Welcome to the AP© Human Geography Jam Session Review!

- Date of this year's AP© Human Geography exam: **May 15, 2015**
  - registration required—ask your school's AP© coordinator or your teacher
- How this session MAY HELP YOU PREPARE for the national exam:
  - Highlight the breadth and depth of the content knowledge you should have
  - Help you find the "holes" in your knowledge so that you can study that information between now and the national exam.
  - Thinking about concepts in a new way—from a peer and/or different instructors.
  - Try some different techniques for studying—both in groups and on your own.
- What THIS SESSION WILL NOT HELP you do:
  - Earn an automatic "5" on the national exam!

Your teachers and the UNO staff and faculty have put this session together because they BELIEVE IN YOU and because they love Human Geography.

Please use these hours carefully and in earnest.

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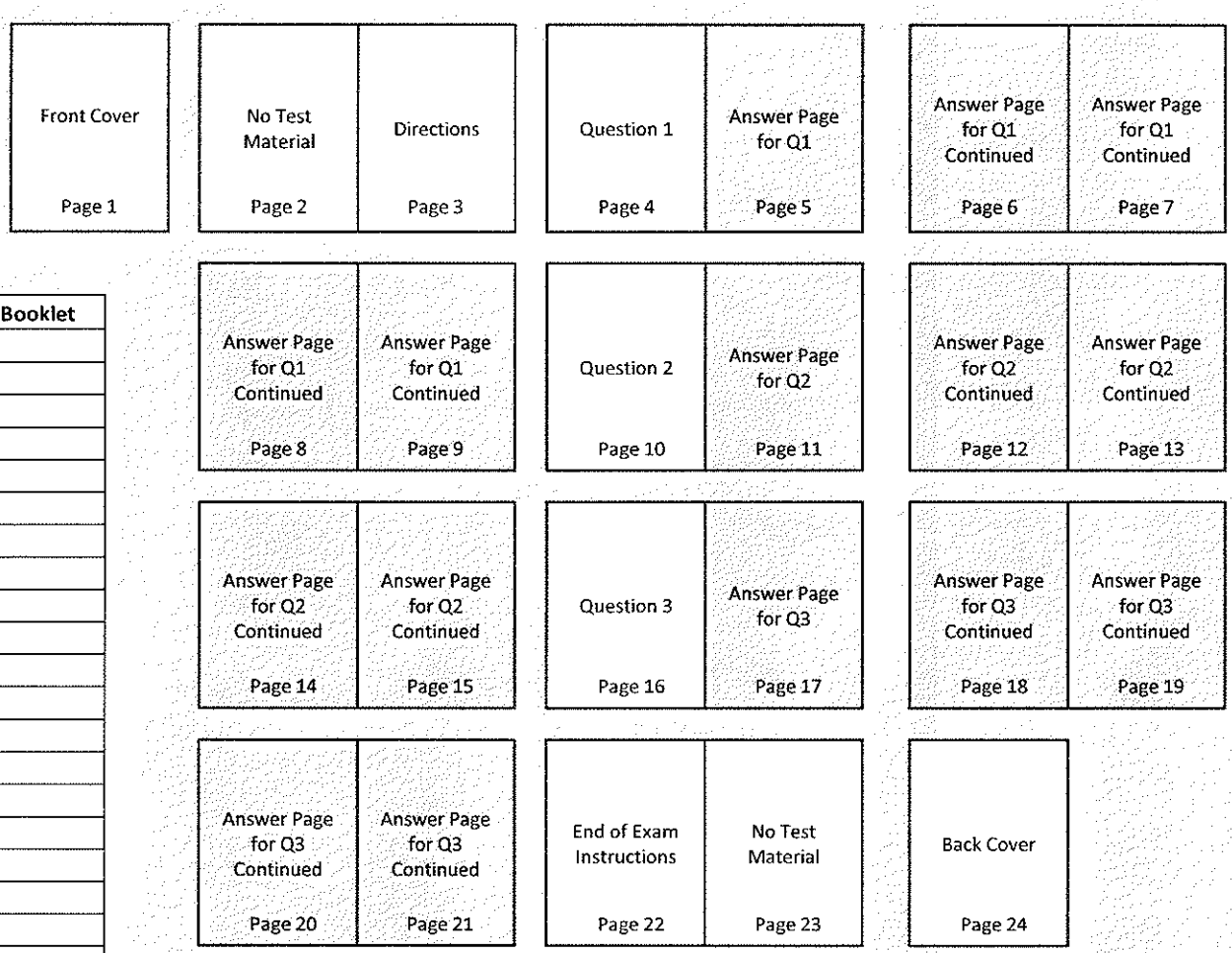
PLEASE TURN IN YOUR EVALUATION SHEET & INFORMATION CARD BEFORE YOU LEAVE TODAY! THANKS!

Human Geography – Section II Free-Response Booklet

This bookmap shows how questions and space for answers generally are distributed throughout the Section II exam booklet. Please share this information with students to help them prepare for the exam.

- **Student should write responses on answer pages and in designated answer spaces only.**
- **Students may use any blank space on directions and question pages to take notes and plan written responses.**



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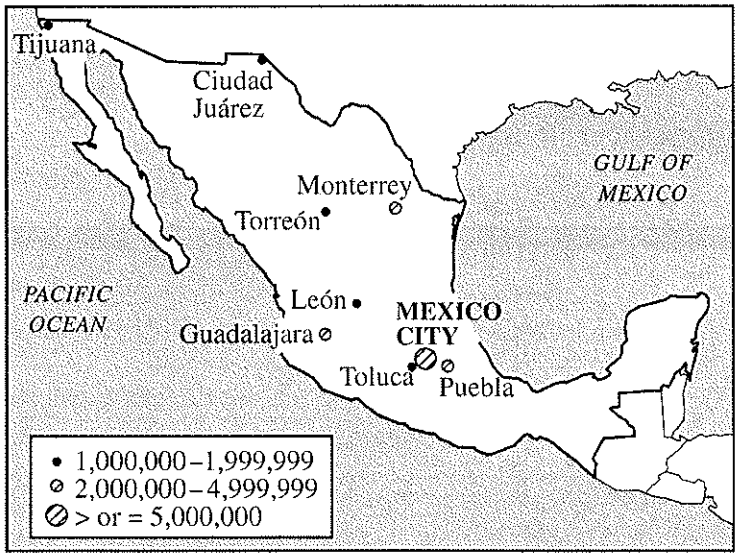
HUMAN GEOGRAPHY
SECTION II
Time—75 minutes
Percent of total score—50

Directions: You have 75 minutes to answer all three of the following questions. It is recommended that you spend approximately one-third of your time (25 minutes) on each question. It is suggested that you take up to 5 minutes of this time to plan and outline each answer. While a formal essay is not required, it is not enough to answer a question by merely listing facts. Illustrate your answers with substantive geographic examples where appropriate. Be sure that you number each of your answers, including individual parts, in the answer booklet as the questions are numbered below.

POPULATION OF MEXICAN CITIES, 2007



MEXICO'S MOST POPULOUS CITIES

City	1975	2007	2015
Ciudad Juárez	474,000	1,343,000	1,478,000
Guadalajara	1,850,000	4,198,000	4,673,000
León	589,000	1,488,000	1,682,000
Mexico City	10,690,000	19,028,000	20,189,000
Monterrey	1,589,000	3,712,000	4,140,000
Puebla	858,000	2,195,000	2,474,000
Tijuana	355,000	1,553,000	1,799,000
Toluca	309,000	1,531,000	1,671,000
Torreón	556,000	1,144,000	1,280,000

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2006 Revision* and *The 2007 Revision*, http://esa.un.org/unup.

1. The map and table above show the geographic location, population growth, and projected growth of Mexico's most populous cities.

   A. Define the following terms and describe how each relates to Mexico's urban geography.

   - Primate city
   - Rank-size rule

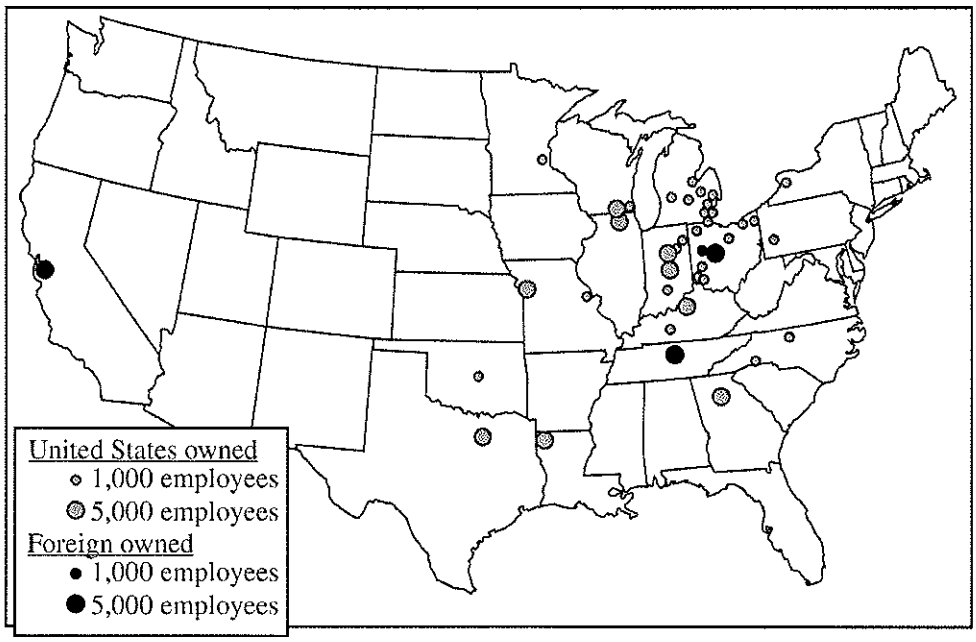
   B. Explain TWO positive effects of primate cities on a country's economic development and TWO <u>different</u> negative effects of primate cities on a country's economic development.

2. In 1798 Thomas Robert Malthus published *An Essay on the Principle of Population* in which he argued that population growth will inevitably outpace food production, resulting in widespread famine.

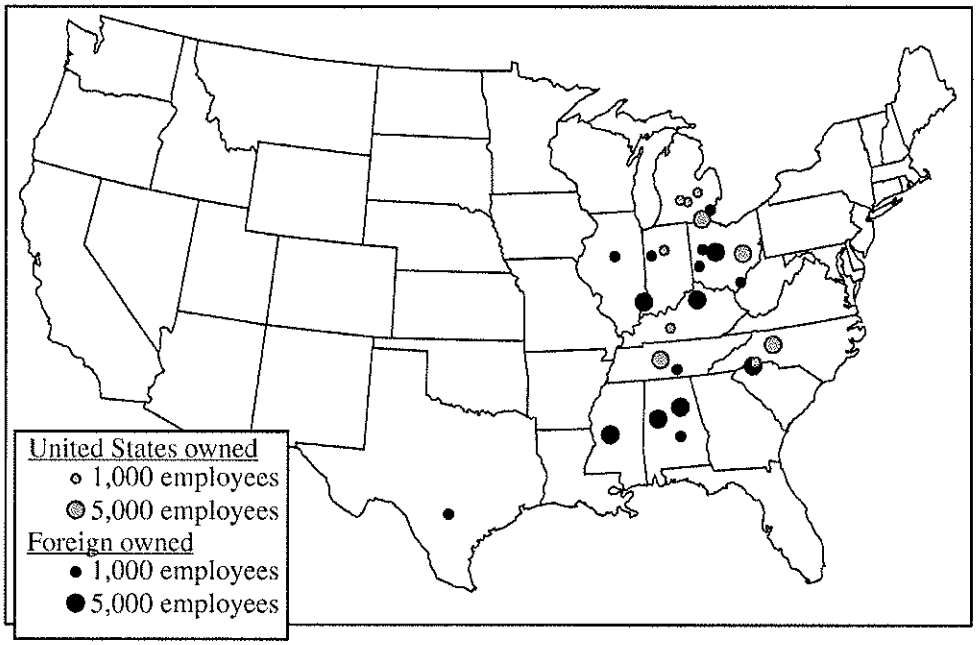
   A. Identify and explain TWO reasons why some geographers today believe Malthus' theory can be used to predict future population issues.

   B. Identify and explain TWO reasons why some geographers today believe Malthus' theory cannot be used to predict future population issues.

AUTOMOBILE FACTORIES BUILT IN THE UNITED STATES BEFORE 1986



AUTOMOBILE FACTORIES BUILT IN THE UNITED STATES BETWEEN 1986 AND 2006



3. Industrial location models are used to explain geographic patterns of economic activity. The maps above show automobile factories built before and after 1986 in the United States.

   A. Identify TWO changes in the geography of automobile factory construction shown by the maps.

   B. Identify and explain TWO factors related to industrial location that may have contributed to the changes.

Question 1

The map and table above show the geographic location, population growth, and projected growth of Mexico's most populous cities.

Part A (3 points)

Define the following terms and describe how each relates to Mexico's urban geography.

Primate city (1 point)
Magnitude (it is more than two times the size of the next-largest city) AND significance (it exerts social, political, economic dominance).

Rank-size rule (1 point)
*N*th largest city is 1/*n* smaller than the largest city; more small cities, fewer larger cities.

Note: Do not grant credit if student misrepresents the proportion by saying ½ for all relationships.

Describe how each relates to Mexican urban geography (1 point)
Mexico does not comply with the rank-size rule (there is a poorly developed urban hierarchy because Mexico City is a primate city). **OR** Mexico City is an example of a primate city because it is disproportionately larger than other Mexican cities and dominates the country.

Note: Either argument will earn the point, but students cannot contradict themselves.

Part B (4 points)

Explain TWO positive effects of primate cities on a country's economic development ...

Positive effects (1 point each; total of 2 points)
• Advantages of agglomeration of economic activity. • Large market for goods and services. • Ability to offer high-end goods and services (including education) because of larger threshold population. • Advantages of enhanced flow of information and ideas in large population. • Advantages of centralized transportation and communication network. • Global trade opportunities; primate cities can compete on a global scale and attract foreign investment.

Note: The response must focus on and explain the positive impact on economic development; for example, tourism in primate cities must be linked to economic benefits to the nation's economy.

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Question 1 (continued)

... and TWO different negative effects of primate cities on a country's economic development.

Negative effects (1 point each; total of 2 points)
• Unequal distribution of investments deters national economic development. • Unequal economic and/or resource development. • Unequal distribution of wealth and/or power. • Transportation network (hub and spoke) prevents equal accessibility to all regions. • Impact of centrifugal forces and difficulties of political cohesion on economic development. • Brain drain — migration and unequal distribution of education, entrepreneurship, opportunities. • Disproportionate effect of disaster in the primate city on entire country. • Negative externalities, e.g., unsustainable urban growth/slums/environmental impacts **if** these are related to economic development, e.g., burden on national economy to cope with problems.

Write in the box the number of the question you are answering on this page as it is designated in the exam. 1A 1 of 2

1A) A primate city is a city in a state that is more than twice as big as another city in terms of population in that state. Since Mexico City has a population more than twice the other populated cities in Mexico, Mexico City is therefore a primate city. It was in 1975, in 2007, and is projected to be one in 2015. (10,000,000+ vs 1,000,000+ people)

The rank-size ruler states that the n-th most populous city in a rank-sized economy/urban distribution will be $\frac{1}{n}$ th of the most populous city in terms of population. The 2nd most populous city in Mexico is Guadalajara with a 2007 population of 4,198,000 compared to Mexico City's 19,028,000. Since it is not half of Mexico City's population, Mexico therefore doesn't have a rank urban distribution that allows for even urban growth throughout the country. (This holds for 1975 and 2015 as well)

1B) Primate cities are booming economic centers. Mexico City provides Mexico with a way into the global economy and allows Mexico to attract the support of international companies. Primate cities offer many jobs for locals. Many people will migrate to Mexico City because of the jobs available there. These jobs help to build up economic opportunities.

Primate cities, however, make it difficult for other cities to develop. Because of the gap in population, Guadalajara can't compete with Mexico City and grow. Primate cities lead to the development of squatter settlements and areas of poverty. There are even more economic issues for governments to resolve.

Write in the box the number of the question you are answering on this page as it is designated in the exam. 1A 2 of 2

1B) [Continued from 1st page] The large population in primate cities includes many poor people. These underclass cannot afford proper housing, so they build squatter settlements. These developments drain resources from the government because it must address the social consequences/environmental consequences of such slums.

Since Mexico City is such a big city, it has great significance in the global economy (By the gravity model). Thus, primate cities give countries economic power in the global economy.

The large number of people implies a large number of services which leads to the positive effects of agglomeration. Businesses benefit from being located next to each other and by having such a wide pool of consumers.

Write in the box the number of the question you are answering on this page as it is designated in the exam.

1B 1 of 2

A. A primate city is a city that is a center of economic business and trade, it is an exception to the Rank-Size rule. The Rank-Size rule states that the relation to the most populous city and 2nd most populous is $\frac{1}{n^{th}}$, "n" being the rank of the city in terms of population. An example would be if a country's largest city had a population of 1 million the second largest would be 500,000 & third largest approximately 333,333 and so on. Mexico City appears to be both a primate city, the capital and most populous. Since mexico City is the primate city, its population is well above the other cities so the Rank-Size rule does not effectively apply.

B. A positive effect of primate cities is that it creates one large center of economic business in a country and with that a larger percentage of the population. This allows more employees to have jobs and increase income and the country's economy. Another benefit of primate cities is that they allow the population to be in different economic centers. This means that not everyone will only have one large centralized area of business and retailer services. It allows the population concentration to spread out over more cities rather than just the capital.

A negative effect of primate cities is they develop more rapidly than other cities causing income inequality between regions in a country. Income inequality causes conflict in the country and slows down economic development because it will cause political conflict in which the government might have to take action on. Another ~~negative~~ negative effect is that it takes away attention from the nation's capital thus lowering national pride. If people are only attracted to the business

1

Write in the box the number of the question you are answering on this page as it is designated in the exam.

it lowers the chances of some migrants to move there.

An example of Mexico City being a primate city is the fact that it had a population of 14,028,000 in 2007 but the 2nd largest was only 4,148,000, not what the Rank-Size rule states.

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Write in the box the number of the question you are answering on this page as it is designated in the exam.

#1

A) A primate city is a city that is the largest city in a country and is atleast double the size of the second largest city. Mexico City is a primate city in Mexico, it has a projectected population in 2015 to be about 20,189,000 which is a little less than 5 times larger than the second largest city Guadalajara who's population is 4,603,000. The fact that Mexico City is that much larger than Guadalajara makes Mexico City a primate city. The Rank-size Rule goes along with a Primate City Meaning that as you go down the list the cities must be that many times smaller than the largest city. Meaning that the Second largest City should be ½ that of the largest City, and the third largest city should be ⅓ of the largest cities population and so on. Mexico however does not Follow the Rank-Size Rule, Mexico City is to large For it to be even close to working. In any of the years shown half of Mexico City's population is no where

#1

Write in the box the number of the question you are answering on this page as it is designated in the exam.

near the population of Guadalajara, which Makes the Rule invalid For Mexico Right there.

B) Primate Cities can positively affect the countries economic development by having a high labor force which means more manufacturing, which then turns into money. Also primate cities are mainly where foreigners want to trade or Invest in, No matter where you are, the bigger the better. There are also negative affects of Primate cities such as cultural conflicts due to the amount of people there and also an Increase in slums or ghettos.

Question 1

Overview

This question was intended to determine students' understanding of the model of urban hierarchy and its application to an actual system of cities. Rank-size rule and primacy are fundamental to the cities and urban lands use section of the course. The question asked students to provide definitions for rank-size rule and primate city and to determine which one best described Mexico's system of cities. They were then asked to provide a discussion of both the positive and the negative impacts of primate cities on a nation's economy.

Sample: 1A
Score: 7

The essay demonstrates a comprehensive understanding of primate cities, rank-size rule, and the effects that primate cities have on a country's economic development. It earned full credit in part A (3 points) and part B (4 points). In part A the response received 1 point for correctly stating that primate cities are more than twice the size of the next-largest city and for noting (at the beginning of part B) that they "are booming economic centers." The response was awarded another point for its definition of the rank-size rule: "the n-th most populous city in a rank-sized economy/urban distribution will be 1/nth of the most populous city in terms of population." One more point was earned for stating that Mexico "doesn't have a rank urban distribution." In part B the essay received 1 point for describing a positive effect of a primate city on economic development — that "Mexico City provides Mexico with a way into the global economy," which can attract international companies. It gained an additional point (at the end of the response) for explaining that "a large number of services ... leads to the positive effects of agglomeration" and "a wide pool of consumers." The essay merited 2 more points for correctly identifying two negative effects: that "[p]rimate citys [*sic*] ... make it difficult for other cities to develop" and that a primate city's squatter settlements "drain resources from the government because it must address the social consequences/environmental consequences of such slums."

Sample: 1B
Score: 5

The essay received full credit in part A (3 points) and partial credit in part B (2 points). In part A the response earned 1 point for correctly identifying a primate city as "a center of economic business and trade" and for stating that "its population is well above the other cities." It received an additional point for defining the rank-size rule thus: "the relation to the most populous city and 2nd most populous is 1/nth, 'n' being the rank of the city in terms of population." The response gained another point for categorizing Mexico City as a primate city. In part B the essay received 1 point for observing that one positive effect of a primate city is to create "one large center of economic business in a country." No additional point was granted, as the response focuses more on the definition rather than on the positive effects of a primate city. The essay was awarded 1 point for explaining a negative effect of primate cities: "they develop more rapidly than other cities causing income inequality between regions in a country." No additional point was earned for naming a negative effect, because the response incorrectly focuses on issues such as loss of national pride.

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Question 1 (continued)

Sample: 1C
Score: 3

The essay received partial credit in part A (2 points) and partial credit in part B (1 point). In part A the definition provided for a primate city did not receive credit, as it discusses only the size and not the magnitude, significance, or dominance of the city within the country. The response earned 1 point for defining the rank-size rule by indicating that the lesser cities must be many times smaller than the largest city ("Meaning that the second largest city should be ½ that of the largest city, and the third largest city should be ⅓ of the largest cities [*sic*] population and so on"). The response was awarded another point for understanding that Mexico "does not follow the Rank-Size Rule." In part B the essay gained 1 point for noting, as a positive effect on a country's economic development, that "primate cities are mainly where foreigners want to trade or Invest [*sic*] in." No additional point was received for a positive effect, as the response incorrectly states that primate cities have "a high labor force, which means more manufacturing." No points were awarded for the explanations of negative effects, because the response incorrectly focuses on issues such as "cultural conflicts" that result from increased population.

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Question 2

In 1798 Thomas Robert Malthus published *An Essay on the Principle of Population* in which he argued that population growth will inevitably outpace food production, resulting in widespread famine.

Part A (4 points: 1 point for each reason identified [ID] and 1 explanation point per ID)

Identify and explain TWO reasons why some geographers today believe Malthus' theory can be used to predict future population issues.

ID: Population has been rising quickly. **OR**
Population has generally grown as predicted by Malthus.

Explanation
- Limited use of contraception.
- Political policies, economic decisions, cultural beliefs that support population growth.
- Demographic transition model, referring to Stage 2 and/or early Stage 3.

ID: Food supply has increased, but it has not kept up with population increase. **OR**
Food supply has generally grown as predicted by Malthus.

Explanation
- Failure to adopt agricultural innovation, owing to political policies, economic decisions, cultural beliefs.
- Conversion of farmland for urban use.
- Environmental degradation such as desertification, overgrazing, clear cutting, soil erosion, unavailability of fresh water.
- Conversion of life-supporting crops to cash crops (tobacco, sugar, cotton, tea, coffee).
- Rising fuel costs will slow down growth of food production and distribution.
- Climate change will decrease production.

ID: There are other limiting factors on population in addition to food.

Explanation
- Because of resource overuse and/or environmental degradation, we are in danger of exceeding the carrying capacity (clean air, fossil fuel, water, and other resources).

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Question 2 (continued)

Part B (4 points: 1 point for each reason identified [ID] and 1 explanation point per ID)

Identify and explain TWO reasons why some geographers today believe Malthus' theory cannot be used to predict future population issues.

ID: Population growth has not been rising geometrically/exponentially. **OR**
Population has generally not grown as predicted by Malthus.

Explanation
- Expanded use of contraception.
- Political policies, economic decisions, cultural beliefs that limit population growth.
- Demographic transition model, referring to late Stages 3, 4, and/or 5 (declining birth rate).

ID: Food supply has grown faster than predicted by Malthus. **OR**
Carrying capacity has expanded.

Explanation
- New technologies, such as: mechanization, factory farming, industrial agriculture, agribusiness, use of chemicals, irrigation, GPS.
- Greater efficiencies, such as: larger farms, consolidation of farms, mechanization, multicropping.
- Green Revolution, genetically modified crops, multicropping, improved seeds, high-yielding cultivars.
- Expansion of agricultural lands.
- Human ability to create new techniques.

ID: Our ability to preserve food and/or distribute food to areas of need is much greater than during Malthus' time.

Explanation
- Improvements in any and all methods of transportation (highways, containerization, refrigerated trucks).
- Improvements in food preservation (refrigeration, packing, processed food).

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Write in the box the number of the question you are answering on this page as it is designated in the exam.

2

A. Geographers believe that Mathus's theory can be used to predict future population issues because for many countries in the lower stages (2-3) of the demographic transition model the population of people is still growing exponentially, despite the decreases in birth rate for some. For countries in Africa such as Mali there is not a high-production commercial farming industry but there is a steadily growing population of people due to a lack of contraceptive use. This could potentially lead to the widespread famine Malthus predicted.

Additionally, it could be argued that because of the growing advancements in medical treatment across the world much fewer people are dying from disease and even "old age" than ever before. This leads to the natural rotation of people in the world to become unbalanced because of the high life expectancy. More people are having to be fed for longer amounts of time than ever before, which could lead to a lack of available food.

B. The third agriculture revolution is still in place meaning that commercial farming is still extremely prominent in society. People are able to produce a greater amount of food than ever before thanks to large monoculture farms, feedlots, and GMOs. Although there is not a great variety in the food produced compared to the past, there is plenty of it which will easily serve as subsistence for the

2

Write in the box the number of the question you are answering on this page as it is designated in the exam.

growing population of people.

Additionally, many ~~country~~ countries are developed and have reached the latter stages of the DTM (late stage 4; some considered to have reached 5). This means that in ~~some~~ countries such as Italy there is actually a negative population growth where there is fewer than two children being produced per family. If other countries follow along this path, the world population will no longer continue to grow exponentially, but instead decline requiring much less food to be produced and potentially a surplus of food.

Write in the box the number of the question you are answering on this page as it is designated in the exam.

2B 1 of 2

2A. Some geographers believe Malthus' theory can be used to predict future population issues because historically, food production has increased ~~on~~ in an arithmetic way and population has grown exponentially. These two concepts were the basic tenants of Malthus' theory therefore geographers feel if the population growth and food production grew in the way Malthus proposed, his conjecture that ~~o~~ eventually population will surpass food production, causing problems. Geographers also believe Malthus' theory still applies because certain areas struggle from the problems Malthus predicted. For example, sub-Saharan Africa has trouble producing enough food due to environment and climate conditions. However this region has high population growth. ~~As~~ As Malthus predicted, Sub Saharan Africa experiences much famine due to food shortage.

B. Some geographers believe Malthus' theory does not hold true today because population is not increasing everywhere. In places like Western Europe, population is starting to decline. Contradicting Malthus' statement that population growth is exponential. Even the countries who are experiencing population growth are not ~~growing~~ growing at as fast a rate as in the

Write in the box the number of the qu on this page as it is designated in the exam.

2B 2 of 2

2B. past. ~~o~~ On the global level, population ~~o~~ increased exponentially up until the 1960's ~~so~~ but now, the rate of population growth is slowing down indicating that the population will eventually stabilize. ~~and~~ ~~so~~ Some geographers think Malthus' theory cannot be used to predict future population issues ~~so~~ because food production has recently become more efficient. During the Green Revolution, increased use of fertilizers, hybrid seeds, and irrigation led to greater food production. These geographers argue that hunger is caused by improper distribution of food not because of a growing population with not enough food like Malthus stated.

2C 1 of 1

#2

Write in the box the number of the question you are answering on this page as it is designated in the exam.

A. People today still believe that Thomas Malthus's theory is still a problem because the population is growing exponentially, while food production is growing arithmetically. This is a huge problem because the population growth of the world is growing so much faster than food production, which is growing at a steady rate. Therefore, many people still believe that we will soon run out of food because we can't produce fast enough to sustain the world population. Also, neo-malthusians, who are people today that still think Malthus's theory is possible, think that this is a huge problem because of outsourcing, meaning we will run out of supplies and food products and the world population will eventually die out due to lack of nutrition.

B. Although, many people today believe that Malthus's theory is inaccurate because, with increasing population growth, we have begun to use chemical fertilizers and learned how to produce bigger and better products, faster. The Green Revolution was when the use of chemical fertilizers ~~and other products such as~~ began to come into play. This Revolution has helped us greatly with our food production and agriculture and has shifted it into agribusiness. In agribusiness, we have begun to think less about the quality of the product and more about the quantity and mass-production, with the use of chemical fertilizers.

Also, Malthus's theory is inaccurate because of the increase in technology and biotechnology, meaning that the agriculture has turned into mass consumption to sustain the population with food. Biotechnology has been an increasing factor, which also started in the Green Revolution with the use of new technology to create bigger and better products that can be made and produced much faster.

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Question 2

Overview

This question was structured in a way that required students to present both sides of the discourse on the future of world population growth and food supply. Students were asked to frame their discussion around the precepts of the Malthusian essay on population growth. Students were given a summary of the Malthusian argument and did not need to base their essays on recall. The question did not force students to choose sides in this debate but rather to present evidence that they understood both views about the future relationships between population growth and food supply.

Sample: 2A
Score: 8

This essay demonstrates a comprehensive understanding of Thomas Malthus' theory about population growth and food production and earned full credit (4 points in part A and 4 points in part B). In part A the response received 1 identification point for stating that "the population of people is still growing exponentially" and 1 explanation point for understanding that "Malthus's theory can be used to predict future population issues because [of the] many countries in the lower stages (2–3) of the demographic transition model." The response was awarded 2 points for correctly indicating that a steadily growing population "could potentially lead to the widespread famine Malthus predicted" and for the related explanation that in some countries "there is not a high production commercial farming industry." In part B the essay received 1 point for correctly identifying a reason that does not support Malthus' theory: "there is plenty of it [food] which will easily serve as subsitence [*sic*] for the growing population of people." An additional point was gained for explaining that "[p]eople are able to produce a greater amount of food than ever before thanks to large monoculture farms, feedlots, and GMOs." The response merited 1 point for noting that "the world population will no longer continue to grow exponentially," and 1 more point was earned for the explanation that "many countries are developed and have reached the latter stages of the DTM (late Stage 4; some considered to have reached 5)."

Sample: 2B
Score: 6

The essay received partial credit in part A (3 points) and partial credit in part B (3 points). In part A 1 point was received for correctly stating, "population has grown exponentially" as a reason that Malthus' theory has predictive value. An additional point was awarded for explaining that "historically, food production has increased in an arithmetic way." The response received no credit for an additional identification point in this part, but 1 point was granted for explaining that "sub-Saharan Africa has trouble producing enough food due to environment and climate conditions." In part B the essay received 1 point for correctly identifying a reason that does not support Malthus' theory: "population is not increasing everywhere." Thus, population is starting to decline in some areas, which contradicts Malthus' ideas. No explanation was provided in support of this statement, however, so no point was earned. The response merited 2 points for identifying the greater efficiency in food production as another reason to question the theory, along with a corresponding explanation that attributes the increase in production to the Green Revolution and the "increased use of fertilizers, hybrid seeds, and irrigation."

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Question 2 (continued)

Sample: 2C
Score: 4

The essay received partial credit in part A (2 points) and partial credit in part B (2 points). In part A the response received 2 identification points for correctly observing in support of Malthus' theory that "population is growing exponentially while food production is growing arithmetically." No explanation points were merited. In part B the essay earned 1 identification point for correctly stating, in opposition to the theory, that "agriculture has turned into mass consumption to sustain the population with food." An additional point was awarded for explaining, "we have began [*sic*] to use chemical fertilizers and learned how to produce bigger and better products, faster." No additional identification or explanation points were granted.

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Question 3

Industrial location models are used to explain geographic patterns of economic activity. The maps above show automobile factories built before and after 1986 in the United States.

Part A (2 points)

Identify TWO changes in the geography of automobile factory construction shown by the maps.

1. International-based change in the geography of plant construction
   a. Increase in the number/investment of foreign-owned automobile plants **OR**
   b. Increase in both small and especially larger-size, foreign-owned automobile plants

Note: Students cannot earn 2 points for listing two international-based changes.

2. Domestic-based change in the geography of plant construction
   a. Increase in the number/investment of automobile plants in the South or Southeast part (Sun Belt) of the United States
   b. Increase in number/investment of automobile plants built away from the traditional core of the American manufacturing belt (Rust Belt)
   c. Decrease in the number of American-owned automobile plants
   d. Decrease in the number/investment of automobile plants west of the Mississippi River

Notes
- Students cannot earn credit by simply counting the change in number of plants per state.
- Students may earn 2 points for identifying TWO domestic-based changes.

Part B (4 points)

Identify and explain TWO factors related to industrial location that may have contributed to the changes.

Identification (1 point each)	Explanation (1 point each)
1. Low-cost labor (not low-skilled or uneducated workforce)	• More nonunionized labor in the South (or Southeast or Sun Belt). • Right-to-work states in the South (or Southeast or Sun Belt).
2. Market	• More foreign-owned companies to minimize shipping costs (cheaper transportation costs). • More foreign-owned companies to avoid paying federally imposed tariffs. • United States represents one of the world's largest markets for automobile consumption.
3. Deindustrialization (North only)	• Shifting or relocation of automobile plants because of high labor costs (unions) in the North. • Obsolete infrastructure in the North (or Rust Belt). • Outsourcing — domestic companies shifting from states in the North to Mexico.

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Question 3 (continued)

4. Government policies	• Economic and development incentives — pro-industrial policies. • Connection to preexisting infrastructure systems — e.g., access to interstate highways, rail spurs, water/sewage/electricity. • State and local taxes — lower in the South, higher in the North. • Variances on zoning and environmental regulations.
5. Cheap land	• Accessible and available sites in the South cost less than accessible and available sites in the North.
6. Available infrastructure	• Cost-efficient interstate highway systems in the South (or Southeast or Sun Belt). • Cost-efficient rail system in the South (or Southeast or Sun Belt). • Allows quick and inexpensive assembly of supplies for the manufacture of automobiles and efficient distribution of automobiles to car dealerships. • Facilitates just-in-time production.
7. Cheap energy	• Abundant, inexpensive supplies of energy in the South. • South (or Southeast) is below the national average for $/kWh.

Note: No identification or explanation points should be awarded for the mention of raw materials.

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Write in the box the number of the question you are answering on this page as it is designated in the exam.

Question 3

3A 1 of 2

(A) The geography of automobile factory construction has changed as more foreign-owned factories have relocated in the United States, many small-scale factories have been eliminated, giving rise to large-scale production factories, and some automobile factories have relocated in Southern States including Alabama and Mississippi.

(B) Several factors related to industrial location have led to these changes. Government incentives by state governments, including tax incentives (lower taxes), the construction of infrastructure (roads and manufacturing plants) and looser environmental regulations have encouraged automobile factories to relocate, ~~in order to~~ State governments often try to attract these factories in order to provide more job opportunities, and in turn, receive more money (through the income tax of the workers.)

Economic incentives have also

Question 3

Write in the box the number of the question you are answering on this page as it is designated in the exam.

3A 2 of 2

contributed to the relocation of car manufacturing factories. (~~Situational~~ situational factor) Foreign companies benefit from relocating to the United States in order to be closer to their market (they sell their cars in the United States) and increase profits by cutting down on transportation costs. Because wage rates are lower, on the average, in states like Alabama and Mississippi, these Southern States have been particularly attractive places for automobile companies to build new factories. (site factor)

Write in the box the number of the question you are answering on this page as it is designated in the exam.

3

A. In recent years there has been an increase in foreign owned automobile factories in the United States. There has also been a decrease in United States owned automobile factories.
B. More foreign owned automobile factories have been built because they will be closer to the market area and consumers.

The foreign owned automobile factories are owned by usually German or Japanese companies. Both German and Japan are located very far away from the consumers in the United States. The transportation costs to get the automobiles to the United States would be extremely high. Since, transportation costs is one of the key factors in determining where to locate a factory, the cost has a major impact on these companies on where to locate their factories. By locating their factories in the United States they are saving on transportation costs, so they can lower their prices for the product, thus more people will be willing to buy the products. Therefore, the will get a better profit by locating their factories in the United States.

Also, foreign owned automobile factories

3

Write in the box the number of the question you are answering on this page as it is designated in the exam.

are being located in the United States because that is where the majority of the consumers or customers are located. The United States is the number one number one consumer of automobiles in the world. So it would be smart for foreign owned automobile companies to locate their factories there so the get more consumers, and thus more sales.

In conclusion, foreigned owned automobile factories have been moving into the United States because they are closer to the market area so they would have lower transportation costs and so they are near more consumers so more of the product will be sold. In both ways the factories location contributes to the economic development of the company.

Write in the box the number of the question you are answering on this page as it is designated in the exam.

3

3C 1 of 2

These two maps are examples of industrial location models, which are used to explain geographic patterns of economic activities. There are many differences between the two maps.

When looking at the map showing before 1986 the majority of the automobile factories were United States owned and widely dispersed. However, the after 1986 map depicts that the bulk of the factories are owned by foreign countrys' and are majorly clustered in the mid-West.

There are many factors in which this change was provoked. Automobile manufacturing is a bulk-gaining industry. Meaning that to lower transportation costs the factories would have to be near the market. If foreign car comanies were to ship the cars from their countrys' it would raise the cost of the car dramatically. The Mid-West is also in close proximety to natural resources such as steel that

Write in the box the number of the question you are answering on this page as it is designated in the exam.

3

are needed to make a car. In conclusion, the United States has adapted to the needs of automobile manufacturing.

Question 3

Overview

This question required students to identify locational factors that pertained to the expansion of the automobile industry in the United States. They were then asked to explain how the factors they identified worked in combination to create a pattern of investment in new automobile assembly plants. The students were expected to use the Weber model of industrial location to frame their response to this question.

Sample: 3A
Score: 6

This essay demonstrates a comprehensive understanding of the geography of automobile plant construction and industrial location factors and earned full credit (2 points in part A and 4 points in part B). In part A the response received 1 point for correctly identifying an international change: "more foreign-owned factories have relocated in the united states [*sic*]." An additional point was awarded for identifying a domestic change: "some automobile factories have relocated in southern states including Alabama and Mississippi." In part B the essay earned 1 point for identifying government policies as a factor in these changes. Another point was gained for explaining that government policies "including tax incentives (lower taxes), the construction of infrastructure (roads and manufacturing plants) and looser environmental regulations" have attracted factories "in order to provide more job opportunities." The essay also received 1 point for identifying the market as a factor for foreign companies considering relocation. One more point was merited for the explanation that foreign companies would "increase profits by cutting down on transportation costs."

Sample: 3B
Score: 4

The essay received full credit in part A (2 points) and partial credit (2 points) in part B. In part A the response earned 1 point for correctly identifying an international change by stating, "In recent years there has been an increase in foreign owned automobile factories in the United States." An additional point was awarded for identifying the "decrease in United States owned automobile factories." In part B no location factors were identified. Two points were granted for explanations implicitly tied to the market. The essay received 1 point for making the point that companies would save on transportation costs by locating their factories in the United States. One point was merited for the understanding that the United States represents one of the world's largest markets for automobile consumption by stating that "foreign owned automobile factories are being located in the United States because that is where the majority of the consumers or customers are located." The response received no further credit, as the discussion continues to highlight points previously made (that is, foreign-owned automobile factories are moving to the United States).

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Question 3 (continued)

Sample: 3C
Score: 3

The essay received partial credit in part A (1 point) and partial credit (2 points) in part B. In part A the response merited 1 point for correctly identifying an international change: "the after 1986 map depicts that the bulk of the factories are owned by foreign countrys' [*sic*]." No domestic change identification point was earned, as the response merely describes the wide dispersal of automobile factories on the map. In part B the market identification and explanation points were awarded for indicating, "to lower transportation costs [1 point for explanation] the factories would have to be near the market [1 point for identification]." The response received no further credit because the discussion centers on the proximity of raw materials to automobile plant location.

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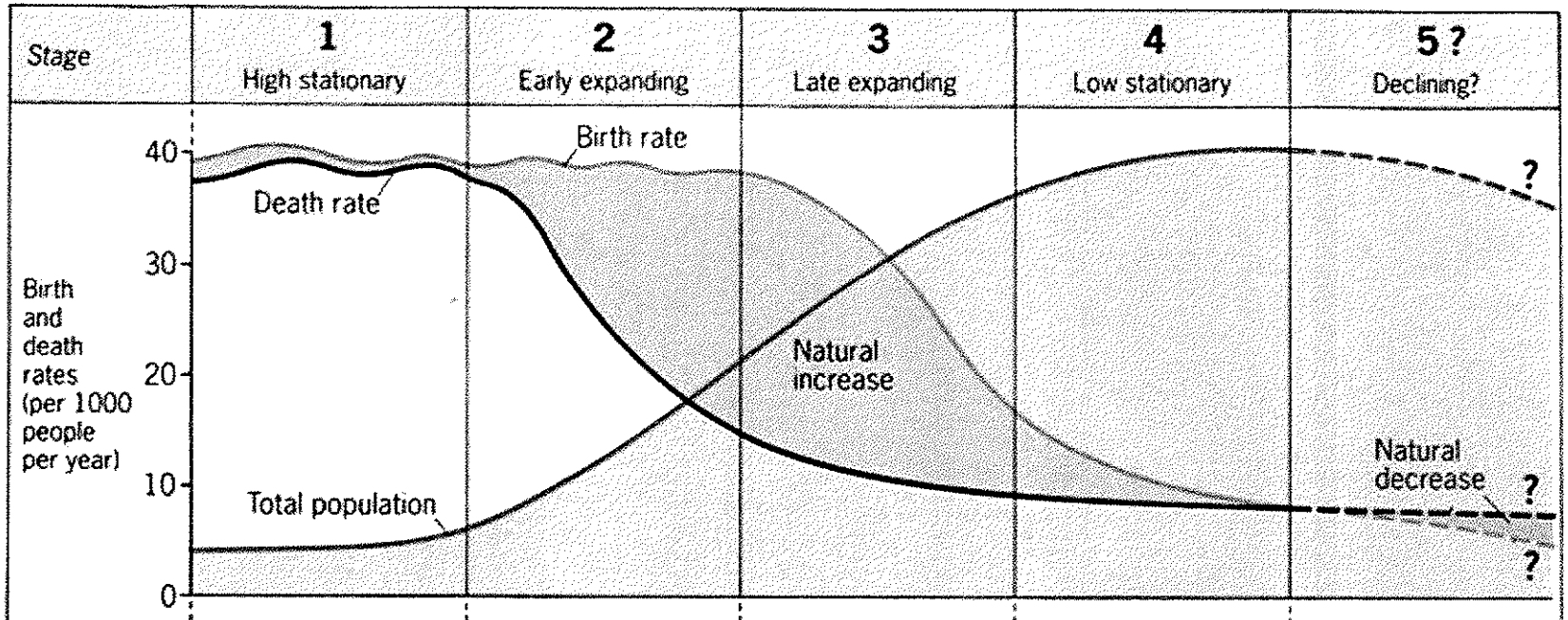
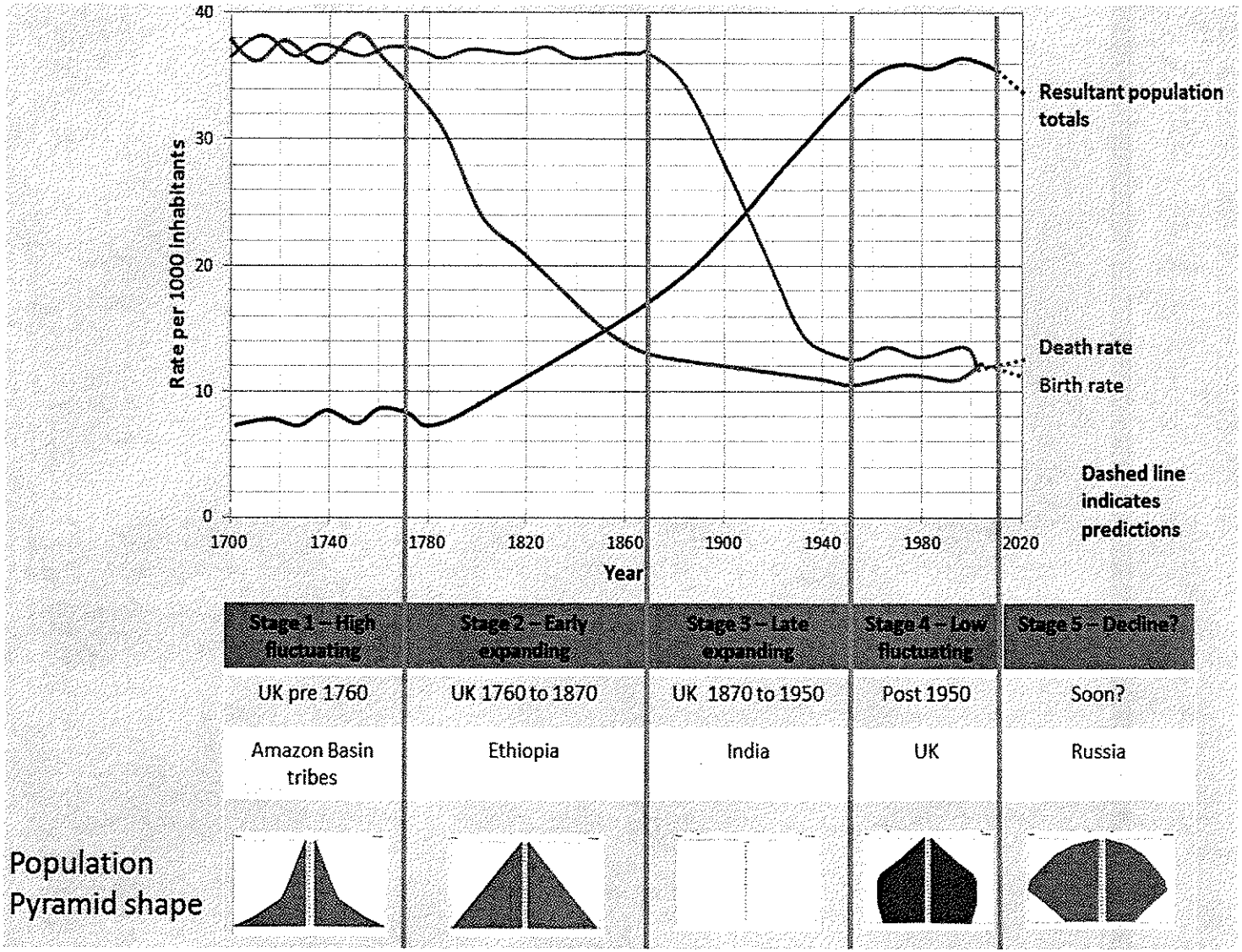
Demographic Transition Model: Version A

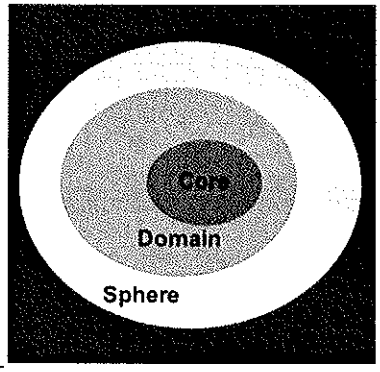


Stage	1 High stationary	2 Early expanding	3 Late expanding	4 Low stationary	5 ? Declining?
Examples	A few remote groups	Egypt, Kenya, India	Brazil	USA, Japan France, UK	Germany
Birth rate	High	High	Falling	Low	Very low
Death rate	High	Falls rapidly	Falls more slowly	Low	Low
Natural increase	Stable or slow increase	Very rapid increase	Increase slows down	Stable or slow increase	Slow decrease
Reasons for changes in birth rate	Many children needed for farming. Many children die at an early age. Religious/social encouragement. No family planning.		Improved medical care and diet. Fewer children needed.	Family planning. Good health. Improving status of women. Later marriages.	
Reasons for changes in death rate	Disease, famine. Poor medical knowledge so many children die.	Improvements in medical care, water supply and sanitation. Fewer children die.		Good health care. Reliable food supply.	

Demographic Transition Model: Version B



Core-Domain-Sphere Model (D.W. Meinig)



Core: the zone of greatest concentration or homogeneity of the culture traits that characterize a region. (Most "pure" region)

Domain: The area outside of the core of a culture region in which the culture is still dominant but less intense.

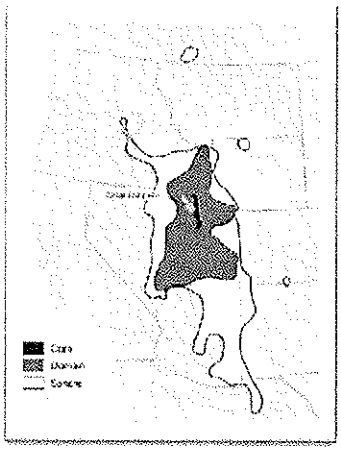
Sphere: The area outside of the core of a culture region in which the culture is still dominant but less intense.

Keep two things in mind when thinking about cores, domains, and spheres.

1.) <u>One culture's core can lie within another culture's sphere</u>. For instance, the core of Tibetan Buddhist culture, the Tibetan plateau, is also part of the Chinese cultural sphere because China conquered Tibet in the eighteenth century and has occupies it since 1950.

2.) <u>The transitions between core, domain and sphere can be gradual or abrupt.</u> Barriers to movement (physical/political) have historically created abrupt transitions. On the other hand transitions can also be gradual. In Southeast Asia, a very gradual transition occurs over a thousand miles between the curry-based flavors of Indian cuisine to the soy-based flavors of Chinese cuisine with Thai cuisine halfway between featuring major influences of both.

Meinig's Core-Domain-Sphere Model Example: Mormon Culture Region



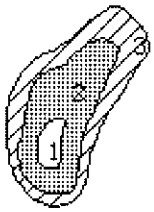
The most famous example of a region based on religious association was proposed by Donald Meinig, that of a distinct Mormon landscape. These traits of a visible landscape are most evident in the core of settlement (core-domain-sphere model proposed by Meinig) or the place of initial settlement. Beyond this core lays the domain where many of these distinct traits can be found, but not all of them. These traits to the Mormon landscape include: Evenly distributed homesteads and settlements, not nucleated settlement; wide streets within the towns and cities; a central temple or church that also serves as a meeting hall; parallel irrigation ditches, to roads, with branches into fields (no longer in use due to modern irrigation. Example of a relic trait) the traits can all be found within what Meinig called the domain and help to separate this region from other neighboring regions.

Diffusion Models—2 pages

This classification of spatial diffusion into four basic types is a starting point to describing the form which this process takes. It provides an overall framework, but is devoid of any consideration of how human reason about diffusion. We can extend this analysis by looking at the objects and operations that work together to create the process of spread from a human perspective, and consider what is the integrating framework between geographic space, the process, the entities that are affected by the process. That is, whether certain characteristics are shared among the classes depending on the user perspective or whether certain types of spread are a subset or superset of the others. We can also consider how geographic space is treated in each case, for instance, how is diffusion affected by constraints to space or barriers? From this work, a conceptual schema for spatial diffusion will be developed.

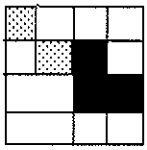
Expansion Diffusion

a. Strictly defined, expansion diffusion is the process of spreading something from one place to another in an ever-expanding "snowballing" process. Expansion diffusion is used to explain a variety of phenomena in numerous disciplines, from the spread of disease in medicine to the process of human settlement in the study of geography. Expansion diffusion is distinguished from regular diffusion when something spreads outward from a central point. Technology such as television and the internet, for example, have been instrumental in spreading ideas from place to place, while the advent of air travel has had a similar effect on contagious disease.



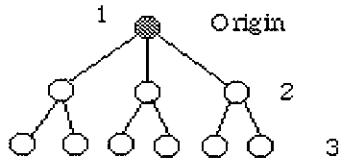
Contagious Diffusion

b. As its name suggests, contagious diffusion occurs when a particular characteristic is rapidly transmitted throughout the population. In this form of expansion diffusion, most adjacent individuals will be affected; an example of contagious diffusion is the early spread of Christianity, which spread from the Middle East to Europe. Another example can be seen in the spread of the bubonic plague that ravaged London during the 16th century, or the widespread influenza pandemic of 1918.



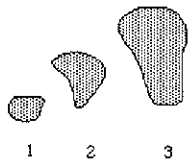
Hierarchical Diffusion

c. Hierarchical diffusion occurs when an idea is spread from a person or organization that holds authority over others. This type of diffusion is typically seen in cases when an idea is communicated by political leader or person of influence and spreads. This typically begins in an urban setting before eventually reaching less populated areas. An example of hierarchical diffusion can be seen in the popularity of rap and hip-hop music, which began in low-income black neighborhoods in densely populated urban areas before spreading out and gaining widespread acceptance among members of other socio-economic and geographical groups.



Relocation Diffusion

d. Relocation diffusion describes the spread that occurs when the phenomena moves into new areas, but leaves behind its origin or source. A common example of relocation diffusion is that of migration, for instance the movement of persons from rural to urban areas. This is NOT a type of expansion diffusion.



Stimulus Diffusion

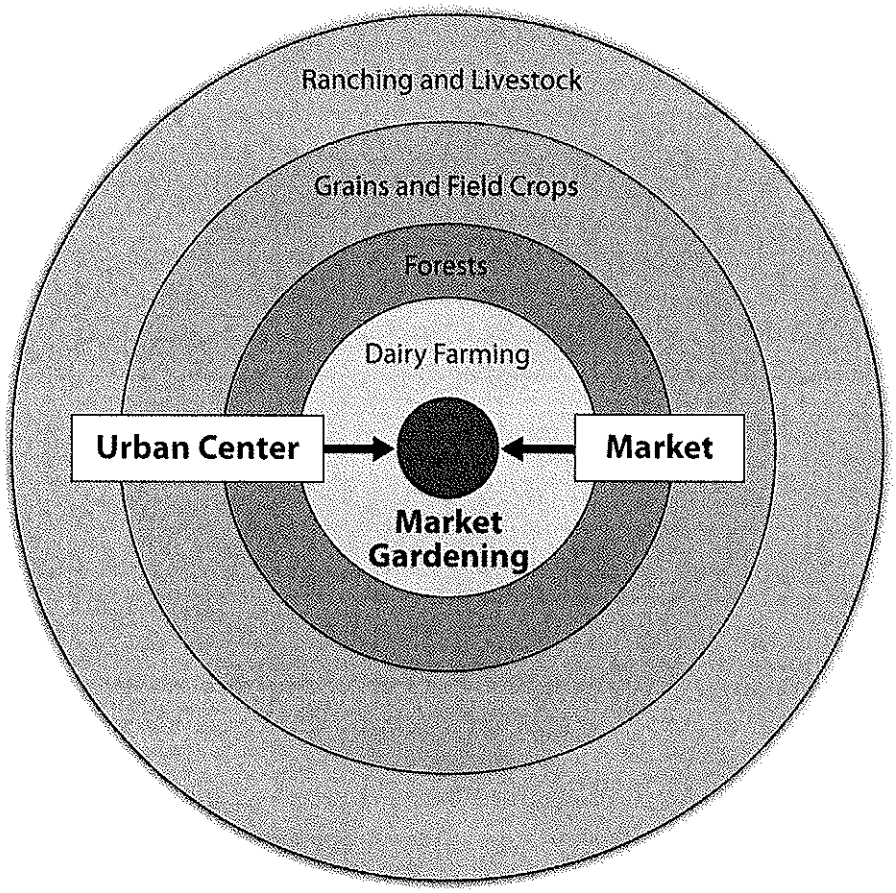
e. Stimulus diffusion is when an idea, principle or innovation underlying a phenomena spreads to a small portion of a population, even though the phenomena itself may not be diffused. This typically occurs when, due to cultural differences, certain aspects of a phenomenon become diffused as opposed to the phenomena as a whole. An example of hierarchical diffusion can be seen in the U.S.-based fast-food restaurant McDonald's expanding its operations to India, a country in which the chain's primary product—beef hamburgers—are culturally repellent to the country's millions of Hindus. As a result, McDonald's serves no beef in its Indian restaurant, offering vegetarian patties instead. In this way, the phenomenon of McDonald's has spread to India although the fundamental principle underlying the company's success has not.

Source: http://www.ehow.com/info_8614359_types-expansion-diffusion.html

Von Thünen's Model of Agriculture (1826)—2 pages

Johann Von Thünen (1783-1850) observed in northeast Germany that each town or market center was surrounded by concentric rings with a commodity or crop dominating ring. From his observations, he formulated a theory based on the perishability of products and the cost of transportation. Given this is a theory, Von Thünen had to establish some basic assumptions: terrain was flat, conditions were all the same, no barriers to transportation, and it was an *isolated state* that had no ties to the outside world. Von Thünen stated that as you moved out into each ring, farther and farther away from the central city, the cost of transportation of goods would go up and the cost of land would go down. The rings were made up of the following:

- *Market gardening and dairy* (perishable and high priced)
- *Forest* (wood for fuel and building)
- *Extensive field crops* (wheat , corn and other grains)
- *Ranching and livestock*



The city (urban center and market) is located centrally within an "Isolated State." Intensive farming was in the second zone because items like dairy products, products that perish easily, had to be grown near their market. Also, also any product that could bring a large profit was grown in this second zone. Because land in this zone was so accessible to the central city, the cost of land in this zone was very high.

The third layer out was called the extensive farming zone. In order for the farming of these crops to be profitable, they must be grown on large tracts of land, therefore farmers that grow these crops are using sections of land much larger than those found in the intensive farming zone. Transportation costs are higher in this region, but the quantity of the product helps spread out the overall cost of transportation. Eventually, the cost of transportation cannot be spread out enough over the quantity of the product grown and farming of this type will cease to be profitable.

Ranching is the fourth ring in Von Thünen's model. Ranching requires an enormous amount of land for all the cattle needed to make a ranch profitable. Because of the enormous amount of land required, ranching is the farthest out in Von Thünen's model.

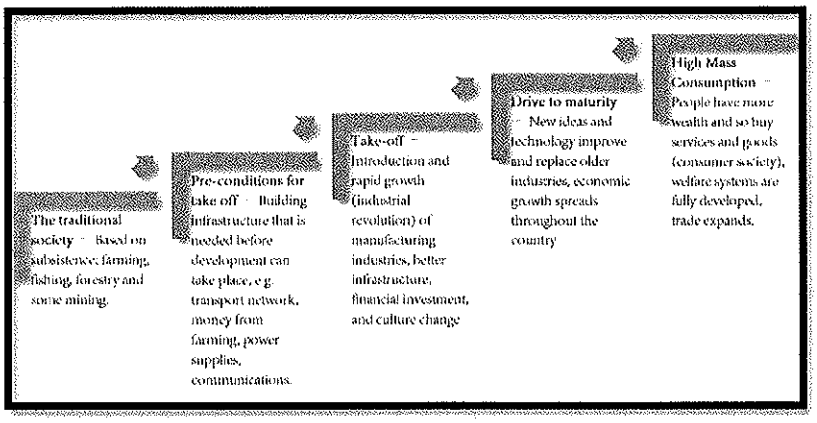
Beyond the ranching ring in the model, there is nothing but wilderness, it is not profitable for any economic activity to go on this are away from the central city or marketplace and still overcome the cost of transporting goods to market.

We can learn two geographic principles from Von Thünen's model:

1. The more land required to make an operation profitable, the farther away from the city center it will be located.
2. The size of the operation must be balanced with the cost of transportation.

Even though the Von Thünen's model was created in a time before factories, highways, and even railroads, it is still an important model in geography. The Von Thünen's model is an excellent illustration of the balance between land cost and transportation costs; as one gets closer to a city, the price of land increases. The farmers of the Isolated State balance the cost of transportation, land, and profit and produce the most cost-effective product for the market. Of course, in the real world, things don't happen as they would in model.

Rostow's Stages of Economic Development Model



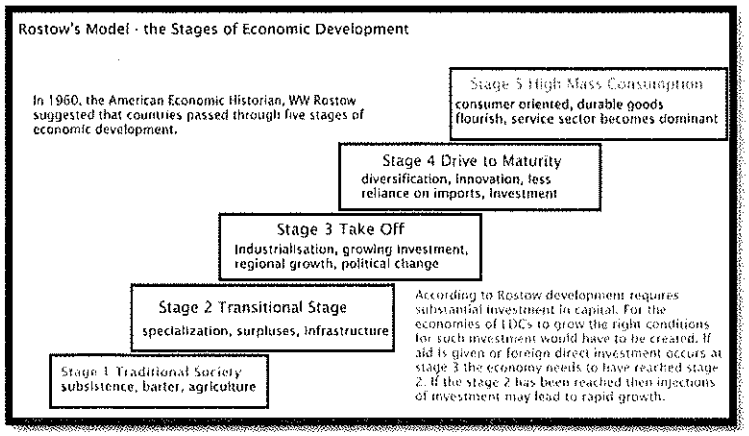
Rostow's Development Model was based on two factors:

1. The developed countries of Western Europe and Anglo-America had been joined by others in Southern and Eastern Europe and Japan.
2. Many LDCs contain an abundant supply of raw materials sought by manufactures and producers in MDCs. In the past, European colonial powers extracted many of these resources without paying compensation to the colonies, as core countries do to periphery. In a global economy, the sale of these raw materials could generate funds for LDCs to promote development.

According to the model, each country is in one of these five stages of development. With MDC's in stage 4 or 5, whereas LDCs are in one of the three earlier stages. The model asserts that today's MDC's passed through the other stages in the past. For example, the U.S. was in stage 1 prior to independence, stage 2 during the 1st half of the 1800's, stage 3 during the middle of the 1800's, and stage 4 during the late 1800's, before entering stage 5 during the early 1900's. The model assumes that LDCs will achieve development by moving along an earlier to a later stage.

A country that concentrates on international trade benefits from exposure to consumers in other countries. To remain competitive, the takeoff industries must constantly evaluate changes in international consumer preferences, marketing, production engineering, and design technologies.

Examples of countries adopting this method of development include areas in East/Southeast Asia and Arabian Peninsula, "Four Asian Dragons", and India.



Weber's Model of Industrial Location (aka Least Cost Theory, 1909)

Developed to choose a location for manufacturing plants. Assumes that the owner has three categories of costs:

- *Transportation*
- *Labor*
- *Agglomeration* (shared talents, services and facilities – advantages to clustering)

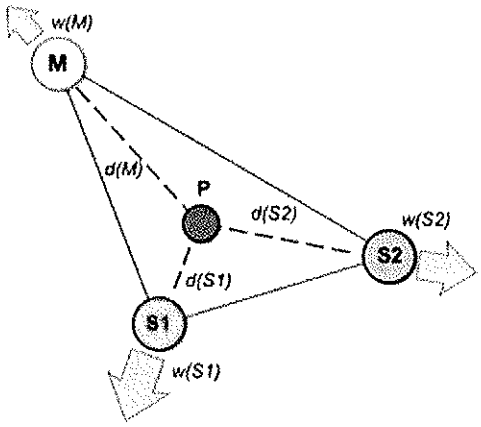
Industries use Alfred Weber's least cost theory which emphasizes that firms seek a site of minimum transport and labor costs. To Weber, transportation was the most important cost factor. The reason why manufacturers try to locate near their buyers and sellers is to reduce the costs of transportation. At the same time, they would try and minimize the costs of transporting in raw materials to their factories. The further away you are located from your buyer and dealer, the higher the cost of your transportation to travel to and from them will be.

Industries will also look at the cost of labor, they will be willing to locate somewhere where they can hire people who will work for small wages because their jobs are not specialized, and do not take much skill. If cheaper labor made up for transport costs, you would locate further away but only so far from your market as you had to in order to get cheap labor. An example would be of the United States which locates its factories in places like Mexico where outsourcing workers means lower wages as well as still being close to the market and also taking advantage of a trading agreement (NAFTA). By taking advantage of NAFTA, products from Mexico can be transported across the borders for free.

Agglomeration is also a factor that industries look at, because they will have fewer costs if they locate near other factories because each factory will in some way share the costs. Of course, if things get to be expensive because too many factories wanted to be located in one area (increasing rents), de-agglomeration would occur.

- *Weight –losing case:* (bulk reducing) if the finished product costs less to transport, the firm will be located closer to the raw materials to reduce cost.
- *Weight-gaining case*(bulk gaining) if the finished product costs more to transport, the firm will be located closer to the market to reduce cost.

Solving Weber's location model often implies stages; finding the least transport cost location and adjusting this location to consider labor costs and agglomeration economies. Transportation is the most important element of the model since other factors are considered to only have an adjustment effect. To solve this problem, Weber uses the ***location triangle*** within which the optimal is located. The above figure illustrates the issue of minimizing transport costs. Considering a product of **w(M)** tons to be sold at market **M, w(S1),** and **w(s2)** tons of material coming respectively from **S1** and **S2** are necessary. The problem resides in finding an optimal factory location **P** located at the respective distances of **d(M), d(S1),** and **d(S2).** Several methodologies can be used to solve this problem such as drawing an analogy to a system of weights and pulleys (Varignon's Solution) or using trigonometry. Another way preferred among geographers, particularly with GIS, is to use **cost surfaces** which are overlaid.



Weber's location theory explains well the location of heavy industries, particularly from the industrial revolution until the mid twentieth century (the sector that Weber was looking at). Activities having a high level of use of raw materials tend to locate near supply sources, such as aluminum factories will locate near energy sources (electricity) or port sites. Activities using ubiquitous raw materials, such as water, tend to locate close to markets. To asses this issue, Weber developed a ***material index*** which is simply the weight of the inputs divided by the weight of the final product (output). If the material index is higher than 1, location tends to be Contemporary developments in manufacturing, the reduction of transport costs and new economic sectors (high technology) has changed locational behavior substantially as it locates without much consideration to Weber's principles. Still, these principles apply well for industries with a very high material index.

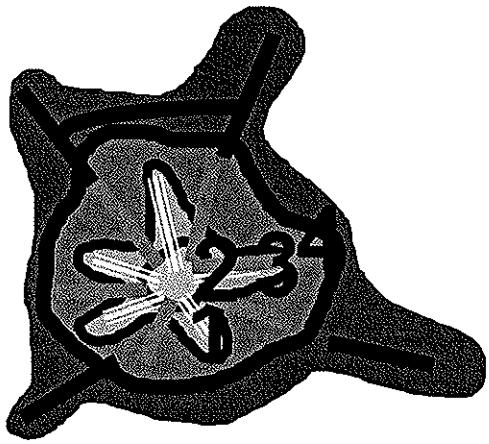
Borchert's Urban Model

Borchert's epochs refer to five distinct periods in the history of American urbanization. Each epoch is characterized by the impact of a particular transport technology on the creation and differential rates of growth of American cities. This model was conceptualized by geographer John R. Borchert in 1967. The five epochs identified by Borchert are:

- ***Sail and Wagon Epoch*** (1790–1830)
  - During this period, the movement of people was limited and slow because of the difficulty of overland transportation; primary goods were moved along waterways.
- ***Steamboat Iron Horse Epoch*** (1830–70)
  - The system changed with the development of steam and its application to boats and early railroads. Therefore, this epoch is characterized by impact of steam engine technology, and development of steamboats and regional railroad networks
- ***Steel Rail Epoch*** (1870–1920)
  - Approximately at the time of the Industrial revolution, this epoch was dominated by the development of long haul railroads and a national railroad network. Cities expanded their hinterlands dramatically; goods were moved long distances, making it possible to develop intensively industrialized areas.
- ***Auto/Air Amenity Epoch*** (1920–70)
  - Characterized with growth in the gasoline combustion engine. The urban system has been transformed dramatically by the use of automobiles, which opened up new locations for development.
- ***Satellite-Electronic-Jet Propulsion*** (1970–present),
  - Also called the *High-Technology Epoch* or *Telecommunications Epoch,* since both are shaping cities in many ways

Adams Urban Model

Adam's Model for urbanization explains changes over time in spatial form of cities. There are four stages based on changes in transportation technology:



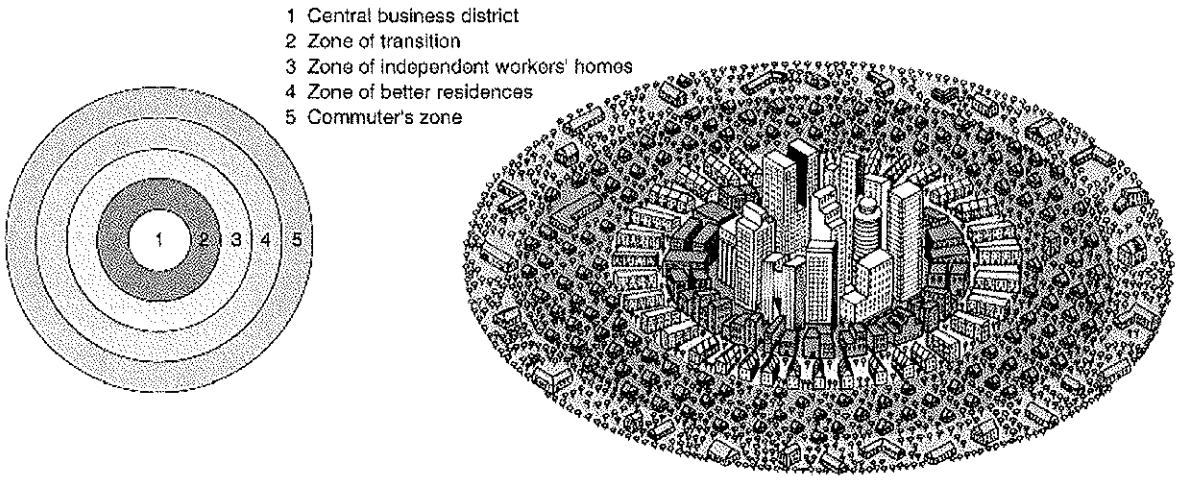
- ***Walking/Horsecar Era*** (pre-1888)
  - Pedestrian city, horse drawn trolleys, compact urban structure (had to be within 30 minutes walking distance), grid pattern of cities (logical, tight structure).
  - Little specialization of land use
  - Must live near where they worked
- ***Electric Streetcar Era*** (1888-1920)
  - Streetcar, did not have to walk everywhere, street travel wider
  - Cities expanded beyond trolley lines
  - "starburst" shaped city
  - More differentiated land use, didn't have to live near where they worked
  - City had industrial area and residential area
- ***Recreational Automobile Era*** (1920-1945)
  - Cars and highways, suburbanization, more individual mobility
  - Do not have to live near transportation corridors – filled in those starburst shapes
  - Center city at its peak – "downtown"
  - Residential areas broken up into distinct neighborhoods – tried to live near people like themselves, apart from people they weren't like
- ***Freeway Era*** (1945-Present)
  - Big impact from cars, interstates
  - Beltways bypass cities altogether, businesses moving out now
  - Creation of suburban downtown
  - "edge cities" on perimeter of city limits
  - Multi-centered metropolis

Burgess Concentric Zone Model, 1920s

Developed based on Chicago to represent American cities of that time by Park and Burgess; The city consists of 5 concentric zones – each with a different function (purpose) in the city. As the city expands, the zones expand and merge into the next adjacent zone (invasion and succession).

Characteristics of the Concentric Zone Model

- ***Zone 1: CBD*** (Central Business District), or "downtown."
  - Characterized by high land values, skyscrapers, traffic, mass transit, and mostly non-residential activities
- ***Zone 2: Zone of Transition***
  - Characteristics of this zone would be deteriorated housing, high population density, more renters, possibly ethnic ghettos, business and light manufacturing might be mixed in.
- ***Zone 3: Zone of Independent Workers' Homes***
  - Consists mostly of blue-collar workers. Small, older single family dwellings on small lots
- ***Zone 4: Zone of Better Residences***
  - Consists of the middle class. Less densely populated. Newer single-family dwellings and higher-rent apartments.
- ***Zone 5: Commuters' Zone***
  - Also known as the suburbs, and the dwellings of white-collar workers.

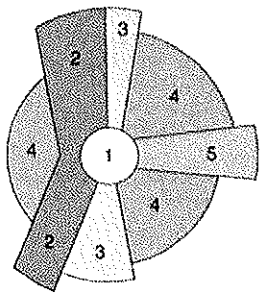


Hoyt Sector Model, 1930s

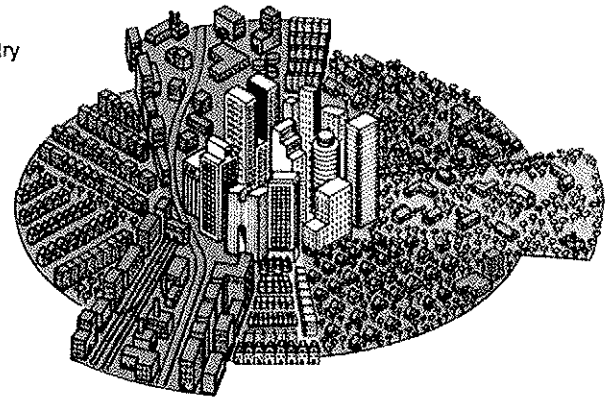
Also based on Chicago (like the Concentric Zone Model), but is an adaptation to Burgess's Concentric Zone Model. The model is pizza sliced shape or pie-shaped. The expansion is radial, not circular as in the Concentric Zone Model.

Characteristics of the Sector Model

- Transportation and communication infrastructure improving so need to include this artier as it extends out. Industry and manufacturing would develop along transportation routes.
- Said in some circumstances land value could remain consistent from the CBD to the edge of a city
- Lower-class residential zone will reside adjacent to the major transportation arteries and along the industrial zone.
- A high-class residential zone could extend out along a streetcar or suburban commuter route or possibly due to an attractive environmental feature, ie, a river or lake.



1. Central business district
2. Transportation and industry
3. Low-class residential
4. Middle-class residential
5. High-class residential

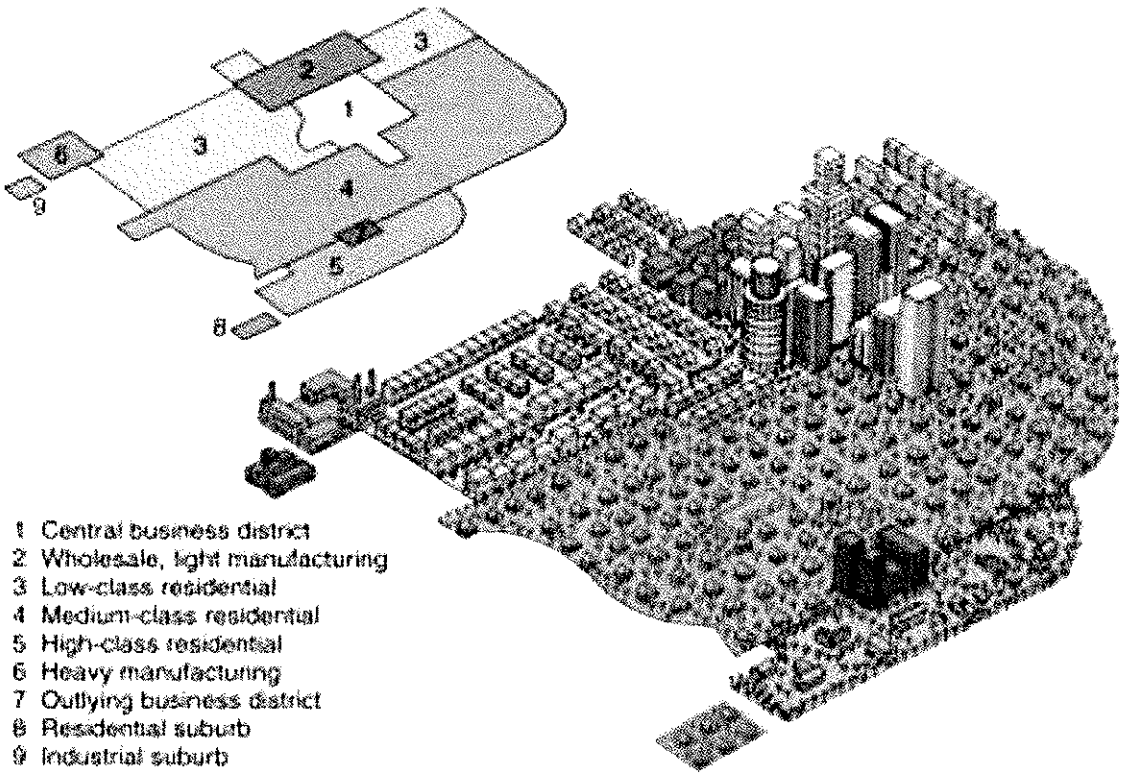


Harris/Ullman Multiple Nuclei Model, late 1940s

Harris and Ullman came up with this model in the late 1940s, stating that the Concentric and Sector Models were becoming outdated. The key feature stating that the CBD is becoming less dominant as a node of economic and cultural activity. There are now competing nuclei or nodes outside the CBD.

Key characteristics of the Multiple Nuclei Model:

- City development is spreading from several nodes, not just the CBD. Each node or nuclei might have a different function – port, education, retail, medical. Land use activities that are not compatible tend to not cluster in the same locations.
- Note that some industrial and low-class residential is near the CBD; high-class residential is in the outlying suburbs.
- New manufacturing is on outside of city – more space for one-story manufacturing plants.

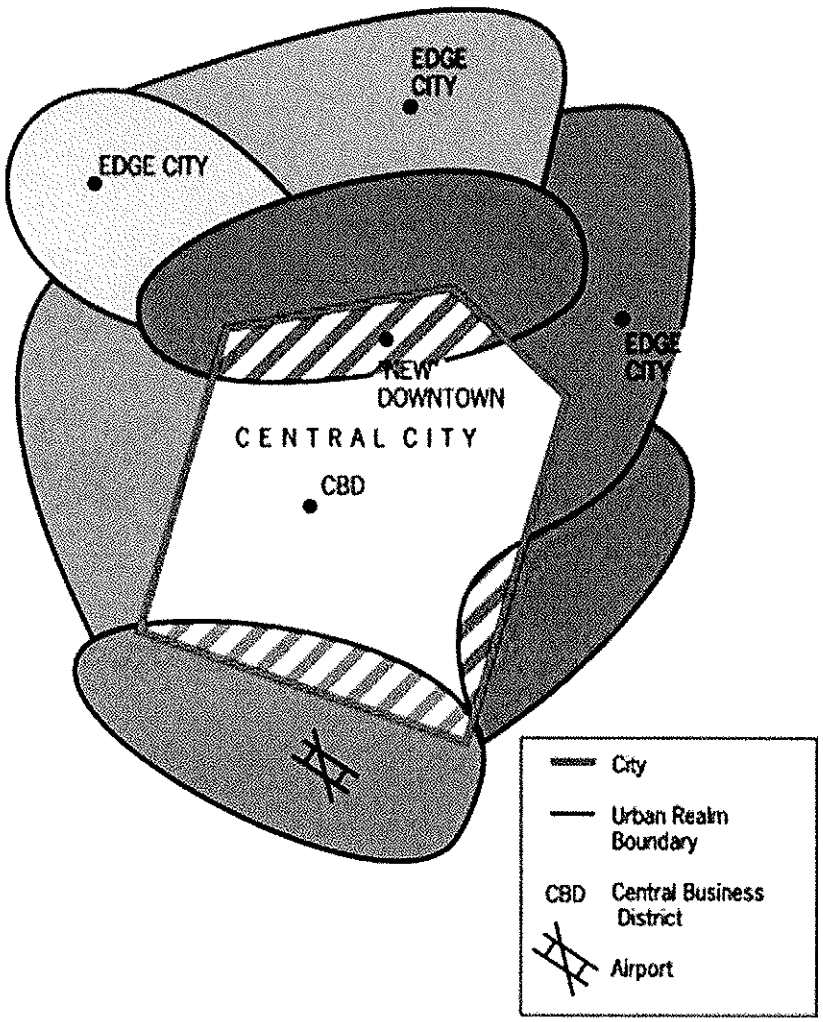


Vance Urban Realms Model, 1970s

As a means of improving upon the multiple nuclei model, the geographer James E. Vance, Jr. proposed the urban-realms model. Vance stated that cities are conurbations – connected urban areas that can function separately in many ways but are linked together in one large metropolitan area.

Key characteristics of the Urban Realms Model:

- Many nuclei with business and commercial areas (malls) surrounded by outlying residential suburbs.
- More beltways and other road infrastructure, as well as more personal cars, contributes to this urban structure.
- Less interaction and connectivity to the CBD. More independent suburbs, exurbs and edge cities.
- Suburban 'downtowns' have big shopping centers, industrial or office parks, entertainment facilities, sports stadiums, restaurants, hotels. Often near key interstate highways or intersections.



Griffin-Ford Model of a Typical Latin American City

Urban structure differs from one culture to another, and in many ways the cities of Latin America are distinctive, sharing much in common with one another. Geographers Ernst Griffin and Larry Ford developed the model diagrammed here to help describe and explain the processes at work shaping the cities of Latin America. In what ways would this model not be applicable to cities in the US and Canada?

- Cities outside the US are often very different than those found in the US
- Downtowns are often very animated
- Poor people are more likely to live in suburbs
- Cities in lower-income countries have grown rapidly, because of a combination of a high natural increase rate and immigration from rural areas
- Here, the poor are more likely to live in the suburbs, whereas the wealthy leave near the center of cities, as well as in a sector extending from the center
- Many of these poor suburban areas are squatter settlements
- Squatter settlements have few services because neither the city nor the residents can afford them

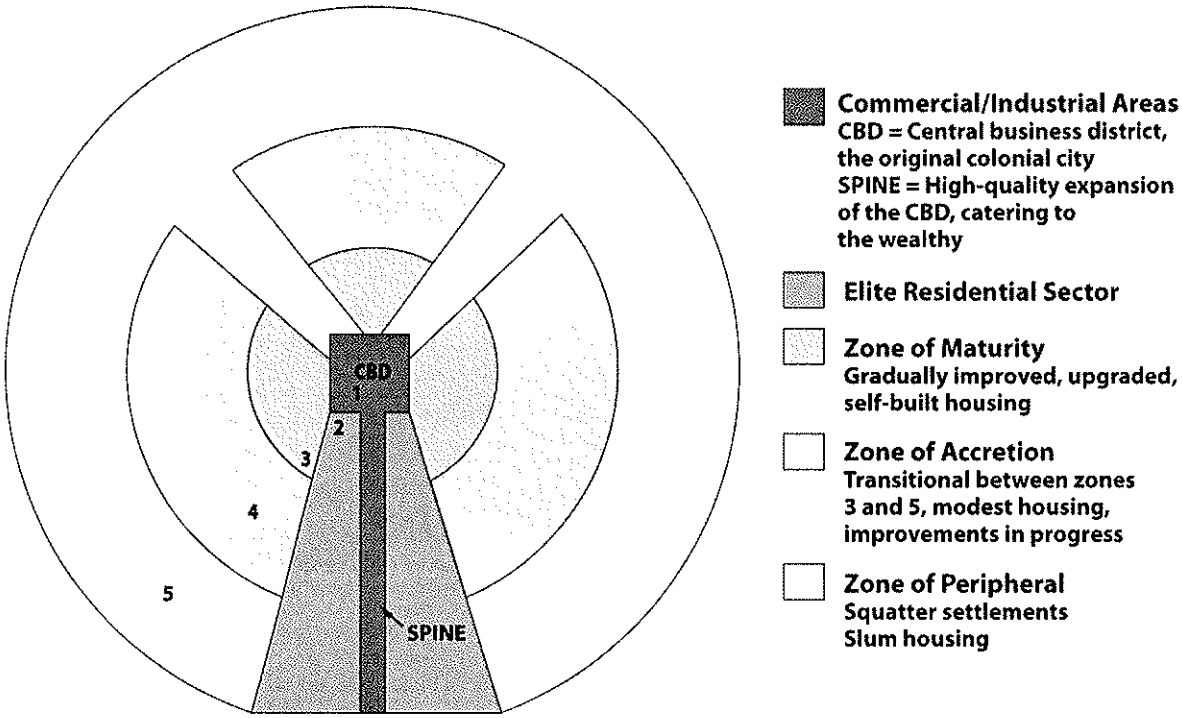


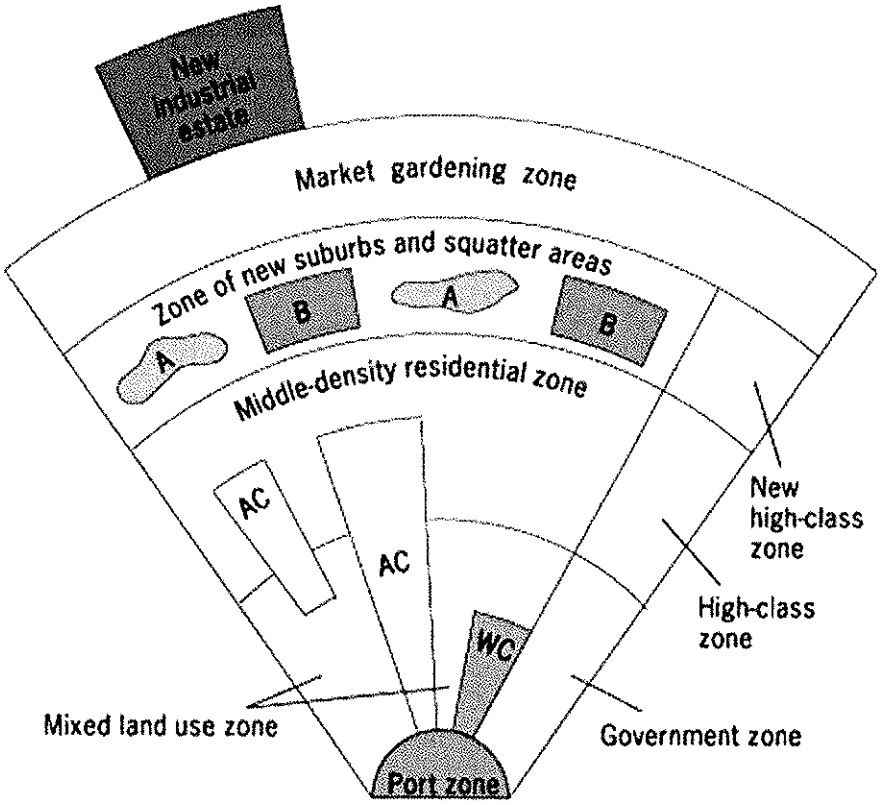
Figure 1.3
The Human Mosaic, Eleventh Edition

McGee Model of Southeast Asian City

Sometimes referred to as the McGee Model after urban geographer T.G McGee.

Key characteristics of the Southeast Asian City Model:

- Focal point is the old colonial port zone and the large commercial district that surrounds it.
- No formal CBD but elements of it clustered around the old colonial zone: government zone, Western commercial zone, alien commercial zone (often dominated by Chinese merchants), mixed land-use including light industry.
- There is a market-gardening zone on the city's outskirts.
- Even further out, a recently built industrial park or estate. (DeBlij)



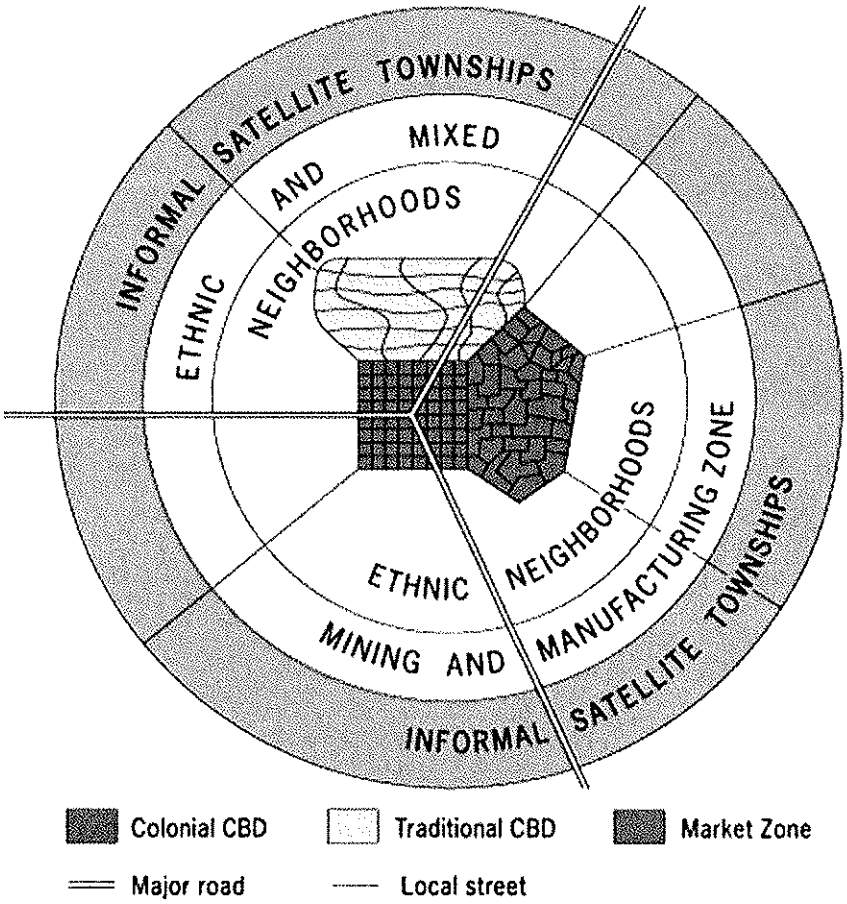
A Squatter areas
B Suburbs
AC Alien commercial zone
WC Western commercial zone

deBlij Model of Sub-Saharan African City

Difficult to formulate a model African city. Sub-Saharan Africa currently has some of the world's fastest growing cities. The imprint of European colonization can be seen in many of these cities. Some were laid out by Europeans such as Kinshasa, Nairobi, and Dakar. Others display more Western influence, such as Johannesburg, Cape Town, Durban, with elements of Europeans as well as American models.

Key characteristics of Sub-Saharan African City Model:

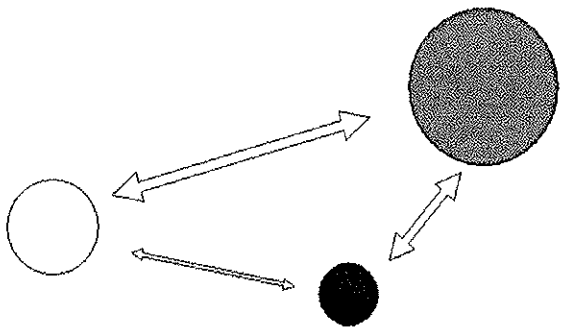
- Studies indicate that the African central city has three CBDs: a remnant of three colonial CBD, informal market zone, and a traditional business center.
    - Highest buildings are usually in the colonial CBD. Traditional CBD is usually in single-story buildings. Market zone tends to be open air informal.
- Around these CBDs, are sectors of ethnic and mixed neighborhoods, marked by strong ethnic identities. Some mining and manufacturing can be found near the neighborhoods.
- Encircling the cities are rapidly growing shantytowns.



Gravity Models

The gravity model, as social scientists refer to the modified law of gravitation, takes into account the population size of two places and their distance. Since larger places attract people, ideas, and commodities more than smaller places and places closer together have a greater attraction, the gravity model incorporates these two features.

$$\frac{\text{population}_1 \times \text{population}_2}{\text{distance}^2}$$



The shorter the distance between two objects, and the greater the mass of either (or both) objects, the greater the gravitational pull between the objects.

The relative strength of a bond between two places is determined by multiplying the population of city A by the population of city B and then dividing the product by the distance between the two cities squared.

Reilly's Law of Retail Gravitation (Reilly 1931)

In 1931, William J. Reilly was inspired by the law of gravity to create an application of the gravity model to measure retail trade between two cities. His work and theory allows us to draw trade area boundaries around cities using the distance between the cities and the population of each city.

Reilly realized that the larger a city the larger a trade area it would have and thus it would draw from a larger hinterland around the city. Two cities of equal size have a trade area boundary midway between the two cities. When cities are of unequal size, the boundary lies closer to the smaller city, giving the larger city a larger trade area. Reilly called the boundary between two trade areas the breaking point (BP). On that line, exactly half the population shops at either of the two cities.

The formula is used between two cities to find the BP between the two. The distance between the two cities is divided by one plus the result of dividing the population of city b by the population of city a. The resulting BP is the distance from city a to the 50% boundary of the trade area. One can determine the complete trade area of a city by determining the BP between multiple cities or centers.

$$BP = \frac{\text{distance between city a and b}}{1 + \sqrt{\frac{\text{pop. b}}{\text{pop. a}}}}$$

BP is distance from city a to breaking point

Of course, Reilly's law presumes that the cities are on a flat plain without any rivers, freeways, political boundaries, consumer preferences, or mountains to modify an individual's progress toward a city.

Rank-Size Rule & Primate Cities

The theory of **rank-size rule** explains the size of cities in a country. *

- The second and subsequently smaller cities should represent a proportion of the largest city.
- For example:
    - If the largest city in a country contained one million citizens
    - the second city would contain one-half as many as the first, or 500,000
    - the third would contain one-third or 333,333
    - the fourth would be home to one-quarter or 250,000
    - and so on...

The population of a town ranked *n* will be 1/*n*th of the size of the largest city

- For example:
    - the 2nd ranked town, will have a population 1/2 of the 1st ranked town.
    - the 3rd ranked town, will have a population 1/3 of the 1st ranked town
    - the 4th ranked town, will have a population 1/4 of the 1st ranked town
    - the 5th ranked town, will have a population 1/5 of the 1st ranked town
    - And so on...
- In other words, the rank of the city represents the denominator in the fraction

Germany

Actual Population		Rank-Size Rule Expectations	
1.Berlin	3,390,000	1.Berlin	3,390,000
2.Hamburg	1,700,000	2.Hamburg	1,195,000
3.Munchen	1,300,000	3.Munchen	1,130,000
4.Koln	965,000	4.Koln	847,500
5.Frankfurt	640,000	5.Frankfurt	678,000
6.Essen	590,000	6.Essen	565,000
7.Dortmund	589,000	7.Dortmund	484,000
8. Stuttgart	587,000	8. Stuttgart	424,000

The cities of Germany follow the Rank-Size Rule fairly closely

*This is not always the case in many countries!

A country's leading city is always disproportionately large and exceptionally expressive of national capacity and feeling. The **primate city** is commonly at least twice as large as the next largest city and more than twice as significant. - Mark Jefferson, 1939

The law of the primate city explains the phenomenon of huge cities that capture such a large proportion of a country's population as well as its economic activity.

- These primate cities are often, but not always, the capital cities of a country.
    - Example: Paris, which truly represents and serves as the focus of France.

Primate cities dominate the country in influence and are the national focal-point.

- Their sheer size and activity becomes a strong pull factor, bringing additional residents to the city and causing the primate city to become even larger and more disproportional to smaller cities in the country.*

Peru

Actual Population		Rank-Size Rule Expectations	
Lima	7,000,000	Lima	7,000,000
Arequiipa	700,100	Arequiipa	3,500,000
Trujillo	600,000	Trujillo	2,333,000
Chiclayo	470,000	Chiclayo	1,750,000
Iquitos	335,000	Iquitos	1,400,000
Piura	310,000	Piura	1,166,000
Huancayo	305,000	Huancayo	1,000,000
Chimbote	300,000	Chimbote	875,000

Peru does not follow the Rank-Size Rule, however Lima would be considered a Primate City

*However, not every country has a primate city

Sources:
http://www.docstoc.com/docs/17298175/Rank-Size-Rule
http://geography.about.com/od/urbaneconomicgeography/a/primatecities.htm

Central Place Theory (Walter Christaller)

Central place theory explains the spatial arrangement, size, and number of settlements. The theory was originally published in 1933 by a German geographer Walter Christaller who studied settlement patterns in southern Germany. In the flat landscape of southern Germany, Christaller noticed that towns of a certain size were roughly equidistant. By examining and defining the functions of the settlement structure and the size of the hinterland he found it possible to model the pattern of settlement locations using geometric shapes.

Central places compete against each other to serve as markets for goods and services

- This competition creates a regular pattern of settlements, according to central place theory

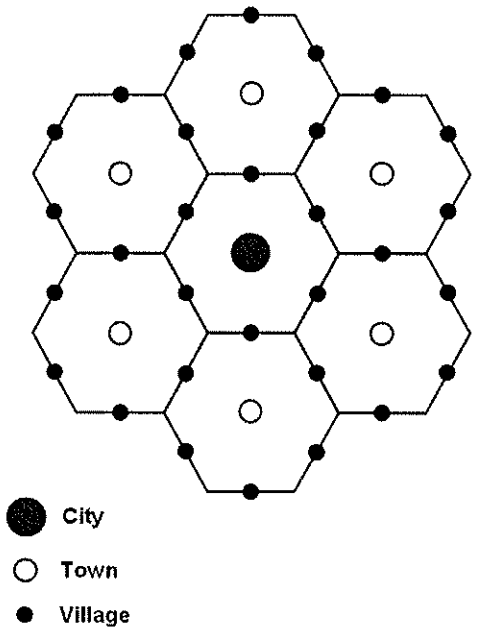
The area surrounding a service from which customers are attracted is the **market area** or **hinterland**

- Because most people prefer to get services from the nearest location, consumers near the center of the circle obtain services from local establishments
- The closer to the periphery of the circle, the greater is the percentage of consumers whole will choose to obtain services from other nodes
- People on the circumference of the market-area circle are equally likely to use the service, or go elsewhere

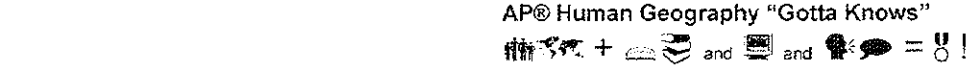
To determine the extent of a market area, geographers need 2 pieces of information about a service:

- The **range** is the maximum distance people are willing to travel to use a service
  - How far are you willing to drive for a pizza? Probably not too far – short range.
  - To watch a ballgame? Probably far – long range

- **Threshold**, which is the minimum number of people needed to support the service
  - Every enterprise has a minimum number of customers required to generate enough sales to make a profit



AP® Human Geography "Gotta Knows"



1. 1st Agricultural Revolution
2. 2nd Agricultural Revolution
3. 5 Themes—region, location, place, human-environment interaction, movement
4. 8 Urban Models (Borchert/Adams, Burgess, Hoyt, Harris & Ullman, Vance, Griffin-Ford, de Blij, & McGee)*
5. acculturation & assimilation
6. activity space*
7. agglomeration & deglomeration
8. Balkanization
9. Bid Rent Theory/Bid-Rent Curve
10. boundary disputes: definitional/territorial, locational/positional, operational/functional, allocational/resource
11. Boserup, Esther *
12. break-in/of-bulk cities
13. cartography*
14. Central Business District (CBD)
15. Central Place Theory (Christaller)
16. centripetal & centrifugal forces
17. commercial vs. subsistence agriculture*
18. conurbation & the Megalopolis
19. core-semi-periphery, periphery
20. cultural landscapes (C. Sauer)
21. culture: folk, popular, material, non-material
22. curves: "J", "S", bell *
23. demographic indicators(dependency ratio, CBR vs. GFR, CDR, LE, IMR, CMR, fecundity, TFR,sex ratio, RNI/NRi, doubling times, density + many others!) *
24. Demographic Transition Model
25. Dependency Theory
26. diffusion :expansion (stimulus, hierarchical, contagious) & relocation (migrant) *
27. distance decay
28. doctrines of major world religions & sects/denomination: Judaism, Christianity, Islam, Hinduism
29. economic indicators: GDP, GNP (a.k.a. GNI), GDP/GNP PPP, GDP/GNP per capita, HDI, etc.)
30. economic sectors: primary, secondary, tertiary, quaternary, quinary)
31. economic structures (free market/capitalism, mixed, command)
32. epidemic vs. pandemic*
33. ecumene*
34. edge city(ies)
35. enclaves & exclaves *
36. Epidemiological Transition Model *
37. ethnicity vs. race*
38. fair trade & free trade *
39. folk culture & popular culture *
40. forward capitals *
41. Genetically Modified [Organisms] (GM) [O]
42. gerrymandering
43. geopolitical theories: Organic (Ratzel), Heartland (Mackinder), Domino, Rimland (Spkyman) *
44. Global Information System (GIS)
45. globalization
46. Global Positioning System (GPS)
47. Glocalization
48. Gravity Model
49. Green Revolution (3rd Agricultural Revolution)
50. hearths (linguistic, religious, agricultural, urban) *
51. Industrial Revolution
52. irredentism
53. isotropic plane
54. language families
55. Levels of Development: DCs (≈ semi-periphery, Zone 1900, + other labels) *
56. Levels of Development: LDCs (≈ periphery, Zone 1800, + other labels) *
57. Levels of Development: MDCs (≈ core, Zone 2000, + other labels) *
58. Malthus, Thomas *
59. maquiladora
60. megacity(ies)
61. Meining (domain & sphere)
62. mental maps *
63. migration (forced, voluntary, chain, internal, external, intervening opportunities & obstacles/barriers, rural-to-urban)*
64. morphology: 5 shapes of states
65. nation vs. state *
66. nationalism vs. patriotism *
67. New Urbanism
68. population density (arithmetic vs. physiological vs. agricultural)*
69. population growth patterns
70. population pyramids (a.k.a. age-sex diagrams)
71. possibilism vs. environmental determinism
72. primate city
73. push and pull factors
74. rank-size-rule
75. religion classifications (mono- vs. polytheism vs. pantheism; universal vs. ethnic/folk) *
76. replacement rate *
77. Ravenstein's migration "laws"
78. Renfrew
79. resources: renewable vs. non-renewable
80. Rostow
81. scale
82. site & situation
83. sovereignty & autonomy *
84. space-time (& vice-versa) compression
85. spatial (thinking)
86. Special Economic Zones
87. survey patterns (long lots, metes and bounds, township-and-range)
88. supranational/transnational (economic & political) *
89. sustainable development
90. time-distance decay
91. Tobler's Law
92. topography
93. transhumance
94. transportation technology: H_2O, animal, rail, truck, air, space, pipeline*
95. Von Thünen Agricultural Location Theory *
96. Wallerstein's World Systems Theory*
97. Weber's Least Cost/Industrial Location Theory *
98. World (Global) Cities
99. world religions (basic tenets: Judaism, Christianity & its ≈ 2700 sects, Islam, Hinduism, Buddhism, atheism, agnostic, animism, Sikhism, others?) *
100. Zelinsky: mobility transition *
101. zero population growth *

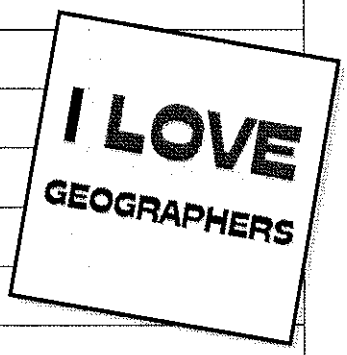
MEW-P's 5 realms: economic, environmental, political, socio-cultural, technological *

Geographer's Questions:
What is there? Why is it there? Why do we care? *

* ▲s made after April 2013

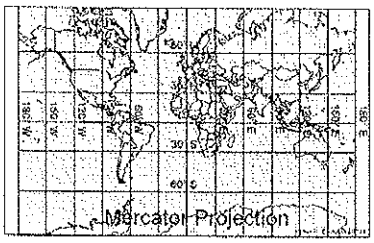
Key People in Human Geography

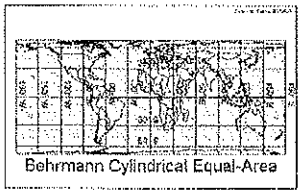
Adams, J.S.	Urban areas change over time based on changes in technology
Borchert, John	five distinct periods in the history of American urbanization
Boserup, Esther	cornucopian in contrast to Malthusian ideas
Burgess, Ernest	Concentric Zone Urban Model
Christaller, Walter	Central Place Theory
diBlij, Harm	Sub-Saharan African City Model
Ford, Larry	Latin American City Model (with Griffin)
Griffin, Ernest	Latin American City Model (with Ford)
Harris, Chauncy	Multiple Nuclei Model (with Ullman)
Hartshorne, Richard	Boundary system classifications: antecedent, subsequent, superimposed, relic
Hoyt, Horner	Hoyt Sector Model
Köppen, Wadimire	Köppen climate classification system
Malthus, Thomas	Crisis point when geometric growth rate of population intersects with arithmetic growth rate of food production
Mackinder, Sir Halford	Heartland Theory—political power based in the heart of Eurasia could gain enough power to dominate world
McGee, Terry	Southeast Asian City Model
Meinig, D.W.	Core-Domain-Sphere Model
Raztel, Friedrich	Organic Theory—states behave like an organism in terms of acquiring resources and territory
Ravenstine, Ernest	Laws of migration
Rostow, Walt	5 stages of economic growth for a given country/society
Sauer, Carl	cultural landscapes are made up of "the forms superimposed on the physical landscape"
Spykman, Nicholas	Rimland Theory—Eurasian rim is not the heartland, holds the key to global power
Ullman, Edward	Multiple nuclei Model (with Harris)
Vance, James	Urban Realms Model
Von Thünen, Johann	Model: location of agricultural activities based on economic concepts (rent) and type of agricultural activity
Wallerstein, Immanuel	World Systems Theory posits that there is global system of economic interdependence; core, semi-periphery & periphery countries; some countries benefit while others are exploited
Weber, Alfred	Least Cost Theory of Industrial Location: raw materials and production point and market positioning to maximize profite
Whittlesey, Derwent	Sequent occupance: cultural landscape is shaped by the succession of residents, each of whom leaves a lasting imprint
Zelinsky, Wilber	Developed a migration transition model which complements the DTM
Prince William, The Duke of Cambridge	studied geography at the University of St. Andrews in Scotland; having switched from studying the history of art

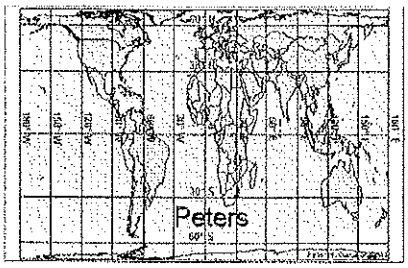


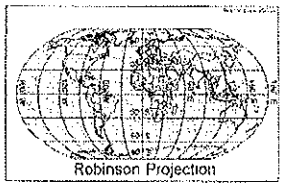
MAP PROJECTIONS

- ALL MAPS LIE! Representing our 3-dimentional planet in 2-dimentional form requires cartographers to create distortions of size, direction, scale, and/or shape. However, they remain powerful tools for Human Geographers because, considered carefully and critically, they convey a great deal of information.
- Map projections fall into four general classes: cylindrical, conic, azimuthal, & "other."
  - Cylindrical
    - Examples include the Mercator & Behrmann, Peters, & Robinson Projections



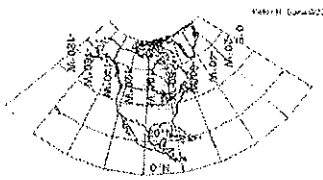




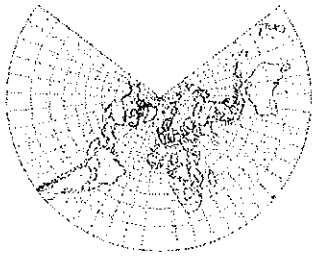


  - Conic

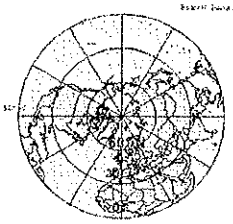
Conical Projection Surface



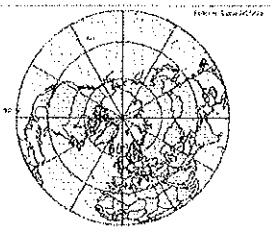
North America
Albers Equal-Area Conic
Origin: 23N, 96W
Standard Parallels: 20N, 60N



  - Azimuthal
    - When directional relationships from a given central point (called an azimuth) are important, Azimuthal projections are typically used. They provide differ result from projecting a spherical surface onto a plane. Examples include the Azithmul Equidistant and the Lambert Azimuthal Equal Area

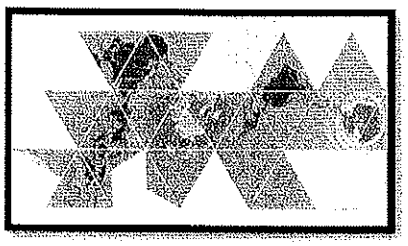


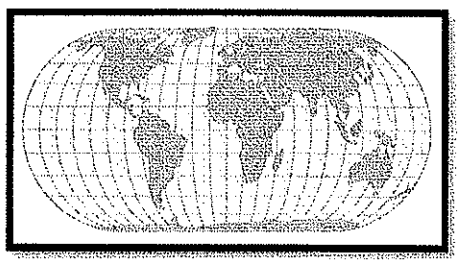
Azimuthal Equidistant

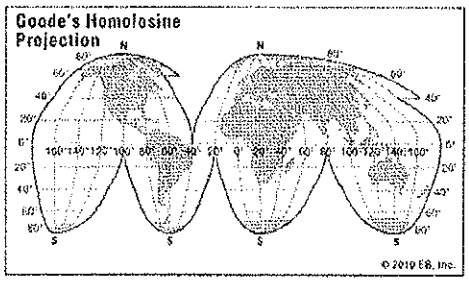


Lambert Azimuthal Equal Area

  - Others:
    - Fuller: accurately depicts the size and shape of landmasses, but rearranges direction (below, left)







    - Eckert IV: equal area-map, but distorts shapes near the poles (above, center)
    - Goode's homolosine projection: shows size of continents accurately for comparison, but distorts shape and size of oceans (above, right)

Adapted & adopted: These materials were developed by Peter H. Dana, Department of Geography, University of Texas at Austin, 1996 http://www.colorado.edu/geography/gcraft/notes/mapproj/mapproj_f.html & Aaron McLaughlin, Benson Magnet School, Omaha Public Schools

AP© Human Geography Study Guides/Resources

- **These are NOT officially endorsed by the College Board©, but many AP© Human Geography students and teachers find them helpful resources for any or all of the following:**
  - **preview unit topics before class instruction**
  - **review specific ideas after instruction**
  - **build upon existing knowledge and supplement with new content knowledge**
  - **common tool for [independent] student study groups to use**
  - **review for the national AP© Human Geography exam in May**
- **NOT an exhaustive list**
- **Purchase prices range between ≈ $10 and $55, depending on how recently they were published, format (softcover, e-reader, etc.) and whether copies are new or used (prices based on Amazon.com, April 2015)**

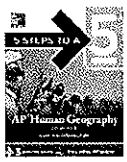
📖 Barron's AP Human Geography, 5th Edition [Marsh, et.al.]

📖 Cracking the AP Human Geography Exam, 2014 Edition [Princeton Review]

📖 Kaplan AP Human Geography 2014 (Kaplan AP Series) [Swanson]

📖 Barron's AP Human Geography Flash Cards, 2nd Edition

📖 5 Steps to a 5 AP Human Geography, 2014-2015 Edition (5 Steps to a 5 on the Advanced Placement Examinations Series) [Gillespie]



📖 AP Human Geography Crash Course Book + Online (Advanced Placement (AP) Crash Course) [Sawyer]

📖 AP Human Geography: A Study Guide, 3rd edition [Wood]

📖 AP Human Geography All Access Book + Online + Mobile (Advanced Placement (AP) All Access) [Sawyer]

📖 5 Steps to a 5 500 AP Human Geography Questions to Know by Test Day (5 Steps to a 5 on the Advanced Placement Examinations Series) [Flowers, et.al.]

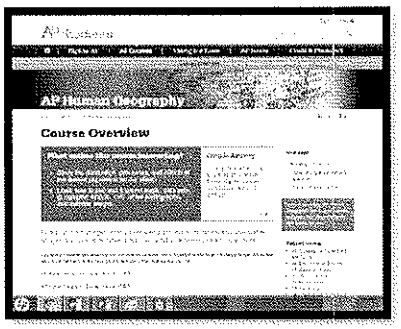
📖 Kaplan AP Human Geography in a Box [published by Kaplan]

📖 AP Human Geography Exam Flashcard Study System: AP Test Practice Questions & Review for the Advanced Placement Exam (Cards) Paperback [published by Mometrix Media] ***$ EXPENSIVE $***

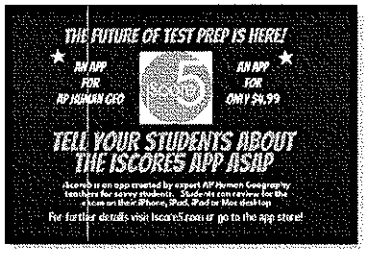
📖 AP Human Geography Exam Secrets Study Guide: AP Test Review for the Advanced Placement Exam Paperback [published by Mometrix Media] ***$ EXPENSIVE $***

SOME SUGGESTED WEBSITES

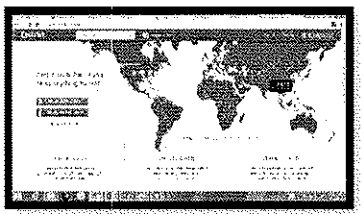
The College Board©'s COURSE OVERVIEW for AP© Human Geography
https://apstudent.collegeboard.org/apcourse/ap-human-geography



* * * NEW APP FOR AP© HUMAN GEOGRAPHY EXAM PREP * * *
http://www.iscore5.com/

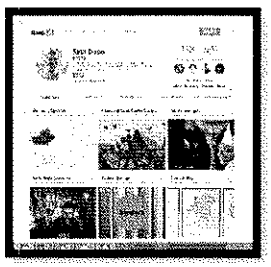


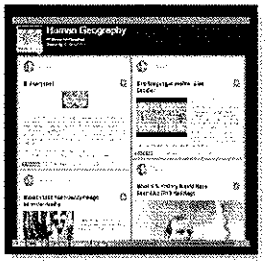
Search QUIZLET.com for "Human Geography" (some options better than others—perhaps your TEACHERS have posted flash card for you?
http://quizlet.com/



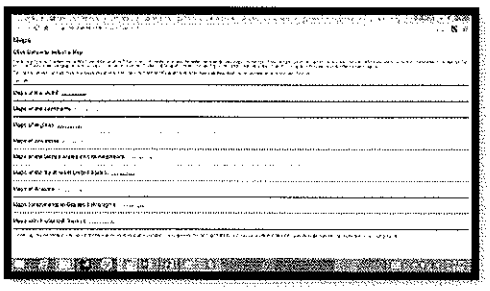
Extensive lists of APHG concepts and definitions from APHG teachers around the country:
http://miamibeachhigh.schoolwires.com/Page/2203
http://www.quia.com/pages/mrsbellaphg.html
http://geographyeducationdotorg.files.wordpress.com/2012/07/aphg-big-ideas-review-guide.pdf

Dr. Seth Dixon and Mr. Matt Wahl—APHG teachers with cool links via *Scoop It*
http://www.scoop.it/u/aphumangeog
http://www.scoop.it/t/human-geography





Blank Maps & Thematic Maps
http://alliance.la.asu.edu/maps/maps.htm



EXAM TIPS & HINTS

TOTAL EXAM TIME ≈2 hours and 15 minutes
- 2 parts, each section worth 50% of final exam grade:
  - multiple choice questions (MCQs) 75 questions in 1 hour
  - free response questions (FRQs) 3 questions in 1 hour and 15 minutes

KNOW YOUR VOCABULARY—recognize it, apply it, use it in FRQ responses

TAKE PRACTICE EXAMS
- Practice your timing—how to make the most of your MCQ hour and your FRQ 75 minutes
- Make your own study guides using the questions/sections on which you didn't score well

MULTIPLE CHOICE QUESTIONS
- Take the MCQ part twice
  - 1s time: Answer the questions about which you are pretty sure
  - 2nd time: eliminate the "clearly wrong" response(s) and go "GUT-BRAIN-GUT" to select your answer
- Do not leave questions blank
- Use any diagrams, maps, or charts provided
- Pay attention for different types of questions: definitions, descriptions, examples, theory and models, etc.
- Look for the indicators of "NOT" "EXCEPT" "ALWAYS" "NONE"—remember that 4 of the 5 responses are wrong

FREE-RESPONSE QUESTIONS

Attack questions methodically and plan answers before putting pencil to paper.Carefully analyze the question, thinking through what is being asked, and identifying the elements that must be addressed in the response. Be sure to carefully read the question to determine what is being asked and then plan your essay accordingly.

Pre-Think your answer for ALL 3 FRQs first
  - Of the 3 FRQs, one will be easier, one will challenging, and one will be somewhere in the middle. So...plan your "attack" accordingly.
    - Students should write responses on answer pages and in designated answer spaces only.
  - Students **may use any blank space on directions and question pages to take notes and plan written responses**.
  - Circle key words:
    - What KIND of answer do they want? Note the OPERATIONS/VERBS: Describe, Discuss, Analyze, Evaluate, Define, Example, Compare, Contrast, Illustrate, etc.
    - What CONTENT do they want in your answer: Circle and add notes about vocabulary, key terms

FRQ Responses
- After determining what is involved in answering the question, consider what GEOGRAPHIC THEMES can be incorporated.
- If there is A MAP, CHART, GRAPH, OR DIAGRAM WITH THE QUESTION, STUDY IT CAREFULLY BEFORE BEGINNING AN ANSWER.
- Carefully ANSWER EACH PART OF THE QUESTION, labeling responses (outline form?) as it is labeled in the question (while using sentences and paragraphs).
- Give examples, use appropriate terminology, and apply relevant information in the development of responses
- Do not include: thesis statements, opinions, closing statements, diagrams, bullet points
- Every FRQ is scored with a rubric of ≤ 10 points. Points are only EARNED, not deducted.
- Lead with your strengths—If your best answers are at the bottom of a long response, the scorers MAY not read them
- Review the evidence learned during the course which relates to the question and then decide how it fits into the analysis or explanation.
  - Does it demonstrate a similarity or a difference?
  - Does it argue for or against a generalization that is being addressed?
  - Does it ask you to identify and explain a certain number of examples or reasons?
    - For example, if it asks for two reasons, then be sure to identify and explain two reasons in your answer.
- If you intend to offer evidence to illustrate a contrast or similiarity, state your intent. Then, with additional information or analysis, elaborate on the ways in which these pieces of evidence are similar or different.
- If there is evidence that refutes a statement, explain why it argues against the statement.
- Be sure to develop your answer to show that you have an understanding of the concept and how it relates to the answer.
- Use appropriate geographic terms, and reference to models or themes, when appropriate.

Overall: Your answer should reflect an understanding of the subtleties of the questions. Thinking critically is important to show your understanding by adding information to explain concepts that may often come from more than one unit of the course.

THE EXAM

The AP Human Geography Exam is approximately 2 hours and 15 minutes in length and includes both a 60-minute multiple-choice section and a 75-minute free-response section. Each section accounts for half of the student's AP Exam score.

Sample Multiple-Choice Questions

The following are examples of the kinds of multiple-choice questions that appear on the AP Human Geography Exam. Additional sample questions can be found at AP Central (apcentral.collegeboard.org). The distribution of topics and the levels of difficulty are illustrative of the composition of the exam.

Multiple-choice scores are based on the number of questions answered correctly. Points are not deducted for incorrect answers, and no points are awarded for unanswered questions. Because points are not deducted for incorrect answers, students are encouraged to answer all multiple-choice questions. On any questions students do not know the answer to, students should eliminate as many choices as they can and then select the best answer among the remaining choices. Answers to the multiple-choice questions can be found on page 21.

Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that best answers the question or completes the statement.

1. Physiological population density is viewed as a superior measure of population density for which of the following reasons?
   (A) It is more reflective of population pressure on arable land.
   (B) It yields the average population density.
   (C) It is more reflective of the world's largest population concentrations.
   (D) It measures the average by dividing total land area by total number of people.
   (E) It best reflects the percentage of a country's population that is urbanized.

2. Which of the following regions has little dairying in its traditional agriculture?
   (A) Eastern Europe
   (B) Western Europe
   (C) South Asia
   (D) East Asia
   (E) North America

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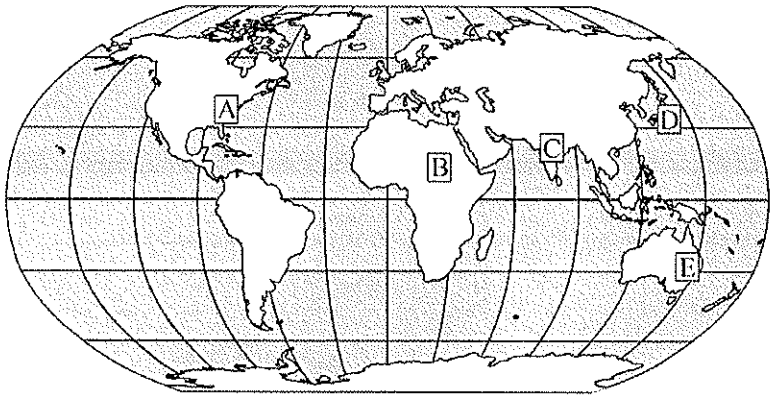
3.



On the map above, which one of the following boxes is in an area where the population density is high and the level of economic development is low?

(A) A
(B) B
(C) C
(D) D
(E) E

4. According to central place theory, the threshold is defined as the

(A) economic base of a central place
(B) distance away from a central place
(C) gross value of the product minus the costs of production
(D) minimum number of people needed to support a service
(E) point at which consumer movement is at a minimum

5. Outsourced industrial production in less-developed countries often relies on female labor because

(A) men are engaged mainly in agriculture
(B) wage rates for women are much lower than for men
(C) women are more skilled at operating machinery than men are
(D) social taboos prevent women from working in the service sector
(E) women are not protected by international labor laws

6. The spread of specialty coffee shops across the United States in the 1990s is an example of

(A) hierarchical diffusion
(B) contagious diffusion
(C) stimulus diffusion
(D) periodic movement
(E) relocation diffusion

7. Which of the following is a subsistence crop?

   (A) Corn
   (B) Cotton
   (C) Rubber
   (D) Cocoa
   (E) Timber

8. All of the following statements about the geography of meat production in the United States and Canada are true EXCEPT

   (A) Industrial farmers are raising ever-increasing numbers of animals on their farms.
   (B) Animal slaughtering and meat-processing activities are dominated by a few large corporations.
   (C) The development of the poultry industry has made chicken the least expensive kind of meat consumed in the United States and Canada.
   (D) Fast-food restaurants have created a demand for increased standardization and homogeneity of animals raised for meat.
   (E) Consumer demand for organic foods has significantly decreased the amount of meat produced by most agribusiness firms.

9. Compared with more-developed countries, which of the following statements is true of less developed countries?

   (A) A higher percent of the labor force is engaged in food production.
   (B) The population pyramids exhibit narrower bases.
   (C) The per capita consumption of energy is higher.
   (D) The natural increase of the population is lower.
   (E) Fertility rates are lower.

10. Free-trade zones such as the countries of the North American Free Trade Agreement (NAFTA) are established to increase the ease and volume of international trade by

    (A) increasing diplomatic relations between member states
    (B) opening borders to migrant guest workers from member states
    (C) establishing a common monetary unit among member states
    (D) offering large economic-development loans to poorer member states
    (E) eliminating tariffs on goods that cross borders between member states

11. Which of the following best describes the process of gentrification in United States and Canadian cities?

    (A) An increase in construction of new housing for elderly and retired persons
    (B) Privately funded redevelopment of existing commercial and residential buildings
    (C) Government-led planning of public spaces such as parks and riverfronts
    (D) The sale of naming rights for stadiums and arenas
    (E) The expansion of suburban housing developments on the urban periphery

12. A formal region defines an area in which

    (A) a core dominates its surrounding hinterland
    (B) a transportation network links different types of land use
    (C) there is uniformity in one or more physical or human characteristics
    (D) there are significant geographic variations in physical or human characteristics
    (E) a unified government system has been established

13. Squatter settlements exist in cities of less-developed countries because

    (A) city governments set aside vacant areas for new migrants
    (B) people want to live near the center of the city, where jobs are located
    (C) affordable housing is not available elsewhere for new migrants to the city
    (D) new migrants prefer to live in squatter settlements with other recent migrants
    (E) new migrants need to be isolated from other city residents until they adjust to urban life

14. What would be the most profitable location for an ethanol manufacturing plant that converts corn into alcohol for use as an additive for gasoline?

    (A) Near a large university to facilitate recruitment of highly trained chemists
    (B) Near a break-of-bulk point for ease of transportation
    (C) Near a navigable river to reduce transportation costs to distant markets
    (D) Near a prime corn-producing area to minimize transportation costs of raw materials
    (E) Near a large metropolitan area to serve a major market

15. It is generally agreed that the current trend in climate change is caused by

    (A) sea-level rise
    (B) increased use of fossil fuels
    (C) reduction in biodiversity
    (D) tilt of Earth's axis
    (E) changes in the velocity of ocean currents

16. Which of the following originated in South Asia and subsequently spread throughout much of Southeast and East Asia?

    (A) Hinduism
    (B) Christianity
    (C) Buddhism
    (D) Sikhism
    (E) Confucianism

17. According to the rank-size rule, if the largest city in a region has a population size of 900,000, then the third largest city will have a population of

    (A) 3,000
    (B) 9,000
    (C) 45,000
    (D) 300,000
    (E) 900,000

18. Since 1960 Brazil, Kazakhstan, Myanmar, Pakistan, and Tanzania have relocated their capital cities. Which of the following statements about the new locations is true for all five countries?

    (A) A militarily strategic location was chosen.
    (B) An isolated location was chosen.
    (C) An ethnically mixed location was chosen.
    (D) A more central location was chosen.
    (E) A coastal location was chosen.

19. Since the 1970s changes in the social roles, lifestyles, and employment patterns of women in Europe, Canada, and the United States have affected the overall population through which of the following?

    (A) Increased total fertility rates
    (B) Decreased total fertility rates
    (C) Increased death rates
    (D) Decreased death rates
    (E) Increased infant mortality rates

20. Which of the following is the primary assumption of environmental determinism?

    (A) Human destiny is controlled by the cultural environment.
    (B) The physical environment has little influence on humans.
    (C) Humans have complete control over the physical environment.
    (D) Many human adaptations are possible within a specific physical environment.
    (E) The physical environment controls human culture.

21. Environmental laws, labor availability, and access to markets are major factors affecting which of the following?

    (A) Political affiliation
    (B) Gross domestic product
    (C) Property tax rates
    (D) Manufacturing locations
    (E) Transportation costs

22. Which of the following is an example of a supranational organization with the main mission of increasing economic integration?

    (A) The North Atlantic Treaty Organization
    (B) The European Union
    (C) The United Nations
    (D) The International Red Cross and Red Crescent Movement
    (E) The United States Federal Reserve

23. Which of the following can be an example of a centrifugal political force?

    (A) Homogeneous ethnic population
    (B) Strong central government
    (C) Variation of language within the country
    (D) Shift to tertiary economy
    (E) Concentrated ownership of media

Answers to Multiple-Choice Questions

1 – A	5 – B	9 – A	13 – C	17 – D	21 – D
2 – D	6 – A	10 – E	14 – D	18 – D	22 – B
3 – C	7 – A	11 – B	15 – B	19 – B	23 – C
4 – D	8 – E	12 – C	16 – C	20 – E	