Using the Demographic Transition Model to Better Understand Our World

Overview: In this lesson, students will use the Demographic Transition Model (DTM), Rostow’s Economic Development Theory and Wallerstein’s Three – Tier World System’s Theory to take a closer look at four countries in the world. Students will use the CIA World Factbook to research economic indicators and Nation Master to research population pyramids. Based on their research, students will identify the correlations between a country’s population pyramid and its level of economic development. Students will also compare the challenges and advantages of two countries that are at two different stages of the Demographic Transition Model.

Minnesota K-12 Academic Standards in Social Studies (3. Geography)

Sub-strand 1. Geospatial Skills
Standard 1.
People use geographic representations and geospatial technologies to acquire, process and report information within a spatial context.
9.3.1.1.2
Apply geographic information from a variety of print and electronic sources to interpret the past and present and plan for the future; provide rationale for using specific technologies for each application.

Sub-strand 3. Human Systems
Standard 5.
The characteristics, distribution and migration of human populations on the earth’s surface influence human systems (cultural, economic and political systems).
9.3.3.5.2
Use the demographic transition model to analyze and explain the impact of changing birth and death rates in major world regions.
9.3.3.5.3
Compare the population characteristics of places at a range of scales using population pyramids, birth and death rates, and other key demographic variables.

Grade Level: 9 – 12

Objective: This lesson is designed to help students understand the connection that exists between the population of a country and the stage of the demographic transition the country is in. Based on population information gathered about a country, students will also be able to identify what level of Rostow’s Economic Development theory and what level of Wallerstein’s
World Systems theory the country identifies with. Based on the information gathered in their research, the students will compare the challenges and opportunities experienced by two of the countries they researched.

**Time:** 2 – 3 fifty-minute class periods.

**Required Materials:**
1. Computer/internet access to look up various population websites. Suggested websites:
   b. CIA World Fact Book which can be found at: [https://www.cia.gov/library/publications/the-world-factbook/](https://www.cia.gov/library/publications/the-world-factbook/).
2. Four (4) pieces of computer paper or copies of the worksheets provided.
3. Scissors, glue and/or tape
4. Article: The Stages of Economic Growth by W.W. Rostow [https://www.mtholyoke.edu/acad/intrel/ipe/rostow.htm](https://www.mtholyoke.edu/acad/intrel/ipe/rostow.htm)

**Suggested Procedure:**
1. Provide each student with four (4) pieces of computer paper or copies of the worksheets provided.
2. Have each student staple their four (4) pieces of computer paper or copies of the worksheets (8.5 inches x 11 inches) across the top (with the papers being held horizontally.)

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3. On the top piece of computer paper, have the students write Demographic Transition Model (DTM).
   a. Students should then draw the DTM on their paper based on their understanding of the information provided to them in their textbook and through class discussions.
      i. Remind students to label the left side of the paper using equal increments of 10, starting at 0 and continuing to 50. These increments will be used to identify the crude birth and death rates per 1,000.
      ii. Remind students to label the right side of the paper using equal increments of 1, starting at 0 and continuing to 3. These increments will be used to identify the natural increase rate, which is a percentage.
   b. Students should draw in the lines (using different colors) to show the Crude Birth Rate (CBR), the Crude Death Rate (CDR) and the Natural Increase Rate (NIR) in each stage of the model.
   c. In column one, have students draw in lines (using different colors) that graph the CBR, CDR and NIR in Stage 1 of the DTM.
   d. In column two, students repeat for Stage 2.
e. In column three, students repeat for Stage 3.
f. In column four, students repeat for Stage 4.
g. In column five, students repeat for Stage 5.
h. After completing their DTM, have the students cut along the lines at the border of each stage. The students should take a scissor and cut from the bottom of the paper to 3/4ths of the way up to the title, so they are able to flip each stage up.

**There is some debate among geographers regarding if there are any countries in the world still in Stage 1 of the DTM. Some geographers believe there is no country at Stage 1 of the DTM, while other geographers believe that some African states are at Stage 1 of the DTM. These countries would have a life expectancy of 40 years old or younger. The teacher will need to decide if he/she wants their students to include Stage 1 on the DTM or not.**

**There is also some debate among geographers and geography textbooks regarding whether there is a Stage 5 of the DTM. Some geographers do not recognize Stage 5. Again, the teacher will need to decide if he/she want to include Stage 5 on the DTM or not.**

4. Prior to students beginning the next step of this activity, review with students the shape of population pyramid that is found at each stage of the DTM.
5. With computer access, have students locate population pyramids for each stage of the DTM using Nation Master [http://www.nationmaster.com/index.php](http://www.nationmaster.com/index.php). Have them find population pyramids that portray each stage of the DTM. Have students identify population pyramids for one country for each stage of the DTM. (For example, the students could use population pyramids for Nigeria to show Stage 2 of the DTM and population pyramids for the United Kingdom to show Stage 4 of the DTM.)
6. Have the students print out three (3) population pyramids for each country they have identified to represent each stage of the DTM. The students will need to print one population pyramid for the present year (ex. 2012), and two for future years (ex. 2050 and 2075). The purpose of this is to provide students with the opportunity to see that the countries they selected are at a certain stage of the DTM and are not going to be moving to the next stage in the next few years. This activity will also provide students with the opportunity to identify the population pyramid shape that is used to identify each stage of the DTM.
7. After printing the population pyramids, have students turn to the second piece of paper in their packet and attach the pyramids under the correct stage of the DTM that they represent. After attaching their pyramids to the paper under the correct stage of the DTM, have the students cut along the lines at the border of each stage. Students should use a
scissors and cut from the bottom of the paper to $3/4$ths of the way up to the title, so they are able to flip each stage up.

8. Using the CIA World Factbook at [https://www.cia.gov/library/publications/the-world-factbook/](https://www.cia.gov/library/publications/the-world-factbook/) students should research three economic indicators for each of the countries they have created population pyramids for. Students must research the same economic indicators for each of the countries they identified with the population pyramids. Some of the economic indicators students might research are: literacy rate, percent urban population, GNP per capita, GDP per capita, percent of labor force involved in agriculture and percent of labor force involved in service industries.

9. On their third piece of paper, under the correct population pyramids/DTM stage identified on page 2, have students list the three economic indicator statistics they gathered for each country.

10. Based on the information provided from these statistics, have students determine what level of Rostow’s Economic Development Theory each country is in. On their third piece of paper (below the economic indicator statistics in each column), students should write what level each country is in.

11. Based on the three economic indicator statistics the students have gathered, have students determine what level of Wallenstein’s World Systems’ Theory each country is in and write the level below the corresponding economic indicator statistics.

12. Students should select two (2) of the countries they have researched to compare. On their fourth piece of paper, students should write two to four paragraphs comparing the opportunities and challenges faced by the two countries they have selected. They should use the data they gathered through their research to support their conclusion.

**Assessment:**

1. Demographic Transition Model Rubric
## Demographic Transition Model

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
<th>Stage 5</th>
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<td>40</td>
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<td>3</td>
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</table>

Crude birth and death rates per 1,000

### Natural Increase Rate (NIR)

- Stage 1: 3
- Stage 2: 2
- Stage 3: 1
- Stage 4: 0
- Stage 5: 0
# Population Pyramids

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<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
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<td>Wallerstein:</td>
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</tbody>
</table>
## Challenges and Opportunities/Advantages of Two Countries

<table>
<thead>
<tr>
<th>Country # 1</th>
<th>Country # 2:</th>
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<tbody>
<tr>
<td><strong>Stage of DTM:</strong></td>
<td><strong>Stage of DTM:</strong></td>
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</tbody>
</table>
# Rubric for Demographic Transition Model (DTM)

**Student:** ______________________________________________________

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Developing</th>
<th>Proficient</th>
<th>Exceeds Proficiency</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Demographic Transition Model</strong></td>
<td>Diagram is not accurately drawn with incorrect identification of CBR, CDR and NIR for each stage; CBR, CDR and NIR rate lines are not all accurately drawn and are incorrectly labeled.</td>
<td>Diagram is drawn with correct identification of CBR, CDR and NIR for each stage; CBR, CDR and NIR rate lines are drawn in using the same colors and accurately labeled. Drawing is mostly accurate.</td>
<td>Diagram is accurately drawn with correct identification of CBR, CDR and NIR for each stage; CBR, CDR and NIR rate lines are accurately drawn using different colors and accurately labeled.</td>
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<td><strong>2. Population Pyramids</strong></td>
<td>Selected population pyramids do not accurately represent each stage and do not demonstrate an accurate understanding of the connection between population pyramids and the Demographic Transition Model.</td>
<td>Selected population pyramids are accurate for each stage, demonstrating an accurate understanding of the connection between population pyramids and the Demographic Transition Model but more accurate examples could have been selected.</td>
<td>Selected population pyramids are extremely accurate for each stage, demonstrating an accurate understanding of the connection between population pyramids and the Demographic Transition Model.</td>
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<tr>
<td><strong>3. Stages of Wallerstein and Rostow</strong></td>
<td>Responses show student’s inability to use economic and population data to determine the correct level of development for a country based on Rostow’s model. The student was able to place countries in Wallerstein’s tiered world system theory.</td>
<td>Responses show student’s ability to use economic and population data to determine the level of development for a country based on Rostow’s model. Student was able to place countries in Wallerstein’s tiered world system theory. Placement of countries in theories was mostly accurate.</td>
<td>Responses show student’s ability to accurately use economic and population data to determine the correct level of development for a country based on Rostow’s model. Student was also accurate in their placement of countries in Wallerstein’s tiered world system theory.</td>
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<td><strong>4. Economic Indicators</strong></td>
<td>Three economic indicators were accurately identified for each country but were not accurately used to identify the level of development for each country discussed.</td>
<td>Three economic indicators were accurately identified for each country and two of them were accurately used to identify the level of development for each country discussed.</td>
<td>Three economic indicators were accurately identified for each country and were accurately used to identify the level of development for each country discussed.</td>
<td>5</td>
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<tr>
<td><strong>5. Challenges and Potentials/Benefits Paragraphs</strong></td>
<td>Little information was provided on the challenges and benefits found in two stages of the Demographic Transition Model. Information provided demonstrates a limited understanding of the Demographic Transition Model, population pyramid, Rostow’s Theory and Wallerstein’s world systems theory.</td>
<td>The challenges and benefits found in two stages of the Demographic Transition Model were described but could have been explained more clearly, which demonstrated a basic understanding of the Demographic Transition Model, population pyramids, Rostow’s Theory and Wallerstein’s world systems theory.</td>
<td>The challenges and benefits found in two stages of the Demographic Transition Model were accurately described, in great detail, which demonstrates an in-depth understanding of the Demographic Transition Model, population pyramids, Rostow’s Theory and Wallerstein’s world systems theory.</td>
<td>4</td>
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**Comments**

Overall score out of 35