

STOCK MARKET GAME Fall 2005

My goal for the CMST Challenge Project was to come up with a fun and practical project for students. Most mathematics teachers that I have spoken with have faced the same challenges in the classroom. That is, our students are always asking for relevancy of the material that they are learning to their lives. I felt that by participating in a project like the Democrat & Chronicle Stock Market game, I would be supporting the mathematics curriculum of our students in a fun way that would also give them “real-world” connections.

Expanding upon the problem of relevancy, over the course of their lives most of our students today will be either participating in a retirement program such as a 401k, 403 or similar program through their place of employment, or will be setting up an IRA of some kind for their retirement. If we can give the students some of the basics that are involved in investing, they will be more prepared to make educated decisions about their investments in their future retirement.

Through our participation in the Democrat & Chronicle Stock Market Simulation, each team was provided with seed money of \$100,000 in order to make their “trades”. We were provided with newspapers to inform us the business news and a web site portal where we were able to make our stock trades, maintain our accounts, and perform research on any companies we considered for investment.

The students seemed genuinely excited about participation in the game and the responses we received back from the parents supported the relevancy of the topic. The Stock Market Game was run over the months of October – December 2005, and our students competed with teams throughout the state of New York. Our middle school team was one of 48 teams competing in the 7th – 9th grade level, and our senior high team, grades 10 – 12th, competed in a pool of 138 teams.

Some of the problems encountered were:

- Senior high students who were over booked in other clubs and activities
- Initial response of middle school students was poor
- Reading the business news in order to understand relevant topics and their effect on companies and business in general

- How to decide what in which companies to invest
- How to read and decipher information about a company gleaned from a web site or other internet sources.
- Making our graphs with Excel and then changing labels
- For the 7th graders to learn to use the graphing calculator
- Evaluating our results for short or long term investment

Each of the above mentioned problems of course was just another opportunity. The initial problem that most of my senior high students were overbooked with other activities led to some offline work with some of them and the desire of them to participate in the spring session when their schedules could better accommodate participation. This also led to a more concerted effort to recruit middle school students and I garnered support from the middle school math teachers who would provide extra credit to those students who actively participated.

Reading the business news to understand how the information given could affect us, our families, and our economy in general was a task we had to work with on a weekly basis. By bringing in another teacher who was a former stock trader we were able to assist the students from the standpoint of some of the terminology being used, as well as seeing the practical side of the news. One of the topics that came up was the ripple effect that something like a layoff at a GM plant many states away could have on us in our area. The topic of the relevance of the news was addressed each and every week so that by the end of the program the students were able to see the connections between the economy and themselves.

The problem of deciding on which companies to invest and gathering information off the internet engendered some excellent discussions. From the practical standpoint, we discussed the students own likes and dislikes in products in the marketplace and how that is a very simple way to decide if you may want to invest in a company. We went further by using the news to help decide for long term investments. We discussed how a hurricane could affect the economy in a positive manner by providing work for builders, a greater demand for building supplies, and even effecting mortgages and banking.

The problems of graphing with Excel were easily overcome and the students appreciated the visual representation of the data as they appeared to have a better grasp on stock performance. The senior high student especially saw the practicality of the charts since he was going to be working with a virtual enterprise in the spring and this gave him a head start.

From the standpoint of our competition against other schools in the area, we all had hoped for a better outcome. However, both of our teams finished in about the middle of their respective groups and, they had fun making money, and they saw connections between their curriculum and the real world. They learned the basics of how the stock market works, how to research a company to determine whether it has good potential or not for investing, how to set up a spreadsheet to track data, and how to produce charts to better visualize the results.

The experience was great both for the students and me. The students themselves are already asking when we can start again, and they are bringing some of their friends as well. I believe that by further involving teachers at both levels I can garner better participation, and have already been approached by the senior high PIG teacher that she would like most if not all of her students to participate in the spring.

Some of the curriculum standards that were addressed are as follows:

- 7.PS.4 Observe patterns and formulate generalizations
- 7.CM.3 Organize and accurately label work
- 7.R.1 Use physical objects, drawings, charts, tables, graphs, symbols, equations, or objects created using technology as representations
- 7.N.12 Add, subtract, multiply, and divide integers
- 7.S.6 Read and interpret data represented graphically (pictograph, bar graph, histogram, line graph, double line/bar graphs or circle graph)
- A.CM.2 Use mathematical representations to communicate with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, Venn diagrams, and other diagrams

- A.CN.1 Understand and make connections among multiple representations of the same mathematical idea
- A.CN.6 Recognize and apply mathematics to situations in the outside world
- G.PS.2 Observe and explain patterns to formulate generalizations and conjectures