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# MODELS, MODELS, MODELS

## LET'S REVIEW OUR TOP TEN or SOMETHING CLOSE TO THAT!

NCGE Webinar for APHG Teachers

Presented by iScore5: Paul Gray, Ken Keller and Greg Sherwin

Thursday, May 2, 2019



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## MEET THE FOUNDERS!

**KEN KELLER**



**PAUL GRAY**



**GREG SHERWIN**



**iScore5-APHG**  
iScore5app, LLC

#1 in Education

★★★★★ 4.0, 60 Ratings

\$4.99

Greg, Ken and Paul created iScore5 together because they believed that there needed to be a better way to help students succeed on AP exams in the 21st Century.



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## What do we always say about models?



- This is a model
- Is this what most men & women look like?
- It's the same way with models in geography...
- Geography models are simply theoretical representations of the built environment



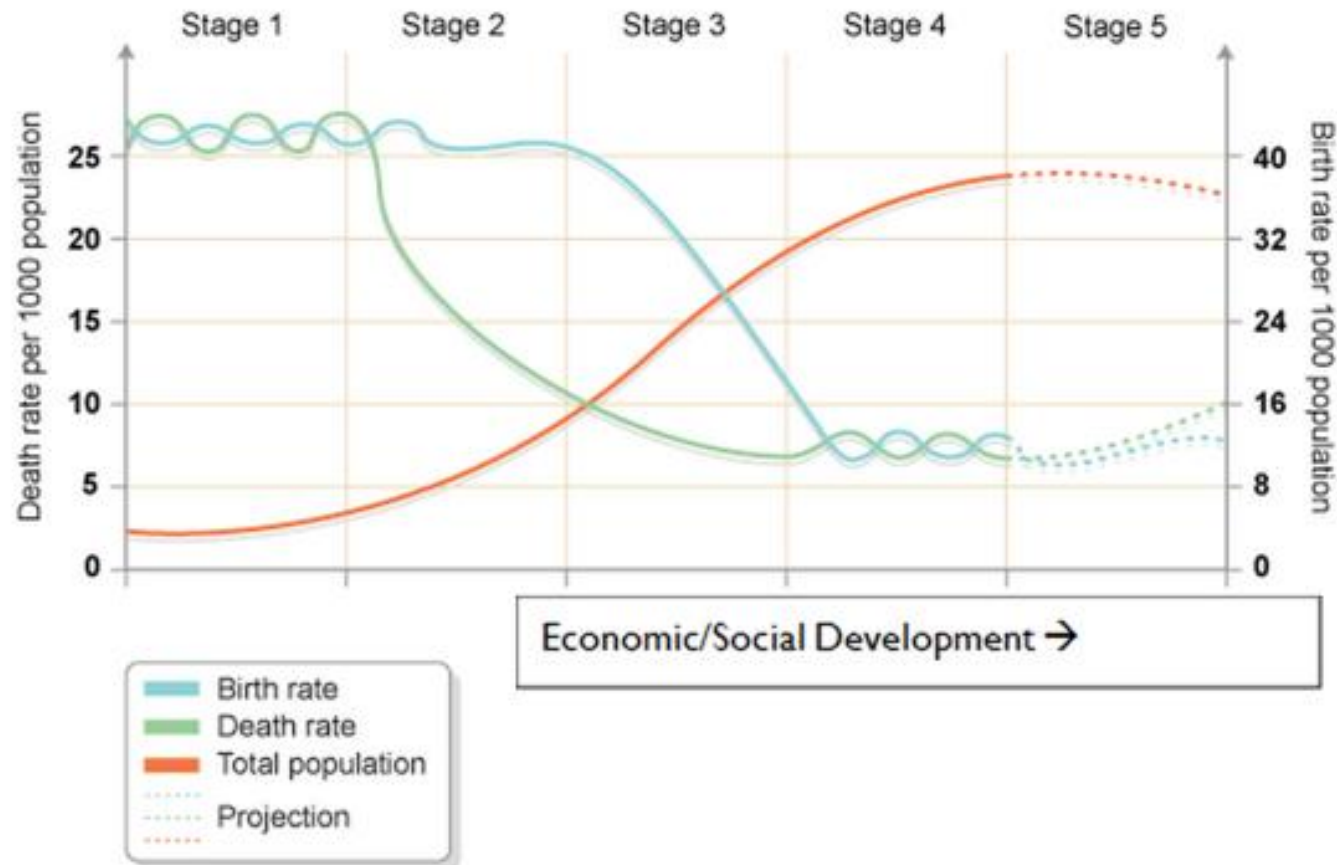
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## Demographic Transition Model

Is there a stage 5? Oh yes 😊

#1





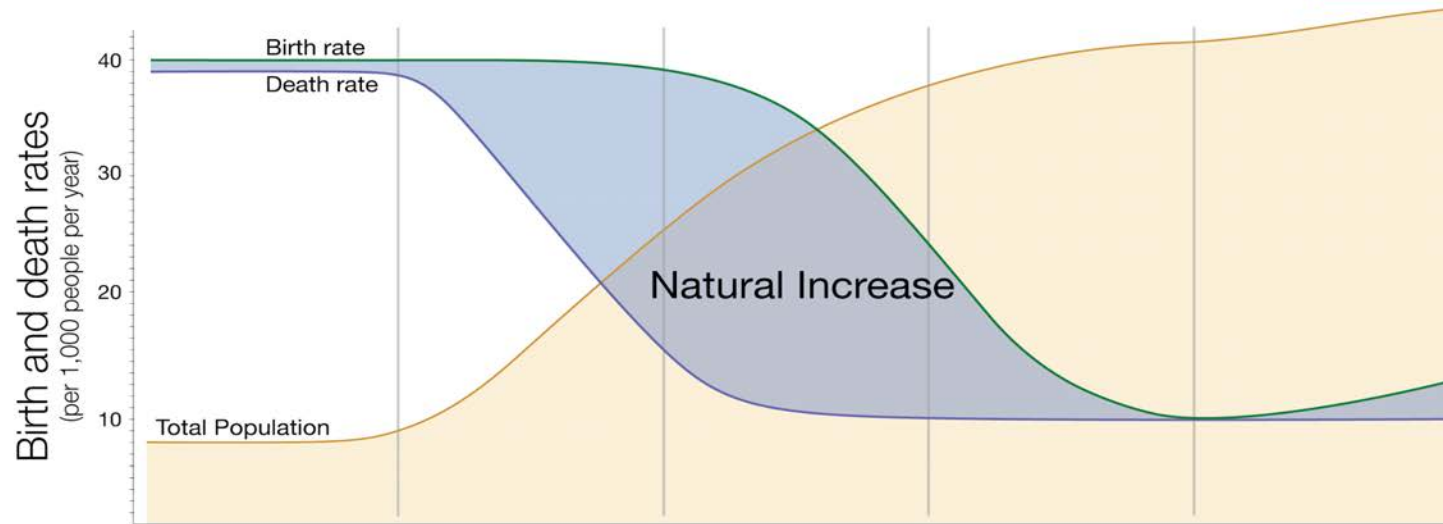
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## What happens in this stage 5 and where?

### The demographic transition in 5 stages

Our World in Data



	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
<b>Birth rate</b>	High	High	Falling	Low	Rising again
<b>Death rate</b>	High	Falls rapidly	Falls more slowly	Low	Low
<b>Natural increase</b>	Stable or slow increase	Very rapid increase	Increase slows down	Falling and then stable	Stable or slow increase
<b>Population Pyramid</b>					

### Stage 5

### Countries?

- Germany
- Japan
- Eastern Europe
- More?

- What's wrong with this graphic?



Have students create their own scenarios!

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**Now, let's apply the model!  
What stage do these scenarios take place in and why?**

## Questions for the DTM

Stage	Descriptor
	Billy loses his job as a grave digger
	Parents start to think more about family planning
	Children are warmer in bed at night because they have more brothers and sisters
	There are more Golden Anniversaries
	Large percentage of women never have a child
	A mother sobs over the grave of her last six children who died in a typhoid epidemic
	A lot more houses are being built
	The Public Health Inspector smiles as the building of sewers are completed
	Fewer children share a bedroom
	Grandparents are very rare
	There are no brothers/sisters, no aunts/uncles, no cousins



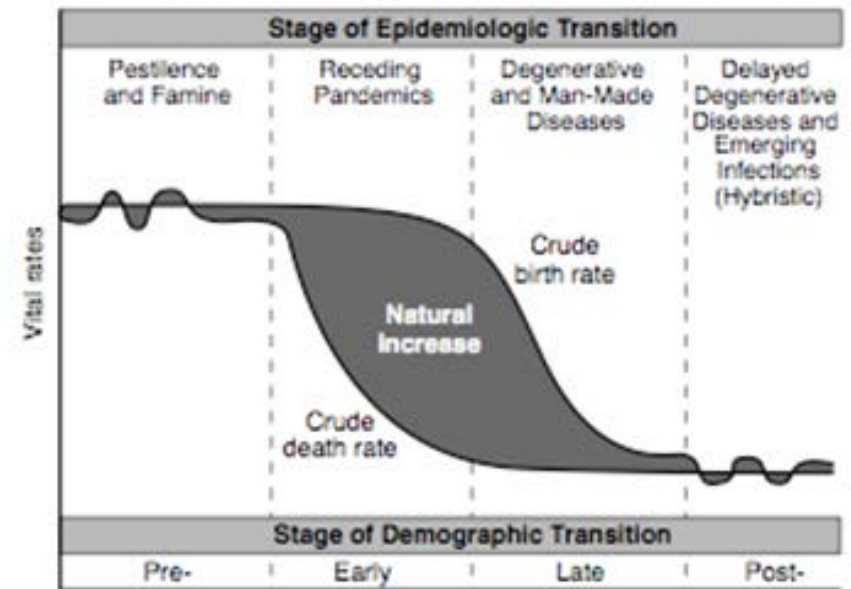
## Epidemiologic Transition

### #2

The epidemiologic transition is that process by which the pattern of mortality and disease is transformed from one of high mortality among infants and children and episodic famine and epidemic affecting all age groups to one of degenerative and man-made diseases (such as those attributed to smoking) affecting principally the elderly. It is generally believed that the epidemiologic transitions prior to the 20th century (i.e., those in today's industrialized countries) were closely associated with rising standards of living, nutrition, and sanitation.

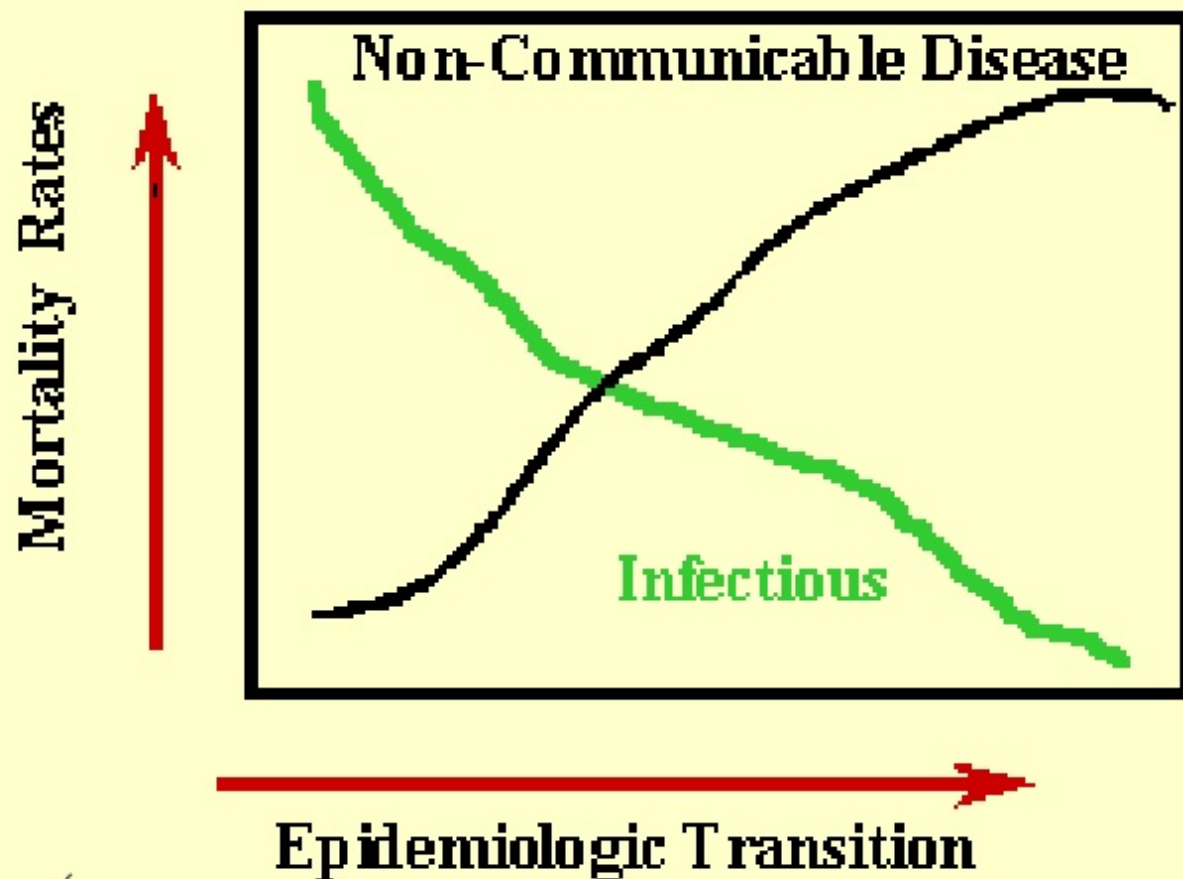
<http://www.murrieta.k12.ca.us/cms/lib5/CA01000508/Centricity/Domain/1814/Epidemiologic%20Transition%20Model.pdf>

Figure 2  
Demographic/Epidemiologic Transition Framework





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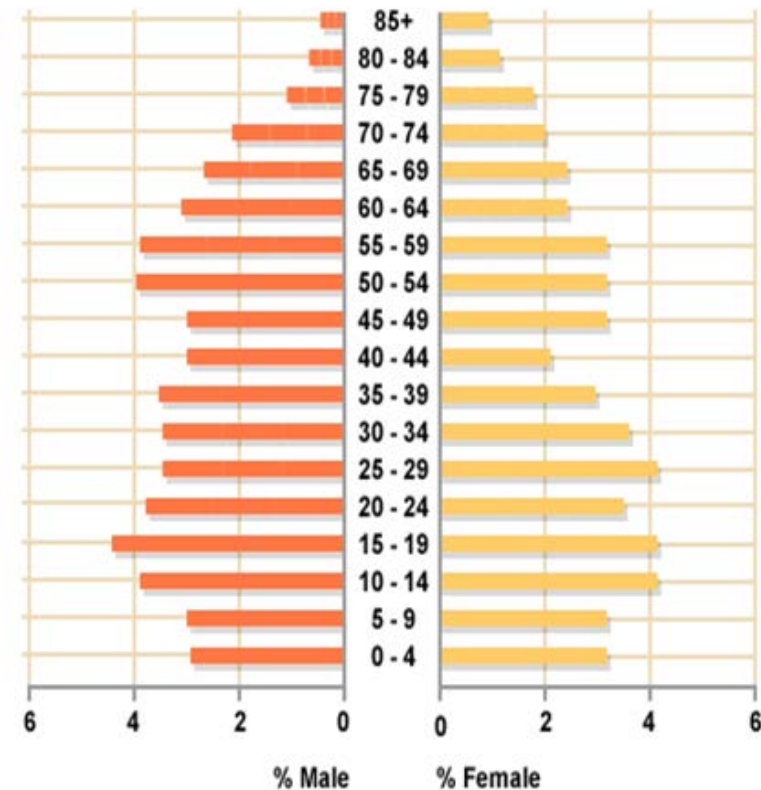




## Features of an age-sex diagram or population pyramid

### #3

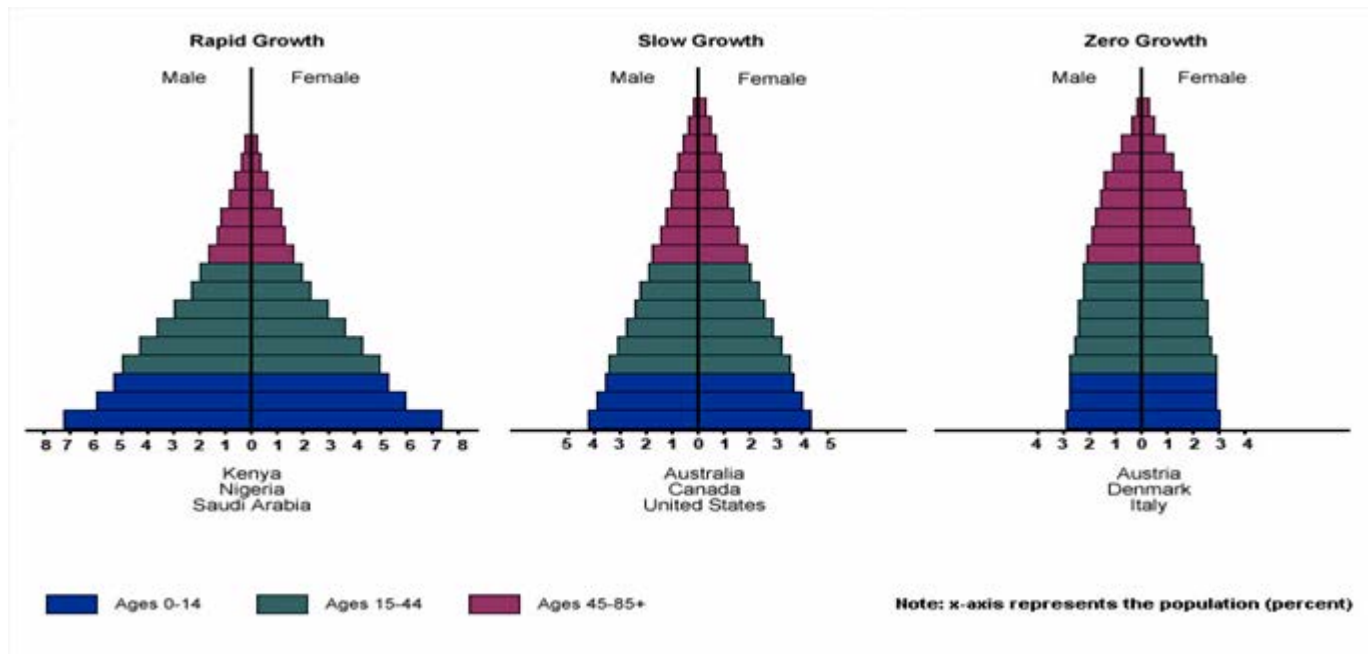
- Population is divided into 5 year age groups or cohorts or age bands
- Population is divided into males (left) and females (right)
- The percentage of each age/sex group is given
- Have students look some up on their smart devices and computers





## Rapid, Slow and Zero Growth

<http://www.bio.georgiasouthern.edu/bio-home/harvey/lect/images/agestructure.gif>



High fertility and mortality = broad base

Low fertility and mortality = narrow base



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<http://www.slideshare.net/Intrullin/understanding-population-pyramids>

**Population Pyramids**

- There are three basic shapes...

the xmas tree

the box

the cup

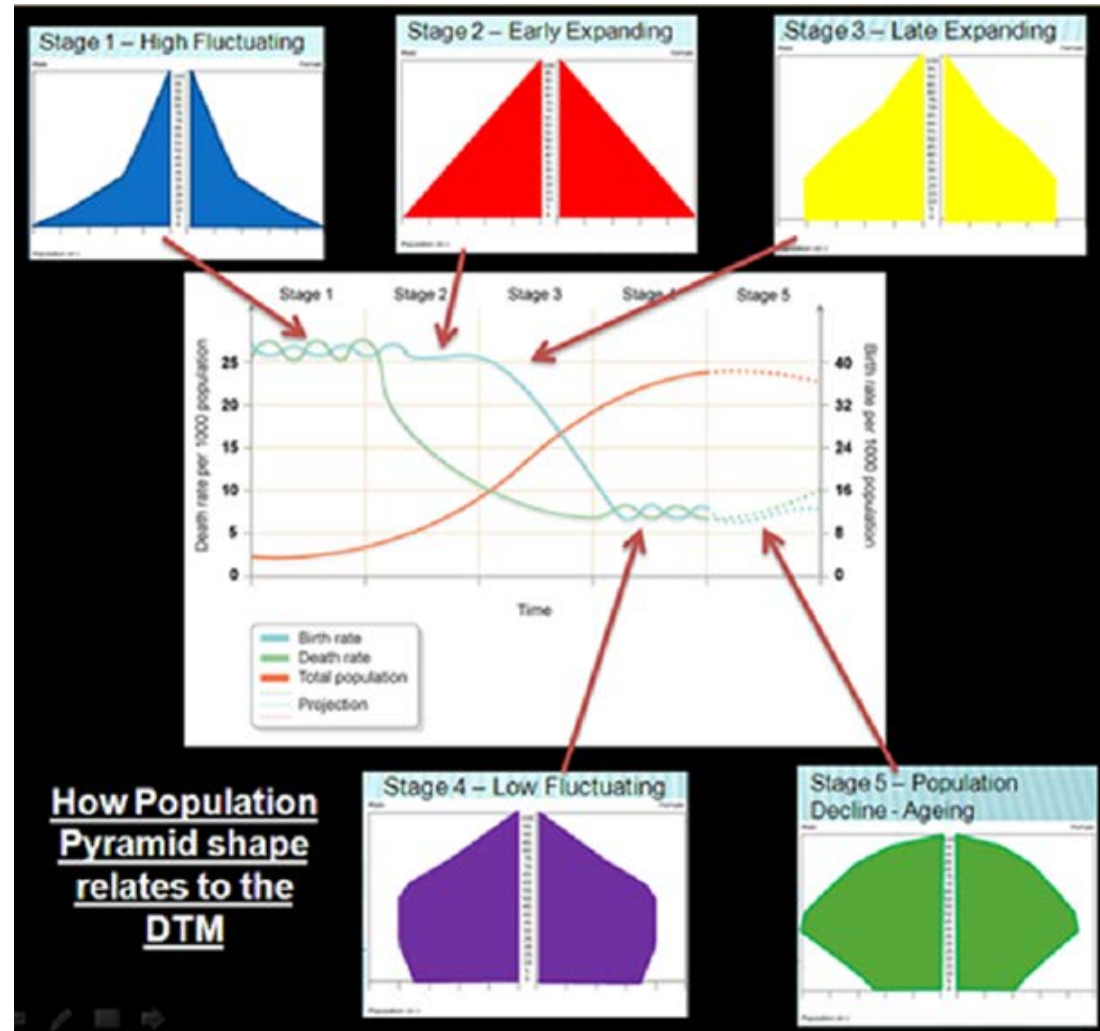
The slide features a background of a dense, colorful crowd of people. At the top, the title "Population Pyramids" is written in a large, red, stylized font. Below the title, a bullet point states "There are three basic shapes...". At the bottom, three red shapes are displayed: a triangle labeled "the xmas tree", a rectangle labeled "the box", and a trapezoid labeled "the cup".



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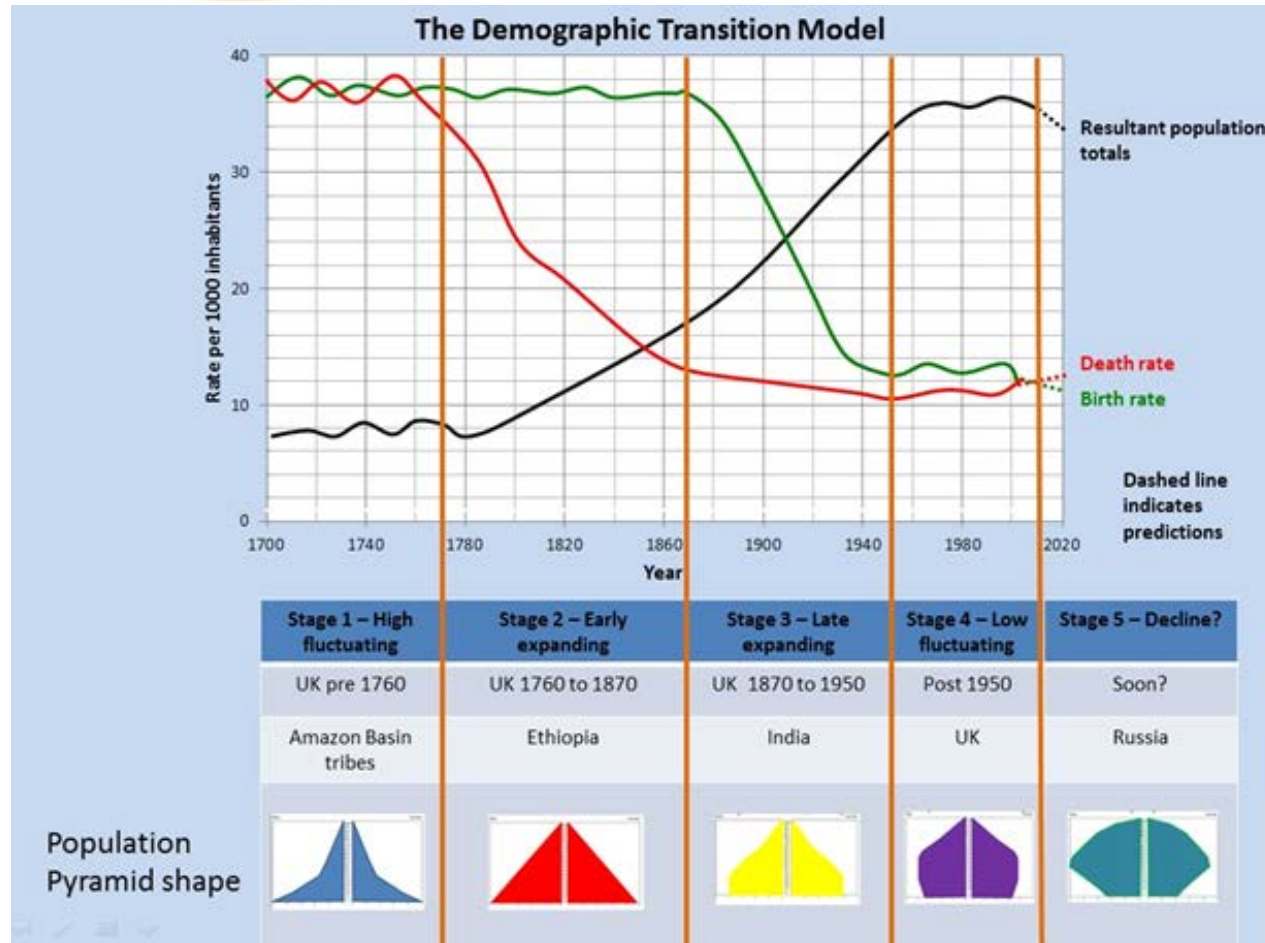


## Demographic Transition and Population Pyramids





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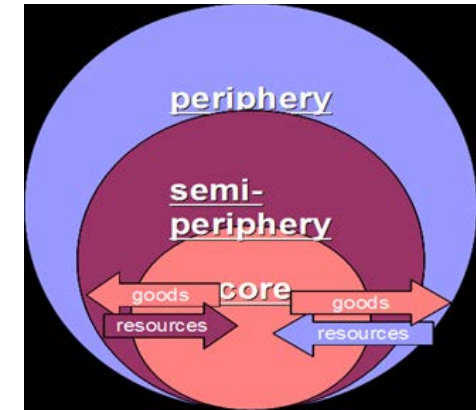
Connecting the DTM to population pyramids and their different shapes is extremely important... And we haven't even discussed the key idea that one needs to make sure they look at all these spatial perspectives at different scales :)



## World Systems Theory

### #4

- Structuralist Model
- Immanuel **Wallerstein**
- Does NOT assume all countries will change the same way
- We call this the “Life sucks and then you die theory”
- The good news is that each sector is **not necessarily static** – can move from one sector to another
- 3 sectors – These are relationships between countries – all three types need each other



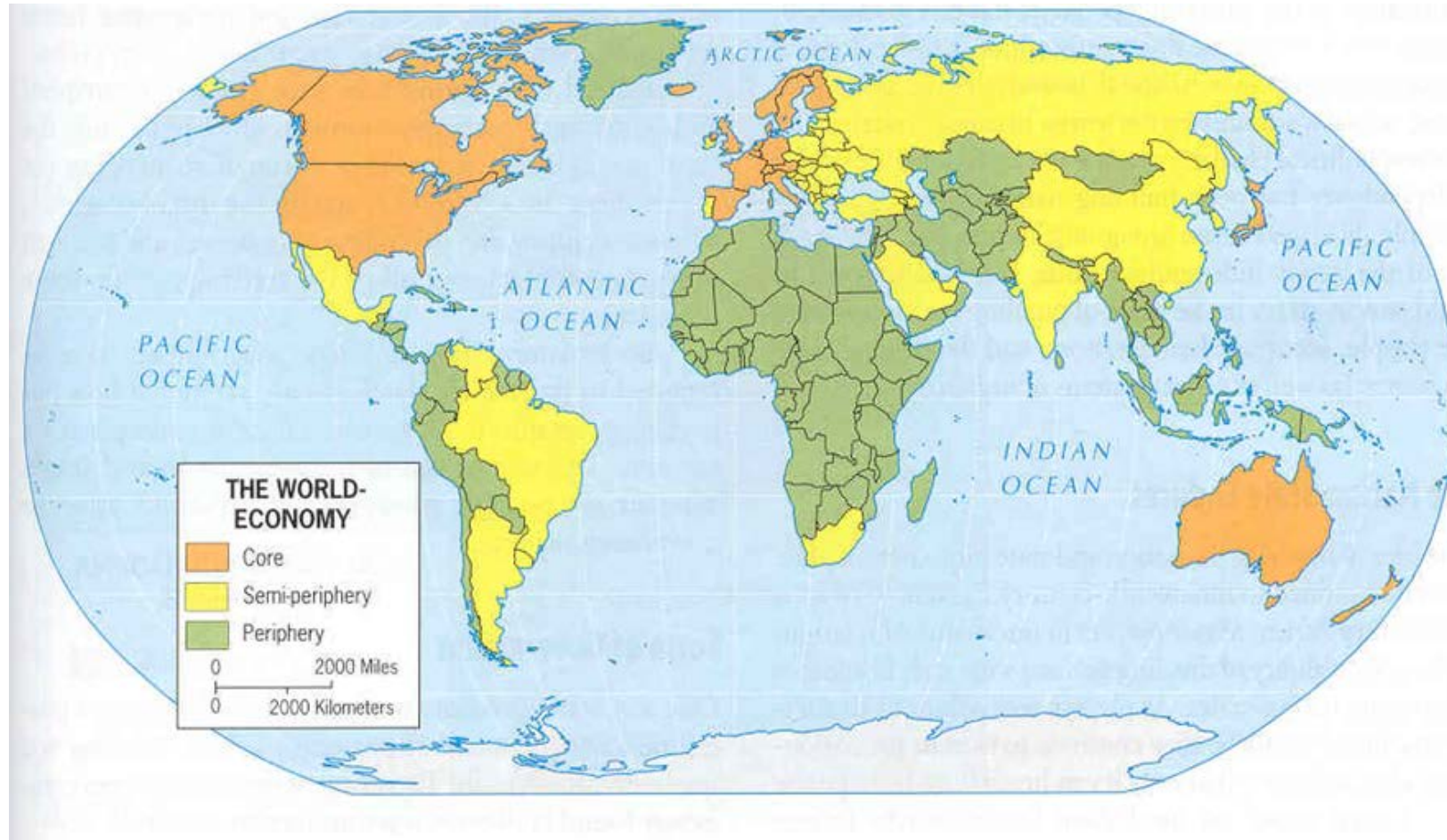
- **CORE**                      **WE always win!**
- **SEMI PERIPHERY (NICs, BRICS, Emerging Economies....)**
- **PERIPHERY**              Are we **EXPLOITED?** Are we **DEPENDENT?** Are we markets for the **core?**



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## # 5 Core-Periphery Model





## #6

**Rostow's Stages of Economic Growth** model is one of the major historical models of economic growth. It was published by American economist Walt Whitman Rostow in 1960.

The model postulates that economic growth occurs in five basic stages, of varying length:

1. Traditional society
2. Preconditions for take-off
3. Take-off
4. Drive to maturity
5. Age of High mass consumption





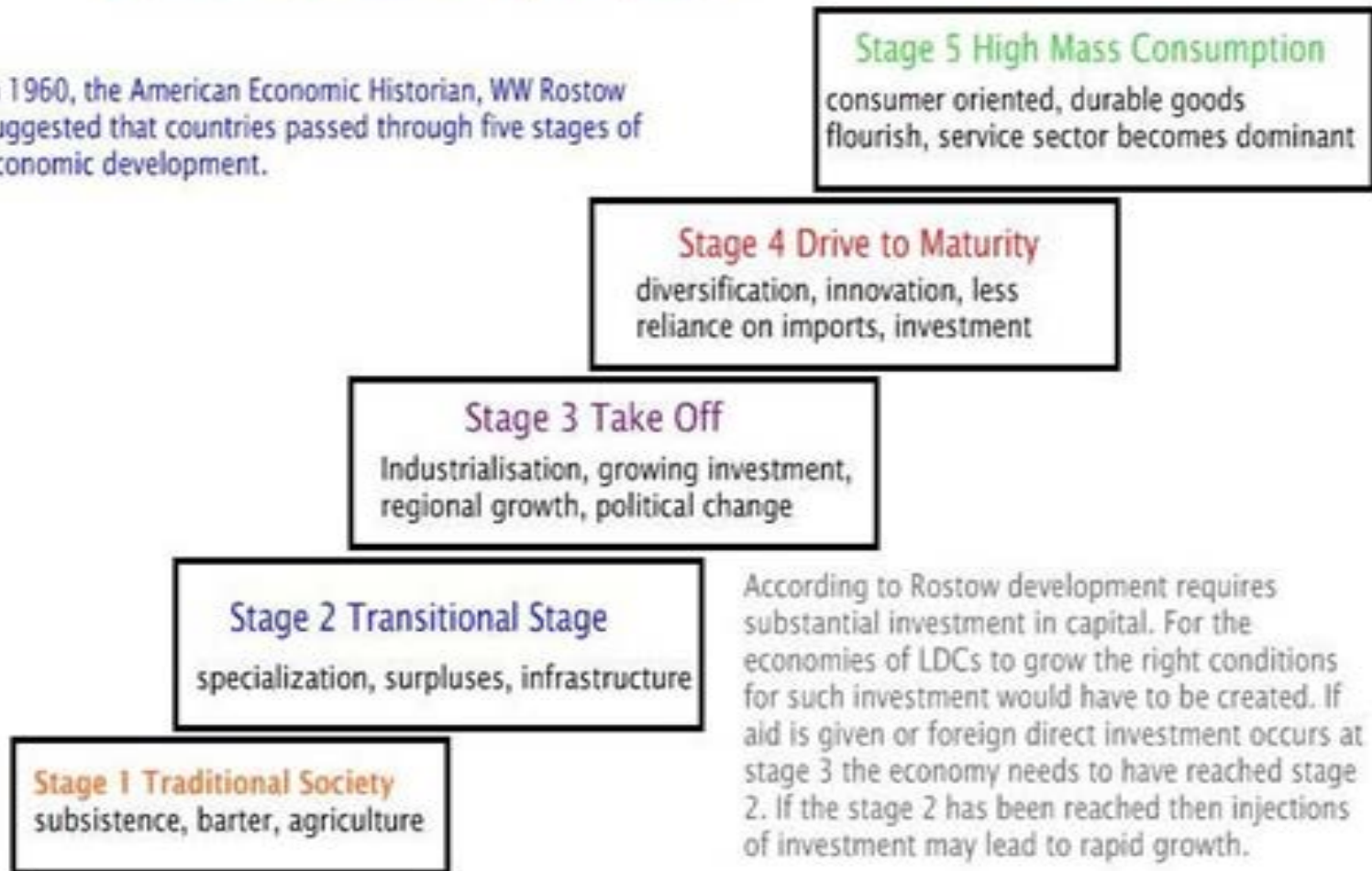
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## Rostow's Model - the Stages of Economic Development

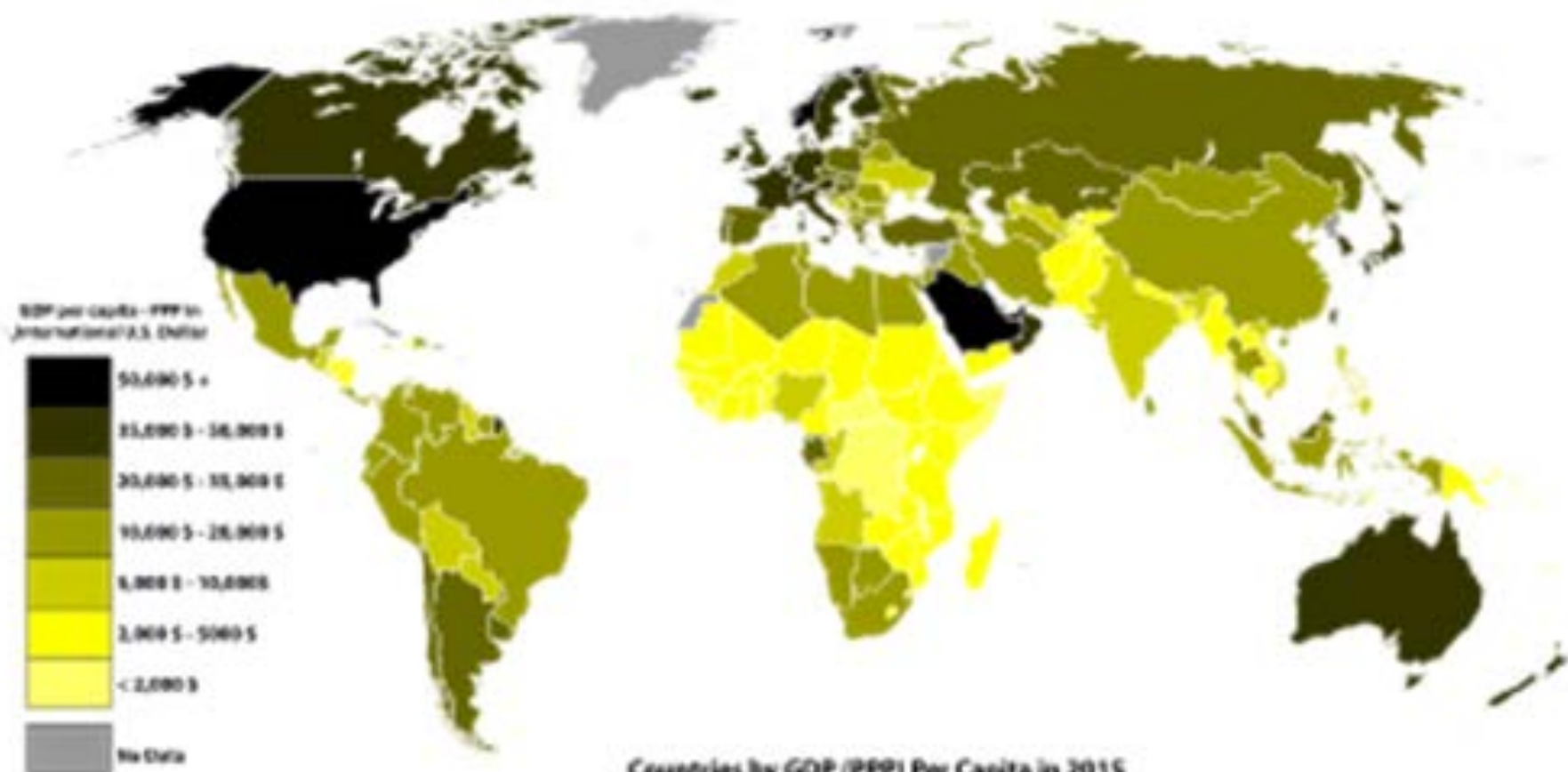
<http://www.bized.co.uk/virtual/de/copper/theory/th9.htm>

In 1960, the American Economic Historian, WW Rostow suggested that countries passed through five stages of economic development.





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## Rostow's Modernization Model

Sometimes called the Ladder of Development

- **Liberalist Model**
- **What did the world look like when Rostow wrote this in 1960?**
- **What else does this model remind us of:**
  1. **Organic Theory**
  2. **Economic Sectors**
  3. **Demographic Transition**
- **Eurocentric and Americentric**
- **Doesn't account for regional differences within a country so it doesn't look at development at different .....SCALES!**
- **Doesn't account for cultural differences within a country**
- **Doesn't account for one-commodity (mono) economies**
- **Neo-colonialism**
- **Major bias that all economies will grow the same way developed countries grew**
- **Rostow believed ALL countries would grow in an orderly fashion like Japan and Europe and the US did**



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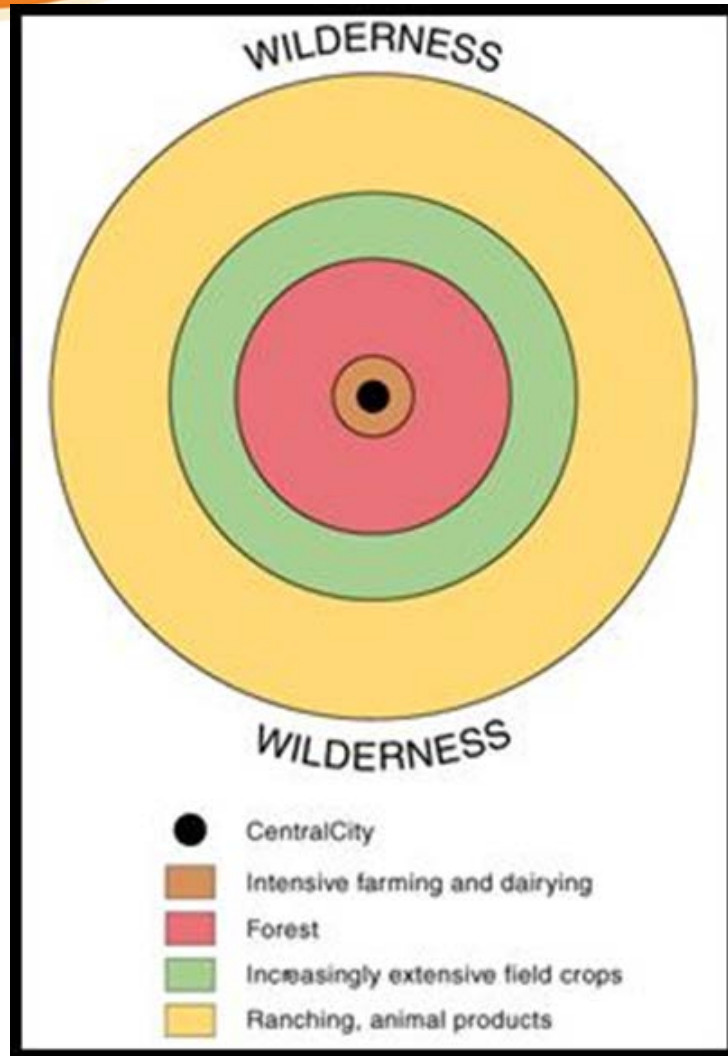
## # 7 The von Thünen model

- Land rent or cost = Bid Rent
- Labor costs
- Transport costs (distance to market)
- Production costs
- The market is a central *Isolated State*
- The *Isolated State* is surrounded by forest
- The terrain is homogeneous, flat, isotropic plane; has no rivers or mountains. No transport barriers for farmers to bring goods to market
- Soils/climate are even and consistent
- Farmers behave rationally to maximize profits



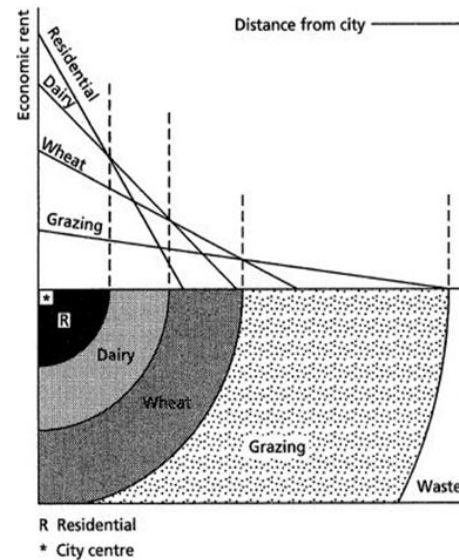


## #8



Important concept to introduce to students at this point!

### Bid-Rent Curve



- As distance from city center increases, cost of land goes down.



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## **# 9 Location Theory and Weber**

- **Distance Decay and Friction of Distance**
- Predicting **where** something should be located
- This can be on the **local, regional, national or global scale**
- von Thünen looked at locations of primary industries, but secondary industries locations are more complicated
- Secondary industry locations include human behaviors and decision making – political, cultural, economic factors
- Profit is the primary motivator
- Variable Costs – energy, transport, labor and others



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## Weber's Least Cost Theory – 3 primary factors of location (to minimize costs)

- **Transportation** – the lowest possible costs in moving raw materials to the factory and the finished product to market (Bulk reducing and Bulk gaining)
- **Labor** – this reduces profits, therefore owners may want to move farther from raw materials and markets
- **Agglomeration** – like industries clustering in the same area(s) can reduce costs. Existing infrastructure (transport, phones, water, buildings, etc.)
- **Deglomeration** – what happens when too much agglomeration takes place?



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## Other Factors?

- Political stability
- Cheap energy
- Local receptiveness (locating a prison)
- Taxation (exemptions)
- Free land
- Climate (LA and film industry)
- Local mores (brewery, sex shops, etc.)
- Owner's local connections to area
- Can you think of any other factors?





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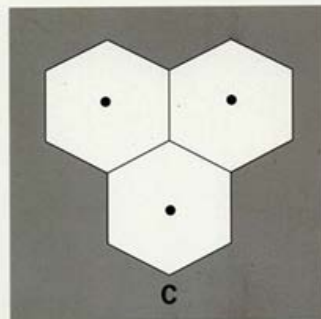
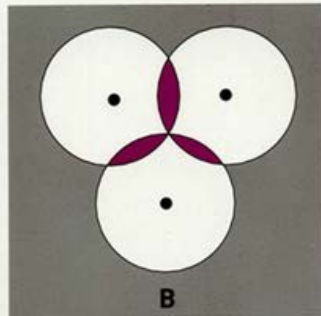
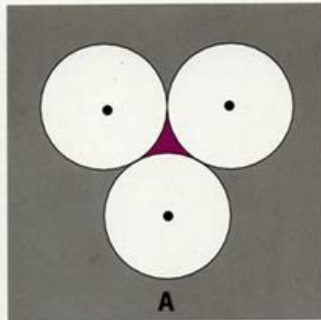


## #10 Central Place Theory

A theory of Walter Christaller that seeks to explain the relative size and spacing of towns and cities as a function of people's shopping behavior.

- It explains how and where central places in the urban hierarchy should be functionally and spatially distributed.
- The smallest settlements in an urban system will provide only those goods and services that meet everyday needs (bakery and dairy products, and groceries) and that these small settlements will be situated relatively close to one another because consumers, assumed to be spread throughout the countryside, will not be prepared to travel far for such items. On the other hand, people will be willing to travel farther for more expensive, less frequently purchased items usually found in the larger settlements.
- Range and Threshold are taken into account when deciding where to place a business.





- **What shape should hamlet's, village's, town's, etc. economic reach or hinterland be?**
- **Why is this an important question?**



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- Would you travel farther to buy a new car or the week's groceries?  
To buy a new car
- Would you travel farther to see your family physician or a heart specialist?  
To see a heart specialist
- Would you travel farther to go to elementary school or to go to high school?  
To go to high school
- How would you choose CPT to pick a new location for a:
  - Hospital?
  - Starbucks?
  - High School?
  - Mall?
  - Cafe?

\*For a new Baseball Team?





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## Why do we not ever see a perfect central place hierarchy?

- Physical geography is important! Topography and hydrography interfere.
- Consumer behavior is determined by more than economic considerations.
- The automobile has made long-distance travel popular (cheap and easy).
- People make multiple-purpose shopping trips, often bypassing the smallest places.
- The Internet has made it unnecessary to have customers nearby.
- Anything else that Christaller failed to address?



## CPT at Different Scales?

Regional - ?? More small places than big places

?? Big places farther apart than small places

?? Ratio of big places to small places relatively constant

THE CUMBERLAND VALLEY  
CENTRAL PLACE THEORY

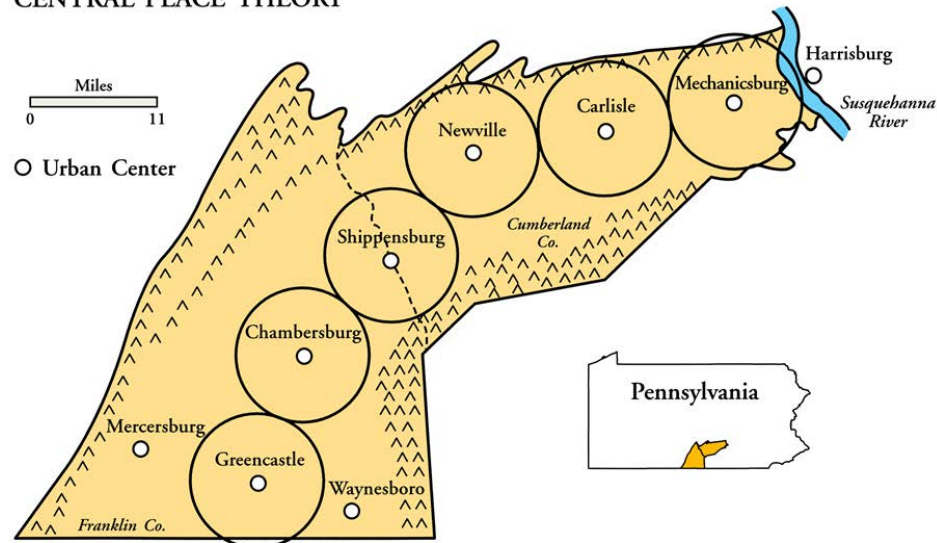


image courtesy of Don Zeigler



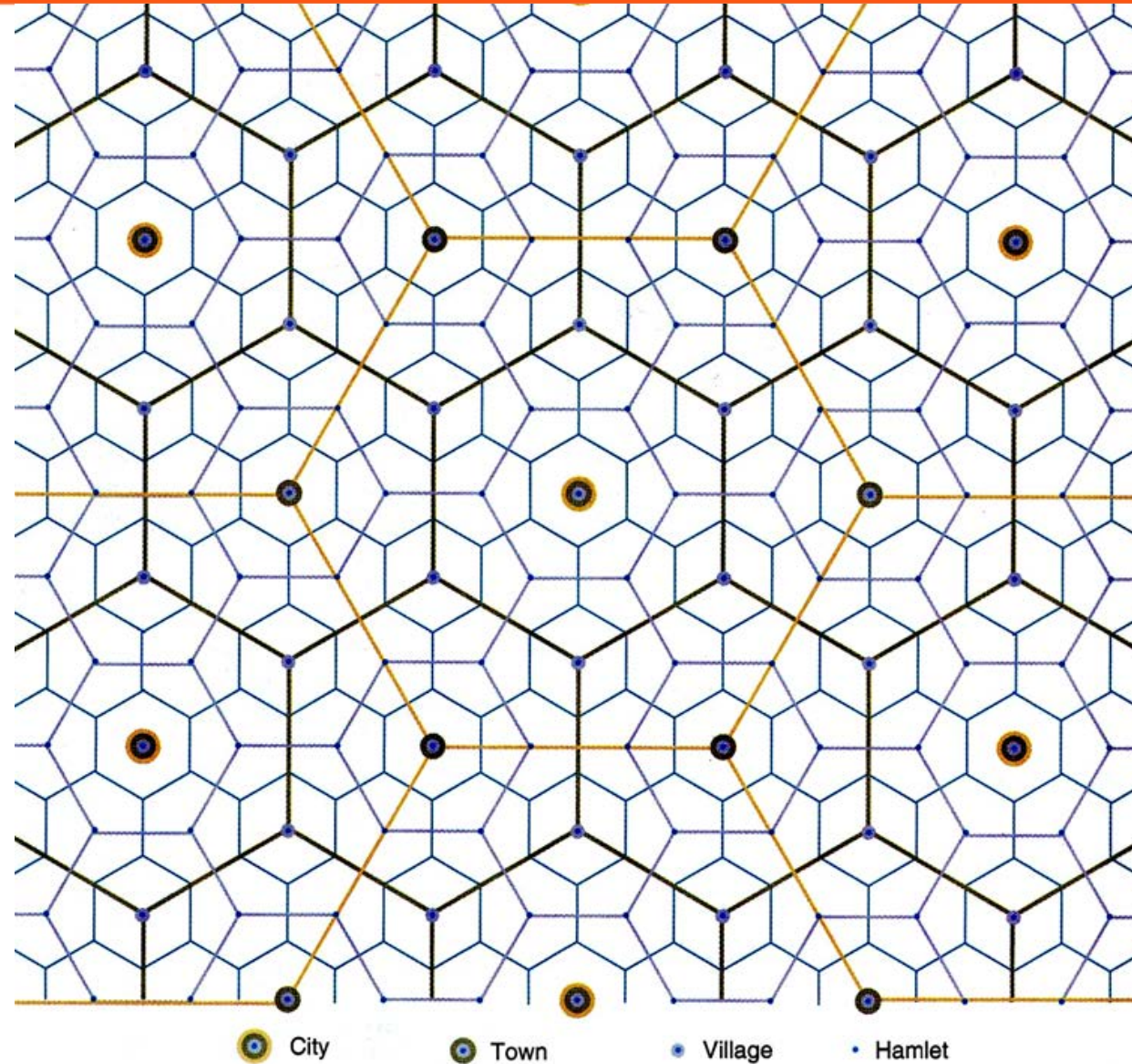
<https://earthobservatory.nasa.gov/images/79800/city-lights-of-the-united-states-2012>



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**A WORD OF ADVICE  
- DON'T SHOW  
STUDENTS  
THIS SLIDE OF THIS  
GRAPHIC  
REPRESENTATION  
OF CPT  
UNTIL YOU ARE  
DONE GOING  
THROUGH THE  
EXPLANATION,  
EXAMPLES  
ETC.**





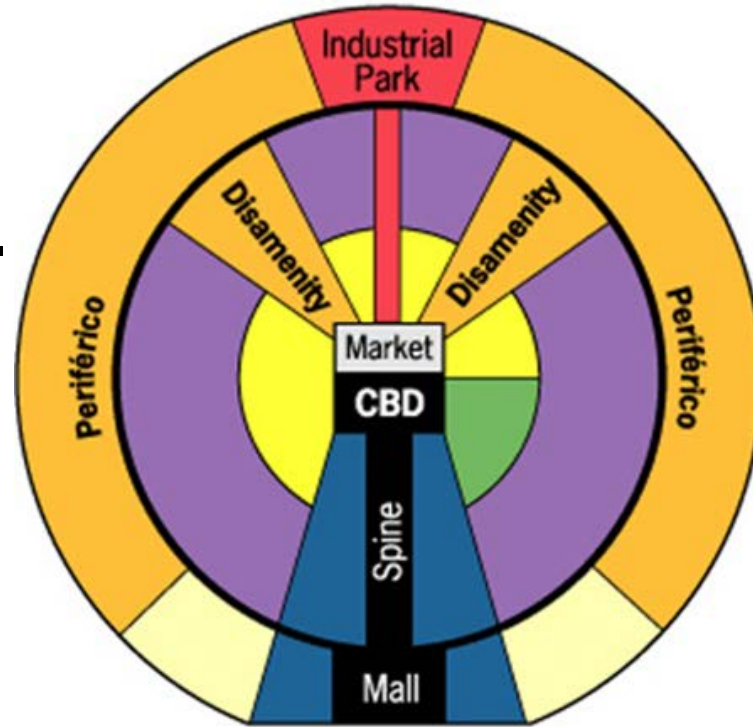
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## # 10 Latin American City (Griffin-Ford model)

This is Mexico City - Based on Spanish Law of the Indies

A NEW AND IMPROVED MODEL OF LATIN AMERICAN CITY STRUCTURE



- Commercial
- Zone of Maturity
- Zone of In Situ Accretion
- Market
- Zone of peripheral squatter settlements
- Industrial
- Elite Residential Sector
- Gentrification
- Middle-Class Residential Tract

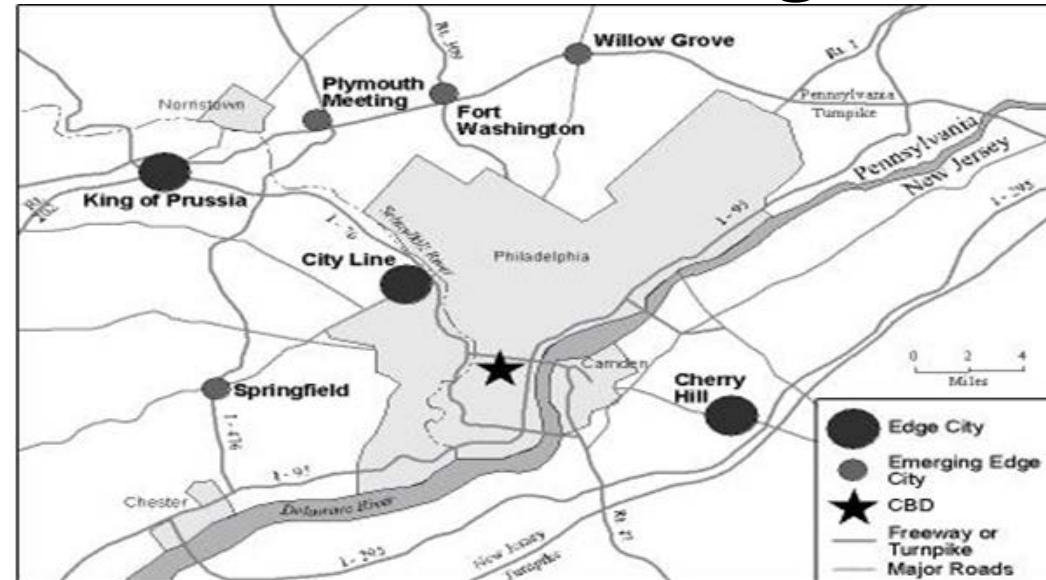
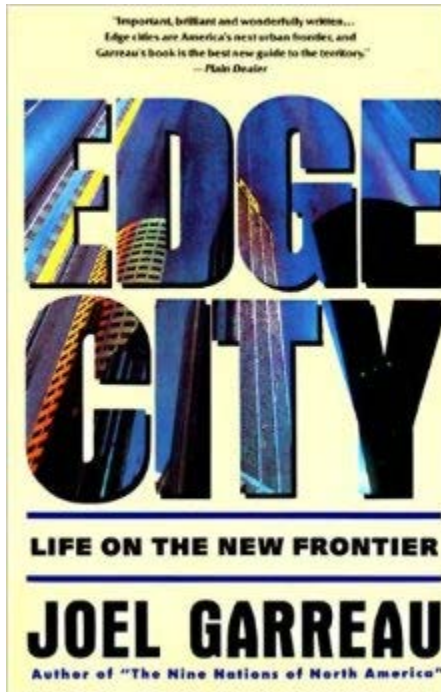




## Joel Garreau – Edge Cities

## #11

### Suburbs evolved from “sub” “urbs” to freestanding, self-sufficient entities.



**Figure 11.3** Founded in 1682, Philadelphia is the fifth largest metropolitan area in the U.S., with over 5 million people. Suburban downtowns, or “edge cities” have evolved in what used to be bedroom suburbs and outlying towns. The largest is in King of Prussia, where a huge complex of offices, high-tech companies, and warehouses has coalesced around one of the earliest and largest shopping malls at the intersection of the Schuylkill Expressway (I-76) and the Pennsylvania Turnpike. Total employment within a 5-mile radius is now over 320,000 workers, many of whom commute to King of Prussia from other suburbs or even from Philadelphia proper. Cherry Hill, NJ and City Line Ave are two other major suburban nuclei of jobs, shopping, and traffic. Others are emerging at strategic highway intersections, such as the Fort Washington and the Willow Grove areas.





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An **Edge City** is an American term for a concentration of business, shopping, and entertainment outside a traditional downtown (or central business district) in what had previously been a residential or rural area.

## Atlanta

- Buckhead
- Cumberland
- Hartsfield-Jackson Atlanta International Airport area
- Perimeter Center
- Marietta where Ken teaches



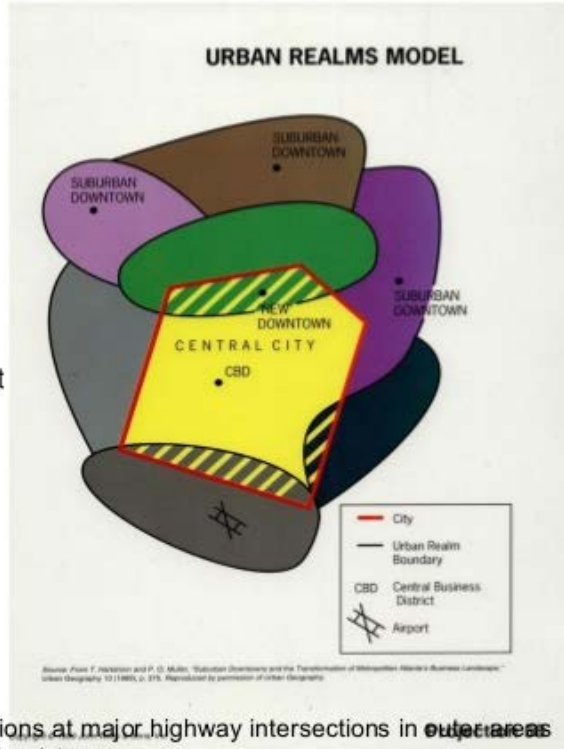


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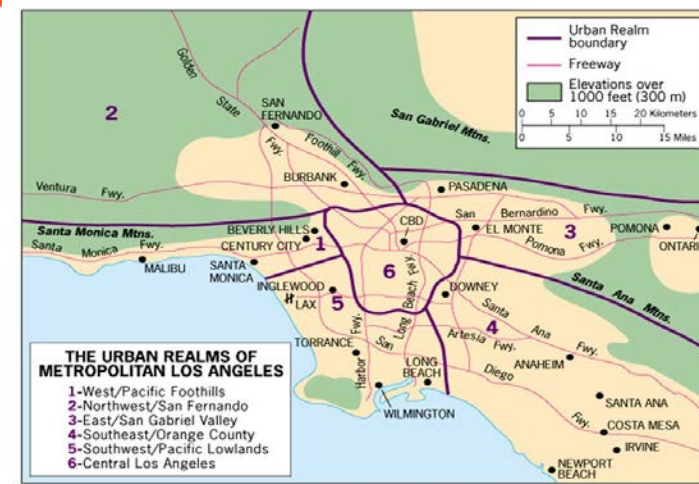
## Urban Realms Model

- Modeled after L.A. in the 1990's
- Post WWII cities grew increasingly outward
- Nuclei or Realms become less dependent on each other, and much less on the CBD
- Realms became largely self-sufficient in most cases
- Regional shopping centers became like the CBD



Construction 'ring roads' created growth explosions at major highway intersections in outer areas  
 Leads to emergence of **EDGE CITIES** (Woodlands)

- Modeled after cities like Atlanta and Los Angeles



Urban Realms (& Edge Cities) of Los Angeles

- Further metamorphosis of multiple nuclei





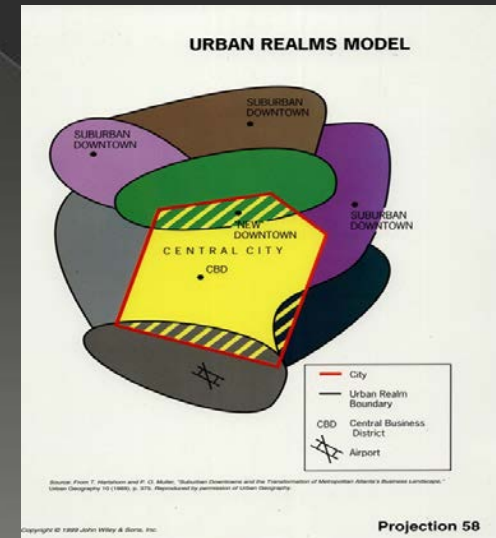
- Core here meaning the core area of a city, not a country.
- Otherwise known as the traditional CBD or Central Business District.
- Any city with a beltway, ring road, loop, etc.

What does this also look like? Urban Realms?

## Galactic City Model



Edge cities that are connected each other and the core by highways or freeways



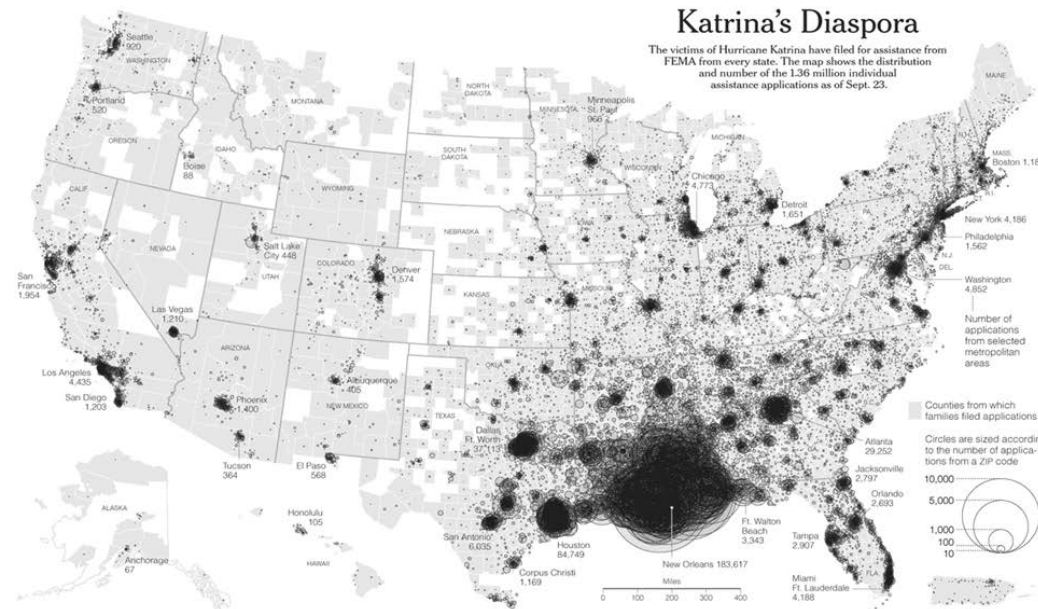


## # 12 Gravity Model

- The Gravity model is a model in population and urban geography derived from Newton's law of gravity, and used to predict the degree of migration interaction between two places. ... The gravity model can be used to estimate: Traffic flow. Migration between two areas, interaction between two cities, etc.
- Students DO NOT need to know how to do the math to figure this out BUT....
- Related to other

concepts such as?

Time-distance decay?





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for April

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AP US  
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## Submitted Questions:

1. Is Hinduism polytheistic rather than monotheistic with many forms of the one god?
2. I tend to struggle with getting students to answer the FRQs in full sentences. Thoughts?
3. I'd like to hear more about activities, projects, etc. for review. It seems like I spend most of my time explaining with direct teaching...
4. I'd love to have your list(s) of top 3-4 **MUST INCLUDE** resources, activities, guides, etc. for AP test review. There is a LOT out there and it's hard to know what to include!!! Maybe a schedule/calendar with a set up like, "If you only have 3 weeks to review, be sure to include .....,," "If you only have 2 weeks to review...,," etc.