 2000

The size of each circle represents each region's population in Year 2000 as a percentage of the world total.

World Regions Year 2000

- North America
- Latin America
- Northern Europe
- Southern Europe
- Africa
- Northern Eurasia
- Eastern Europe
- Eastern Asia
- Southern Asia
- Western Asia

Australia & Oceania

Michigan Geographic Alliance; carol.gersmehl@gmail.com; July 1, 2013; Shapefiles from ESRI; Projection: Eckart IV equal area
The numbers in the boxes on this map show the annual average temperature at a number of places around the world.

Looking at the geographic pattern of temperature can give us clues about its possible influence on the migration of humans, their use of land in different parts of the world, and the location of cities at different times in history.

1. Find the places that usually have high temperatures (annual averages higher than 75°F). Color their boxes orange or red.
2. Find the places that usually have low temperatures (annual averages of 45°F or lower). Color their boxes blue.
3. Make sure that the places you have not colored have average temperatures between 46°F and 75°F. Then color them green.
The size of each circle represents each region’s population in Year 1 as a percentage of the world total.