

Geographic Challenges in the 21st Century

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Author Note

This is a condensation of a more detailed curriculum guideline. If you would like the detailed guideline, contact Doug MacLeod by e-mail < maccapl@sympatico.ca >

If you are a university graduate with a degree in geography or a teacher who has been delegated to teach a geography course, you know that in your school there are many bright students in the eleventh or twelfth grade who know where they are headed in University. You may feel that not enough of them are interested in geography's AP course in Human Geography. There are not ever likely to be large numbers because the course is very challenging and very few students are intending to major in geography.

At the same time you may be suspicious that a lot of these students have had limited exposure to geography in earlier years. In addition, we all know that geographic education should be a component of every American citizen's education if that citizen is to be well-enough informed to judge the policies of the government. Is there a curriculum component available to address that need? Here is an abbreviated version of a geography course to meet this need.

Several years ago, at a dinner for 'Fellows' of the Royal Canadian Geographical Society, I had a chat with Gilbert Grosvenor, long the driving force of the National Geographic Society. At that time he was very pleased with an increase in the number of students attempting the relatively new Geography AP offering. However, he expressed his regret that the course will never attract the number of registrants it might deserve. In his guided way, he also reiterated the notion that too much of the United States' population is geographically challenged when evaluating some of its government decisions. I suggested that what is needed is a course for senior secondary students that would address the problem particularly for students who will never consider pursuing geographic education at the tertiary level. Dr. Grosvenor immediately suggested that I should write one for NCGE. Returning home. I decided that was a challenge that would help to fill the long duration of the 2010-2011 winter.

The result of that decision was a relatively detailed curriculum guideline entitled: *Geographic Challenges in the 21st Century*. The elements of the rationale for the guideline may be summarized as follows:

- Get a new perspective on your home.
- not your town,
- not your state,
- not your country,
- but planet Earth — your only Home.

That is, the course would be concentrated on *a global view* and, to that end. The students will need access to a good model of the globe and the only text would be the excellent atlas — Goode’s World Atlas (22nd Edition, Rand McNally, 2010). Primarily the students will be using the first 84 pages where every map is a global projection of the whole world. Teachers, and perhaps their students, should also have access to the latest Population Data Sheet published by the Population Reference Bureau, Washington, D.C.

A teacher attempting a course like *Challenges* will be able to identify all kinds of map correlation exercises to expand and prod their students’ abilities. In turn, students under-taking a course like *Challenges* will develop their correlation skills and become more geographically literate and a better informed citizen of whatever country he or she may choose to live in while pursuing their career in their chosen field of study.

Part I — Global Basics

The course begins with a review of basic Earth facts and the ways these are illustrated on maps and charts. The atlas gives adequate coverage in its introductory pages. The students may have been exposed to much of this in elementary grades but much may have been forgotten and needs refreshing. Some students may have had an Earth science course and this course does not intend a detailed structure of the planet but emphasizes its sphericity and, of course, the significance of the biosphere that enables, and is essential to, the support of all life forms.

1. Geography — Its Nature and Perspectives.

Geographers often get involved in heated debates about the nature of the discipline. For our purposes it will be sufficient to emphasize that geography has a conceptual framework based on a definition of a ‘concept’ as “abstrac-

tion around which facts may be organized and about which generalizations may be made.” Essentially all nouns are concepts. Many teachers may have used the Five Themes — MR HELP (Movement, Regions, Humans and Environment, Locations, and Places) as a conceptual base but some may like to use a longer more inclusive list proposed many years ago by a Geography Professor at Clark University:

- The Round Earth on Flat paper
- Humanity — Making Choices
- The Support of Life
- Resources — a Cultural construct
- Spatial Interaction (Movement)
- Areal Differentiation
- Constant Change
- Location
- Global View
- Regions and Regionalizing

At any rate, emphasize a Conceptual Framework in your course and assist your students to use it in their analyses during the course.

2. Facts the globe illustrates: Parallelism of the Axis, Meridians, Lines of Latitude, North and South Poles, the Equator, Tropics, Arctic and Antarctic Circles.
3. The solar system and its planets (Man Very Early Made Jars Stand Upright Nearly Perpendicularly).
4. Map projections as explained in the Atlas.
5. Basic Spatial Organization: Natural Features and Human Configurations (political boundaries).
6. Basic Structure of the Earth: What would a cross-section through the Earth reveal?
7. Landforms: Distribution of land areas in Northern and Southern Hemispheres, shields, sedimentary lowlands and plains, folded and volcanic mountains, deserts, results of glaciation, and what would be the problem if all the existing ice melted.
8. The Climate Classification map must be carefully studied and students should have some idea about how the climatologist, Vladimir Koppen (1866-1940), made his basic distinctions into A, B, C, D, and E climates. Students should be able to read climate graphs and identify significant data on those graphs. Careful correlation

studies should compare the maps of population distribution and climate types as well as recognizing areas of too much and too little rainfall precipitation.

9. Soils are studied by analyzing soil profiles and identifying the importance of the effects of leaching and evapotranspiration in their development from parent materials. The Atlas does not use the terms Podzol, Chernozem, and Laterite but students should understand the basic features of each type and the possible consequences for human populations.

Part II — Investigating the Challenges

A World of Seven Billion

By 2050, it is estimated that students, currently in the age range 16 to 18, will be living in a world with 9 billion people, a 28% increase of 2 billion from 2011. Students will be able to identify a list of essential needs for all populations and brainstorm many of the challenges that may arise in the course of their lifetimes. As students study global maps of these essential elements, teachers should be able to entice lively debates about the challenging areas. Expert opinions regarding the issue of space and settlement and low correlation could also be explored. Indeed, settlement correlates with locations near major rivers, with nearness to oceans and (negatively) with high elevations. Students can also identify areas of high population data with these correlations find cases that do not fit. They should pay close attention to Africa – a continent that is expected to have one billion of the two billion people increase by 2050.

Prioritizing the Challenges

You will have to prioritize the suggested challenges making sure that you have established and emphasized things like **climate change, growth, and resources** to meet the needs of **our expanding human population**.

Climate Change. The science of climate change is generally accepted and the deniers seem to contest whether this is a natural occurrence or whether human activity has increased the effect. No matter which is right, the biosphere is the world's most valuable resource and humankind has a compelling need to protect their essential life-supporting resource. As to the effects

of global warming, you may remind students of my meteorology professor's warning — "the atmosphere is a heat engine and the more heat you give it, the more active it becomes." We must be responsible for controlling emissions that increase the heat in the atmosphere or we may damage our fragile biosphere.

Growth. Growth seems to be the key requirement of economists and politicians. But it has many dangers. The guideline provides some statistics and students should investigate the realities of exponential growth. They will have a better understanding when they know the rule of doubling. If a number increases by 5% each year, it will double in 14 years, i.e., divide 70 by the fixed percentage.

Population. The detailed guideline provides some statistics about population density or provides references to obtain them. Experts estimate that the world's cities occupy only 2% of the Earth's surface and many population statistics provide country data for urban and non-urban populations. Those numbers give a very different picture of crowding. But cities are a challenge because they never have enough funding to provide needed services.

References

Veregin, H. (Ed.). (2010). *Goode's world atlas, 22nd edition*. New York: Rand McNally.

Douglas G. MacLeod earned a B.A. in Geography (Hon's) from the University of Toronto in 1953. He became a Secondary School Geography teacher in 1960 and subsequently a Provincial Consultant in Geography education for the Ontario Ministry of Education in 1968. For many years he served as a N.C.G.E Board member, including six years as Treasurer. In retirement, after 1990, he continued to be active in N.C.G.E. while managing the 700 member Ontario Geography Teachers' Association. MacLeod fully retired in 2002 and, that same year, was honored by the N.C.G.E. with its prestigious award, The George J Miller Award for Distinguished Service. He continues to retain his long-time interest in promoting Geographic Education in North America and hopes to attend the 100th Anniversary meeting of N.C.G.E. at Washington, D.C. in 2015.