

Population Project  
Compare/Contrast Essay

You will generate a 4-paragraph essay comparing and contrasting the linear and exponential models of Germany's declining population that you created in math class. You will consider the graphs themselves as well as their real-world implications. Although your interpretations may vary (like the graphs themselves), your format should follow the outline below:

**Introduction:** Introduce the problem being investigated. Use your *New York Times* article to provide context. End with a thesis statement regarding the linear and exponential models.

**Body Paragraphs:** Each paragraph should focus on explaining one of the models. In each paragraph, address the following question:

- What does the model suggest in terms of the future of Germany's population? Account for the presence or absence of an x intercept as well as the rate of decline suggested by the model.

**Conclusion:** Pull together all of the information you have explored to draw conclusions about the significance of this problem. Be sure to answer the following questions:

- What is the value of comparing and contrasting the projections of these models?
- How are these math problems relevant to real people? You might consider large scale implications (economical, social, political) and/or small scale implications (daily life in Germany).

**Grading:** This essay will earn you a grade in both Math class and Language Arts class. Mrs. Karim will be grading you on your content and mathematical vocabulary for a total of 20 points. Mrs. Vitek will be grading you on your communication for a total of 25 points. See your separate rubric for more details.

Population Project Compare/Contrast Essay  
Rubric

**Mathematical Concepts (10 points for Math class)**

9-10	Overall, student demonstrates a <b>strong</b> understanding of linear and exponential functions and solves the problem correctly. The student addresses <b>all</b> mathematical aspects of the prompt.
7-8	Overall, student demonstrates a <b>good</b> understanding of linear and exponential functions and solves the problem correctly. The student addresses <b>all</b> mathematical aspects of the prompt.
4-6	Overall, student demonstrates a <b>partial</b> understanding of linear and exponential functions. Student solves the problem correctly, but strategy may have <b>some errors</b> . The students may not have addressed all mathematical aspects of the prompt.
1-3	Overall, student demonstrates a <b>lack of understanding</b> of linear and exponential functions. Student has not solved the problem correctly or has <b>major errors</b> in strategy. The student is missing significant mathematical aspects of the prompt.

**Mathematical Vocabulary (10 points for Math class)**

9-10	Student uses <b>all</b> mathematical vocabulary appropriately.
7-8	Student uses <b>most</b> mathematical vocabulary appropriately.
4-6	Student uses <b>some</b> mathematical vocabulary appropriately.
1-3	Student is <b>missing</b> significant mathematical vocabulary and/or has used most vocabulary <b>inappropriately</b> .

Total: \_\_\_\_\_/20

**Mathematical Communication (25 points for Language Arts class)**

**Introduction: \_\_\_\_\_/5**

Introduces and provides context for the population problem (3)

Ends with a thesis statement regarding linear and exponential models (2)

**1st Body Paragraph: \_\_\_\_\_/5**

Begins with an effective topic sentence (1)

Clearly explains the model and its implications (4)

**2nd Body Paragraph: \_\_\_\_\_/5**

Begins with an effective topic sentence (1)

Clearly explains the model and its implications (4)

**Conclusion: \_\_\_\_\_/5**

Summarizes the population problem by synthesizing the two models in order to create meaning(5)

**Mechanics: \_\_\_\_\_/5**

Uses effective transitions to organize ideas (2)

Provides a cohesive explanation of the population problem and its implications (2)

Correct spelling and punctuation (1)

**Total: \_\_\_\_\_ 25**