

Mathematics 30-2 Mathematics Research Project

World Population Growth

In 2012, the world population surpassed 7 billion people.

http://chesterfields.me.uk/wp-content/uploads/2010/12/New_York_City_Gridlock-240x300.jpg

Some people feel that the population is growing too fast, and that our resources aren't sufficient to sustain us on this planet, given our current growth rate. Others believe that the growth is leveling off.

Your Task

Collect Data and Validate Sources

- Research the historical growth of the population on earth.
- Justify the validity of your sources.
- Research what the experts are saying.

Analyze and Present Data

- You might want to graph this data. Are there any trends? Can you make any predictions about population growth?
- Does your prediction match the experts? What factors need to be considered in making these predictions? What factors will influence whether the predictions prove

to be correct? Present Multiple Sides

- Identify any controversies and present multiple sides of the issue with supporting data. You might look at questions like (but not limited to): Are our resources sufficient to support our population growth? What controversies surround population growth?

Present Research Project

- Present your project in a format approved by your teacher.

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Student Planning Guide – Mathematics 30-2 Mathematics Research Project

Name _____

Planning Guide

This planning guide will help you organize and prepare your mathematics research project. It will help you meet all of the criteria required of this project.

Step 1 - Choosing an Appropriate Topic

Choose a topic that involves mathematics and that is of interest to you. In the space below, briefly describe your topic and the mathematics involved. Share your topic with your teacher before beginning your research. Your teacher and/or your classmates can help you come up with an appropriate topic if you can't think of anything.

My Topic:

Mathematics Involved:

Step 2 - Conducting Your Research

You will need to find data related to your topic to analyze and interpret. This data may be informational or statistical in nature. You need to access your data from more than one source so that you can compare and evaluate the validity of the sources.

Where will you go to find the information/data you need? Is it readily available? Explain.

Once you have found the information/data, explain how you know the data is valid.

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Basic Expectations of a Research Project

- The topic is appropriate
- The sources are identified and evaluated
- The data is analyzed and interpreted
- The project is presented

Step 3 - Interpreting the Data

Interpret your data. It is possible that a mathematical interpretation of your data will require mathematics you haven't studied yet. If that is the case, please see your teacher for help.

Mathematical calculations are not the focus of this research project. Your interpretation is what will be assessed.

How will you present your interpretation of this data? Some data might be displayed in a graph. Other data might be presented in a chart or by showing your calculations. Provide a brief description of your interpretation of the data below.

Did you encounter any controversies or multiple points of view in your research? If so, explain below what those are.

Step 4 - Preparing Your Presentation

You now have your topic, data, and an idea about how to interpret that data. Your next step is to prepare your presentation. You may wish to use:

- Prezi
- PowerPoint
- Oral presentation
- Poster
- Written Summary

Please check with your teacher as to what types of presentation will be acceptable in your class. Describe below how you will present your findings. Then get to work building your presentation.

Your presentation must include:

- Your topic
- Your data
- An analysis of the validity of your data sources
- A description of the multiple points of view and controversies, if applicable
- An interpretation of your data including any predictions and conclusions you can reach

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Rubric: Mathematics Research Project

Student _____ Date _____

Level Criteria	Excellent	Proficient	Adequate	Limited *	Insufficient/ Blank *

Collect primary or secondary data related to the topic (MRP 1) [CN, V]	Collects data that is pertinent and conclusively establishes the trend.	Collects data that is relevant and substantially establishes the trend.	Collects data that is suitable and generally establishes the trend.	Collects data that is irrelevant and does little to establish the trend.	No score is awarded because there is insufficient evidence of student performance based on the requirements of the assessment task.
Interpret the Data (MRP 1) [ME, PS, R, V, T]	Provides an astute interpretation of the data.	Provides a credible interpretation of the data.	Provides a rudimentary interpretation of the data.	Provides a flawed interpretation of the data.	
Present multiple sides of the issue with supporting data (MRP 1) [C, CN, R]	Presents multiple sides of issue with precise supporting data.	Presents multiple sides of issue with relevant supporting data.	Presents multiple sides of issue with basic supporting data.	Unable to present multiple sides, or presents multiple sides of issue with flawed supporting data.	

Organize and present the research project (MRP 1) [C, CN]	Organizes and presents the research in a purposeful and compelling manner.	Organizes and presents the research in a logical and effective manner.	Organizes and presents the research in a reasonable and simplistic manner.	Organizes and presents the research in a disorganized and ineffective manner.	
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Criteria	Description of Criteria	Yes	Not Yet	Teacher Comment
Assess the accuracy, reliability and relevance of the sources of the data collected (MRP 1) [C, CN, PS, ME, R]	The student has critically analyzed the sources of data and discussed their accuracy and reliability.			

• When work is judged to be limited or insufficient, the teacher makes decisions about appropriate intervention to help the student improve.

Assess the accuracy, reliability and relevance of the sources of the data collected.

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Record specific evidence obtained from your source of data. After you review the source (website, book, magazine, etc.), draw a conclusion about the usefulness of this source for your research project.

Source Reviewed:

	Criteria	Specific Evidence Gathered from the Source
	Are you able to determine whether the author is: • knowledgeable on the topic? • affiliated with a reputable organization? • aware of his/her specific perspective or bias?	
	Does the information in the source: • refer to credible evidence and research?	
	Does the source provide details about: • where the information came from? • how the statistics were collected?	
	Has the source been: • updated or reviewed recently?	
Is this source a credible one to use in your research project? Provide support for your conclusion.		

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Currency Citing Consulting with Exploring

Experts

Sources Authorship

