

SMART PROJECTS

A CATALOG OF WONDERFUL THINGS
TO DO WITH KIDS AND COMPUTERS

Mathematics

Office of Instructional Technology

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version 3

Introduction

During the 1998-1999 school year, Project Smart Schools sent out a call to every 6-8th grade school teacher: Show Us Your Stuff! The feedback was overwhelming: we received so many submissions of student and class work that it took almost one year to sort through it all and compile this catalog. Every “Smart Project” demonstrates how to integrate the Project Smart Schools computers into the middle school curriculum. Not all of the software mentioned herein are Project Smart Schools titles, but the great majority of the projects can be completed using the original bundled software: ClarisWorks, HyperStudio, and CD-ROM Encyclopedia.

The projects in this catalog are categorized by subject:

- Language Arts (English, Spanish, etc.);
- Mathematics;
- Social Studies;
- Science;
- Art; and
- Interdisciplinary (Social Studies/Art, Language Arts/Math, etc.).

A sample of student work is included with each project; some of the student work was originally created in color, but submitted to us in grayscale format (the students may have retained the original work). Also, keep in mind that many HyperStudio (i.e., multimedia) projects were never meant to be printed out on paper; much of their “bells and whistles” has to be imagined. Also, photographs of students have been intentionally blurred and student names and classes have been deleted.

For information on how to make HyperStudio stacks, ClarisWorks slide shows and other computer activities, download printable handouts from our web site, <http://www.nycenet.edu/oit>. Teachers’ telephone numbers are included with their projects for those readers desiring additional information.

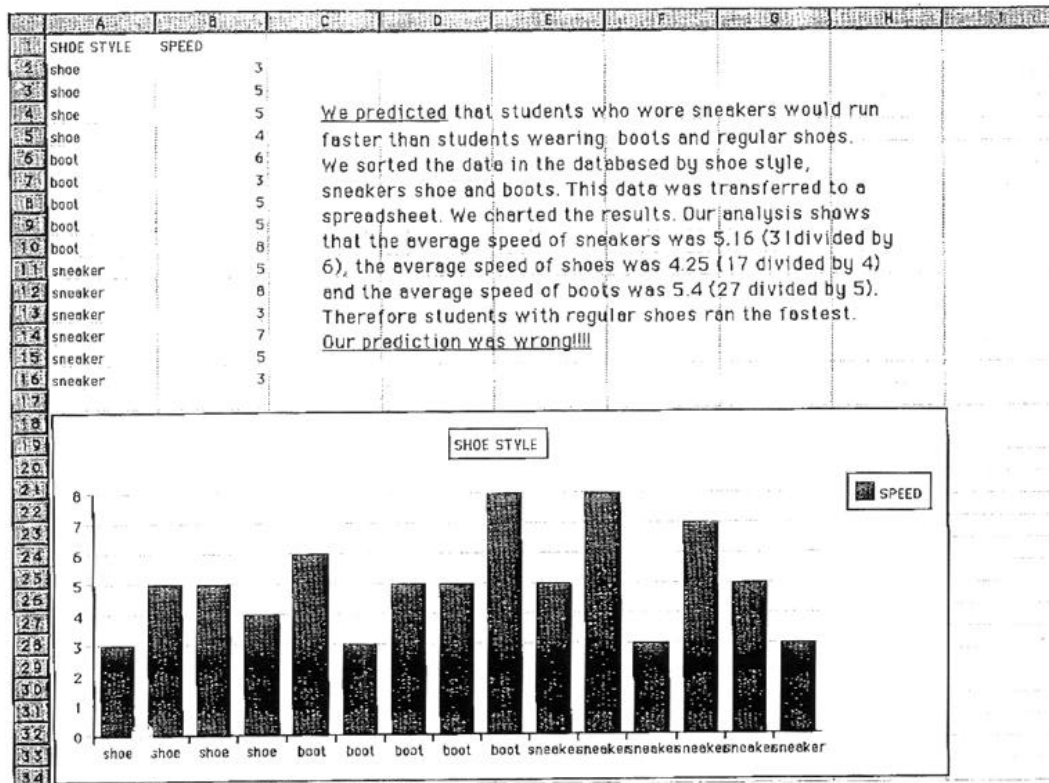
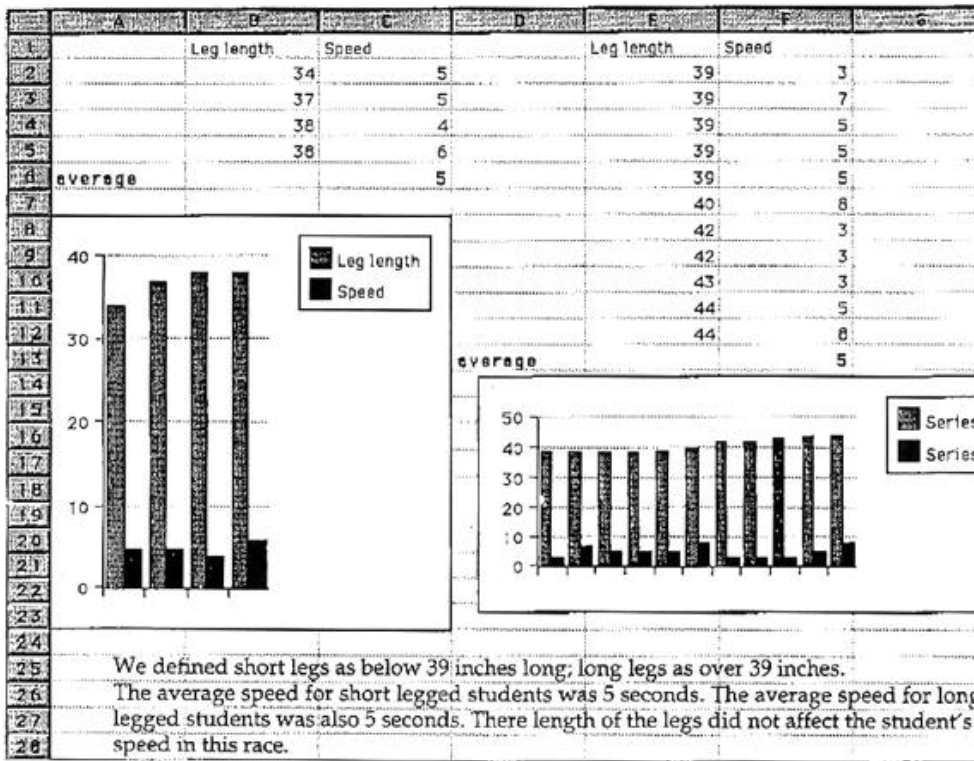
If any reader knows of a teacher whose Project Smart Schools classroom activities deserve to be included in this catalog – and disseminated to teachers across New York City – please contact us. Our email address is oit@fc1.nycenet.edu.

Best wishes (and practices!)

Mark Gura
Director
Office of Instructional Technology

Exemplary Projects: Mathematics

TITLE:	A Virtual Foot Race
TEACHER:	Antonio Pozo
DISTRICT:	CSD 9
SCHOOL:	IS 148
SUMMARY:	<p>“Graphs are a very mathematical way to help students learn and understand motion. When I was given ClarisWorks for my classroom, I saw a chance for my students to learn what motion is, using computers to draw graphs. At the same time my students also learned how mathematical measurements of motion can be used to represent a class race.</p> <p>“I had students analyze each student’s speed of running the race using three factors: gender, leg length and shoe style. Before each student ran, the class made predictions based on these three factors. They learned the proper skills for using spreadsheets and how this was important if they wanted to accurately represent their predictions and results. If you have any questions, I can be reached at (718) 681-7120.”</p>
PRODUCT:	The students are producing graphs of a class race.
STANDARDS:	M7b.
CURRICULUM CONNECTION:	Student uses mathematical communication to organize work, explain a solution in writing, and make meaning clear to the audience.
SOFTWARE:	ClarisWorks (word processing, spreadsheet, graphs).
IMPLEMENTATION TIPS:	Conduct races with class and have students use graphs and tables to represent results.
TIMELINE:	The entire school year.



TITLE:	International Food Fair
TEACHER:	Karen Halpern
DISTRICT:	CSD 11
SCHOOL:	MS 135
SUMMARY:	<p>“To help link math with ‘real life’ experience, I decided to devise a spread sheet and held an International Food Fair as a basis for the spread sheet.</p> <p>“To make the Food Fair into a math project, I asked students to select their favorite food, write out the recipe and list all the ingredients needed to make the dish. My students had to tell me how many people the dish would serve after I showed them how to double and half the ingredients.</p> <p>“We then devised a food-fair spreadsheet. I divided the students into with cooperative groups of four. Each group helped to input the algebraic formulas and create the spreadsheet for correct ingredient amounts for each recipe. If you have any questions, you can reach me at (718) 653-1237.”</p>
PRODUCT:	The students are producing a food-fair spreadsheet as a math project.
STANDARDS:	M1a.
CURRICULUM CONNECTION:	Student consistently and accurately adds, subtract, multiplies and divides rational numbers.
SOFTWARE:	ClarisWorks (spreadsheet, word processing).
IMPLEMENTATION TIPS:	This project was a huge success because it links math with “real life” fun! .
TIMELINE:	This project takes three weeks.

March 7, 1999

Pineapple Cake - Baking Directions

Preparation:

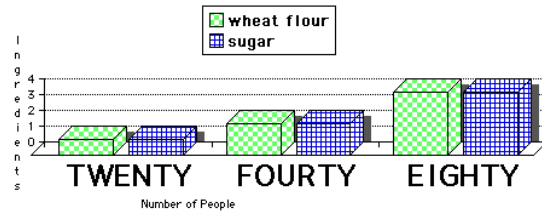
Sift the flour with the baking powder, then put it in the mixer with the butter. Add sugar, leave in the mixer for 15 minutes or until it looks like mayonnaise. Then put in 12 egg yolks. Add 4 oz. of orange juice, 4 oz. milk, and 1 tablespoon of brandy. Add 1 tablespoon of vanilla extract and 2 chopped pineapples. Mix for 2 minutes. Pour everything into a pineapple mold. Place in 350 degree preheated oven for 45 minutes.



Pineapple Cake

# people	TWENTY	FOURTY	EIGHTY
wheat flour	1	2	4
sugar	1	2	4
eggs	1	2	4
milk	4	8	16
orange	4	8	16
baking powder	1	2	4
brandy	1	2	4
vanilla extract	1	2	4
chopped pineapple	2	4	8

Pineapple Cake



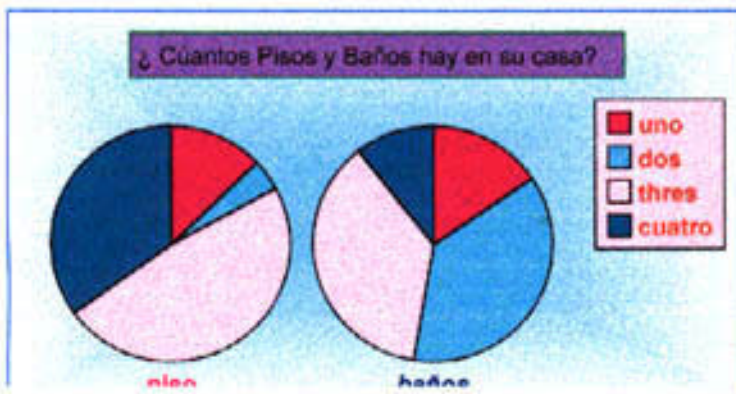
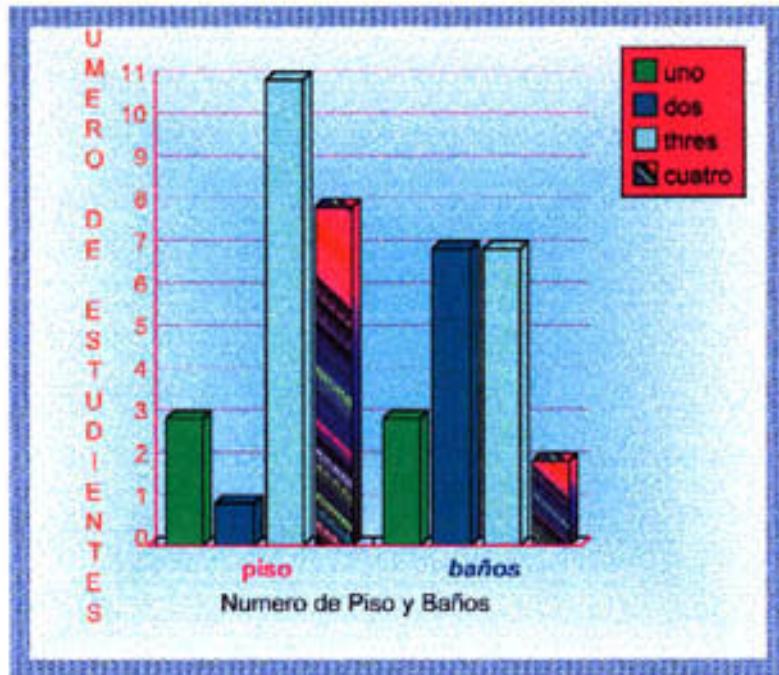
TITLE:	Spanish Survey Spreadsheets
TEACHER:	Millie Sardone and Nick Vento
DISTRICT:	CSD 31
SCHOOL:	IS 2
SUMMARY:	“I had students conduct surveys in both English and Spanish and graph the results. They learned the proper skills for using spreadsheets and how this was important if they wanted to accurately represent their survey results. The students reasoning skills increased and math scores were definitely impacted. If you have any questions, I can be reached at (718) 987-5336.”
PRODUCT:	The student is producing graphs.
STANDARDS:	M7b.
CURRICULUM CONNECTION:	Student uses mathematical communication: Organize work, explain a solution in writing, and use other techniques to make meaning clear to the audience.
SOFTWARE:	ClarisWorks (word processing, spreadsheet, graphs).
IMPLEMENTATION TIPS:	Conduct surveys with class and have students use graphs and tables to represent results.
TIMELINE:	The entire school year.



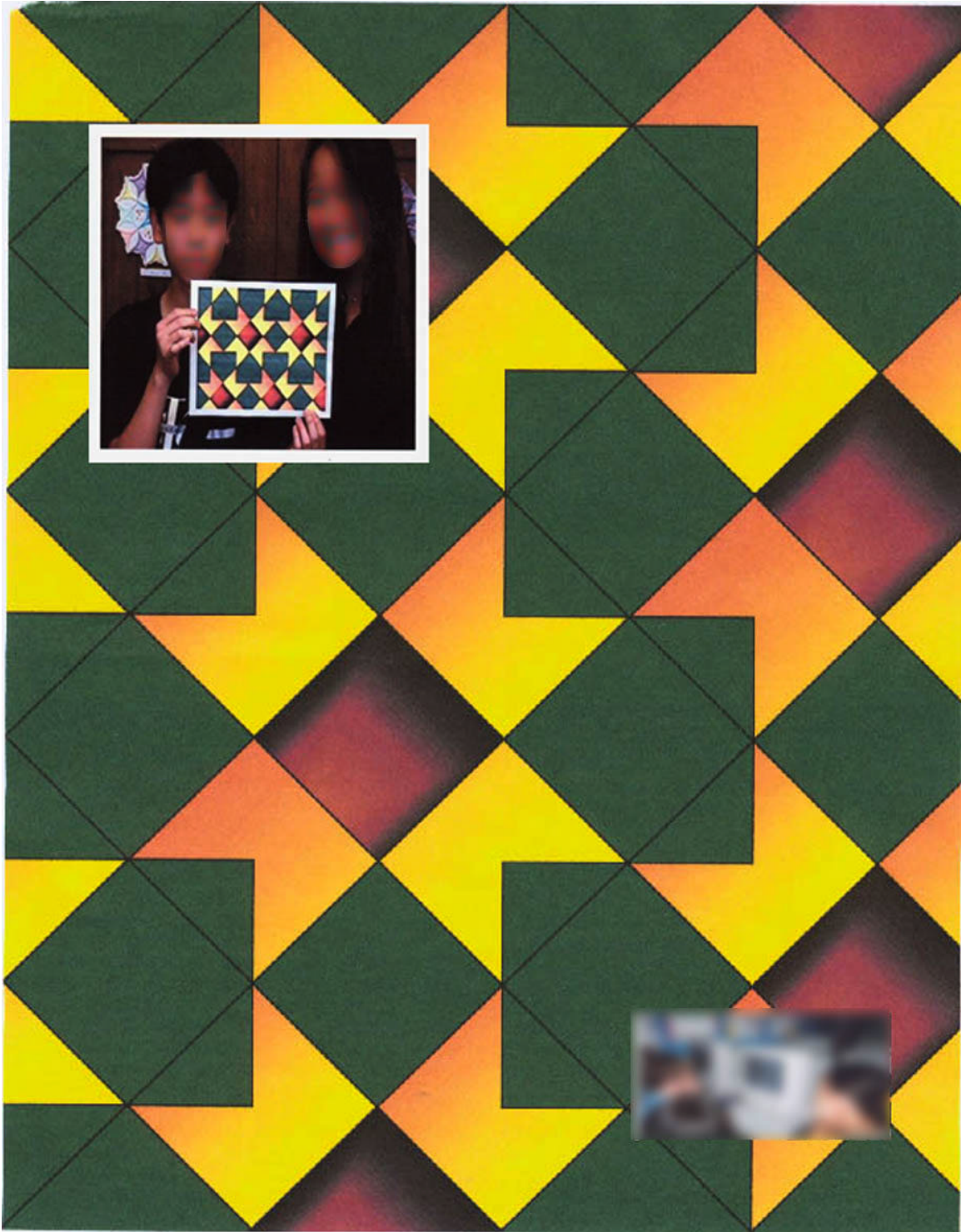
Computer Sci. Tech. 2

April 28, 1999

	A	B	C	D	E
1	<i>¿Cuántos pisos y baños hay en su casa?</i>				
2					
3		<i>piso</i>	<i>baños</i>		
4	<i>uno</i>		3	3	
5	<i>dos</i>		1	7	
6	<i>tres</i>		11	7	
7	<i>cuatro</i>		8	2	
8					



TITLE:	Tessellation
TEACHER:	Mary Burke
DISTRICT:	CSD 30
SCHOOL:	PS 122
SUMMARY:	<p>“To elicit the definition of a tessellation, I showed my students tessellations done as pencil drawings. Once the students defined what a tessellation was, they went on the Internet to explore and expand their definition. I asked them to study the basic shapes M.C. Escher used in his work and come up with a shape they would like to use for their tessellation.</p> <p>“After creating the shape, I had students tessellate using the “copy and paste” option. A perfect facsimile appeared and reappeared, creating tessellation art. Students moved the shape so that it tessellates.</p> <p>“I introduced this project to the entire class and then broke them into groups. Some groups worked, doing parabolas on the computer, some worked doing parabolas using yarn and some did tessellations manually. Students rotated through the various groups. At the completions of the project, the students wrote and illustrated their definition of a tessellation using ClarisWorks. If you want any information please call me at (718) 721-6410 or fax me at (718) 726-0016.”</p>
PRODUCT:	Class produced tessellations.
STANDARDS:	M2d.
CURRICULUM CONNECTION:	Student uses many types of figures.
SOFTWARE:	ClarisWorks (painting, drawing, word processing) and the Internet (research).
IMPLEMENTATION TIPS:	To complete a tessellation, use cut and paste until entire canvas is filled. Make sure the final project tessellates.
TIMELINE:	Two to three class periods.
WWW:	http://www.cs.unc.edu/~davemc/Pic/Escher



TITLE: **The Stock Market**

TEACHER: Lynn Ferrier

DISTRICT: CSD 20

SCHOOL: IS 187

SUMMARY: “I wanted my students to share their knowledge of stock portfolios by producing a report that included appropriate vocabulary and details. Students researched the terminology of the stock market and then put the terminology to work to really understand what the terms meant. They invested play money into five stocks and tracked them over time using Excel. They made stock portfolio slide shows using PowerPoint (students decided what to include).

“When they had finished, each student presented their portfolio report. They then worked in groups to make a class presentation of their portfolios. A HyperStudio stack was used to document and present the class information. After the presentation, groups discussed similarities and differences of the stocks. If you have any questions please call me at (718) 236-3394.”

PRODUCT: The students are producing a report on a stock portfolio and a slide show.

STANDARDS: E2a.

CURRICULUM CONNECTION: The student produces a report.

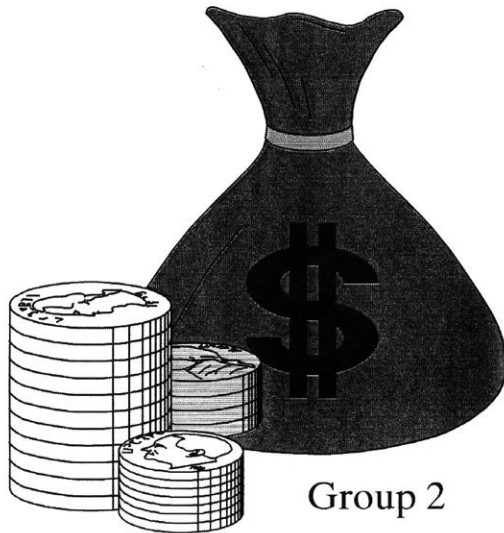
SOFTWARE: ClarisWorks (word processing), HyperStudio (multimedia), Microsoft Excel (spreadsheet), Microsoft PowerPoint (slide show), and the Internet (research).

IMPLEMENTATION

TIPS: Students created a database of fifty companies with which they were familiar.

TIMELINE: This project took five 45-minute periods.

STOCK MARKET GAME



Group 2

REASONS FOR BUYING OUR STOCKS

Our group was always thinking we always knew what we were doing ahead of time and almost never shot an arrow at the news paper and said lets pick that stock. We tried to stay diversified in our stock we were in different areas retail , computer , energy , entertainment , ect,

We bought compac the first day of the stock market game. Our group bought it because We new if was a brand name company that is not in debt and at a reasonable price. This would later turn out to be the best and most profitable stock in our portfolio.

We bought con edison the first day of the game. We bought it because of a tip i had heard on the internet and also geoffery's relative also told him to get it. THIS WAS DUMB!!!! If I learned any thing from this game it's to never really on someone else's tips.

We bought America online also the first day of the game we bought it because it was at a low and i had seen it at 150 before so we new it was a good stock.

JOURNAL

October 12, 1998
It's our first day doing the stockmarket game. We bought 730 shares of Con Edison for \$40,000. Two hundred and nine shares of America on Line for \$25,000. And 833 shares of Compaq for \$20,000.

October 14, 1998
Today we decided what jobs each member of the team was going to have. This is what we came up with:
• Adam-Captain
• Stanley-Researcher
• Cliff-Portfolio/Grapher
• Vanessa-CO-Secretary/CO-Researcher
• Geoffrey-CO-Captain/Researcher
• Lillian-Journalist
• Ariana-Secretary
We also sold 200 shares of Con Edison.

October 19, 1998
Even though we have I.B. on Mondays Mrs.Ferrier decided to write notes on the board .

October 21, 1998
Cliff is not here due to him having to go to the open house and Vanessa is absent today. We sold 300 shares of Con Edison because it's doing bad and we need extra money. Stanley brought in a newspaper because we wanted to know how our stocks were doing. Today we also bought 500 shares of Pepsi.

October 28, 1998
Today we had ten minutes to work on the stock market game. We all decided to sell America on Line with a price limit of 120.

November 4, 1998
Note by captain: Geoffrey and Stanley are helping allot. They are doing more than their share. Lillian is doing a great job with journal and is very helpful in class. She is also typing the journal. Cliff is really trying to help with the portfolio. Everyone is giving good suggestions.

WEEK 9

STOCK-COMPAQ
SHARES-833
COST-\$22074.50
PRICE-\$36.375
GAIN\LOSS-+\$8225.88

STOCK-CONED
SHARES-230
COST-\$12060.74
PRICE-\$51.500
GAIN\LOSS- -\$215.74

STOCK-DISNEY
SHARES-300
COST-\$8868.90
PRICE-\$30.875
GAIN\LOSS-+\$393.60

STOCK-GAP
SHARES-100
COST-\$5075.00
PRICE-\$51.625
GAIN\LOSS-+\$87.50

STOCK-NETSCAPE
SHARES-500
COST-\$18562.50