

Looking at Math's Past

October 2015 7th Grade Math Project

One way to view mathematics is to see it as a tool, a means of expressing quantities and values. As such a tool, math is reflected in a society's economy, customs and routines. For example, in the 1930s, the cost for spending an afternoon in a movie theater was about a dime (often to see a double feature). Today the cost is much, much more and counting. The increase in ticket prices is an indication of change in our society. Change is frequently shown through a comparison of numbers.

Our classes also have students who come from various backgrounds. You will be exploring the country of your ethnic origins from a mathematical perspective.

In this project, you will view the past through numbers, gaining an appreciation of how our society has changed over the years. You also will see the value of math when investigating the country from where your family came.

GOAL:

Working individually, you will interview a senior citizen, preferably a relative, about what life was like when they were young. You will also research a country of your ethnic origin and use mathematics to describe it.

Finished Product:

When you are finished, you will have completed the following items:

1. Interview questions and answers
2. Reflection about the interview answers
3. Country Fact Sheet

DUE FRIDAY, OCTOBER 30

This project has been adapted from *Hands-On Math Projects* by Muschla & Muschla, copyright 2006.

Interview Questions

You may write the answers on this page or on a separate page.

What was the pay per hour (or salary) of your first job? What was your job and what were your responsibilities.

What was the price of a gallon of gasoline?

What was the cost of a new car? What was your first car?

What was the price of a new house? What was the cost of renting an apartment?

What were the prices of clothing, shoes and food?

What did people do for entertainment when were you young? How much did this cost?
What was considered a fun activity?

What kind of math did you learn in school? How much math homework did you receive? What was our math class like? How did you figure out answers to long or difficult problems?

Did you ever need math on a job? In what ways?

In what ways have you seen mathematics change during your life?

What surprises you about math's role in society now?

Write your own question.

STUDENT GUIDE 16.1

An Interview to Math's Past



Situation/Problem

To find out the role mathematics played in the past, you are to interview a senior citizen. After your interview, you will present your findings to the class in a short oral report.

Possible Strategies

1. Decide who you will interview. A grandfather, grandmother, great-uncle, or great-aunt will have spent his or her youth at a time when life was quite different from today. If you are unable to interview a relative, consider interviewing an older close friend of the family. Do not interview anyone without your parent or guardian's permission.
2. Determine in advance the time period your interview will focus on. This will help you ask questions that will provide you with information about the role math played in society at that time. Consult print and online sources to learn about the time period.

Special Considerations

- Since the focus of your interview will be on mathematics, your questions should zero in on math. Following are some areas you might like to explore with your interviewee:
 - What was the pay per hour (or the salary) of your first job? What was your job, and what were your responsibilities?
 - What was the price of a gallon of gasoline?
 - What was the cost of a new car?
 - What was the price of a new house? What was the cost of renting an apartment?
 - What were the prices of clothing, shoes, and food?
 - What did people do for entertainment when you were young? How much did this cost? What was considered a fun activity?

An Interview to Math's Past *(Cont'd.)*

What kind of math did you learn in school? How much math homework did you receive? What was your math class like? How did you figure out answers to long or difficult problems?

Did you ever need to use math on a job? If yes, in what way?

In what ways have you seen mathematics change during your life?

What surprises you about math's role in society now?

- Add your own questions to those listed above.
- Pay close attention to major events that might have influenced the life of your interviewee. The Great Depression and World War II, for example, affected countless people. If they did affect your interviewee, find out how.
- Refer to Data Sheet 16.2 for advice on how to conduct an effective interview.
- In organizing your notes, compare the math facts of the past to the uses of math today. Look for similarities and differences. Note any major changes.
- In preparing your oral presentation, use note cards to help you remember important facts. Be sure to number your cards.
- If your teacher puts a time limit on your presentation, make sure that your talk fits into the allotted time. Rehearse your report; time yourself if necessary.

To Be Submitted

Your note cards.

Rough Notes

Name _____

DATA SHEET 16.2

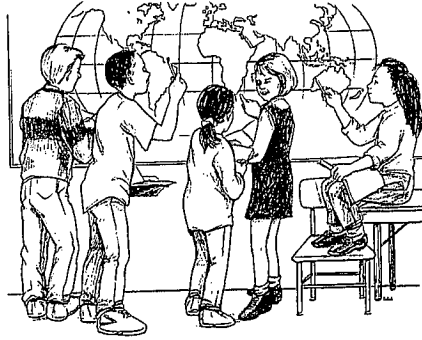
Tips for Conducting Effective Interviews

You can learn much valuable information about a topic during an interview. Following are some suggestions that will help you to get the most out of any interview you conduct.

- Think about who is best able to give you the information you are looking for.
- Learn as much about the subject in advance as you can. This will help you to formulate questions that will provide you with useful information.
- Think of questions before the interview, and write them down. Use questions that require explanations. Avoid questions that can be answered with a simple yes or no.
- Be ready to ask a follow-up question to clarify or expand an answer you receive.
- If you are not sure about an answer, ask for an explanation.
- Consider recording your interview on a tape recorder. Keep in mind that some people do not like to be recorded. Ask first. If they object, do not use a recorder. If they do not mind, be sure you have a clean tape and fresh batteries. (Take along a pen and pad just in case.)
- If you are taking notes with a pen and pad, do not try to write down everything your interviewee says. Focus on the main points. Use your own personal shorthand of abbreviations. For example, *John* is J, *math* is m, and *and* is +. Inventing your own codes will help you to take notes quickly.
- For important facts or statements, try to write down the person's exact words. You can quote the person after the interview. Whenever writing a person's exact words, be sure to use quotation marks.
- After you have asked your questions, end the interview by thanking the interviewee for his or her time. Do not keep the interview running after it is done. Writing a thank-you note a few days later is a nice gesture.

STUDENT GUIDE 18.1

Lands of Ethnic Origins: A Statistical Potpourri



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Situation/Problem

You are to research the country of your ethnic origin from a mathematical perspective. When you are done with your research, you are to create a fact sheet highlighting the information you found.

Possible Strategies

1. If you are from several ethnic backgrounds, select the country you would most like to learn about.
2. Consult books and online sources that contain information about your country, and focus on information that is expressed in numbers. See Data Sheet 18.2 for examples.

Special Considerations

- Take accurate notes. List your sources on your notes. This is helpful should you need to recheck some facts. It is also helpful because you must include your sources on the fact sheet.
- After completing your research, make a rough copy of your fact sheet. Create a design that is easy to read and attractive. Consider how you would like to organize your information. You might organize your facts according to major categories, alphabetically, or numerically in order of size.
- Consider designing your fact sheet on a computer and printing the sheet. If you design the fact sheet by hand, use rulers to draw straight lines on the sheet.
- Use markers or felt-tipped pens for final copies. Correction fluid is useful if you make a mistake.
- You might want to include a drawing of your country's flag or a map of your country.
- Be sure to include your sources of information at the bottom of your fact sheet.

To Be Submitted

1. Notes
2. Fact sheet

Name _____

DATA SHEET 18.2

Tips for Creating a Country's Fact Profile Sheet

The following categories are often expressed in mathematics. Note that these are just a sample. There are many others.

General Facts

- Population
- Number of states or provinces
- Number of major cities and their populations
- Largest and smallest cities
- Percentage of people living in cities
- Percentage of people living in specific regions
- Number of major newspapers
- Number of major religions
 - Percentage of people belonging to each religion
- Education
 - Number of elementary schools
 - Number of secondary schools
 - Number of universities
 - Number of school-age children
 - Literacy rate
- Currency (U.S. equivalent)
- Size of armed forces
 - Army, navy, air force
- Number of languages
 - Percentage of people speaking each
- Government
 - Number of major bodies
 - Number of members
- Political parties
 - Percentage of population belonging to each

Tips for Creating a Country's Fact Profile Sheet *(Cont'd.)*

Geography

- Latitude and longitude
- Time zone
- Area
- General elevation
 - Highest mountain
 - Lowest place
- Longest river
- Largest lake
- Percentage of forested land
- Land use facts

Climate

- Number of climate zones
- Average annual and monthly temperature
- Average annual and monthly precipitation
- Average annual snowfall
- Average summer temperature
- Average winter temperature
- Noteworthy weather facts

Economy

- Gross national product
- Per capita income
- Employment rate
- Percentages of white-collar, manufacturing, and service occupations
- Average length of workweek
- Amount of national debt (or surplus)
- Imports
 - Total value and major types
- Exports
 - Total value and major types
- Percentage of land used for farming
- Energy
 - Types and amounts

NAME:

POINTS EARNED:

	20 points	15 points	10 points	5 points	0 points
Interview Questions and Answers	Interview questions and answers are written in complete sentences. You thought of at least one question of your own.	Interview questions are confusing or answers are not written in complete sentences. You did not come up with your own questions.	Answers are not in complete sentences. You did not come up with your own questions.	Interview is not complete.	Interview is missing.
Interview Reflection	Reflection is written in complete sentences and is one paragraph of 5-6 sentences or longer.	Reflection is written in complete sentences but is shorter than one paragraph of 5-6 sentences.	Reflection is not in complete sentences.	Reflection is confusing to read.	Reflection is missing
Country Fact Sheet	Fact sheet is written in complete sentences with sources cited. At least 20 facts given.	Fact sheet is written in complete sentences without sources cited. Less than 20 facts given.	Fact sheet is not in complete sentences, sources not cited, few facts given.	Fact sheet is incomplete and confusing.	Fact sheet is missing

Comments: