

This file is being posted on the Rethinking Schools Web site (www.rethinkingschools.org) to accompany "Math, Maps, and Misrepresentation," by Eric Gutstein, which appears on p. 112 of *Rethinking Our Classrooms, Volume 2*.

Real-World Projects

The following is a brief, chronological list of the projects done by my students in mathematics class in seventh and eighth grade. Each project has a short description, a summary of the mathematics involved, and the specific writing students had to do.

1) Who is the INS arresting? Students read a newspaper article about the disproportionate number of Mexicans the INS was arresting, relative to the national-origin percentages of undocumented people in the area. The mathematics included percentages, ratio, and proportion, and students also had to pose their own mathematical problems based on the article. Students had to write about their view of the INS policy.

2) Morningside Park to be paved for condo parking lot. Students read a newspaper article about a developer who wanted permission from the city to raze a small park in order to build secured parking spaces for his condominium development. They had to use two maps with two different scales (one of which was not included) to determine distance and time between various landmarks. Mathematics included also ratio and measurement. Students had to write about whether the condo developer should be allowed to raze the park.

3) Growth of Latino population in the metropolitan area. Students read a newspaper article about this and had to use percentages and read graphs to answer (and pose) several questions. They had to write about the social implications of the changing demographics.

4) "Tomato pickers take on the growers." Students read a *New York Times* article by this name, about the struggles of farmworkers (mainly immigrant, mainly Latino) to maintain wages and how their wages had gone down over 20 years, even without taking inflation into account. Mathematical ideas included COLA, absolute/relative comparisons, percentages, graphing, and inflation-adjustments. Students had to write about what they would do if they were in the shoes of the workers in the article.

5) Developing surveys (year 1). Students developed and conducted their own surveys in small groups on meaningful topics (i.e., serious and non-trivial). These included abortion (two groups), gay marriage, Darwin's theory of evolution, teen pregnancy, and discrimination against Latinos. Each group had to survey from 80-100 people, make graphs, present findings, propose open research questions, write conclusions, and justify their choices along the way.

6) Will development bury the Barrio? Students read a long feature article about development in the school neighborhood. Mathematics included using

percentages, compound interest, ratio, and proportion. Students had to write about whether or not development would destroy the community.

7) Racism in housing data? (Part 1). Students were given the 1997 median house price of the most expensive suburb in the area and asked if racism was a factor. Students had to describe and hypothesize data that would lead them to conclude that racism was a factor, and data that would lead them to conclude racism was not a factor. Mathematics included data analysis, percentages, and problem-posing.

8) SAT data. Students were given 1997 SAT and ACT scores, disaggregated by race, gender, and income level. Students had to analyze correlations, create scatterplots, and write a letter to the Educational Testing Service raising questions and/or giving their opinions.

9) World wealth simulation (from Peterson, 1995). Students used data on wealth and population by continent to distribute cookies (“wealth”) to people in the classroom (“continents”). Mathematics included determining percentages, absolute/relative comparisons, ratio, and proportion. Students had to write their thoughts on the distribution.

10) “We are not a minority” (from Frankenstein, 1997). Students looked at a photo of a billboard which showed a Latino male with this statement. They had to write about how mathematics entered into the picture. After writing, the class analyzed world population by race and discovered that people of color constitute a large majority of the world’s population.

11) Watch ad. Students read a newspaper advertisement for a watch that ranged up to \$26,125. They had to write a creative piece about the watch and its price, using mathematics at the level of at least eighth grade, and have their opinion about the watch and ad come through in the piece.

12) Fair advertising (Barnes & Noble advertisement). Students read a newspaper advertisement which used graphical representations to show volume of books owned by Barnes & Nobles and a competitor. Students had to define what a “fair ad” was, then had to analyze the advertisement to determine whether the ad was fair, give justifications for their decisions, and if they believed the ad to be unfair, create a new ad that would make it fair. Mathematics included measurement, geometry, percentages, ratio and proportions, and graphing.

13) U.S. wealth simulation. Students used data on the wealthiest 1%, next 19%, and bottom 80% of the U.S. population to distribute cookies to themselves (representing the three groupings) by the wealth percentage for each group. Mathematics included percentages, absolute/relative comparisons, ratios, and data analysis. Students had to write about their thoughts on the U.S. wealth distribution and how it compared to the world wealth distribution, and also whether using mathematics was necessary for them to understand the ideas.

14) Developing surveys (year 2). Similar to year 1, but in greater depth.

15) Peters versus Mercator map projections. Students used measurement to estimate areas on Mercator maps, then compare to actual areas. They did the same with the Peters projection map. Mathematics included geometry, ratio, measurement, and scaling. Students wrote about the different maps. (Described in accompanying article.)

16) Racism in housing data? (part II) Students analyzed data from almost 200 metropolitan suburbs to correlate house prices with racial composition of the suburb. Mathematics included data analysis and graphing. They had to graph, use scatterplots, find correlations, and then write and justify about whether or not they believed racism to be a factor in their data, and if so, how and why.

17) The Mathematics of Random Drug Testing. Students simulated a situation where school officials had a very accurate drug test and a small percentage of students were using drugs. They then looked at the probability that a randomly chosen student who tested positive was really using drugs. Mathematics included probability, expected value, randomness, and statistical reliability.

— E.G.
