


Models and Theories

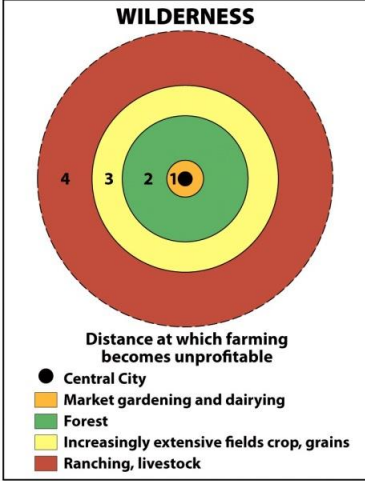
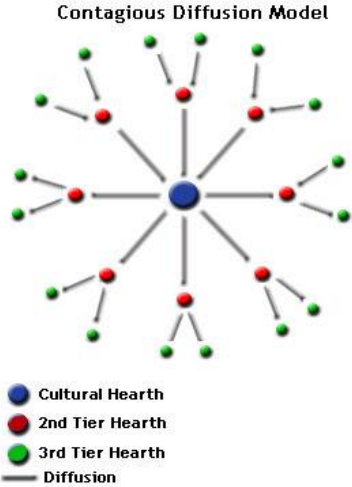
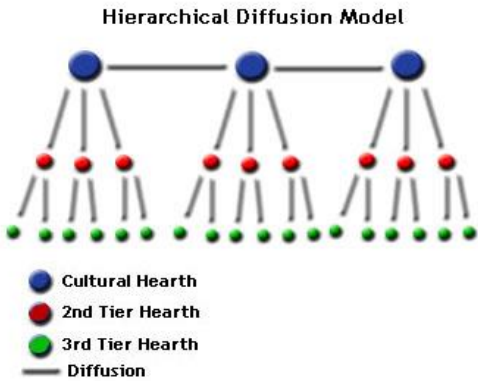
One of the main things geographers do is try to identify trends and patterns over space and time. Often they will draw from the theories of sociologists, economists, historians, archeologists, political scientists, physicians and trained geographers to develop models and theories. These models and theories try to make generalization and simplifications of collected data. The models help provide visualizations, but it is important to note that they are just that, generalizations.

When teaching with models remind students that the main goal of any model is to provide a generalization and very rarely will a model be an accurate representation of a specific circumstance. Models provide a guide that situations can be tested against. When a model is tested the data is compared to the model to see how applicable the model is, or what changes would have to be made to the model in order for it to actually apply to the specific situation. Again make it clear that a lot of the models are often outdated and may be less applicable because of it. These are all great talking points about generalizing information and the usefulness of these geographic models. The theories, and those who proposed them, are central to the study of human geography and help establish it as more of a science as geographers make and test their theories with real world situations.

Names and dates are rarely crucial to the study of geography, but when examining geographic changes over time it is helpful to establish context and the process of diffusion. The mentioning of the social scientists who proposed each theory is helpful in showing the framework for which geography exists with the other social sciences, like economics, and sociology. In Advanced Placement classes especially these models are crucial as the study of them is helpful in triggering the higher level thinking that advanced classes are trying to achieve.

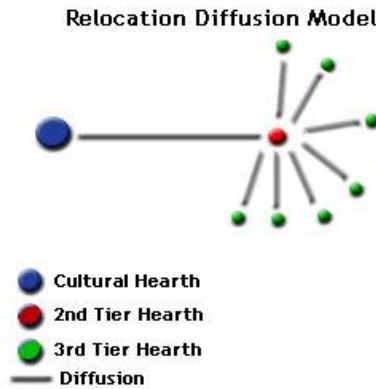
Theory	Model/Rule	Description/Importance
<p>Agriculture: Agricultural Revolutions</p>	<p>First Agricultural Revolution (Neolithic Revolution): Started 10,000 years Ago, the beginnings of agricultural societies instead of hunter-gathering</p> <p>Second Agricultural Revolution (Industrial Revolution): Started around 1750 in Europe. The use of machinery to increase food production to support growing industrial centers.</p> <p>Third Agricultural Revolution (Green Revolution): Began after World War II. The spread of modern western machines, farming methods, and scientific developments to non-western areas. Led by Norman Borlaug</p> <p>Fourth Agricultural Revolution (Organic Revolution): Early 2000s. Growing concern over Genetically Modified Organisms (GMOs) leads many individuals and states to transition to natural and organically grown food.</p>	<p>Tracking the growth and development of agriculture around the world based on the use of technology and farming methods.</p>
<p>Agriculture: Columbian Exchange</p>		<p>Agricultural model reflecting the transfer of plants, animals, and microbes between the “Old World” and the “New World”</p>

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<p>Agriculture: Von Thunen Agricultural Model</p>	 <p>WILDERNESS</p> <p>Distance at which farming becomes unprofitable</p> <ul style="list-style-type: none"> ● Central City ■ Market gardening and dairying ■ Forest ■ Increasingly extensive fields crop, grains ■ Ranching, livestock 	<p>Explains the connection of different agricultural practices and the location of the market. Accounts for land needed and transportation costs.</p>
<p>Culture: Carl Sauer</p>	<p>Proposed idea of Cultural Landscape in which human activity superimposes itself on the physical landscape. Each Cultural group leaves own unique imprints.</p>	<p>Basis for study of Human Geography</p>
<p>Culture: Contagious Diffusion</p>	 <p>Contagious Diffusion Model</p> <ul style="list-style-type: none"> ● Cultural Hearth ● 2nd Tier Hearth ● 3rd Tier Hearth — Diffusion 	<p>Cultural diffusion model where cultural traits spread quickly from one center to the people around them, who spread it to the people around them and so on.</p>
<p>Culture: Hierarchical Diffusion</p>	 <p>Hierarchical Diffusion Model</p> <ul style="list-style-type: none"> ● Cultural Hearth ● 2nd Tier Hearth ● 3rd Tier Hearth — Diffusion 	<p>Cultural diffusion model where cultural traits originate among elites, and then diffuses among elites before trickling down to lower levels of society/lower tiered cities.</p>

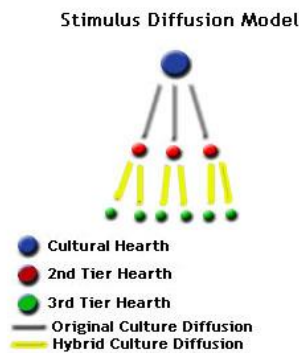
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Culture: Relocation Diffusion



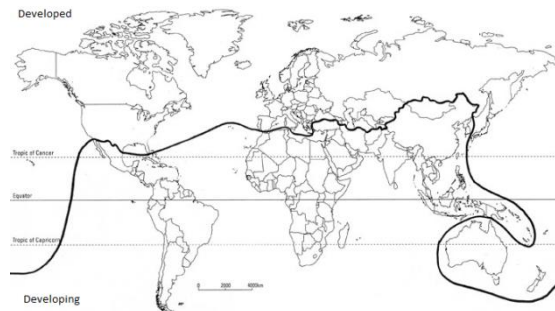
Cultural Diffusion model which displays the relationship between the spread of culture and the physical movement of people.

Culture: Stimulus Diffusion



Cultural Diffusion model showing the spread of cultural, but the cultural trait adapts to regional tastes/variations. The idea remains constant, but is changed slightly for the region.

Development: Brandt Line



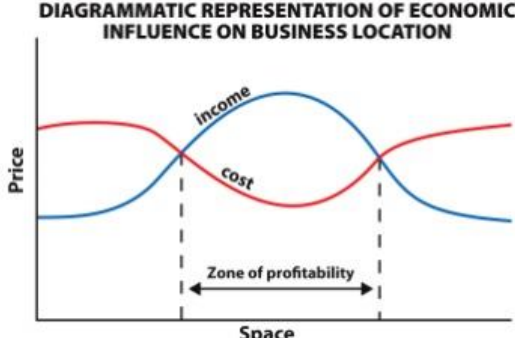
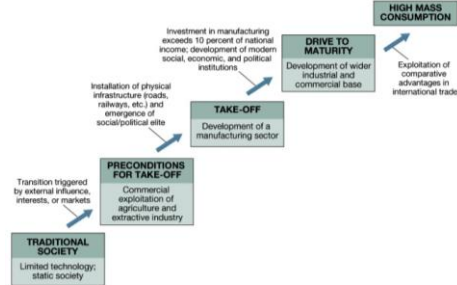
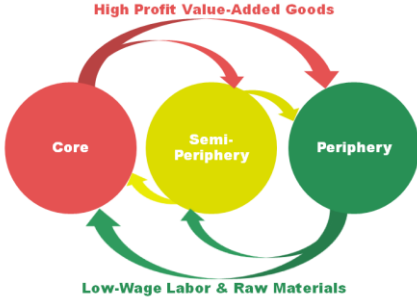
Theorized in 1980, the Brandt line divides the world between the developed North and the less developed South.

Development: Human Development Index

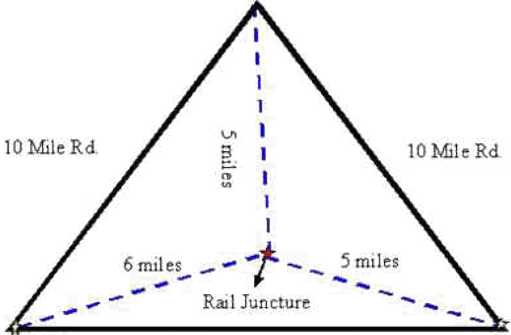

1. Very High Human Development
2. High Human Development
3. Medium Human Development
4. Low Human Development

Measures Life Expectancy, Education (Mean years of schooling and expected years of schooling), and Gross National Income (adjusted Purchasing Power Parity)

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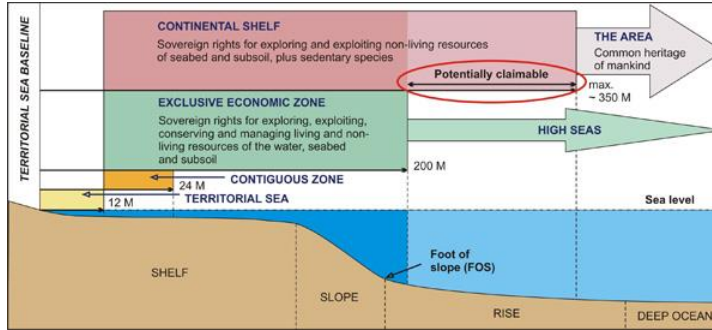
<p>Development: Losch Model of Profitability</p>		<p>Manufacturing plants choose locations where they can maximize profit.</p>
<p>Development: Rostow Levels of Development</p>		<p><u>5 Stages of Economic Development</u></p> <ol style="list-style-type: none"> 1. Traditional Society 2. Pre-conditions to Take-off (Primary Sector) 3. Take-off (industry) 4. Maturity 5. High Mass Consumption
<p>Development: Wallerstein World Systems Theory</p>		<p>Theorizes the world as a unified economic system in which different countries have different roles and depend on one another. Divides world into Core, Periphery, and semi-periphery.</p>
<p>Development: United Nations Millennium Development Goals</p>	<ol style="list-style-type: none"> 1. To eradicate extreme poverty and hunger. 2. To achieve universal primary education. 3. To promote gender equality and empower women. 4. To reduce child mortality. 5. To improve maternal health. 6. To combat HIV/AIDS, malaria, and other diseases. 7. To ensure environmental sustainability. 8. To develop a global partnership for development. 	<p>In order to help the United Nations work for the progress of all countries they developed their Millennium Development Goals to lay out their objectives for all countries.</p>
<p>Industry/Services: Borchert's Epochs of Transportation</p>	<p>Sail-Wagon Epoch (1790–1830): Cities grow near ports and major waterways which are used for transportation</p> <p>Iron Horse Epoch (1830–70): Characterized by impact of steam engine technology, and development of steamboats and regional railroad networks</p> <p>Steel Rail Epoch (1870–1920): Dominated by the development of long haul railroads and a national railroad network</p> <p>Auto-Air-Amenity Epoch (1920–70): With growth in the gasoline combustion engine</p> <p>High-Technology Epoch (1970–Present Day): Expansion in service and information sectors of the economy</p>	<p>Developed in 1967 by American Geographer John Borchert to break down American Industrial eras based on growth, urbanization, and transportation.</p>
<p>Industry/Services: Clark's Industrial</p>	<ul style="list-style-type: none"> - Primary: Extractive of resources - Secondary: Factories and industry 	<p>Division of labor into different sectors and</p>

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<p>Sectors</p>	<ul style="list-style-type: none"> - Tertiary: Services - Quaternary: An activity that engages in the collection, processing, and manipulation of information. - Quinary: An activity that involves a managerial or control-function associated with decision-making in large corporations or high government officials. 	<p>responsibilities.</p>
<p>Industry/Services: Weber's Least Cost Model/Industrial Location</p>		<p>Explains the relationship of cost of transporting materials between bulk-gaining and bulk-reducing industries with centers of production and the distance to markets.</p>
<p>Migration: Ravenstein's Laws of Migration</p>	<ol style="list-style-type: none"> 1. Most migration is over short distances 2. Migration occurs in steps 3. Long-range migrants usually move to urban areas 4. Each migration produces a movement in the opposite direction 5. Rural dwellers are more migratory than urban dwellers 6. Within their own country females are more migratory than males, but males are more migratory over long distances 7. Most migrants are adults 8. Large towns grow more by migration than by natural increase 9. Migration increases with economic development 10. Migration is mostly due to economic causes 	<p>Explains the processes of world migration.</p>
<p>Political Geography: Evolution of Boundaries</p>	<ol style="list-style-type: none"> 1. Antecedent - Drawn before area is populated en mass 2. Superimposed- Borders drawn by outsiders. Usually do not take into account existing ethnic groups 3. Subsequent - Drawn after populated 4. Relict – Borders that no longer exist, but cultural/economic divides still exist 	<p>Proposed by Richard Hartshorne</p>
<p>Political Geography: Heartland and Rimland Theory</p>		<p>Heartland Theory proposed by Halford Mackinder that claims whoever controls the Heartland can control the world. Nicholas Spyman proposed the Rimland theory stating control of the Rimland was crucial in controlling the Heartland.</p>

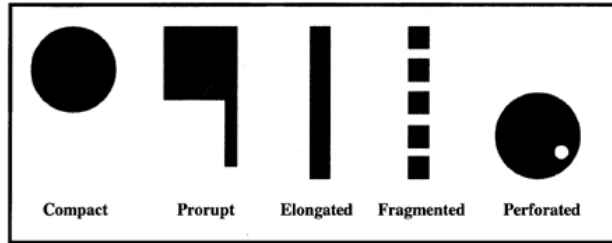
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Political Geography:
International
Convention on the
Law of the Seas



Established by the United Nations to set international standards for control of the seas and resources within them.

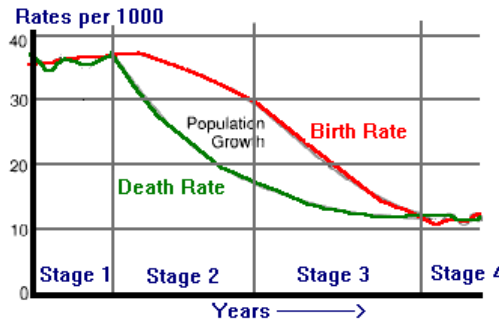
Political Geography:
Territorial
Morphology



Divides states into five different categories.

1. Compact
2. Prorupt
3. Elongated
4. Fragmented
5. Perforated

Population:
Demographic
Transition Model



Explains the connection between development and the changes in the Birth Rate, Death Rate, and Population growth.

Population:
Epidemiological
Transition Model

Stages of development	Life expectancy	Deaths from CVD (% of total deaths)	Predominant CVDs and risk factors
Stage 1 Pestilence and famine	35 years	5-10	Rheumatic heart disease, infections, and nutritional cardiomyopathies
Stage 2 Receding pandemics	50 years	10-35	As above + hypertensive heart disease and hemorrhagic strokes
Stage 3 Degenerative and man-made diseases	>60 years	35-65	All forms of strokes, ischemic heart disease at young ages, increasing obesity, and diabetes
Stage 4 Delayed degenerative diseases	>70 years	<50	Stroke and ischemic heart disease at old age

Developed by Abel Omran. Connected to the Demographic Transition Model, this theory looks at the relationship between development levels, life expectancies, and what are the predominant risk factors for death.

Population: Boserup
Theory of Human
Innovation

Counters Malthusian theory that food production and population growth will lead to misery. Instead has optimistic view that increases in knowledge and technology as misery approaches will prevent food shortages.

Developed by Esther Boserup in 1965 to counter Thomas Malthus' theory.

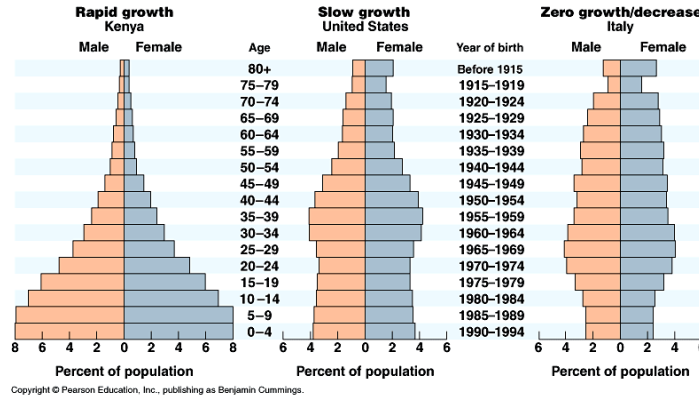
Population:
Malthusian Theory

1. Food grows Arithmetically
2. Population grows Exponentially
3. Population Checks
 - Positive Checks (Increase in Crude Death Rate)
 - Negative Checks (Decrease in Crude Birth Rate)

Explains the population growth and the impacts it has on over-population

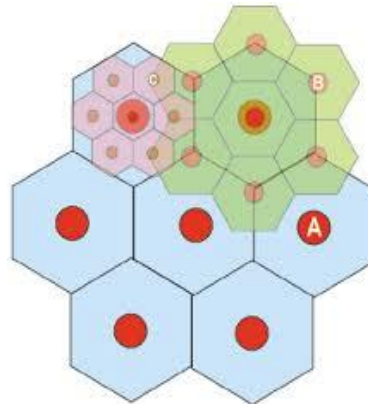
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Population: Population Pyramids



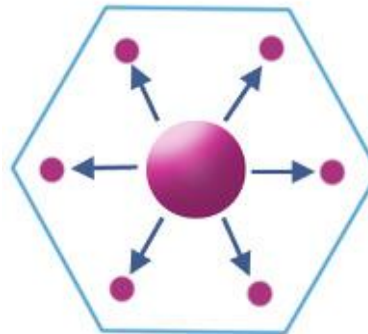
Population Pyramids are a way of mapping demographic data to visualize trends and patterns in growth patterns. Population Pyramids can be used to compare and categorize countries, states, and regions based on select characteristics.

Urbanization: Central Place Theory



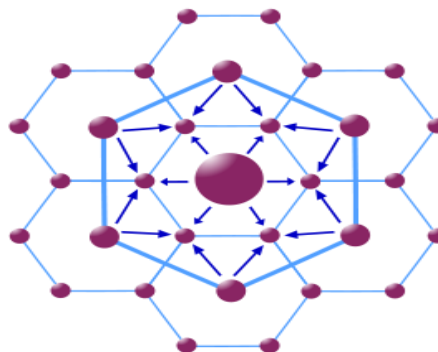
Explains the relationships between the location of businesses in relation to the location of population centers. Connected to the idea that people travel less distance for essential products but will travel further for consumer goods.

Urbanization: Central Place Theory (Administrative Principle)



Theorized problems in sharing centers so lower order centers are located entirely within the hexagon of higher order centers

Urbanization: Central Place Theory (Marketing Principle)

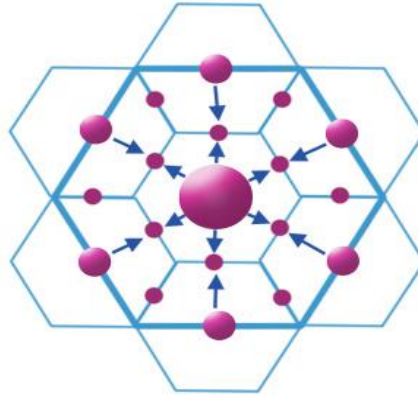


The lower the order of the city the more of them there are. The bigger the city the bigger the market area

- Ex. There will be 3 times more towns than city's, but a city's market size will be 3 times bigger

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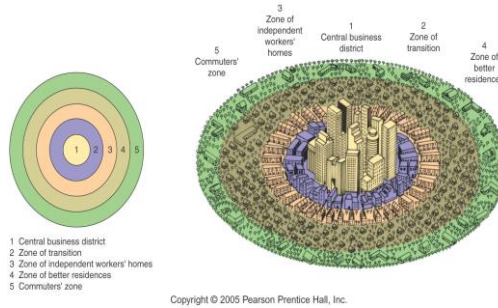
**Urbanization:
Central Place Theory
(Transportation
Principle**



Arrangement of cities to connect as many important places as straightly and cheaply as possible

- Lower order centers located along edges, not corners of hexagons

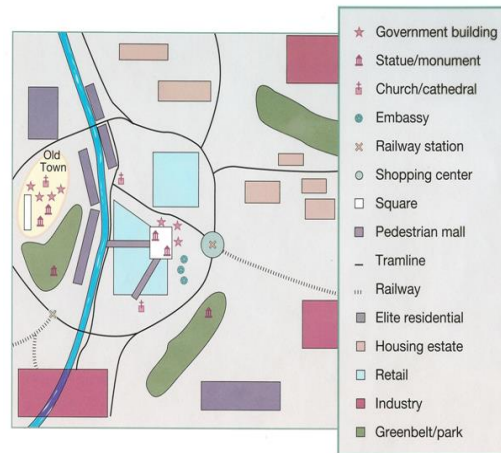
**Urbanization:
Concentric Zone
Model**



Based off assumption that CBD is center of city and home values/rents increase as distance from city increase

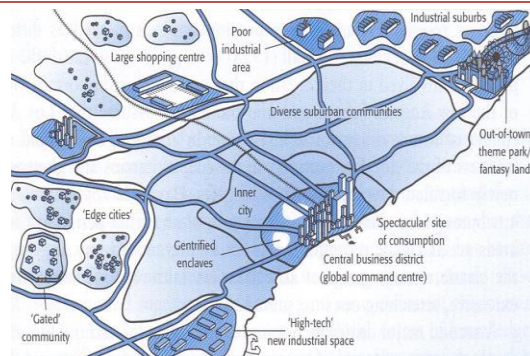
**Urbanization:
Eastern European
Model of Cities**

11.12 Urban structure in eastern Europe



A historic center that is fairly unchanged with elite residential and industrial centers around the periphery of the city. Retail centers near the historic center help expand the city centers role as a tourist destination.

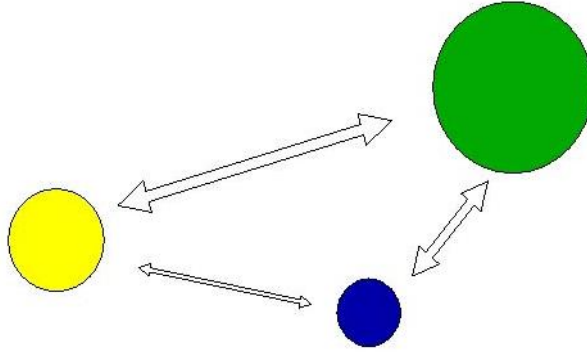
**Urbanization:
Galactic City Model**



Mini edge cities that are connected to another city by beltways or highways.

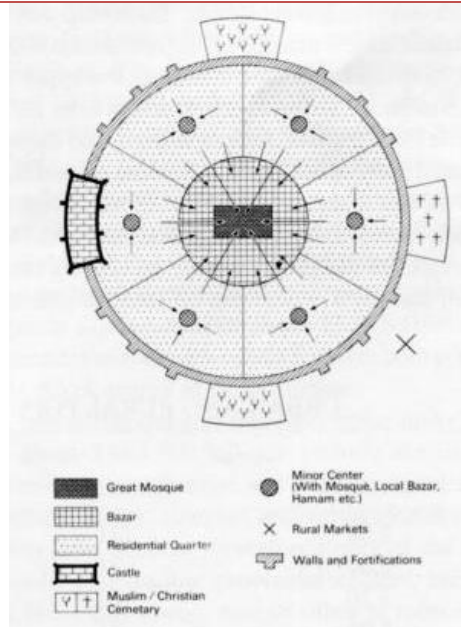
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Urbanization: Gravity Model



Interaction between urban centers can be calculated by size and distance. Large cities have greater draw power. Decreasing interaction as size and distance increases.

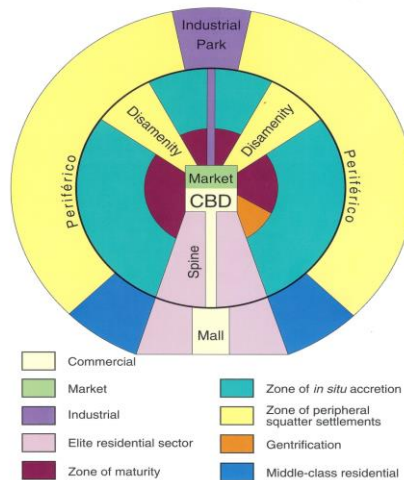
Urbanization: Islamic City Model



Model based off cities in Southwest Asia and Northern Africa. Development of a city around a central mosque and historic bazaar. City protected by a city wall with stronghold citadel.

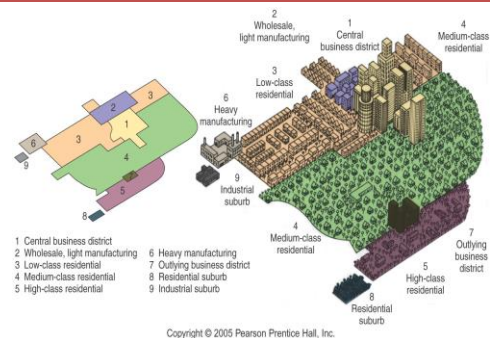
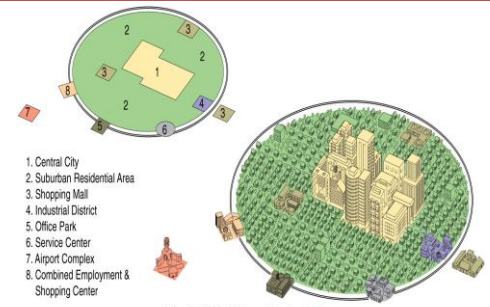
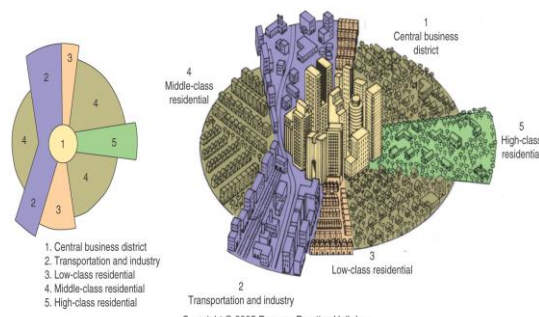
Urbanization: Latin America Model of Cities

T-90 Figure 10.24 Latin American model of urban growth



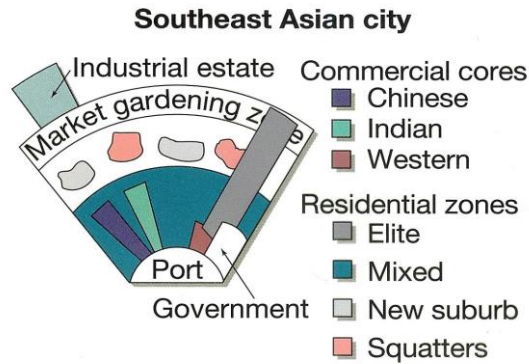
The city grows up around the historic centre hit different sectors extending from the middle of upper class housing and slums. More slums and new development on the periphery including modern industrial parks.

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<p>Urbanization: Multiple Nuclei Model</p>	 <p>Copyright © 2005 Pearson Prentice Hall, Inc.</p>	<p>Accounts for the growing importance of cars and commuting. Creation of different nuclei that support each other</p>
<p>Urbanization: Peripheral Model</p>	 <p>Copyright © 2005 Pearson Prentice Hall, Inc.</p>	<p>Urban areas consisting of an inner city surrounded by large suburban residential and business areas tied together by a beltway or ring road.</p>
<p>Urbanization: Primate City Rule</p>	<p>The Largest city is more than twice as large as the next city in terms of importance and population.</p>	<p>Used to explain the relationship between cities where one is disproportionately larger.</p>
<p>Urbanization: Rank- Size Rule</p>	<ul style="list-style-type: none"> – Rank 1 – Largest City – Rank 2 – ½ the number of people as Rank 1 city – Rank 3 – 1/3 the number of people as Rank 1 city – Rank 4 – ¼ the number of people as Rank 1 city – Rank 5 – 1/5 the number of people as Rank 1 city 	<p>If all cities in a country are placed in order from the largest to the smallest, each one will have a population half the size of the preceding city.</p>
<p>Urbanization: Sector Model</p>	 <p>Copyright © 2005 Pearson Prentice Hall, Inc.</p>	<p>Different areas attract different activities by chance of environmental factors. Different sectors grow out in wedge shaped areas away from CBD</p>

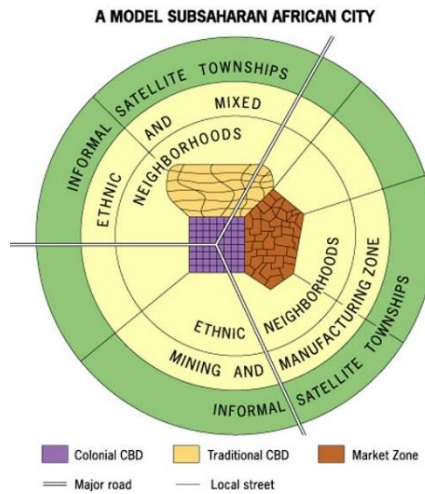
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Urbanization: Southeast Asia Model of Cities



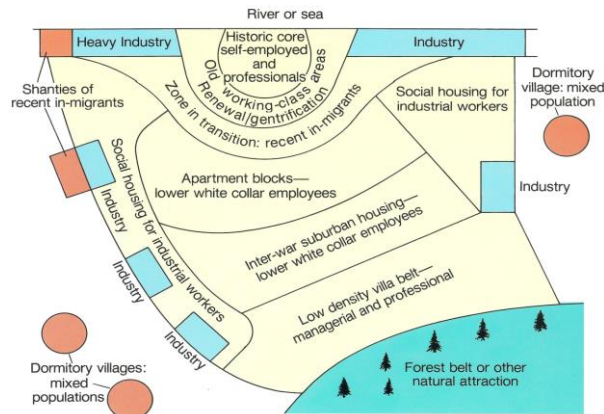
Centered around a port with sectors of Chinese, Indian, and Western zones. Division between elites, squatter settlements and new industry.

Urbanization: Sub-Saharan Africa Model of Cities



Model reflection the importance of natural resources and diversity of Sub-Saharan African cities. Model also reflects colonial past of African cities.

Urbanization: Western European Model of Cities



A historic centre with relatively little change over the last hundred years. Growth extending from the cities with industrial centers on the periphery.