**Using the National Atlas of Korea to Teach about Scale and Types of Maps**

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Kenneth H Keller is an instructor of Advanced Placement (AP) Human Geography at George Walton Comprehensive High School in Marietta, GA. He has taught the course since its inception in 2000-2001. He is currently a lead table leader at the APHG scoring/reading in Cincinnati, OH and has also worked in the role of question leader for the alternate exam. He has been attending the reading and working in other roles since June 2002. Ken is a past member of the AP Human Geography Test Development Committee (2006-2010). He was recently chosen as President-elect of the National Council for Geographic Education to serve as President during the year 2019 and is currently on the Executive Board serving year two of a three-year term. He has been teaching AP Human Geography weeklong summer institutes and one day workshops for teachers since 2004. He is also a 2004 recipient of a NCGE Distinguished Teaching award. Ken is also Past-President of the Connecticut Council of Social Studies. He also taught as an adjunct professor of Geography for five years at Western Connecticut State University. He took on other various positions related to geography education during his time teaching at Danbury HS, Danbury, CT before relocating to Georgia in August, 2013.

Ken is also one of three co-founders of iScore5 LLC, an AP test prep app for smart devices.

**Introduction of the lesson for the instructor:**

With the current emphasis on technology and learning how to use GIS to make thematic maps in secondary school level geographic education, there are several often neglected or forgotten and yet simple questions that need to be asked in order to promote spatial understanding. Please keep these questions in mind when presenting this lesson and other geographic analysis to your students.

* For what reason or purpose do we make a particular map?
* How well does a map convey its geographic meaning?
* How well does a student understand the intended message of the map?
* What is the proficiency or ability of a student’s interpretation of a map given that there are so many kinds of maps and so many ways a cartographer can make it?
* How great is the effort on the part of the teacher to teach map reading, analysis, and interpretation?

**Using the National Atlas of Korea to teach about Scale and Types of Maps**

**Lesson Overview and Objectives:**

Using the National Atlas of Korea Volumes II and III to teach about different types of maps and the concept of scale, two of the most essential aspects of acquiring geographic knowledge.

* Students will evaluate and analyze geographic phenomena at different scales.
* Students will aggregate geographic data using different types of maps.
* Students will determine the best way to utilize the concept of scale when looking at different geographic data.
* Students will conclude as to the best type of map to use depending on the data presented and the rationale for creating the map.

**National Content Standards in Geography:**

1. Standard 1: How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
2. Standard 17: How to apply geography to interpret the past.
3. Standard 18: How to apply geography to interpret the present and plan for the future.

**Social Studies Georgia Standards of Excellence Georgia Department of Education**

World Geography. The world geography course provides students with an analytical view of how geographic factors have and continue to influence human behavior on the earth. Students will examine how the physical and cultural geographic factors contribute to varying levels of cooperation within the major world regions. Additionally, students will examine the importance that political, environmental, and economic factors have in a region’s development.

**State of Georgia, United States of America:**

**World Geography Social Studies Standards of Excellence**

**Map and Globe Skills. Page 139 of 156.**

GOAL: The student will use maps to retrieve social studies information.

1. Indicate when a skill is introduced in the standards and elements as part of the content

2. Indicate grade levels where the teacher must develop that skill using the appropriate content

3. Indicate grade level by which student should achieve mastery, the ability to use the skill in all situations

4. Indicate grade levels where students will continue to apply and improve mastered skills

5. Use graphic scales to determine distances on a map.

6. Use map key/legend to acquire information from historical, physical, political, resource, product, and economic maps.

7. Use a map to explain impact of geography on historical and current events.

8. Draw conclusions and make generalizations based on information from maps.

9. Compare maps of the same place at different points in time and from different perspectives to determine changes, identify trends, and generalize about human activities

10. Compare maps with data sets (charts, tables, graphs) and /or readings to draw conclusions and make generalizations

**Materials:**

* *The National Atlas of Korea -* [*http://nationalatlas.ngii.go.kr/pages/page\_1.php*](http://nationalatlas.ngii.go.kr/pages/page_1.php)
* *Part II - http://nationalatlas.ngii.go.kr/*
* *Part III -* [*http://nationalatlas.ngii.go.kr/pages/page\_527.php*](http://nationalatlas.ngii.go.kr/pages/page_527.php)

National Atlas II and III page number(s):

Chapter 1: pp. 30-33.

Chapter 2: p. 2, p. 3, pp. 98-99, pp. 162-163.

Chapter 3: pp. 72-73, pp. 122-123, p. 185.

Chapter 4 pp. 222-225

* PowerPoint Presentation

**Grade Level:**

* High School World Geography /AP Human Geography Class and adaptable to Middle School

**Time Frame:**

* Two 45-Minute Classes or One 90-Minute Class
* The lesson and other associated activities are easily divided in parts where the teacher can omit some parts or consolidate some parts to fit the desired class time.

**Teaching the Lesson**

**Part I – Introduction**

* To begin the lesson, have students brainstorm about the many different maps they have learned about so far in their AP Human Geography or other geography class (slides 7 thru 20) Have students also brainstorm on the importance of scale in understanding the “why of where” of geographic phenomena (slide 5)
* As an introduction to using a Atlas, have students look at specific maps chosen by the instructor to see what different types of maps and at different scale appear as and what they are trying to represent. Note that students later on in this lesson will be comparing these types of maps to maps they find throughout the Atlas. (Slides 3,4,6,8,9, 11-20) from the PowerPoint are map example pages from the Atlas)
* Have the students read pages in the Atlas to identify different types of maps and to become familiar with using the Atlas (1-6). The students will write out each statement and fill in the blanks with appropriate answers, and they will site a specific map and/or graph from the Atlas to support their answer.

## **Part II-A**

## **Identifying different types of maps and types of scale from the National Atlas of Korea**

* **Complete the statement…**
* **Provide evidence for your answer…**
1. A choropleth map is defined as \_\_\_ and an example of this type of map can be found on page \_\_\_\_.
2. A dot density map is defined as \_\_\_ and an example of this type of map can be found on page \_\_\_\_.
3. A proportional/graduated circle map is defined as \_\_\_ and an example of this type of map can be found on page \_\_\_.
4. An isoline map is defined as \_\_\_ and an example of this type of map can be found on page \_\_\_.
5. A cartogram is defined as \_\_\_and an example of this type of map can be found on page \_\_\_.
6. A large scale map is defined as \_\_\_ and an example of this type of map can be found on page \_\_\_\_.
7. A small scale map is defined as \_\_\_ and an example of this type of map can be found on page \_\_\_\_.
* Discuss with students what aspects of human geography can be analyzed and discussed when looking at different types of maps and phenomena at different scales.
* Discuss with the students how maps can lie and how opinions on which maps to use and in what context can have significant implications regarding policy decisions at many different scales. Use slides 22-32 to aid in your class discussion.
* Have students search the internet and/or classroom atlases such as Goodes’ and Nystrom to identify different examples (non Korean) they would like to use to find similar examples from the National Atlas.

**Part II-B**

**Finding similarities between National Atlas and maps from other sources.**

* Locate maps in the National Atlas of Korea (5-7, instructor can determine exact number range based on their own parameters related to class time management, etc.) These maps should be similar in style and context to the ones that students observed and identified in the earlier part of this lesson.
* Identify the title of the map, what type of scale is being used (don’t forget about large or small, fractional, graphic or verbal).
* How is the data being aggregated?
* What is being identified within the legend?
* Is it an accurate representation of what the data shows? If yes, explain why, if no explain why not and what would be a better way to represent this data?
* Out of all the examples of maps you took a look at which maps best represented the concept of scale. Large, small, etc.
* Finally, based on how the data was represented which maps, of each of all the different types did the best job in representing the data? Why?

**Part III– Additional Activities for a World or AP Human Geography class from using the materials presented in the Atlas.**

*The National Atlas of Korea* has maps and graphs on almost any topic you would cover in a geography/social studies class. It is an excellent primary source to use with your students as well as a way to add additional examples to existing lessons.

**Activity 1:**

**Where should the next Starbucks or other Fast Food franchise go?**

* Students can look through the Atlas at population maps, housing and business maps, etc., to determine the best locations for a coffee shop, new food franchise, etc.
* Students can use GIS and associated excel spread sheet to input data as to current locations and to determine best sites for new locations.
* Students will use the principles of the geographic concept of Central Place Theory to make these determinations.

**Materials: The National Atlas of Korea, Vol. III page number(s): 204 - 207**

**Central Place Theory activity:**

To piggy back off of Michael Robinson’s lesson on Korean baseball and associated culture, have students determine where the next/newest Korean Baseball League (KBL) franchise/team should be located. Additional activities which lend itself to this could be coming up with a team name, logo and marketing plan based on the “geography”, both physical and human that are connected to the area/city/urban area where the team will be located. This activity could also be used to determine locations of Olympic Games. Have students go through this same process to determine whether or not the site of the 2018 Winter Games in was the BEST choice based on the geographic factors present there or if there were other sites in South Korea that might have worked better. This will be an interesting process for students to go through especially after the games have been concluded and their level of success analyzed and debriefed.

**Activity 2:**

**Education in South Korea**

* Students will analyze data relating to levels of primary, secondary and graduate education in South Korea.
* Students will compare and contrast this data across various regions of South Korea. For example: % of students in varying levels of school comparing rural to urban areas.
* Students can determine why certain regions of South Korea are seeing a large number of schools closing.
* Students will compare this data to those of other developed countries based on information from sources such as CIA World Factbook, United Nations Human Development Index, etc.
* Students will infer as to the benefits of getting an education in South Korea vs. other regions of the world.

**Materials: The National Atlas of Korea, Vol. III page number(s): 240 - 251**

**Activity 3:**

**Leisure Time in South Korea**

##: **Also related to Michael Robinson’s lesson on baseball in South Korea**

* Students will compare work related time to leisure time for South Koreans.
* Students will determine if South Koreans get as much leisure time as residents of countries with similar levels of development.
* Students can look specifically at Internet use, time spent at other cultural events to compare and contrast time spent.

**Materials: The National Atlas of Korea, Vol. III page number(s): 214 - 219**

**Activity 4:**

**National Health in relation to causes of death and in particular rates of smoking and alcohol consumption**

* Students will evaluate and analyze hospital visits and causes of death in South Korea and then determine if these visits and associated factors can be considered “typical” for a developed country such as South Korea. Students will use census data from other developed countries to help with making this determination.
* Students will be able to link their conclusion to a discussion on stages of the Epidemiologic Transition Model (APHG)
* Students will compare rates of smoking and alcohol consumption across regions of South Korea determining if rates are higher/lower in rural vs. urban areas. Students will conclude as to the reasons behind their findings.
* As an enrichment to this activity, students may look at the economic/geographic consequences of the marketing and associated advertising related to these two industries, how they are regulated by governments, etc.

**Materials: The National Atlas of Korea, Vol. III page number(s): 232 - 235**

Finally, one main question that can be asked is whether a cartographer is mapping the true geography of the land or simply mapping a set of data that is conveniently available. A map reader should train himself/herself to recognize the difference. It may not be an easy task, but taking the context of other geographic factors and other supporting maps or geographic information and then applying spatial thinking skills are critical in truly understanding the intended message of the map.

The 2006 publication by the U.S. National Research Council, Learning to Think Spatially: GIS as a support system in the K-12 curriculum, should be used by teachers as a reference and consultation for their efforts in developing lesson plans or for creating spatial thinking exercises.