Key Issue One: Where is the world’s population distributed?
PBS NOVA: A WORLD IN THE BALANCE
(THE PEOPLE PARADOX)

- http://www.youtube.com/watch?v=CDJcKvukZRA
YOUR FAMILY

- How many brothers and sisters do you have?
- How many brothers and sisters did your parents or grandparents have?
- Is that figure larger, smaller, or the same number as your parents and grandparents had?
- How might these numbers vary elsewhere in the world?
IMAGINE THE WORLD HAS A POPULATION OF ONLY 100...
CRITICAL ISSUES IN POPULATION GEOGRAPHY

- Studying population is the basis for understanding a wide variety of issues in human geography (where and why a region’s population is distributed as it is):
  - Increasing the food supply
  - Reducing pollution
  - Encouraging economic growth
CRITICAL ISSUES IN POPULATION GEOGRAPHY

- The study of population is critically important for three reasons:
  1. More people are alive today than at any other time in human history
  2. The world’s population increased at a faster rate during the second half of the twentieth century than every before.
  3. Virtually all population growth today occurs in less developed countries (LDCs)
     - The ability of LDCs to provide food, clothing, and shelter for their people is severely hampered by the continued rapid growth of their population.
CRITICAL ISSUES IN POPULATION GEOGRAPHY

- The scientific study of population characteristics is demography.
  - Demographers look statistically at how people are distributed spatially and by age, gender, occupation, fertility, health, and so on. (where and why)

- WHERE
  - First, geographers describe where people are found across Earth’s space.
    - The location of people forms regular distributions
  - Second, geographers look at the places where population is growing.
CRITICAL ISSUES IN POPULATION GEOGRAPHY

- **WHY**
  - Geographers explain why populations are growing at different rates in different places.
    - Overpopulation is not simply a problem of the total number of people on Earth but also the relationship between the number of people and the availability of resources.
      - Problems result when an area’s population exceeds the capacity of the environment to support it at an acceptable standard of living (carrying capacity).

- **SCALE**
  - Geographers study population from a global and local scale.
    - At a local scale, geographers find that overpopulation is a threat in some regions of the world but not in others.
    - At a global scale, geographers often predict that the world may become overburdened with too many people in the future.
A CRITICAL QUESTION IS HOW DID THE WORLD REACH A POPULATION OF OVER 7 BILLION? WHAT ARE THE IMPACTS?

- Population Circle
  - We will form an approximately 10-foot diameter circle on the floor to represent the Earth.
  - We will be looking at how the population of the Earth changed from 1510 to 2010, a 500 year span.
  - There are 28 counting cards
  - Each card represents 250 million people.
  - If you have a zero, you will start our circle by stepping in the middle. You represent everybody who lived on the earth 500 years ago.
  - We will be counting from 1 to 100 to find out how population grew.
  - As we count, we will fast forward through the past 500 years.
  - With every number we say, we will jump ahead five years.
  - When we reach 100, all 500 years will have passed, and we will be at the present.
  - Listen carefully, because when we get to the number on your card, you will need to step into the circle.
A CRITICAL QUESTION IS HOW DID THE WORLD REACH A POPULATION OF OVER 7 BILLION? WHAT ARE THE IMPACTS?

- Population Circle
  - REFLECTION
    - What did you observe about how our population changed over time?
    - After we started counting, who was the first person to join the circle? What number did he/she have? From the start, how many years did it take to add 250 million people to the earth?
    - Towards the end of the simulation, how long was it taking to add 250 million people to the earth?
    - Based on what you saw happening by the end of the simulation, how do you think this activity would be different if we came back in five years and did it again?
    - What would happened if we continued to grow at this rate?
    - If current growth rate continues, the world’s population would double in about 60 years. How many more numbers past 100 would we need to count before the population of the circle doubled? How many more people would enter the circle?
POPCULATION GROWTH IN PERSPECTIVE

- http://www.youtube.com/watch?v=9_9SutNmfFk
WHERE IS THE WORLD’S POPULATION DISTRIBUTED?

- Human beings are NOT distributed uniformly across Earth’s surface.
  - We can understand how population is distributed by examining two basic properties:
    - Concentration
      - Geographer’s identify regions of Earth’s surface where population is clustered and regions where it is sparse.
    - Density
      - Geographer’s explain the relationship between the number of people and available resources.

- Population concentrations
  - Two-thirds of the world’s population are in four regions:
    - East Asia
    - South Asia
    - Europe
    - Southeast Asia
POPULATION DISTRIBUTION: CARTOGRAM
POPULATION DISTRIBUTION: EQUAL AREA MAP
USING THIS & THE PREVIOUS MAP, WHAT CAN WE INFER?

- A Humid Low-Latitude
- B Dry
- C Warm Mid-Latitude
- D Cold Mid-Latitude
- E Polar
- H Undifferentiated Highlands
WHERE IS THE WORLD'S POPULATION DISTRIBUTED?

- The four regions display some similarities
  - Most of the people in these regions live near an ocean or near a river with easy access to an ocean.
    - Approximately 2/3 of the world’s population lives within 300 miles of an ocean, and 4/5 live within 500 miles.
  - What about us??
  - The four population clusters occupy generally low-lying areas, with fertile soil and temperate climate.
  - The regions are all located in the Northern Hemisphere between 10 degrees and 55 degrees north latitude, with the exception of part of the Southeast Asia concentration.

- The four regions also display some significant differences
  - Pattern of occupancy of the land in the five concentrations
The region, bordering the Pacific Ocean, includes China, the islands of Japan, the Korean peninsula, and the island of Taiwan.

1/5 of the world’s people live in East Asia.
- 5/6 of the people in this concentration live in the People’s Republic of China (the world’s most populous country).

- China is the world’s third-largest country in land area, but much of its interior is parsley inhabited mountains and deserts.

- The population is clustered near the Pacific Coast and in several fertile river valleys that extend inland, such as the Huang and the Yangtze.

- Although China has 26 urban areas with more than 2 million inhabitants and 52 with more than 1 million, 2/3 of the people live in rural areas where they work as farmers.
In Japan and Korea, population is not distributed uniformly either.

More than 1/3 of the people live in three large metropolitan areas: Tokyo and Osaka in Japan, and Seoul in South Korea—that cover less than 3 percent of the two countries’ land area.

In sharp contrast to China, more than ¾ of all Japanese and Koreans live in urban areas and work at industrial or service jobs.
Another 1/5 of the world’s people live in South Asia, which includes India, Pakistan, Bangladesh, and the island of Sri Lanka.

India, the world’s second most populous country, contains more than ¾ of the South Asia population concentration.

The most important concentration of people within South Asia lives along a 900 mile corridor from Lahore, Pakistan through Indian and Bangladesh to the Bay of Bengal.
Much of this area’s population is concentrated along the plains of the Indus and Ganges rivers.

Population is also heavily concentrated near India’s two long coastlines—the Arabian Sea to the west and the Bay of Bengal to the east.

Like the Chinese, most people in South Asia are farmers living in rural areas.

The region contains 21 urban areas with more than 2 million inhabitants and 55 with more than 1 million, but only \( \frac{1}{4} \) of the total population lives in an urban area.
A half billion people live in Southeast Asia, mostly on a series of islands that lie between the Indian and Pacific oceans.

The largest concentration is on the island of Java, inhabited by more than 100 million people.

Indonesia, which consists of 13,677 islands, including Java, is the world’s fourth most populous country.

Several islands that belong to the Philippines contain high population concentrations, and population is also clustered along several river valleys and deltas at the southeastern tip of the Asian mainland, known as Indochina.
Like China and South Asia, the Southeast Asia concentration is characterized by a high percentage of people working as farmer in rural areas.

The three Asian population concentrations together comprise more than half of the world’s total population, but together they live on less than 10 percent of Earth’s land area (the same held true 2,000 years ago).
Combining the populations of Western Europe, Eastern Europe, and the European portion of Russia forms the world’s third-largest population cluster, one-ninth of the world’s people.

The region includes four dozen countries, ranging from Monaco, with .7 miles and a population of 32,000, to Russia, the world’s largest country in land area when its Asian part is included.

In contrast to the three Asian concentrations, \( \frac{3}{4} \) of Europe’s inhabitants live in cities, and less than 20 percent are farmers.

A dense network of road and rail lines link settlements.
The highest population concentration in Europe are near the coalfields of England, Germany, and Belgium, historically the major source of energy for industry.

Although the region’s temperate climate permits cultivation of a variety of crops, Europeans do not produce enough food for themselves; instead they import them.

The search for additional resources was a major incentive for Europeans to explore and colonize other parts of the world during the previous centuries.

Today, Europeans turn many of these resources into manufactured products.
OTHER POPULATION CLUSTERS

- The largest population concentration in the Western Hemisphere is in the northeastern United States and southeastern Canada.
  - This cluster extends along the Atlantic Coast from Boston to Newport News, Virginia, and westward along the Great Lakes to Chicago.
  - About 2 percent of the world’s population live in the area.

- Another 2 percent of the world’s population is clustered in West Africa, especially along the south-facing Atlantic Coast.
  - Approximately half of the West Africa concentration is found in Nigeria, the most populous country in Africa, and the other half is divided among several small countries west of Nigeria.
  - Most Africans work in agriculture, although the region has 6 urban areas with more than 2 million inhabitants and 16 with more than 1 million.
WHERE IS THE WORLD’S POPULATION DISTRIBUTED?

- Sparsely populated regions; human beings avoid clustering in certain physical environments.
  - The ecumene: the portion of the earth’s surface occupied by permanent human settlement.
- People generally avoid:
  - Dry lands
  - Wet lands
  - Cold lands
  - High lands
- Approximately ¾ of the world’s population live on only 5 percent of the earth’s surface.
- Which is growing faster, those areas listed above (dry, wet, cold, and high lands) or the ecumene?
**Dry Lands**

- Areas too dry for farming cover approximately 20 percent of the earth’s surface.

- The two largest desert regions in the world lie in the Northern Hemisphere between 15 degrees and 50 degrees north latitude and in the Southern Hemisphere between 20 degrees and 50 degrees south latitude.

- Deserts generally lack sufficient water to grow crops that could feed a large population, although some people survive there by raising animals, such as camels, that are adapted to the climate.

- Deserts may, however, contain natural resources—notably, much of the world’s oil reserves.

- The increasing demand for these resources has led to a growth in settlements in or near deserts.
Dry lands

Sahara, Arabian, Thar, Takla Makan, and Gobi Deserts.
Facts about Wet Lands:

- Lands that receive very high levels of precipitation may also be inhospitable for human occupation.
- These lands are located primarily near the equator between 20 degrees north and south latitude in the interiors of South America, Central Africa, and Southeast Asia.
- Rainfall averages more than 50 inches per year, with most areas receiving more than 90 inches per year.
- The combination of rain and heat rapidly depletes nutrients from the soil and thus hinders agriculture.
- Precipitation may be concentrated into specific times of the year or spread throughout; this affects food production.
Rainforests, Swamps, Jungles, Tropics

**WET LANDS**

- **A** Humid Low-Latitude
- **B** Dry
- **C** Warm Mid-Latitude
- **D** Cold Mid-Latitude
- **E** Polar
- **H** Undifferentiated Highlands

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Cold Lands

- Much of the land near the North and South poles is consistently covered with ice or the ground is permanently frozen (permafrost).

- The polar regions receive less precipitation than some Central Asian deserts, but over thousands of years the small annual snowfall has accumulated into thick ice.

- This area is unsuitable for agriculture, few animals can survive the extreme cold, and few humans live there.
The highest mountains in the world are steep, snow covered, and sparsely settled; few people live at these high elevations.

For example, approximately half of Switzerland’s land is more than 3,300 feet above sea level, and only 5 percent of the country’s population live there.

However, high lands in Latin America and Africa, are often preferred to lower elevations because of the temperature and precipitation.

For example, Mexico City, one of the world’s largest cities, is located at an elevation of 7,360 feet.
HIGH LANDS

High Elevations

A Humid Low-Latitude
B Dry
C Warm Mid-Latitude
D Cold Mid-Latitude
E Polar
H Undifferentiated Highlands

MODIFIED GOODE'S HOMOLOSOINE EQUAL-AREA PROJECTION
WHERE IS THE WORLD’S POPULATION DISTRIBUTED?

- Population density
  - Arithmetic density
  - Physiological density
  - Agricultural density

- These measures of density help geographers to describe the distribution of people in comparison to available resources.

*Review → DENSITY: the number of people occupying an area of land.*
**ARITHMETIC DENSITY**

- Arithmetic density: the total number of people divided by land area (also known as population density).
  - The most commonly used form of density comparisons because the two pieces of required information (people and land area) are easy to obtain.

- This type of density can be used to compare cities, countries, or regions.

- Arithmetic density answers the “where” question but to better explain the “why” question, other density measures are more useful.
**Physiological Density**

- Physiological density: the number of people supported by a unit area of arable land.
  - Arable land: land suited for agriculture

- The higher the physiological density, the greater the pressure that people may place on the land to produce enough food.

- Physiological density provides insights into the relationship between the size of a population and the availability of resources in a region.
COMPARING PHYSIOLOGICAL & ARITHMETIC DENSITIES

- Helps geographers to understand the capacity of the land to yield enough food for the needs of the people.

<p>| TABLE 2-1 MEASURES OF DENSITY IN SELECTED COUNTRIES |
|---------------------------------|---------------------------------|---------------------------------|-------------------------------|------------------------------|------------------------------|</p>
<table>
<thead>
<tr>
<th>ARITHMETIC DENSITY*</th>
<th>PHYSIOLOGICAL DENSITY*</th>
<th>AGRICULTURAL DENSITY*</th>
<th>PERCENT FARMERS</th>
<th>PERCENT ARABLE</th>
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</thead>
<tbody>
<tr>
<td>Canada</td>
<td>3</td>
<td>65</td>
<td>1</td>
<td>2</td>
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<tr>
<td>United States</td>
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<td>175</td>
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<tr>
<td>Egypt</td>
<td>79</td>
<td>2,296</td>
<td>251</td>
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<td>United Kingdom</td>
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*Population per square kilometer
AGRICULTURAL DENSITY

- Agricultural density: the ratio of the number of farmers to the amount of arable land.
- This density measure helps account for economic differences.
- MDCs have lower agricultural densities because technology and finance allow a few people to farm extensive land areas and feed many people (most of the population is working in industry or services).
To understand the relationship between population and resources in a country, geographers examine a country’s physiological and agricultural densities together.

Geographers can conclude how much pressure a country puts on the land to produce food and how efficient its agricultural system is (MDCs typically require less farmers).

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