Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ APES

|  |  |
| --- | --- |
| Quiz(14pts) |  |
| Completeness(10pts) |  |
| **GRADE:** |  |

Mr. Crisci

**Lab: ECOLOGICAL FOOTPRINT** Date: **\_\_\_\_\_\_\_\_\_**

**Part 1: Each group will get a different information regarding a particular country. Please fill in the table using this information. Determine the relative environmental impact (high, medium, low) in each of the countries.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | United States | Ethiopia | India | Haiti |
| Total 2009 Population in millions of people |  |  |  |  |
| Total Fertility Rate |  |  |  |  |
| Important Material Possessions |  |  |  |  |
| Infant Mortality Rate |  |  |  |  |
| Estimated Energy Sources Used |  |  |  |  |
| Estimated Education Level of Women |  |  |  |  |
| Estimated per capita Income  |  |  |  |  |
| Birth Rate per 1,000 |  |  |  |  |
| Death Rate per 1,000 |  |  |  |  |
| Calculated Growth Rate in %(CBR –CDR / 10) |  |  |  |  |
| Calculated Doubling Time(70 / percent growth rate) |  |  |  |  |
| **Ecological Footprint** **(Overall Environmental Impact)** |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | China | Kuwait | Italy | Mongolia |
| Total 2009 Population in millions of people |  |  |  |  |
| Total Fertility Rate |  |  |  |  |
| Important Material Possessions |  |  |  |  |
| Infant Mortality Rate |  |  |  |  |
| Estimated Energy Sources Used |  |  |  |  |
| Estimated Education Level of Women |  |  |  |  |
| Estimated per capita Income  |  |  |  |  |
| Birth Rate per 1,000 |  |  |  |  |
| Death Rate per 1,000 |  |  |  |  |
| Calculated Growth Rate in %(CBR –CDR / 10) |  |  |  |  |
| Calculated Doubling Time(70 / percent growth rate) |  |  |  |  |
| **Ecological Footprint****(Overall Environmental Impact)** |  |  |  |  |

**Part 1 Questions:**

1. Give at least TWO reasons why families in Ethiopia or Haiti would have a high total fertility rate (TFR)?
2. Why do you think some countries, such as Italy, have reached zero population growth?
3. How would you explain the wide disparity in birth rates among different countries?
4. The population of the U.S. is actually growing at the rate of about 1 percent each year, more than its rate of natural increase. Where is the additional population growth coming from?
5. China’s birth rate in 2010 was 12 per 1,000 people while its death rate was 7 per 1,000 people. Calculate the percent annual increase using the formula: CBR – CDR / 10
6. Using the percent growth rate you calculated for China in the previous problem determine the time it would take the country to double its population using the formula: 70 / percent rate of increase:
7. In 1950, the population of a small suburb in Los Angeles, California, was 20,000. The birth rate was measured at 500 children per year, while the death rate was measured at 140 per year. Immigration was measured at 600 per year while emigration was measured at 200 per year. Calculate the population size in 1951. Population Change Formula **N1= N0 + (births + immigrations) – (deaths + emigration)**

**Part 2: Go to the following website and select each of the countries:**

**GOOGLE: global footprint calculator** or type in <http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/>

1. How many Earth’s would it take to live the way you do? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. How many global acres does it take to support your lifestyle? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Breakdown your ecological footprint:
	1. Food - \_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Shelter - \_\_\_\_\_\_\_\_\_\_\_\_
	3. Mobility - \_\_\_\_\_\_\_\_\_\_\_
	4. Goods - \_\_\_\_\_\_\_\_\_\_\_\_\_
	5. Services - \_\_\_\_\_\_\_\_\_\_\_\_
4. Click on the link the “explore scenarios” button. Using the link click on at least two ways to reduce your overall footprint on the Earth and write down actions you could actually take to reduce your overall footprint. Also, how many Earth’s would you now need if you did these? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 3: For each of the countries, you need to analyze their age structure diagrams to determine what is happening to their populations.  Go to the following website and select each of the countries:** [**http://populationpyramid.net/**](http://populationpyramid.net/) ***or Google: population pyramid***

1. Select the current year
2. Compare and decide if the population is expanding, stable or decreasing (can be in between)

**AFGHANISTAN**  **FINLAND**
Expanding  Stable  Declining Expanding  Stable  Declining

**AUSTRALIA**  **VENEZUELA**
Expanding  Stable  Declining Expanding  Stable  Declining

**BHUTAN** **CHINA**
Expanding  Stable  Declining  Expanding  Stable  Declining

**ETHIOPIA  EGYPT**Expanding  Stable  Declining Expanding  Stable  Declining

**FIJI**  **EUROPE (NOT A COUNTRY BUT CONTINENT)**
Expanding  Stable  Declining Expanding  Stable  Declining

**FRANCE  ASIA (NOT A COUNTRY BUT CONTINENT)**
Expanding  Stable  Declining  Expanding  Stable  Declining

**HAITI  NORTH AMERICA (NOT A COUNTRY BUT CONTINENT)**
Expanding  Stable  Declining Expanding  Stable  Declining

**INDIA SOUTH AMERICA (NOT A COUNTRY BUT CONTINENT)**Expanding  Stable  Declining  Expanding  Stable  Declining

**JAPAN  AFRICA (NOT A COUNTRY BUT CONTINENT)**
Expanding  Stable  Declining  Expanding  Stable  Declining

**UNITED STATES WORLD**Expanding  Stable  Declining  Expanding  Stable  Declining

**Part 4: Population Pyramids in Lego**

1. Pick one of the counties from the previous list and create a bar graph using the percentages for each age group. (If you put your mouse over the particular age group it will give you the precise percentages)
2. Use your Legos to build an example one of the pyramid you picked.

|  |
| --- |
| **Population Pyramid****Year\_\_\_\_\_\_\_ and Total Population of the Country Selected \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
|  |  |  |  |  |  |  |  |  | 80+ |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 75-79 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 70-74 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 65-69 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 60-64 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 55-59 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 50-54 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 45-49 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 40-44 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 35-39 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 30-34 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 25-29 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 20-24 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 15-19 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 10-14 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 5-9 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 0-4 |  |  |  |  |  |  |  |  |  |
| 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| % Males |  | % Females |

1. Is your country increasing in size, decreasing in size, or close to ZPG (zero population growth)?
2. Now move your country 25 years into the future, what will your pyramid shape be then?
3. What are some factors that influenced the shape of your pyramid?
4. Determine the percentage of the population that has not yet reached childbearing age (0-14 years of age).
	1. What does this number suggest about the prospects for future growth?
5. China and Vietnam enacted policies to limit child growth, what are some socio-economic problems that might occur if they did not enact these policies?
6. After many years, why would China retract its One Child Policy?
7. If you had a business and you wanted to capitalize on your information about the population age distribution you picked, what would you sell/market and why?