

Populations Pyramids: A Graphic Tool for Interpretation and Analysis
Riley Institute Presentation Summer 2006

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Introduction

AP Human Geography

Overview:

This lesson teaches the demographic tool of population pyramids which can be used to interpret patterns in population & to link these to changes in social and technological development. The pyramids use as a predictor of possible future populations is also considered.

Objectives:

Students will

- Comprehend terms related to the study of populations
- Use a graphic representation to interpret information
- Make connections to graphs and the populations they represent
- Interpret changes over time

Standards used:

National Council for the Social Studies:

<http://www.socialstudies.org/standards/strands/>

Theme II: Time, Continuity, and Change: Have learners apply key concepts from the study of history such as time, chronology, causality, change, conflict, and complexity to explain, analyze, and show connections among the patterns of historical change and continuity

Theme VIII: Science, Technology, & Society: Enable learners to identify, describe, and examine both current and historical examples of interaction and interdependence of science, technology, and society

Theme IX: Global Connections and Interdependence: Challenge learners to analyze the causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues such as health care, security, resource allocation, economic development, and environmental quality

SC Literacy Standards:

- E. Explain change and continuity over time.
- L. Interpret calendars, time lines, maps, charts, tables, graphs, flow charts, diagrams...and other artifacts.
- M. Use tables and graphs to observe and interpret geographic trends and relationships.

Appropriate subjects, ages and/or grade levels:

This lesson is primarily for high school level AP Human Geography students, but could be used for 9th grade Global Studies, or 12th grade Economics. It could, however, be modified for middle school ages.

Approximate time period for lesson: one 90-minute blocked class

Procedures:

- Gather pyramids as examples by using the US Census website www.census.gov/ipc/www/idbpyr.html
- Review previously learned terms with students.
- Explain the "Population Pyramid Basics", including going to the above US Census website to find specific examples.
- Hand out Group Analysis Questions sheet and allow students to work in groups of no more than 3-4 to answer the questions. Each student must complete a sheet. (A time should be set, such as 25-30 minutes, for students to be winding up their questions.)
- Review these with students.
- Give students the ID the Pyramids worksheet with the PPT slide copies. Do Pyramid A with them. Then allow them to do the remaining 4 on their own. Review this sheet.
- Students will turn in a provided 4" X 6" index card with the 5 things they learned about population pyramids in order to line up to exit.
- Material learned will be tested on a later unit test.

Assessment:

Assessment will be given by observed participation in groups, completion of the **Group sheet**, the **ID the Pyramids** sheet, and the **Exit Pass**.
A later unit test will also assess learned knowledge.

LESSON:

Review of Important Development terms:

- *birth rate & death rate: # births or deaths per 1000 in a population**
- *infant mortality rate: for every 1000 babies born, # that will die before its 1st birthday**
- *dependency ratio: relationship between those in population who support other parts of the population (ages 15-65? M vs. F?)**
- *life expectancy: # of years a person can usually expect to live (at least 50% of those born at specific time alive at that age)**
- *gender development index (GDI): gives an indication of the levels of development related to the social roles of women in a society. Why might this be a good development indicator?**
- *literacy rate: % of population that can read & write at some accepted level**
- *natural increase rate (NRI): % a population grows per year**

POPULATION PYRAMID BASICS:

- A) Age groups are shown on the left column**
- B) Populations %'s are on the bottom**
 - **Population MAY be represented as either %'s OR as numbers (in thousands, millions, etc.)**
- C) Males on left; females on right**
- D) The more even the sides, the more developed the population tends to be. WHY?**
- E) The sharper the slope, the less developed. WHY?**
- F) Pyramids can give indications about the populations of an area. How & why?**
- G) Go to the website below and look at these examples:**

Afghanistan Brazil Denmark South Africa

Use this website to find examples: <http://www.census.gov/ipc/www/idbpyr.html>

Below are 2 regional pyramids. (See PPT or add 2 regional pyramids. The US Census site has a pairing of Western Europe and West Africa.)

Which would be classified as a more developed region and which a less developed region? Why?

What are some differences you can notice about ages of these populations? Younger? Older?

Worksheet #1: GROUP Analysis & THINK sheet:
What things can affect population pyramid shapes?

In groups of 2 or 3, answer each question below...and EXPLAIN why.
(Use back if needed)

A) Birth rate: Do richer or poorer societies today tend to have more kids?

In which are the babies more likely to live?

B) Economies:

1) Do industrialized or agrarian societies tend to have more kids?

2) Regional economies: What kinds of regional economic activities can affect Populations & why would they do so?

C) AGE:

1) Which age groups tend to work & bring money into a family & which tend to need to be taken care of more?

2) What is the term for the # of those working vs. those who are supported?

3) Which age groups are having kids & which are not?

D) Levels of technology: What kinds of advances in technology can increase or decrease certain populations?

How might they do this?

E) Culture & customs: Do places with more equality toward women tend to have more or less kids per family?

How do some countries determine who has higher status--especially women?

F) History: Historical events can affect populations. How?

Give possible examples.

Group Worksheet #2

ID the pyramids:

On the following 3 slides are various pyramids for the USA, 1st is the USA in 2000, then 4 US cities. In your groups, use your copies to match the shapes.

Explain your answers...*WHY* do you think each might have a certain shape?

*Fayetteville NC _____

*Naples, FL _____

*El Paso, TX _____

*Lansing, MI _____

NOTE: Again use the US Census Bureau website to access pyramids for the USA (2000) and for the 4 cities shown (2000).

Exit Pass:

Each student must turn in a 4" X 6" note card with your name on it at least 5 things you have learned about using population pyramids.

Once you have turned this in, you may line up to await the bell. Cards will be checked briefly as they are turned in.

D) The more even the sides, the more developed the population tends to be. WHY?
 E) The sharper the slope, the less developed. WHY?
 F) Pyramids can give indications about the populations of an area. How & why?
 G) Go to the website below and look at these examples:

Afghanistan
 Denmark
 South Africa
 Brazil

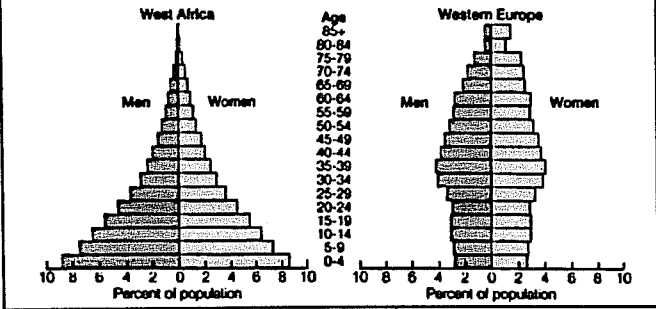
<http://www.census.gov/ipc/www/idbpyr.html>

Worksheet: GROUP Analysis questions: What can affect population pyramid shapes?

A) **Birth rate:** Do richer or poorer societies tend to have more babies? In which are the babies more likely to live?
 B) **Economies:** 1) Do industrialized or agrarian societies tend to have more kids?
Regional economies: What kinds of regional economic activities within a country can affect populations?
 C) **AGE:** 1) Which age groups tend to work & bring money into a family & which tend to need to be taken care of more?
 2) Which groups are or are not having kids? What is the term for the # of those working & those supported?
 D) **Levels of technology:** What kinds of advances in technology can increase or decrease certain populations?
 E) **Culture & customs:** Do places with more equality toward women have more or less kids per family? What are some ways status is determined in some societies?
 F) **History:** Historical events can affect populations. How? Give possible examples.

Below are 2 regional pyramids.

- Which would be classified as a more developed region and which a less developed region? Why?
- What are some differences you can notice about ages of these populations? Younger? Older?



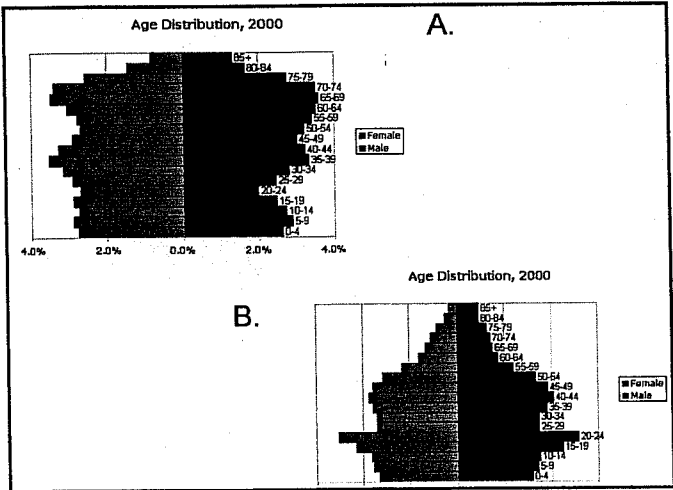
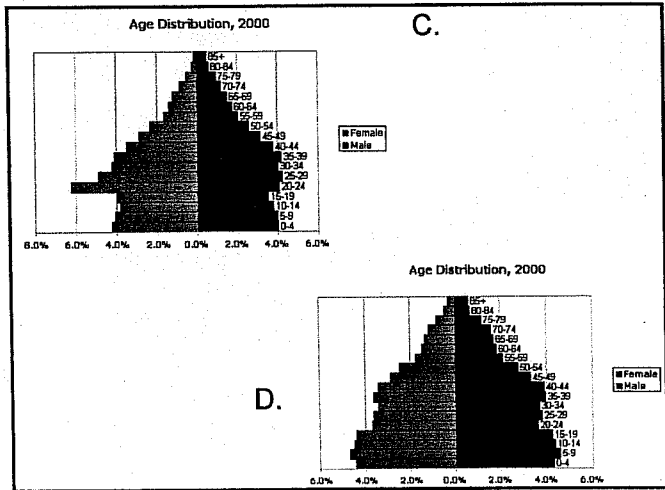
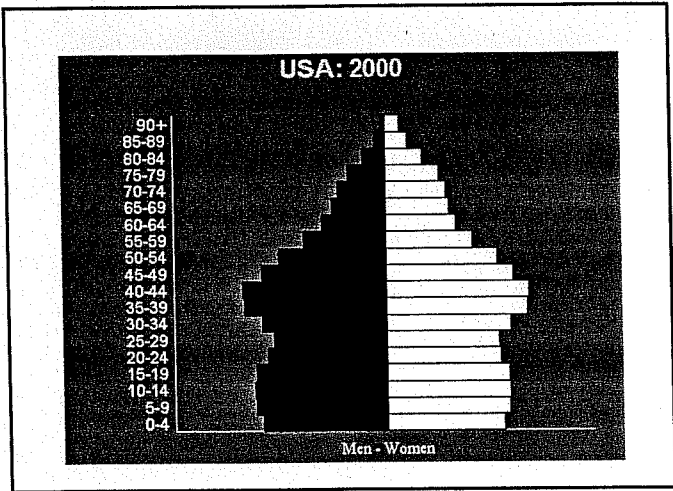
ID the pyramids:

On the following 3 slides are various pyramids for the USA, 1st is the USA in 2000, then 4 US cities.

In your groups, use your copies to match the shapes.

Explain *WHY* you think each might have a certain shape. Use knowledge you might have about each place.

- *Fayetteville NC _____
- *Naples, FL _____
- *El Paso, TX _____
- *Lansing, MI _____



Exit Pass:

Each student must turn in a 4" X 6" note card with

- **your name on it**
- **at least 5 things you have learned about using population pyramids.**

Once you have turned this in, you may line up to await the bell.

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