

How to Establish an In-School 5th Dimension Program

Prepared by

**Torrey Pines Elementary School
La Jolla, California**

and

**University of California, San Diego
La Jolla, California**

January 2001

Having participated in the program for the last two years, I have grown to have a deeper appreciation for the value of it. Not only does it get students interacting with technology in the classroom, but it provides a medium altogether different than the majority of the instruction in the classroom.

4th/5th Grade teacher.

It is an activity that my students and I really look forward to each week.. It offers a completely different approach to learning, using technology and (university undergraduate) tutors. It emphasized good communication and cooperative skills....Computers provide a great medium for students to learn.

5th Grade Teacher

Acknowledgments

The following individuals participated in the development of the 5th Dimension Program - Torrey Pines and in the production of this Guide:

**Michael Cole, Ph.D.
Professor, School of Communication, Director, Laboratory of Comparative Human Cognition, University of California, San Diego**

**Gabriele Wienhausen, Ph.D.
Provost, Sixth College, University of California, San Diego**

**Maria daVenza Tillmanns, Ph.D.
Lecturer, University of California, San Diego**

**Cody Sandifer, MS, Doctoral Candidate
Joint Doctoral Program in Math and Science Education, San Diego State University and the University of California, San Diego**

**Colleen Conaway, Principal,
Torrey Pines Elementary School**

**Anna Lewis,
5th Grade Teacher, Torrey Pines Elementary School**

**Richard Berry,
4th Grade Teacher, Torrey Pines Elementary School**

**David Devore
4th/5th Grade Teacher, Torrey Pines Elementary School**

**Tony Serafin,
4th Grade Teacher, Torrey Pines Elementary School**

**Sharon Zell, MS Bioengineering
Parent, 5th Dimension Coordinator**

**Virginia Gordon, MSEE
Parent, 5th Dimension Co-coordinator**

Table of Contents

I. INTRODUCTION	5
II. HOW TO ESTABLISH AN IN-SCHOOL 5TH DIMENSION PROGRAM	7
A. What is the 5th Dimension?	7
B. How the 5th Dimension Operates	7
C. The “Games”	8
D. Task Cards, Worksheets and Logsheets	9
E. The Rules	11
F. Wiz Mail	13
G. Adult Friends	16
H. Collaborative Learning	18
I. Classroom Management and The Role of The Classroom Teacher	20
J. The Students	21
K. Curriculum	23
L. Materials Required	24
III. APPENDIX A. SAMPLE TASK CARDS AND ACCOMPANYING WORKSHEETS	25
A. Quest of the Aztecs	25
B. BIG SCIENCE COMICS	26
C. BUMPTZ SCIENCE CARNIVAL	28
D. Where in the USA is Carmen San Diego?	32
E. Cleanwater Detectives	37
F. Decimal and Fraction Maze:	41
G. Fraction/Decimal Mania	43
H. Fraction Munchers	45
I. Gizmos and Gadgets	47
J. Grammar Madness	48

K.	INCREDIBLE TOON MACHINE	53
L.	Math Blaster Plus	55
M.	MATH WORKSHOP	58
N.	Midnight Rescue	60
O.	Mighty Math Number Heroes	63
P.	NETSCAPE	67
Q.	NUMBER MAZE	72
R.	Number Munchers	74
S.	OREGON TRAIL	75
T.	Outnumbered	77
U.	Super Munchers	78
V.	SWAMP GAS VISITS AMERICA	79
W.	USA PUZZLE	82

IV. APPENDIX B. SAMPLE CURRICULUM FOR UNIVERSITY CHILD DEVELOPMENT COURSES OFFERING UNDERGRADUATES FIELD WORK OPPORTUNITIES IN ELEMENTARY SCHOOL 5TH DIMENSION PROGRAMS 84

A.	HDP131 5D for Elementary Schools	84
-----------	---	-----------

V. APPENDIX C. CONTACTS FOR FURTHER INFORMATION. 87

I. Introduction

As a teacher, you quickly find out what activities excite students. The mere expression on a face can give you all the information you need when informally assessing the effectiveness of instruction. Whenever we would come back from lunch to begin 5th Dimension, the students would react quickly, grab their folders and perch themselves in their seats, ready for their assignment to a computer. They wanted to get started. It was never, "Ah, do we have to do this?" They liked working with their friends, working on challenging programs, working with university students, and most of all, they liked the ability to explore knowledge using the medium of the computer. I would really hear it, for example, if, for some reason, 5th Dimension would be canceled that day.

4th/5th Grade Teacher

The 5th Dimension-Torrey Pines began in March 1996 as the first collaboration between UCSD and its neighborhood public elementary school. It was also the first *in-school* adaptation of the 5th Dimension *after-school* activity in a public elementary school. In 1996 a group of Torrey Pines Elementary School parents met to forge links with its university neighbor.

The parents were concerned about the large class sizes in 4th and 5th grade of 30 or more students and lack of individualized attention for educationally-at-risk students. They also sought opportunities for gifted and high achieving students, not sufficiently challenged in the traditional classroom setting, to work at higher levels at their own pace.

The parents selected the 5th Dimension activity because it was a successful program that developed cognitive as well as social interaction skills and provided enhanced learning opportunities for children at a variety of levels. Dr. Cole agreed to set up a 10 week trial 5th Dimension program at Torrey Pines and to provide undergraduates from his UCSD Child Development course and assistance from the Laboratory for Comparative Human Cognition (LCHC). The elementary school provided several hours of classroom time each week. Two parents worked with teachers to develop a curriculum and oversee the program.

Since 1996, teachers, parents, administrators and UCSD faculty have continued to guide the development of the program. Dr. Cole, along with Dr. Gabriele Wienhausen (Biology and UCSD/San Diego State Joint Ph.D. Program in Math and Science Education), helped establish a special Human Development course at UCSD, HDP 131, which offers undergraduates the opportunity to learn research skills while working with elementary students in the Torrey Pines 5th Dimension Program. The UCSD undergraduates not only assist the elementary students, but also act as role models to students who may have never considered a college future.

Collaboration with the UCSD/SDSU Joint Ph.D. Program in Math and Science Education led to a greater emphasis within the 5th Dimension on science and math software with a particular focus on pre-algebra skills. More recently, in response to the San Diego City Schools' focus on literacy, we have incorporated language arts related activities.

The results of the program have been astounding. Initially skeptical classroom teachers and administrators now embrace the program. Several have observed how skills learned in the program are being transferred into the regular classroom activities (for example use of certain computer activities and map and atlas skills). Teachers have noted that some of our Limited English Proficiency/Title 1 students have blossomed under the program and have shown increased motivation.

In 1998-99 Torrey Pines Elementary School and UCSD received a grant from the University of California Office of the President to assess the program and to produce a manual for setting up an In-School 5th Dimension Program.

This Guide outlines a program in transition. Each year our 5th Dimension program matures and changes due to the participation of teachers, school administrators, parents, university researchers and elementary students. We welcome your feedback and suggestions.

II. How to Establish an In-School 5th Dimension Program

This guide describes how to set up an “in-school” 5th Dimension program. It is based on the experiences of Torrey Pines Elementary School, in La Jolla, California. The 5th Dimension - Torrey Pines was the first in-school Program in a public school and the result of a collaboration with the University of California, San Diego. Throughout the US and the world there are many other 5th Dimension programs that operate after school in community centers, schools or churches. (See Appendix C.)

A. What is the 5th Dimension?

The 5th Dimension is a place where elementary school students and Adult Friends (parents, university students, etc.) learn together while participating in challenging educational activities including computer games.

B. How the 5th Dimension Operates

Computers provide a great medium for students to learn.
(5th Grade Teacher)

Each week elementary students spend approximately one hour progressing through a series of educational computer games and other activities. The *Games* are designed to challenge students of differing levels of achievement and to allow them to work at their own pace. *Games* emphasize subjects in the Natural Sciences, Mathematics, Language Arts and Social Sciences. *Task Cards*, specially designed for each *Game*, direct the student to perform tasks of progressive difficulty and help tie the activity to the classroom curriculum. Students work with an “*Adult Friend*,” usually a university student or parent who guides them through the activities. A mysterious *Wizard*, who communicates with the students only in writing (*Wiz Mail*), oversees the 5th Dimension. Students are encouraged to complete *Games* at higher and higher levels. Those students who complete a sufficient number of *Games* are granted the status of *Wizard Assistant*.

Some of our students are very sophisticated in their knowledge of computers, and others are very limited. Fifth Dimension provides a good opportunity for students to share this knowledge and teach their partners how to be more competent on the computers.

5th Grade Teacher

C. The “Games”

Our goal in setting up the 5th Dimension has been to develop an activity that is both educational and fun. While many of the activities may not in themselves be fun (for example: multiplication and word problem drills), we cloak these tasks within a playful framework. Many students enjoy working on computers and find it more fun to perform a drill on a computer than they might on paper.

Some of the *Games* included in our program include: Operation Neptune, Lost Mind of Dr. Brain, The Incredible Machine, Lewis and Clark Stayed Home, Supermunchers (Geography), and Math Workshop. The *Games* emphasize a variety of thinking and problem solving skills including Math Computation, logic and sequencing, and analysis and prioritizing of information.

A wide range of educational activities can be used in the 5th Dimension. Each activity or game has a Task Card which guides the student through a series of assignments related to the game or subject area. We combine non-computer exercises such as atlas reading and map drills into our computer game *Task Cards*. The Torrey Pines curriculum emphasizes computer games; however a 5th Dimension program could easily incorporate non-computer activities like Origami, Battleship, and Mastermind. A curriculum which is flexible and utilizes a variety of computer and non-computer activities is more resilient to inevitable computer failures.

Games can be added and removed from the 5th Dimension as needed. We recently removed the game Oregon Trail from our program. Teachers thought that students were spending too much time hunting for animals. We removed the game Tetris because many students complained that it was “boring.”

The 5th Dimension program allows some of (Limited English Proficiency and Title I) students the only opportunity to receive hands-on experience with technology. I think it allows these kids to learn in a non-threatening manner and at a pace they can control.

4th Grade Teacher

D. Task Cards, Worksheets and Logsheets

The students use the computer as a tool, guiding it to desired knowledge, as well as it (by way of task cards) guiding them to the much needed core curriculum.

4th/5th Grade teacher.

Each *Game* has a *Task Card* which details the activities that students must accomplish to get “credit” for the *Game*. The purpose of the *Task Card* is to enhance the educational value of the computer game or other activity, tie the *Game* to the core curriculum and teach students how to follow a series of written instructions.

<u>Where in the USA is Carmen San Diego??</u>		
You are a detective for the Wizard, famous for your super sleuthing across the United States! It's your duty as a daring detective to discover the whereabouts of the culprits committing crimes. Be wise and use your resources to capture them. A United States map and almanac or Fodor's USA will guide you to success. Good Luck!		
Wizard's words of wisdom: "What is the use of running when you are on the wrong road?"		
BEGINNER: 1. <u>Label 15 states</u> on the Carmen USA Case Map . Also label La Jolla and the Pacific Ocean. 2. <u>Play the game once, filling in the Carmen Investigation Report</u> as you play. Use a map and almanac or Fodor's USA to follow the clues. <u>Draw and your USA Case Map</u> to show your route. Use a map if necessary to locate the cities.	GOOD: (Do Beginner first) 1. <u>Label 15 more states</u> on the USA Case Map . Use a U.S. map if needed. 2. <u>Solve a case</u> , using a <u>new Investigation Report</u> and again <u>plotting your travel route</u> on your Case Map . 3. Use an encyclopedia or almanac to look up 3 National Parks such as Yellowstone, the Grand Canyon, Yosemite or Everglades. Locate and draw them on your USA Case Map . Choose one and read about it, then write to the Wizard about what you might do and see if you went there.	EXPERT: (Do Good first) 1. <u>Label the remaining 18 states</u> on your USA Case Map . 2. <u>Solve another case</u> . Fill in another Report and <u>plot your route again</u> . 3. Draw and label the following on your USA Case Map , consulting other maps as needed: <u>label dots on</u> Washington D.C., the Rocky Mountains, the Great Lakes, Mississippi River, and Mount Whitney. Look up Mount Whitney in an almanac and write at the bottom of your map what is special about it.

The *Task Card* describes 3 levels of mastery for the *Game*: *Beginner*, *Good*, and *Expert*. For example, in order to complete the *Beginner* level of *Where in the USA is Carmen San Diego*, students must solve a case, catch Carmen, keep track of the clues, fill in 15 states in a blank map of the US and draw their route in solving the case. In some of the *Task Cards* students are asked to reflect upon their experiences playing the *Game* by writing a letter to the Wizard.

We are constantly revising our *Task Cards* based on feedback from teachers, parents and students. When we began our program in 1996, we used many *Task Cards* designed for an after-school program. We quickly realized that our in-school program required *Task Cards* which emphasized specific learning skills tied more closely to our curricula. Our *Task Cards* reflect a balance of play and learning activities appropriate for use in our classrooms.

We find that many students initially resist reading the instructions in the *Task Cards* and immediately begin playing the computer games. One of the main roles of Older Friends is to prod students into following the *Task Cards* and performing all of the activities related to the *Game*.

Many of the *Task Cards* are accompanied by *Worksheets*. The *Worksheets* help extend the content introduced in the computer games. For example, students playing *Where in the USA is Carmen San Diego* are required to fill in a map of the United States and to log clues about suspects in the cases. They may also be asked to use an atlas or an almanac to find necessary information.

<u>Carmen San Diego Investigation Report</u>	
NAME: _____	Item Stolen: _____
Day, Time Case Started: _____	
Day, Time Case Ends: _____	
<u>SUSPECT INFORMATION:</u>	
SEX: _____	SPORT: _____
EYES: _____	MUSIC: _____
HAIR: _____	HOBBY: _____
FOOD: _____	
TRY FOR A WARRANT as soon as you know 3 things about the suspect!!	
<u>TRAVEL INFORMATION AND CLUES</u>	
<u>CITY, STATE Traveled to</u>	<u>CLUES about where to go next</u>
_____	_____
_____	_____
_____	_____

We've made an effort to emphasize geography and science. Students are using maps and atlases to complete their 'tasks'.
5th Grade Teacher

A Log sheet is used to keep track of the *Games* that students play and the levels which they complete within each *Game*. The Coordinator reviews the Log sheet

We've found there to be a problem that students start games immediately and don't know what the task card is about. They're always anxious to start, but I think this five minute planning time will keep students more focused. No one starts on the computer until the signal is given.

5th Grade Teacher

In the 5th Dimension -Torrey Pines, *Games* are designated as *Blue*, *Green* or *Red*. *Blue Games* cover basic Math, Social Studies and Science topics. *Green Games* are slightly more complicated or cover supplementary material. *Red Games* are either highly challenging or particularly fun for the students. Examples of *Red Games* include: Island of Dr. Brain, Incredible Toon Machine, and Logical Journey of the Zombinis. In order to play a *Red Game*, students must complete the *Beginner*, *Good* and *Expert* levels of a *Blue* or *Green Game*.

Five to ten minutes before the end of the 5th Dimension session, the teacher (or an Adult Friend) warns the students to complete the tasks they are working on and to have an Adult Friend sign their Logsheet. Students are not required to complete a *Game* or a level, however they do not get “credit” for the *Game* unless they complete a level and their Log book is signed by an Adult Friend.

A chart is kept of each student’s progress in the 5th Dimension. At Torrey Pines, when a student completes 10 different *Games* at the *Beginner* level or higher, they become a Wizard Assistant - 1. After completing 15 *Games* with at least 8 of them at *Good* level, students become a Wizard Assistant - 2. Wizard Assistant - 3 is awarded when a student reaches 18 *Games* - 10 at *Expert* level.

<i>Student</i>	<i>Carmen USA</i>	<i>Dr. Brain</i>	<i>Zombinis</i>	<i>Num Maze</i>	<i>Math heads</i>	<i>Oregon Trail</i>	<i>Math Workshop</i>	<i>Wizard Assistant</i>
<i>Ernesto</i>	<i>Good</i>		<i>Beginner</i>					
<i>Citlali</i>	<i>Good</i>	<i>Beginner</i>	<i>Beginner</i>	<i>Good</i>	<i>Good</i>	<i>Expert</i>	<i>Good</i>	*
<i>Hunter</i>	<i>Beginner</i>			<i>Beginner</i>				
<i>Kota</i>		<i>Beginner</i>			<i>Beginner</i>			
<i>Eduardo</i>				<i>Good</i>				
<i>Ryan K.</i>	<i>Beginner</i>	<i>Good</i>	<i>Beginner</i>	<i>Good</i>	<i>Beginner</i>	<i>Beginner</i>	<i>Good</i>	*
<i>Julie S.</i>	<i>Beginner</i>			<i>Good</i>	<i>Good</i>			
<i>Yuta</i>		<i>Beginner</i>		<i>Beginner</i>		<i>Good</i>		
<i>Caülin</i>			<i>Beginner</i>	<i>Good</i>		<i>Good</i>	<i>Good</i>	

My students are doing an excellent job and making good progress on the 5th Dimension chart. (The Parent Coordinator) does a great job of keeping our chart current. This is a good motivator for them. I can see improvement in their geography and map skills.

5th Grade Teacher

Wizard Assistants perform certain responsibilities like orienting new students or new *Adult Friends*, or may be awarded special privileges like being the first to play a new *Game*.

New *Games* are added periodically through the year to keep the students interested and challenged.

F. Wiz Mail

We got quite a bit of Wiz mail today. I'm very impressed with the creative mail we receive. Students love it, and it certainly motivates the fifth grader to write letters to the Wizard. They're always asking the (university undergrads) who the Wizard is.

Fifth Grade Teacher

A highlight of the 5th Dimension is the communication between students and The Wizard. Elementary students love to receive mail from the Wizard. Many students do not like to write; however, they can become motivated if they know they will receive a reply from someone as mysterious and important as the Wizard.

The Wizard adds a playful nature to the 5th Dimension as well as providing a forum for all complaints and concerns about the program. The Wizard frequently asks students for feedback about the program, and often replies to students complaints. Broken equipment, boring *Games* and poorly written *Task Cards* should all be reported to the Wizard.

The Wizard may also be called upon to help mediate disputes and interpersonal conflicts. We have seen the Wizard address name-calling, trouble on the playground, arguments among pairs, or any other issues that the kids feel comfortable writing to the Wizard about.

Dear Wiz

I wanted to tell you that my partner was giving me a hard time to choose a game. I just wanted to know what I should do next time? But, one of the 5th Dimension helpers help us choose a game. We had to choose between two games Math Blaster Plus and Number Munchers and last time we played Super Munchers. Well, I have to go. Write back as soon as you can.

From,

Sammy

Sammy :

I'm sorry that you and your partner had a difficult time choosing a game, but I'm glad you finally agreed on something. Having a partner can be difficult at times, but it also makes fifth dimension a lot more fun. Your partner is able to give you help when you have a problem you do not know how to solve. I hope you are helping your partner when they get stuck.

One time my pet lizard, Spike, and I got into a fight because he wanted to play a game that I didn't. We couldn't work things out and so he went home. I started playing the game by myself and could not pass any levels because Spike was not here to help. I was so lonely without him. I called Spike and he came back over. Spike and I set up a system where he chooses a game one week and I get to choose the next.

Make sure you write me back so I can hear how you and your partner are getting along. It was great to hear from you.

The one and only,

Wizard

Dear Wiz,

How is your day in your computer dimension. in the real world it s pritty bad. first, I messed up the soccer game at recess here at torrey pines elementary school. they laugh at me because I couldn t run. last I fell in the running broed jump and I hert my both legs. Then I sliped and went in circles. maybe you can help me with my problems.

p.s. may be you can help me with a headache.

your freind,
Edmundo

Hey Edmundo,

Thank you so much for being concerned about how my day is going. sometimes I get soooooo busy, that I don't even realize that I have forgotten to brush my teeth. does that ever happen to you? sometimes I feel a little lonely because I know so many people, but I don't have many close friends. do you know what I mean? I know every one involved in fifth dimension, but at 3:10, you all go home and I am the only one left. there are others that live in fifth dimension, but for some reason they don't like me. they think that I am a goody tooshoo (I wish I knew what that meant) and prefer to keep their distance. it really isn't a good feeling. everytime I try to be their friend, they find ways to not be my friend. well, I'll stop boring you with my problems, after reading your letter, I see that we have similar problems. do you think that we can find a way to help each other? let's make a deal, you find a way to help me, and I will find a way to help you. does that sound cool or what? you and I are very much alike, Edmundo. I'm glad that you call me a friend because you are the greatest.

su amigo o amiga

the wiz

ps: what's your favorite sport?

***can you guess mine?

Dear Wiz,

I'm feeling kind of down today. I found out what your favorite sport is. Its basketball. I found out by the border of the paper you gave me or should I say, letter. I wanted to hear all your problems. I have to go now. O.K. Bye
your Bud
Edmundo

The Wizard, while "all-knowing and all-powerful," can, at times, be terribly flaky and forgetful.

Where network and email facilities exist, the Wizard can reply via email. In the 5th Dimension -Torrey Pines, letters to the Wizard are handwritten by students and placed in a Wiz Mail Box in each classroom. Responses from the Wizard are sent to students via the Classroom Teacher.

G. Adult Friends

For many of the kids, it is the first and/or only time they get to interact with college students.

4th Grade Teacher

In the beginning, I thought my role in the Fifth Dimension would remain as an impersonal observer, but slowly I became their “friends”. I got to know these kids, and we talked about various things including their family, friends and even plans for college. As I developed a personal relationship with each student, they were willing to accept my inputs and follow my guidance. This whole experience taught me that having “fun” does not have to impede the process of learning. If the students and the teachers share mutual respect and trust each other, the children will learn and have fun at the same time. I hope to incorporate this experience in my future career as a school counselor.....

University of California, San Diego, Undergraduate

A key element of the 5th Dimension is the pairing of elementary school students with an Adult Friend. The Adult Friend helps guide the students through the activities in a way that promotes mutual learning. The Adult Friend does not need to have computer experience. The Adult Friend could be a parent, neighborhood resident, high school student, or university student. The Adult Friend is not the teacher and therefore is therefore free to develop a more collaborative relationship with the elementary student.

The Torrey Pines program utilizes undergraduate university students from a Child Development class at nearby UCSD. The undergraduates obtain valuable field work experience, while the elementary students receive support and assistance. Establishing a joint program with a local college or university can take several years, but provides a tremendous asset to a 5th Dimension Program.

“...the (university student) tutors are excellent role models. Many of our tutors speak more than one language and were second language students themselves in elementary school. They provide our students a lot of encouragement and a ‘you can do it’ attitude. This really helps develop self-confidence and self-esteem with our students.... The tutors share some of their college activities and experiences with our students. They encourage our students to go to college and often share with them what they had to do to get into (college).”

5th Grade Teacher

A second advantage to using college students enrolled in a course is that the number of tutors is more consistent. College students who are required to perform fieldwork tend to have more regular attendance than parents and other volunteers.

It's always interesting to have the new (University Undergraduate Tutors) come in and be relatively clueless. The kids get excited about having new (tutors)...
4th/5th Grade Teacher

Each semester at Torrey Pines we have a new group of college tutors. While the university undergrads receive a brief introduction to the program and the elementary school, it takes a few weeks for the program to operate smoothly. Classroom teachers and students have learned to be accommodating as the new university tutors adjust to the program.

The more academically challenged students benefited from the one-on-one interaction with their classmates, as well as with the (university) students. The second language students especially benefited due to the close quartered exposure to the material. Unfortunately, the reality of our class sizes affects my ability to concentrate on the second language students as much as they need.
(4th/5th Grade Teacher)

We find that students who are educationally at risk and who do not feel successful in the traditional large classroom often benefit from the attention from Adult Friends and the increased one-on-one learning opportunities.

Having the University undergrads as a reference made the games a little less intimidating and increased the speed of learning.
4th Grade Teacher

After several weeks, the elementary students and Adult Friends often develop warm caring relationships. At Torrey Pines, the university undergrads sometimes join the 4th and 5th graders for lunch. At the end of the year, students and Adult Friends have a party together. We award Wizard Assistant certificates at the party, and students make thank you card for their Adult Friends.

On my last day, Eusenia made me a special card that pleaded with me to stay because she didn't know how she could go on without my help. I exchanged addresses with her and told her to write me if ever she felt scared, frustrated, or lost, in hopes that she can see that I too went through the same experience but perservered, just as she inevitably will.

UCSD undergraduate

Ideally, a program should have one Adult Friend for each computer or each pair of elementary students. Due to a shortage of tutors, the ideal almost never exists. We have learned to survive with 2-4 tutors for every 16 students. We try to place larger numbers of tutors in classrooms with large numbers of second language students and low readers.

H. Collaborative Learning

The fact that they have to cooperate with a partner adds yet another essential skill, the importance of good communication....

4th/5th Grade Teacher

The program provides an opportunity for the kids to work with one another. It provides purpose in their working together, Those who learn to work well with their partner find greater success and enjoyment in the games. ... Boys and girls tend to work better together on other projects after having some success in the 5th Dimension program.

4th Grade Teacher

The Torrey Pines 5th Dimension Program emphasizes collaborative learning. Students work together in pairs. They are encouraged to take turns using the computer mouse and rotate roles in problem solving. They make decisions together regarding the selection of *Games* and the strategies employed in the activities.

B, a usually moody and difficult person to work with, was working well with D. He was focused, excited, and eager to complete the task card, achieving beginner for only the 2nd time in about 12 weeks.

5th Grade Teacher

Pairs may be chosen by Classroom Teachers or by the students themselves. Classroom Teachers (with input from Adult Friends) make sure that pairs are relating effectively so that each member obtains benefits from the activity.

I am particularly proud of two of my girls. One is a top student, and one is a struggling ESL (English as a Second Language) student. They are working well together and treat each other as equals.. It pleases me to see my ESL student speaking up and being equally involved.

5th Grade Teacher

The Wizard can also help enhance cooperative learning by suggesting ways pairs can overcome disputes and learn to work collaboratively.

Dear Wiz,

My 5th Dimension did not go very well because Nicky was making mistakes by making the computer freeze twice so we got no certificates.

Thank-you for the colorful letter you gave me last time, can you do it again? please!!! Do you and Spike ever fight? Well gotta go. Bye

From Sammy

Dear Sammy:

I am glad you enjoyed reading my letter. I like reading your letters also. I will see what I can do about creating some new colors to make your letters exciting.

I am sorry to hear that you did not have much fun in fifth dimension again. I want all you students to enjoy playing on the computer with your friends. I was hoping that things would get better with you and Nicky. Are you two having an easier time choosing games? I really hope you are and I really hope that you have more fun next time.

I do not think it was Nicky's fault that the computer froze two times. You have to remember that sometimes even computers get tired and need breaks. Your computer was probably in need of a break.

Spike and I do fight every now and then, but when we do, we always make up very quickly. Things are just not fun without him. I could not imagine playing any fifth dimension games without Spike. There are times when friends are going to have problems, it is important in those times to remember the good times you have together. Whenever Spike and I fight, I always think of the time we went sailing down the bathtub drain, wow, what a trip. That was such a great time, but I do not think you should try it, swimming down drains is for Wizards and lizards only. Well I had better go because Spike is telling me he needs my help with Numbermunchers.

Remember to tie your shoes and to walk on your feet.
Your friend, the WIZ

We have experimented with giving *Special Recognition Awards* to pairs who have working together well. Prior to the weekly 5th D session, the Wizard sends an award to one pair of students who collaborated effectively the previous week. These *Special Recognition Awards* serve as an incentive to enhance social interaction skills, whereas the promotion to Wizard Assistant enhances cognitive skills.

I. Classroom Management and The Role of The Classroom Teacher

*Overall, I have few discipline problems during (5th Dimension)
(4th/5th Grade Teacher)*

One of the most exciting aspects of the 5th Dimension is that it provides alternatives to the traditional student-teacher relationships. 5th Dimension activities are designed to be self-paced and highly individualized. With the use of Adult Friends in the classroom, teachers are freed up to take on other roles in the classroom.

The role of the Classroom teacher will vary depending upon the needs of the specific program. All teachers take responsibility for maintaining a productive and positive environment for the program. They participate in designing the curriculum for the program and in determining areas which should be addressed.

*Grouping the kids that work well took some time for me to get right last year. Grouping students by reading ability has worked well. The low readers help each other out; to get through difficult material. And I can direct the (University Tutors) to the pairs that need the help.
4th Grade Teacher*

A primary responsibility of Classroom teachers at Torrey Pines has been to oversee the pairing of students. Teachers have experimented with pairing students by academic level, and across ethnic and linguistic lines. Teachers also intervene to ensure that students are enjoying and benefiting from the program.

Today I worked with Samantha and Mary. They are new partners and had a problem. They were both on different levels for each game at the computer they were on, so they didn't know which game to play. Working with me, they were able to decide that Mary should complete her beginner level on the computer, while Samantha could work on the math puzzlers for good. Eventually, they both finished a level and the session was a success.
(4th/5th Grade Teacher)

J. The Students

The 5th Dimension is designed for elementary school students. The Torrey Pines curriculum focuses on 4th and 5th graders. Most 4th and 5th graders have sufficient reading, computer and other academic skills to follow the task cards with limited assistance from an Adult Friend.

The 5th Dimension can also be adapted for younger children; however, more Adult Friends will be required to operate smoothly. We ran a 5th Dimension program for 2nd graders and found that we needed one Adult Friend for each pair of students.

Software should be geared to the ages and levels of the student. As a wide range of academic skills can exist within a single grade level, we provide a variety of software and tasks to challenge highly gifted as well as academically challenged students.

Setting and Equipment Required

The program can operate in a library/media center, classroom or computer lab. At least one computer or activity should be provided for every 2 elementary school students. With 8 computers for a class of 32 students, working in pairs, half of the class is able to do 5th Dimension activities at one time.

If there are insufficient computers for the whole class to participate in 5th Dimension simultaneously, students can rotate through the 5th Dimension during the day or over several days.

The 5th Dimension is designed to operate using a variety of technologies. We have used a combination of Apple II's along with the most recent Macintosh and PC technologies. We provide several different *Games* for each computer, so that students can choose which game they will play. Each week students rotate to a different computer so that they can experience a range of games.

When operating in a classroom, it is best to group several computers near each other. This helps separate 5th Dimension from other simultaneously occurring classroom activities. It also allows Adult Friends to work with more than one pair of students at a time.

Who is Who in the 5th Dimension

Coordinator(s)

At least 1 coordinator is needed to operate the program. The Coordinator could be a teacher, aide or parent. (In our school, a parent performs this role.) The coordinator oversees the curriculum, makes sure materials are available for students, and arranges orientations for elementary students, Adult Friends and new staff members. The coordinator helps facilitate communication between the elementary school and other institutions (e.g. colleges) which participate in the 5th Dimension.

Classroom Wizard Assistants

Each classroom should have one adult who is responsible for supervising the 5th D. in the classroom. The Classroom Wizard Assistant could be a teacher, aide or parent.

Adult Friends

Adult Friends work with elementary school students during the 5th Dimension program. Adult Friends could be university students, parents, etc. Our program uses undergraduates from UCSD who are performing fieldwork for a course in Child Development. In our program, the Course Instructor often visits the 5th Dimension to supervise the undergraduates. The Instructor also meets regularly with the Coordinator, the School Principal and the classroom teachers to ensure that the program is operating smoothly and that the educational goals of both the elementary school and the university are being met.

Wizard

The Wizard (A.K.A. The Wiz) is the guiding spirit and overseer of the 5th Dimension. He/she communicates with humans in the 5th Dimension only in writing. All problems and complaints are reported to the Wizard who is all-knowing, well-meaning, but sometimes absent-minded.

Wizard Assistants

Elementary school students who have achieved certain levels of proficiency in 5th Dimension activities are awarded the status on Wizard Assistant. The WA's may be called upon to perform certain responsibilities like orienting new students, or may be granted special privileges.

The School Principal

The program is overseen by the School Principal.

K. Curriculum

(One) area that seemed to improve was the use of the games that deal with state names and location, such as Carmen San Diego and Oregon Trail. My students improved greatly when it came to listing the state names on a blank map in a given amount of time. They also had a better understanding of other geographical information, such as the location of mountain ranges, deserts, rivers, and oceans. This was a great help when it came to Social Studies tests and reports.

4th Grade Teacher

The 5th Dimension can incorporate a wide variety of educational activities. Our program emphasizes Math, Science and Geography. At various times we have also included Reading, Writing, Art and Keyboarding activities.

The program should be continuously revised as new software is developed and technology is upgraded. We solicit suggestions from elementary school students, teachers, university researchers and parents. Our elementary students write letters to the Wizard about the games, and we use their evaluations in deciding when to remove games from the program or revise *Task Cards*.

Some of the *Games* contain material related to the classroom curriculum. In the 5th Grade, we use Math games like *Decimal and Fraction Maze* and *Math Heads* which parallel the study of decimals and fractions. Our 4th graders are studying California History. Therefore our geography *Games* include *Where in the USA is Carmen San Diego*.

As students in our school come from a wide variety of backgrounds, we provide a range of activities within the *Games* and *Task Cards* that can challenge a student at almost any level. We purposely include activities which many of our students initially find hard to do, or above their level. This allows our highly gifted students to pursue challenges that they might not face in the regular classroom. It also exposes some of our lower achieving students to new challenges with one-on-one assistance from an Adult Friend.

L. Materials Required

Computers (ideally at least one for every 2 students)

Educational Software

Other “games”

Notebooks (one per student)

1 log sheet

worksheets

Task cards (2-3 different task cards per computer) Each computer should have at least 2-3 games which can be played on it. This provides students choice in which activity they will pursue and allows for inevitable software failures.

III. Appendix A. Sample Task Cards and Accompanying Worksheets

A. *Quest of the Aztecs*

The spirit of Montazuma, last king of the Aztecs, is seeking your help! He wants you to hunt for his people's treasures that were stolen when the Spanish conquered the Aztecs. Your mission is to find ten treasures. It is a tremendous task but don't worry - Montazuma will send the great god, Quetzacoatl, to help you in your quest! Read carefully; Quetzacoatl, has left some hints for you.

BEGINNER:

- (1) Using your Treasure Hunters Report, list the ten items you are to find. Record the places you search and where you locate the treasures on your report. (Quetzacoatl says Acapulco is a good place to start.)
- (2) Find three of the missing treasure items.
- (3) Find your Quest of the Aztecs North America Map. Label the Atlantic Ocean. Pacific Ocean. Arctic Ocean. Canada. the United States. and Mexico.

GOOD:

- (1) Complete the beginner level, plus find at least three more of the lost treasures. continuing to record all information on your report. (Quetzacoatl likes Mexico City.)
- (2) Look up "Montezuma II" in the encyclopedia. Write to the WIZARD and tell him who the Aztecs believed Cortes was, and what happened between Cortes and the Aztecs. The Wizard would like to learn more about the Aztecs. Look up "Aztec" to find 2 more interesting pieces of information to share with the WIZARD.

EXPERT:

- (1) Complete the good level, plus find the remaining four treasures. recording your travels. Great!!! Montezuma thanks you!
- (2) Get out your Quest of the Aztecs North America Map again. Find and label Greenland. Cuba. San Diego. Alaska. the Great Lakes. the Mississippi River. the Rio Grande. and the Rocky Mountains. (You will have to draw in the rivers and mountains yourself.) You may look at a map if you need help.

You Need:

Treasure Hunter's Report North America Map Classroom encyclopedias for the GOOD level.

B. BIG SCIENCE COMICS

The Mysterious Invisible Giant Monkey has trapped a set of Bumptz in Bette's basement! Can you help them escape by using your scientific skill to overcome the obstacles that block your path to safety?

Beginner:

1. Click on START A NEW COMIC BOOK. Listen to the instructions.

2. Flip through the pages of the comic +by clicking on the arrows) until you get to the coat hanger puzzle. Help all the Bumptz across the crates, plus weigh a few items out of the backpack.

IMPORTANT: Click on the mouse's book for helpful notes. Take turns with your partner!

3. Once you solve the puzzle, click on WE TRIED LEVEL 2, so that one of the pieces of string is moved closer to the center of the hanger. Help the Bumptz across again!

4. The WIZARD has a special teeter totter with one side longer than the other. How is this like the coat hanger in LEVEL 2? Write to the WIZ about this. If the WIZ weighs 140 pounds, and wants to ride on the teeter totter with you, who should sit on the longer side?

Good:

1. Complete Beginner.

2. Flip through the pages of the comic until you get to the stairs/mousetrap puzzle. Use the rope and traps to get the weight of Bumptz needed up the stairs!

HINT: Click the mousetrap to make it face the desired rope. Click on the mouse to release the rope.

IMPORTANT: Click on the mouse's book for helpful notes. Take turns with your partner!

3. Once you solve the puzzle, click on WE TRIED LEVEL 2, so that one of the mousetraps is taken away. Help the Bumptz up the stairs again!

Expert:

1. Complete Good.

2. Flip through the pages of the comic until you get to the puzzle with the Bumptz stuck in the pie in the kitchen. Use the rubber bands to help the stuck Bumptz escape!

IMPORTANT: Click on the mouse's book for helpful notes. Take turns with your partner!

3. Once you solve the puzzle, click on WE TRIED LEVEL 2, so that the rubber bands are now different lengths. Help the Bumptz escape again!

4. Flip through the pages of the comic until you get to the puzzle with the pumpkins by the barn. Solve the puzzle.

5. Write to the Wizard about how you solved the expert puzzles. Which one was harder? What did you learn about the thicknesses and lengths of rubber bands? How did you finally get that barn window to open?

January 7, 1999

C. **BUMPTZ SCIENCE CARNIVAL**

Can you help these little BUMPTZ find their way? Imagine yourself as a beam of light, or a bubble rising through the water, and you will find the right solution!

Make sure the Bumptz Science Carnival CD is in the computer.

BEGINNER:

1. Start Bumptz Science Carnival. When you get to the Midway, click on the **Photonotron**.
2. Click on the first door, with one yellow light above it. Think like a beam of light as you **solve puzzles #1 through #8**. Click OUT.
3. Click on the middle door in the Photonotron. **Solve any 3 puzzles**. Record the puzzle numbers of the ones you solve on your **Science Carnival Record Sheet**. Click OUT. Click To Midway.
4. Answer the questions in the Beginner section of your **Science Carnival Record Sheet**.

GOOD:

1. Complete BEGINNER. Get to the Midway and **click on the Bublearium**.
2. Click on the first door. Think like a bubble as you **solve puzzles #1 through #6**. Click OUT.
3. Click on the middle door in the Bublearium. **Solve any 3 puzzles**. Record the puzzle numbers of the ones you solve on your **Science Carnival Record Sheet**.
4. Write to the Wizard **telling about your two favorite pieces of equipment**. They can be from either the Photonotron or the Bublearium. Explain how they work and what you like about them.

EXPERT:

1. Complete GOOD. Choose either the **Photonotron** or the **Bubblearium**.

2. Click on the middle door, and **solve two new puzzles.** Record the new puzzle numbers on the **Science Carnival Record Sheet**. Click OUT.

3. Click on the third door in the Photonotron or Bubblearium. **Solve any 2 of puzzles #2 through #18.** Record the ones solved on your **Record Sheet**.

4. **Make your own puzzle.** Select NEW at the right. Move the equipment you want into an arrangement that works. Lock any desired obstacles in place with the lock and close the toolbox. Move the parts out of the right positions, SAVE, and see if a UCSD student or teacher can solve the puzzle!

You Need: Science Carnival Record Sheet at all levels.

January25, 1999

SCIENCE CARNIVAL RECORD SHEET

BEGINNER:

Record the numbers of the double light puzzles you solve in the Photonotron:

_____ # _____ # _____

Questions:

1. Which of the three you solved was the hardest?

What made it hard, and what did you do to figure it out?

2. Did you try any you could not solve?

What made them hard?

GOOD:

Record the numbers of the double light puzzles you solve in the Bubblearium:

_____ # _____ # _____

EXPERT:

We went to (circle one): Photonotron

Bubblearium

Record the numbers of the two new double light puzzles you solve:

_____ # _____

Record the numbers of the two triple light puzzles you solve:

_____ # _____

D. Where in the USA is Carmen San Diego?

You are a detective for the WIZARD: famous for your super sleuthing across the United States! It's your duty as a daring detective to discover the whereabouts of the culprits committing crimes. Be wise and use your resources to capture them. A United States map and almanac or Fodor's USA will guide you to success. Good Luck!

Wizard's words of wisdom: "What is the use of running when you are on the wrong road?"

BEGINNER:

1. Label 15 states on the Carmen USA CASE MAP. Also label La Jolla and the Pacific Ocean.
2. Play the game once, filling in the Carmen Investigative Report as you play. Use a map and almanac or Fodor's USA to follow the clues. Draw and label dots on your USA Case Map to show your route. Use a map if necessary to locate the cities.

GOOD: (Do Beginner first)

1. Label 15 more states on the USA CASE MAP. Use a U.S. map if needed.
2. Solve a case, using a new Investigation Report and again plotting your travel route on your Case Map.
3. Use an encyclopedia or almanac to look up 3 National Parks such as Yellowstone, the Grand Canyon, Yosemite or Everglades. Locate and draw them on your USA CASE MAP. Choose one and read about it, then write to the WIZARD about what you might do and see if you went there.

EXPERT: (Do Good first)

1. Label the remaining 18 states on your USA CASE MAP.
2. Solve another case. Fill in another Report and plot your route again.

3. Draw and label the following on your USA Case Map, consulting other maps as needed: Washington D.C., the Rocky Mountains, the Great Lakes, Mississippi River, and Mount Whitney. Look up Mount Whitney in an almanac and write at the bottom of your map what is special about it.

IMPORTANT STRATEGY HINT! You must **HAVE A WARRANT TO ARREST THE CRIMINAL AND WIN THE GAME!** Getting a warrant requires at least 3 correct pieces of suspect information.
TRY FOR A WARRANT AS SOON AS YOU CAN!

You Need: Carmen San Diego Investigation Report, a new one for each level.
Carmen USA Case Map at all levels. Your Social Studies book to consult the USA map in the back.

CARMEN USA HINTS

When you are given your assignment, you are given the following important information:

What was stolen.

2. The present time and date ñ on the left side of the screen.

3. When the case must be solved by.

Usually the sex of the thief (male or female).

Note these items on your Carmen Investigative Report!!

The screen is set up as described below:

Crime Computer -

On the left

Option

ACME

Note Pad

Buttons

Crime Computer- Click Travel to go to a new city, or to call ACME Travel Service. Click Travel to see the choices of places where you may go next.

Click Warrant when you know 3 things about the suspect.

2. ACME NOTE PAD - When you go to a new city, choices of where to look for clues appear here.

Click each choice to find out the clues. All clues lead to the same next destination. There also may be suspect information, helpful in getting the warrant.

IMPORTANT STRATEGY HINTS:

1. You **MUST HAVE A WARRANT TO ARREST THE CRIMINAL AND WIN THE GAME!** Getting a warrant requires 3 correct pieces of suspect information. **TRY FOR A WARRANT AS SOON AS YOU CAN!**

2. IF YOU ARE ON THE RIGHT TRACK, YOU WILL SEE A VILLAIN SNEAK ACROSS THE SCREEN AS SOON AS YOU ARRIVE IN A NEW CITY. IF YOU DON'T SEE A VILLAIN, YOU SHOULD PROBABLY GO BACK TO THE CITY YOU JUST LEFT AND CHECK THE CLUES AGAIN.

CARMEN SAN DIEGO INVESTIGATION REPORT

NAME: _____ ITEM
STOLEN: _____

DAY, TIME CASE
STARTED: _____

DAY, TIME CASE
ENDS: _____

SUSPECT INFORMATION:

SEX: _____
SPORT: _____

EYES: _____
MUSIC: _____

HAIR: _____
HOBBY: _____

FOOD: _____

TRY FOR A WARRANT AS SOON AS YOU KNOW 3 THINGS ABOUT THE SUSPECT!!

TRAVEL INFORMATION AND CLUES:

CITY, STATE TRAVELED TO

CLUES ABOUT WHERE TO GO NEXT

E. Cleanwater Detectives

There's nothing like a big glass of cool, clean water to refresh you on hot day. But how would you like a glass of cloudy, smelly water next time you're thirsty? It happens too often in today's world! Learn how water sampling and testing can determine what is polluting the water supply. You be the Clean Water Detectives - the Wizard wants no more cloudy, smelly water!

****** Pollution usually moves downstream - check upstream from the problem area. The top of the map is upstream, the bottom is downstream.*

B E G I N N E R :

1. Start an investigation. Solve one case at the **Assistant** level. Write the problem on a **Clean Water Detectives Lab Report**, then go to the **MAP**. Record info about the water at the places you check on the **Lab Report**. Select **RECORD** when you have determined the source of pollution, then **REPORT** it to see if you are right!

2 . Write to the **WIZARD** telling about the case you just solved. How did you find the source of the pollution? Also, what are two things you could do to help the environment?

GOOD:

1 . Complete **Beg i n n e r**. Solve one more case at the **DETECTIVE** level, again filling in a **Cleanwater Detectives Lab Report**. Select **FACTS** to find information about water conditions caused by particular pollutants. When you think you know both the source and the cause, select **RECORD** to report results.

2 . Find your **Cleanwater Fact Sheet**. Use the info under **FACTS** on the computer to help complete the **Fact Sheet**.

E X P E R T. :

1. Complete **Good** and solve one more case at the **Enforcer** level, filling in a **Cleanwater Lab Report**. Select **RECORD** when you have determined the source and the

cause of the pollution. Check FACTS as needed for info about the cause.

2 . Find your **Clean Water Environmental Lab Report**.

Look at the articles about the environment in the envelope attached to this folder. Read one and then complete the **Cleanwater Environmental Report**..

You Need:

Cleanwater Detectives Lab Report at all levels.

Cleanwater Fact Sheet at Good level.

Cleanwater Environmental Report at Expert level.

Cleanwater Detectives

FACT SHEET

1. We breathe oxygen out of the air. How do aquatic plants and animals get oxygen?

2. What pH level of water do fish like?

Is this slightly acidic or slightly basic?

3. Draw lines to match the water conditions listed below with their possible cause.

WATER CONDITIONS:

Low pH (acidic)
Phosphorous
Phenols
Low Clearness
Ammonia

POSSIBLE CAUSE

Runoff from dairy farm
Sediment runoff
Industrial or residential
wastewater
Wastewater from
manufacture of paper
Farm fertilizer runoff

Cleanwater Detectives

Cleanwater Environmental Lab Report

Read one of the articles about the environment contained in the envelope on the task card. Then, fill in this report.

Your Name:

Title of Article:

Summarize the article below: (Be sure to answer: What was the problem? What was the cause of the problem? Are there any possible solutions given for the problem? What might happen if the situation is not improved?)

Write your opinions about the situation described in the article:

F. Decimal and Fraction Maze:

Here is your chance to practice your fraction and decimal skills, and show the Wizard and his/her friend the the MAZE MASTER how good you are becoming at math. Do you know about equivalent fractions, place value, and common denominators? Put on your thinking cap and get **through the maze to the castle as you solve the Maze Master's problems. Good luck!**

(1) Open the D&FMaze Folder.

(2) Start D&FMaze and select "New Student" if this is the first time you have played. Input your name and let the Maze Master know whether to address you as a boy or a girl. If you have played before, click on your name and you are ready to start.

(3) **Choose the curriculum named FIFTH GRADE**

BEGINNER : Complete 3 levels (and receive 3 certificates). Watch out, the Maze Master makes it trickier as you go onto each new level. You should be practiced up on your decimals, now.

GOOD:

1. Complete BEGINNER
2. Complete 3 more levels for a total of 6 certificates.
3. The *WIZARD* has a challenge for you Choose a **Mind Bender** from the attached envelope. Solve it, then place in your notebook under the "D"s. (You may take it home to work on if you like.)

EXPERT:

- 1 . Complete GOOD.
 - 2 . Complete another 4 certificates for 10 total.
- Congratulations! You are a master at D&FMaze.

HINT: If you want a trickier maze or just a different kind of maze, select "Change Maze" under your name and choose the options you want.

DECIMAL AND FRACTION MIND BENDER

Your NAME _____

PUZZLE OVER PETS AND PEOPLE

People love pets and pets love people. See if you can match four people with their pets. **The people's names: Buffy, Duffy, Rickie and Danny. The pets' names: Fluffy, Spot, Mickey, and Vickie. The types of pets: a cat, a dog, a mouse, and a parakeet.** Here are the clues to help match the people, the pets, and the types of pets.

- 1 . No person's name rhymes with 5. The pets with rhyming names the name of his or her pet. are not parakeets, and neither
- 2 . No person's name begins with the of them belongs to Duffy. same letter as the type of their pet. 6 . The parakeet does not belong
3. Mickey is not a mouse and Fluffy to either of the people with is not a cat. rhyming names.
4. Danny's pet is neither a mouse 7. Mickey does not belong to nor a parakeet. *Buffy.*

Use the chart below to match the pets, people and pet types. Read the clues and draw "X"s in the boxes where no match is possible. (Clue #7 is done for you. Once you know who a certain pet belongs to, you know it can't belong to anyone else so can put "X"s in the other peoples boxes.

G. Fraction/Decimal Mania

How good are you at fractions? Good, I hope. And how about decimals? Get ready to show your expertise in Fraction Munchers Decimal Dash, Decimal Chompers and other games too.

Beginner

1 . Start Fraction Munchers: play Equivalent Fractions. Play until you complete level 6. Trade places with your partner after each level. Be careful! If you lose at a level, you have to start over at Level 1.

2. Restart and select **Fraction Expressions**. **Play** until you complete level 6 again trading places after each level.

Good

1. Complete *Beginner*.

2. Start at the Conquering decimals - Add & Sub disk. Select Misplaced decimals and #3 Mixed Problems. Each partner play 2 games. Record your scores on the Frac/Dec Mania Scoresheet.

Score at least 25 pts on one of your games to go to #3.

3. Go back to Main Menu. Choose Decimal Dash: 2 Players and Subtraction. Play one game. Pay attention to the arrows, question marks and chances to land on your partner.

Expert:

1. Complete *Good*.

2 .Start at the Conquering Decimals-Mult &Div disk. Select **Decimal Chompers**. Play 2 games each; record your scores on the Fraction Mania Scoresheet. Score at least 800 points on one of your games to go to #3.

3. Go back to Main Menu. Select Concentration and Two Players. Play one game at Beginner and one game at Intermediate.

You Need: FracDec Mania Scoresheet at Good and Expert levels.

FracDec Mania Scoresheet

Good Level-Misplaced Decimals

Score	Your Name	Partner's Name
Game 1 _____	_____	_____
Game 2 _____	_____	_____

Keep tryin if neither of your scores is 25 or more!

Expert Level- Decimal Chompers

Score	Your Name	Partner's Name
Game 1 _____	_____	_____
Game 2 _____	_____	_____

Keep trying if neither of your scores is 600 or more!

H. *Fraction Munchers*

How good are you at fractions? Good, I hope. Because those Troggles are going to be trying to munch you while you figure out the correct fractions to munch. Good luck and good munching!

Beginner

1. Start the game; select Equivalent Fractions.

Play until you **complete Level 6**. Trade places with your partner after each level. Be careful! If you lose at a level, you have to start over at Level 1.

2. Find the **Equivalent Fractions Playpage** in your notebook. Choose $\frac{3}{4}$, $\frac{2}{3}$ or $\frac{2}{5}$. and write it in the space at the top of the Playpage. Now fill in all the squares on the page with fractions, some of them equivalent to the fraction you chose, some of them not. Trade Playpages with your partner and see if they can circle all the equivalent fractions. Put your Playpage back in your notebook.

Good

1. Complete *Beginner*.

2. Turn the disk back to Fraction Munchers. Select "Compare Fractions". Play until you **complete Level 6**, again trading places with your partner after each level.

3. Find the **Comparing Fractions Playpage**. Choose a category (**greater than or less than** $\frac{3}{4}$, $\frac{2}{3}$ or $\frac{2}{5}$. and write it in the space at the top of the Playpage. Fill in all the squares with fractions, some correct and some incorrect. Trade Playpages with your partner and try to circle all the correct answers. Put your Playpage back in your notebook.

Expert

1. Complete *Good*.

2. Start the Fraction Munchers Disk. Select "Fraction Expressions". Play until you complete level 6 again trading places with your partner after each level.

3. Find the Fraction Expressions Playpage.

Choose a fraction different than those you were given as you played Fraction Expressions and write it in the space at the top of the Playpage. Fill in all the squares on the page with mathematical expressions, some that match your chosen fraction, some that don't. Trade Playpages with your partner, circle correct answers, then put your Playpage in your notebook.

You Need: Fraction Munchers Equivalent Fractions Playpage at Beginner level.
Fraction Munchers Comparing Fractions Playpage at Good level.
Fraction Munchers Fraction Expressions Playpage at Expert level.

I. Gizmos and Gadgets

The *Wizard's* arch enemy, Morty Master of Mischief is issuing a challenge to all Super Solvers! Prove that you know more about science than he does (the Wiz doesn't think Morty knows that much.) The way to prove it is to build better and faster vehicles than Morty while solving science puzzles along the way. Get ready to build automotive, aircraft, and alternate energy vehicles to race against the Master of Mischief!

B E G I N N E R :

- 1 . Type SSG to start Gizmos and Gadgets. Sign in and play **Without Chimps**.
2. Click on Alternative Energy. Check all parts on the blueprint. Write the parts needed and the best kind on a G&G Parts Guide.
3. Go to the warehouse, up the green tube. Collect the parts you need, recording the size, etc. of those you collect on your G&G Parts Guide. Click on HINT for info on the science puzzles.
4. Return to the workshop when you have all the parts you need. Build your vehicle and race against Morty. If you win, you're ready for Good. If you lose, get some new parts and try again, until you win the race!

GOOD : 1 . Complete Beg i n n e r.

2. This time build an **Aircraft or Automotive** vehicle. Again write down the parts you need and the best kind of each on the G&G Parts **Guide** Then, record the parts you collect in the warehouse.
3. Return to the workshop when you are ready to build and race your vehicle. You must win the race, or else get some new parts to try again until you beat the Master of Mischief.
4. Write to the WIZARD. Tell what part you like best about Gizmos and Gadgets. Also, design a science puzzle to try and stump the WIZ. It can be about magnetism, gears, electricity, balance, energy sources, force or whatever you like!

EX P E R T :

1. Complete Good.
- 2 . Build whichever type of vehicle you haven't built yet. Write down the parts you need and the best kind of each on the G&G Parts Guide. Record your parts as you collect them.
3. Build and race your vehicle. Keep improving it until you win the race!
4. Build one more vehicle of your choice. Click on Next Level so that you will get a slightly more challenging blueprint. Again use G&G Parts Guide (on the back). Keep trying until you beat the Master of Mischief.

You Need: G&G Parts Guide for all levels .

J. Grammar Madness

You are about to meet Dr. Verbo, a quirky but fun-loving scientist, who is as clumsy as he is smart. He had another accident today. While writing to his favorite pen-pal, the Wizard, and he needs your help to rewrite parts of the letter that he unwittingly erased. You'll have to rewrite it several times. But don't be discouraged! Things could be much worse. Did you know that one of the world's greatest writers Alexander Solzhenitsyn had to write on toilet paper while he was in prison? He had to swallow the paper. so that the prison guards wouldn't find it. After he was released from prison he rewrote his books on regular writing paper and won the Nobel prize for literature!

Words to ponder: "The difference between the right word and the almost right word is the difference between lightning and the lightning bug" Mark Twain

BEGINNER :

1. Select Madness from the main menu screen. Choose Mostly Mad and select **Words from the list**. Complete three versions of Dr. Verbo's writing. Consult the Glossary at left for help. 2. Find and complete Grammar Madness Beginner Worksheet, again using the glossary as needed.

GOOD:

1. Complete Beginner.
2. Do three more versions of Dr. Verbo's writing, choosing Very Mad and Words from the list.
3. Complete Letter to the Wiz for Grammar Madness in your folder. After you have written your letter, trade letters with your partner. Mark any needed corrections in your partner's letter and then return it. Correct yours and mail to the WIZ.

EXPERT :

1. Complete Good.
2. Now see if you can recognize all the correct choices in the word lists in Grammar Madness. Follow the instructions to complete the Word Wiz's Worksheet from your folder.

You Need:

Grammar Madness Beginner Worksheet for Beginner level.
Letter to the Wiz for Grammar Madness for Good level .
Word Wiz's Worksheet for Expert level.

Glossary

Noun- a word that names a person, place, thing, quality, or action.
Examples: Mary, America, table, computer, joy, explanation.

Proper Noun - a noun that always begins with a capital letter, such as a person's name.

Pronoun- a word that substitutes for a noun. Examples: he, she, it, we, they.

Verb a word that describes an action or state of being. Examples: go, read, wait, be. I see you.

A d j e c t i v e a word that modifies or gives a description of another word. Examples: beautiful, soft, green, tiny. The beautiful girl sat down.

A d v e r b a word that modifies a verb, adjective, or another adverb. Adverbs often end in -ly. Examples: very, slowly, finally. She reads slowly. He writes really well.

P r e p o s i t i o n a word that shows the relation between a noun or noun-equivalent (the object of the preposition) to some other word in a sentence. Examples: Across, after, at, before, between, by, for, from, in, of, on, over, to, under, with, up. He jumped onto the bicycle.

Prepositional phrase a group of words that shows the relation between a noun or noun-equivalent and some other word in a sentence. The first word in a prepositional phrase is almost always a preposition+ Example: I dove into the pool.

I n t e r j e c t i o n- a part of speech used for simple exclamations.
Examples: Oh! Ouch! Whew!

Grammar Madness

Grammar Madness Beginner Worksheet

Have you learned what words are nouns, verb, adjectives, adverbs and prepositions? Let's find out. You can check the Glossary in your task card folder, or look up words in a dictionary to find out what part of speech they are.

1. Look up the following words in the dictionary and write down what parts of speech they are - Noun, verb, adjective, adverb, or preposition (some can be more than one). The part of speech is listed right after the word: "n" for noun, "vb", "v", or "Vi" for verb, "ad" for adjective, "adv" for adverb, and "**prep**" for preposition.

extreme _____
extremely _____
out _____
tumble _____
tumbler _____

2. Underline the three nouns in the following sentence. Circle the verb.

Sally sells seashells at the seashore.

3. Underline the three adjectives in the following sentence. Circle the noun **that the adjectives modify** (describe).

Leslie bought three big blue balloons.

4. Underline the prepositional phrase in the following sentence. Circle the preposition (usually the first word in the prepositional phrase).

Please don't jump off the cliff!

Fold this paper back at the solid line, so that you can't see the bottom half of the page. Then think of words that are each of the parts of speech listed below. Check your Glossary to help you with your choices.

1. Noun _____
2. Noun _____
3. Verb _____
4. Verb _____
5. Preposition _____
6. Noun _____
7. Adjective _____
8. Adverb _____

Now unfold this paper and fill in the words you have written above in the spaces indicated below. There is also a space for you to ask the Wizard whatever you would like to know!

Dear wiz,

My favorite things are _____ and _____.

1. noun

2. Noun

I like to _____ and _____.

3. verb

4. verb

Best of all, I like to hide them _____ the _____.

5. preposition

6. Noun

I would like to know: _____

any question you would like to ask the Wizard

Please write me a _____ letter _____.

7. Adjective

8. Adverb

Sincerely,

Proper Noun - Your Name

Grammar Madness

Word Wiz's Worksheet

Play Very Mad in Grammar Madness selecting words from the lists in the computer. Notice the first three categories of words you must find, such as adjective, present tense verb, and noun. Write *these* three categories in the spaces below.

Categories (Parts of Speech):

Now write the five words from the computer's list that are correct choices in each category.

Correct Choices:

Using your lists above, create a sentence containing a word from each of your three lists. Cross off the three words used. Then create two more sentences, each containing unused words from each of the three lists.

Sentence 1 -----

Sentence 2 -----

Sentence 3 -----

K. INCREDIBLE TOON MACHINE

Help! The cosmic fly has torn through the Wizard's Warehouse and broken all of the important toon machinery! Please help the wizard repair the broken gadgets -- and then, if you're **BOLD** enough, build a machine of your own to add to the warehouse. Everyone playing this game may use your machine -- so do a good job in building your own!

Beginner

1. Click on SOLVE A PUZZLE .
2. Follow the LOADING A GAME instructions (on the opposite page) to load INTRODUCING... SID AND AL in the CAKE WALK game category. Solve the puzzle.
3. Follow the LOADING A GAME instructions to load and solve the following puzzles in the CAKE WALK game category: TRAP DOOR, POP GOES THE PISTOL, CONVEYORS AND GEARS. SKELETOBOBBIN, and TRANSROTO-MATIC.

WARNING: Rubberbands won t work if you stretch them too far.

5. Pick you favorite part (rubberband, pulley...) and write a note to the wizard describing how it works.

Good

1. In CAKE WALK, solve the following puzzles: INTRODUCING... EUNICE!, INTRODUCING... BIK DRAGON!, ELECTRO-RAMP 11, and SCISSORS.
3. In ALL BRAWN NO BRAINS, solve the following puzzles: LOOK OUT BELOW, HUNGRY EUNICE, CLOBBER THE CRITTERS, and PIN CUSHION KITTY.
4. Write to the wizard. Describe which part, or particular arrangement of parts, was the most difficult to understand, or use. Why?

Expert

1. In HOME TOONS, load and solve one of your classmate's puzzles.
2. Click on the REMOTE CONTROL icon. Click on RETURN TO MAIN MENU, then click on HOME TOONS.

Build a machine of your own! Design the machine using at least four of the parts you used in the beginner and good levels.

The Goal of your machine can be anything you wish, or get help from the suggestions page.

3. When your machine is finished, press the REMOTE CONTROL and then the CHECKLIST to turn your machine into a puzzle.

Be sure to save your machine !

4. Write the wizard. Give an example of a problem you had making your machine and how you solved it!

Loading a game:

1. Click on the Remote Control icon.
2. Click on the Load/Save icon.
3. Click on the appropriate machine category: CAKE WALK, ALL BRAINS, NO BRAWN, etc.

HINTS

1. Click on ACTION before adding any of your own parts to a machine.
2. If you forget a puzzle goal, click on the REMOTE CONTROL, and then click on the GOAL icon.

L. Math Blaster Plus

Get ready to show off your math expertise! With your mastery of multiplication facts, problem solving skills, and fractions, you will be able to become the Math Blaster PLUS expert!

THE GAMES: **Rocket Launcher** - Solve basic multiplication and division problems to obtain parts to a rocket that will launch when you get enough problems correct.

Number Recycler - The goal is to make a correct equation in the bold box with the bottom line of numbers. Do this by:

1. Move the numbers and signs in the columns down with the man at the top.
2. Put the man above the column you want to move, then click on the plunger under him.
3. When you have a correct equation in the bottom row, click OK.
4. The fewer numbers you move to get a correct equation, the more equations you can make, and the higher your score will be.

Trash Zapper - Solve fraction equations to get to play a game where you zap trash.

BEGINNER:

- 1 . Start Math Blaster Plus. Under Subject choose Multiplication, under Level choose level 3. Click on Rocket Launcher Solve Problems. If you score 80% or more correct, choose Next Level . If you score less than 80% correct, choose Retake.
2. Trade places with your partner when you start each new level. Play until you complete through Level 6 with 80% or more correct on each level. Choose Main Menu .
- 3 . Choose Division under **Subject** and Level 2 under level. Rocket Launcher again until you complete Level 5 with at least 80% correct at each level.

GOOD:

- 1 . Complete B E G I N N E R.

2. Click Number Recycler. Choose **Addition, Subtraction.** Set Starting Round 5 . Find the MB Plus Scoresheet. Each partner play 2 rounds, recording your scores on the scoresheet. Keep playing until your total score is at least 850 points.

2 . Choose Options under the Activity Menu. Select Multiplication, Division and Starting Round 4. Each partner play 2 rounds, recording your scores on the MBPlus Scoresheet. Keep playing until your total score is at least 750 points.

EXPERT :

1. Complete GOOD.

2 . Go back to **Main Menu**. Choose Fractions, Decimals, Percents under Subject and Level 1 under Level. Click Trash Zapper. Play until you complete Level 3, trading places after each turn of trash zapping. You will know you have completed a level because a Trash Zapper Scoreboard will appear. Record the score for each level on your MB Plus Scoresheet. Retake any level you do not score at least 80% on.

You Need:

MBPlus Scoresheet for Good and Expert levels.

Math Blaster + Scoresheet

Good Level: Number Recycler

Addition, Subtraction

	Round #:5	Score_____
	Round #: 6	Total_____
Score_____		
	Round #: 7	Total_____
Score_____		
	Round #: 8	Total_____
Score_____		

Play until total score is at least 850 points.

Multiplication, Division

Round #: 4	Score_____
Round #: 5	Total Score_____
Round #: 6	Total Score_____
Round #: 7	Total Score_____

Play until total score is at least 750 points.

Expert Level - Trash Zapper

Fractions, Decimals, Percents

Level 1 Score: _____(Retake if less than 80%)

Level 2 Score:_____ (Retake if less than 80%)

Level 3 Score:_____ (Retake if less than 80%)

M. MATH WORKSHOP

The *WIZARD* would like to introduce you to a special friend - Poly Gonzalez. **She is the only child of a rocket scientist and a calculus professor and she loves math even more than the *WIZARD*!** Poly runs the **Math Workshop**, where you can play lots of fun games while you learn math skills. Any time you need Poly's help, just click on the yellow happy face. Sign in to begin the fun now!

There are separate entrances for each of the seven games in Math Workshop.

The Bowling Pin Door way puts you in Bowling for Numbers.

The TV Screen puts you in Hidden Picture Puzzles.

The Butterfly Picture Frame puts you in Puzzle Patterns.

The Easel upstairs puts you in Super Sticklers.

The Brick Doorway upstairs puts you in the Rhythm Shop.

The Rocket Table upstairs puts you in Rockets.

The Skylight in the ceiling puts you in Pattern Windows.

BEGINNER:

1. Play **Bowling for Numbers** until Gorilla Gus bowls 5 strikes, choosing: +, - at level 4 one strike each; x, -, . at level 2 one strike each. Click on Q U I T when you have completed the 5 strikes.

2. For the next games, the three faces at the lower left control how difficult the puzzle is. Play **Super Sticklers** at the hard level (red face) or **Hidden Picture Puzzles** at the mid level (orange face) to complete at least 2 puzzles. The mouse picks and moves pieces, the spacebar turns them.

GOOD:

(Do Beginner first.)

1. It's time to make a little dance music. Go to the **Rhythm Shop**; click the yellow face for instructions from Poly, or see the attached hints.

Complete at least 2 rhythms at the red or orange level. Click arrow in the Fractionaire to see Algebird dance!

2. Complete 2 games of **Puzzle Patterns** at the green or orange level. Study the puzzle's border (especially the corners) to find the pattern.

EXPERT:

(Do Good first.)

1. Now you can paint a beautiful design in **Pattern Windows** or play 3 **Rockets** games with your partner. In **Rockets**, the goal is to launch the last rocket. Vary the "Number of Rockets" and the number you can "Launch up to".

2. To demonstrate your expertise, play either **Puzzle Patterns** or **Hidden Picture Puzzles** at the red level. Partners work together to play 1 game.

N. Midnight Rescue

The Master of Mischief is causing trouble yet again! He is hiding out at the school this time which he plans to make disappear at midnight. What a terrible thought: No more school! By solving problems and **taking pictures of the robots, you can collect clues that will help you identify and capture the Master of Mischief. He must be found before midnight! The WIZARD has left some hints for you below and in the game to help in the search.**

The Plan - How to Capture the Master of Mischief (MofM):

- * Look for problems in the hallways and rooms at the school. The problems are identified by the small pink triangles. Select Page Down to read the next page. Solve them carefully to collect clues.

- * Take pictures of the robots by facing them and hitting the space bar. This will help you find out which one is really the MofM.

- * Jump to avoid the robots tricks.

Check your Notes often to see if you can identify the MofM.

- * Watch the **clock and number** of photos left. The game is over at 12:00 midnight! If you run out of film, get more in the hallway.

BEGINNER:

1. Play one game of **Midnight Rescue**. Keep trying until you catch the Master of Mischief.
2. Find your **Midnight Rescue Problem Sheet**. Working alone, without showing your partner, write two questions about each of the stories. Then ask your partner your questions and see if he/she can figure out the answers.

GOOD:

1. Complete BEGINNER.
2. Play more games until you capture the Master of Mischief two more times.

EXPERT:

1. Complete GOOD.
2. Find your **Midnight Rescue WIZ Story Sheet**. Write a story for the WIZ, using one of the ideas suggested or one of your own. Then write questions about the story for the WIZ to answer.
3. Play until you capture the Master of Mischief once more. Now you've proven you can outsmart him!

Midnight Rescue Problem Sheet

Witch story:

Bubble, bubble, toil and trouble! Witch Wanda's brew is coming along nicely. The guests will be arriving soon and she has a few more things to add to make her brew just right. First, she spies another hairy spider; the two small ones she found earlier were not quite enough to make the brew boil right. Then, she digs up a head of garlic out of her garden; it will keep the vampires away. Finally, she finds three bobbyboks under the thorn bush; they are a magic ingredient that only witches know about. Here come the guests now! The three black cats are leading the two ghosts and four witches, followed by (Oh! No! a vampire. Ahhh! Once the vampire gets close enough to smell the garlic, he quickly turns around and disappears into the surrounding forest. It will be a wonderful party!

Write down two questions about the witch story to ask your partner :

- 1.
- 2.

Beach story:

Lisa and Eric are at the beach. They notice it is low tide, so decide to walk south to the tidepools. Sometimes there are interesting sea creatures left in the pools of sea water when the tide goes out. Last week, Lisa saw an octopus and some sea hares. Eric saw two large starfish, an orange one and a purple one. There are always lots of hermit crabs walking around with their shells on their backs. Lisa and Eric are excited to find out what creatures are in the tidepools this week.

Write down two questions about the beach story to ask your partner:

- 1.
- 2.

O. *Mighty Math Number Heroes*

You are about to meet some of the Wizard's wacky friends. Make fireworks with Fraction Man! GeoBot loves shapes and angles. Play the game show QUIZZO with Star Brilliant. Handsome Chance (he's just a little conceited) likes to learn about probability as he makes action figures of himself. The Wizard hopes you will enjoy his friends as you learn about math.

To Play Sign in and Select GO.

Find the Number Heroes as listed below:

Fraction Man - Man in red at upper left.

GeoBot - Robotfellow at upper right.

Star Brilliant - Woman in yellow at lower left.

Handsome Chance - Man with the BIG smile at lower right.

BEGINNER:

1 Play 1 game Quizzo by:

*Click on Star Brilliant.

***Choose Two Person.**

***Choose Contest** or
Marathon difficulty.

(If you have no partner, choose an opponent and difficulty L or M.)

2. Do some Probability by:

*Click Handsome Chance

*Click _____ at lower left.

*Select difficulty G.

Answer Chance's questions until you get 4 correct.

3. Find your Mighty Math **Probability** Chart and follow the instructions to try the Probability Machine. Record all your results on the **Probability Chart**.

4. The WIZ has a philosophical question for you: What is probability? Write the answer. Also what difference does it make in your spinner results when you do lots of spins rather than just a few? Why?

GOOD:

1. Do Fraction Fireworks:

Click on Fraction Man.

Click _____

4th Grade:

*Select difficulty I. Answer the questions and make fireworks until Fraction Man starts giving addition problems.

5th Grade-

*Select difficulty R. Answer the questions and make fireworks until Fraction Man starts giving subtraction problems.

2. Practice geometry by:

***Click GeoBot.**

*Click _____

*Select difficulty F. Answer questions until GeoBot starts asking about line segments. Click on the book to find out about geometry terms that are new to you.

EXPERT: 1. **Click Handsome Chance.**

*Click _____

*Select difficulty M.

You will answer questions about probability of results and interpretation of data. Stop when you get to questions with percents.

2. Find your Mighty Math Probability Chart. Follow the instructions on the back to design 2 experiments with the Probability Machine. Draw your own chart to record +results.

3. Choose your favorite of the other 3 activities and play again starting at the level indicated below:

Fraction Man:

Difficulty W- you will add subtract and multiply fractions, plus change decimals to fractions. Stop after the decimal questions.

GeoBok

Difficulty J- you will answer questions about probability of outcomes and interpretation of data Stop when you get to the questions with percents.

Star Brilliant

Difficulty Showdown

(or Z without a partner).

You Need: Mighty Math Probability Chart for Beginner and Expert.

November 16, 1998

PROBABILITY CHART

- * Click the Explore button at the bottom of the screen.
- * Click the "1" button next to Explore so no picture is on the Gear Gizmo.

Experiment 1:

- * Select a 2 color spinner. Write in the 2 colors on the chart below.
- * Use the purple arrows to make 10 action figures.
- * Predict what you think will happen on the chart below.
- * GO and record results.
- * Use the arrows to make 90 more figures (100 total).
- * Predict on the chart, then GO and record results.

Color	10 Spins		(90 or more) 100 Spins	
	# predicted	# Made	# predicted	# Made
Color 1				
Color 2				

Color 10 SPINS(90 more)
100 SPINS

#Predicted | # Made | #Predicted + # Made

Experiment 2: Now do a similar experiment using a 4 color spinner, with 4 different colors in the 4 parts. Make predictions and record results for the numbers of spins indicated in the chart below.

(200

more spins)

Color	20 Spins		220 Spins	
	# predicted	# Made	# predicted	# Made
Color 1				
Color 2				
Color 3				
Color 4				

Mighty Math Expert Experiments:

- * Design 2 experiments using Explore mode, the color spinners, and the gear spinners (if you want to).
- * Predict results, run the experiments and record results.
- * Draw charts below that show the experiments, your predictions and your actual results.

P. NETSCAPE

WOW! If you think cable TV has a lot of channels, wait until you see this! Netscape has access to the Wizard's home planet--cyberspace! It's all available right through your computer. It's just amazing!

Back is for when you want to go back to the previous web page. (What do you think **forward** is for? Duh!)

Stop is for when a page is taking waaaay too long to load.

Open is for when you want to go to a specific web site. Just type in the site address.

Net Search is for searching for a specific subject. Anything you can think of.

BEGINNER:

1. Choose three sites from the attached list. Type in the address - click Open to go there. Explore - click on underlined words or on pictures that you want to know more about. Record the sites you go to and one interesting thing you learn at each on your Wizard's Netscape Info Sheet.

2. Search for information on a subject of your choice. Some ideas are Music, Fashion, or Baseball. Use Excite or Yahoo! or whichever search program Net Search gives you.. You can either search by selecting one of the listed topics, or type in your own and click Search. Record you topic, the address of a website you go to to learn about it. (this shows in the address spot near the top of the page), and some information you think might interest the WIZ on you Wizard's Netscape Info Sheet. Save your *Info Sheet* in your notebook until you complete GOOD.

GOOD:

1. Complete BEGINNER

2. Now let's see how good you are at getting at finding information on the World Wide Web. Find your *Netscape Human Body Fact Sheet*. Answer the questions by searching for information using Netscape.

3. Choose another subject and search for it. Use the information you find to write some questions about your subject for the WIZ in the GOOD section for your Wizard's Netscape Info Sheet. Will the Wizard be able to find the answers in cyberspace? Put you Info Sheet in the Wiz's mailbox and find out.

EXPERT:

1. Complete GOOD.

2. Find *Netscape Scavenger Hunt Guide*.

Use Netscape to find the correct answers to all the scavenger hunt questions.

You Need:

Wizard's Netscape Info Sheet for Beginner and Good.

Netscape Human Body Fact Sheet for Good

Netscape Scavenger Hunt Guide for Expert.

NETSCAPE WWW SITES

Z o o / A n i m a l s

<http://www.sandiegozoo.org>

Rainforest Action Network

http://www.ran.org/ran/kids_action/index.html

Mount Everest <http://www.gsn.org:80/past/kidspeak/index.html>

Excursions - Creatures

<http://www.intel.ie/kids/in/eng/excreat.htm>

Volcano World

<http://volcano.und.nodak.edu>

Journey North - about life in the Arctic

http://ics.soe.umich.edu/ed71_2/IAPIntro.html

Headbone Zone

<http://www.headbone.com/>

Human Body <http://www.innerbody.com/indexbody.html>

Search Programs:

Excite <http://www.excite.com/>

Yahoo <http://www.yahoo.com/>

GOOGLE <HTTP://www.google.com/>

Wizard's Netscape Info Sheet

Your Name _____

Beginner:

List the 3 Web sites you went to and some information from each

1.

2.

3.

Record the topic you searched for information about, a web address that you explored about that topic, and something you think might be new and interesting for the WIZ.

Topic:

WWW address:

Info for the WIZ:

GOOD:

Subject:

Questions about that subject: (Will the Wiz be able to find the answers??)

1.

2.

3.

4.

Netscape Human Body Fact Sheet

1. Name 2 components of the circulatory system. What is the main job of the circulatory system?

2. How many bones are there in a normal human skeleton?

3. What are the two main kinds of blood vessels?

4. What are the 4 chambers of the heart called?

5. Name 5 parts of the digestive system.

What is the main job of the digestive system?

6. Write the address of one of the sites where you got information about the human body.

Netscape Scavenger Hunt Guide

Your name:

Date:

Search high, search low, all through cyberspace, to find the answers to the following scavenger hunt questions:

1. What is the weather like today in New York City?
2. Find the date of a recent solar eclipse.
3. What city and state was Hillary Clinton born in?
4. What is the telephone number of San Diego Pizza Hut on Mira Mesa Blvd.?
5. How many dolphin species are there?
6. What is the altitude at the top of Mt. Everest?
What country and continent is Mt. Everest located in?
7. Where do Giant Pandas live in the wild?
What is their favorite food?
8. What is the address of the White House?
What City is it in?

Q. NUMBER MAZE

The *WIZARD* loves math! He/she will often spend an afternoon under his/her favorite apple tree, counting red and green apples, calculating the number of seeds in all those apples, estimating the total number of worms if one third of the red apples have two worms each etc. The *WIZARD* asked a friend, the Maze Master, to create this Number Maze **so you can become a math expert and enjoy math problems as much as the *WIZ* does. The goal is to get through the maze to the castle. Become a math expert, like the *WIZARD*!**

- 1 Open the NumberMaze Folder.
2. Start Number Maze and select "New Student" if this is the first time you have played. Input your name and let the Maze Master know whether to address you as a boy or a girl. If you have played before, click on your name and you are ready to start.
3. Get some scratch paper ready to help you meet the Maze Master's challenge! For word problems, you may fill in only the answer if you have figured it out on your scratch paper.

BEGINNER: Complete 3 levels (receive 3 certificates). Watch out, the Maze Master makes it trickier as you go on to each new level.

GOOD:

1. Complete BEGINNER.
2. Do 3 more levels for a total of 6 certificates.
3. The *WIZARD* has a challenge for you! Choose a Mind Bender from the attached envelope. Solve it, then place in your notebook under the "N"s. (You may take it home to work on if you like.)

EXPERT:

1. Complete GOOD.
2. Do 4 more levels in Number Maze. Congratulations! You are now a math wizard!

HINT: If you want a trickier maze or just a different kind of maze, select "Change Maze" under your name and choose the options you want.

You Need: **Blank Paper** at the back of your notebook for scratch paper.

Number Maze

ROMAN NUMERAL MIND BENDER

Roman Numerals:

1	I
2	II
3	III
4	IV
5	V
6	VI
7	VII
8	VIII
9	IX
10	X
50	L
100	C
500	D
1000	M

Usually, you just add up the numerals. However, sometimes you see a smaller numeral in front of a larger one. Then you have to subtract the smaller number from the larger number. For example, IV means 5 minus 1 = 4. Look at 9 also.

How Good are you at Roman Numerals?
Here are some problems to test your skill:

1. CCCLXXIV =

2. MCMXCVII =

3. MMDCCXLVIII - MCDLXXIX = _____ = _____
in Roman Numerals

R. Number Munchers

It's those pesky Troggles again, trying to munch Munchers! Your job as a Muncher is to eat all the numbers and equations that match the category at the top of the screen without being eaten by a dastardly Troggle. If you eat 20 correct answers in a row, you can go into a special box to become a SUPER MUNCHER, capable of munching Troggles. But beware, your supermuncher status lasts only about 20 seconds, then you are a lowly Muncher again.

BEGINNER

1. Start the game and select "Play Munchers". Choose MULTIPLES.
2. You and your partner will have to work together to figure out what to munch. Trade places with your partner after each screen, playing until you get to Level 5 (listed at the lower right of the screen.) Be careful! If you lose at a level, you have to start over at Level 1.
3. Select "End Game" under the File menu. Now choose FACTORS;. Play until you get to level 4.

GOOD

1. Complete *Beginner*.
2. Choose EQUALITY. Play until you get to LEVEL 5.
3. Choose INEQUALITY. Play until you **get to LEVEL 4**.
4. Each player get a Numbermuncher Playpage. Each partner work secretly to fill in the boxes with numbers, using some prime numbers and some non-primes.
(Note: A prime number has only 1 and itself as factors, and 0 and 1 are not considered to be prime numbers.)
5. Trade Playpages with your partner. Circle all the prime numbers on your partner's Playpage. Put your own Playpage in your folder.

EXPERT

1. Complete *Good*.
2. Choose MULTIPLES. This time play until you **get to Level 7**. You will have to be extra careful not to lose a level or it will be hard to get that far!
3. Choose CHALLENGE. Play until you **get to Level 6**. Now you are a NumberMunching Expert!

You Need: Numbermuncher Playpage for the Good level.

S. OREGON TRAIL

You are about to embark on a long and difficult journey from Missouri to Oregon! Before you take off, you get to go to Matt's General Store to purchase some items you will need on your long haul! Choose to see the banker to start out with the most money for buying supplies. Listen to Matt's friendly suggestions and you will be ready to go! You must also plan when you want to leave; you don't want to run into snow at either end of your trip!

The Wizard suggests you remember the old Tao saying - "The journey is the reward."

Beginner

1. You must get to Fort Laramie... ALIVE... with ALL the members of your wagon party with you. Listen to Matt's advice when buying supplies!
2. Find your copy of the Oregon Trail Map. Label the states on your map and their capitals, consulting a map of the United States if needed. Draw a line to show the path of your journey so far.

GOOD:

1. Write to the WIZARD about your trip so far. How did you decide when to leave, what to take, how to cross rivers? Has anyone gotten sick, with what? How was planning for and taking a long trip different in the 1840's than it would be today?
2. Now, continue on to Fort Hall - arrive with MOST of your party alive. Draw your route on your Oregon Trail Map.

Expert:

1. Your task is to get all the way to Oregon, alive and well. Mark your path on your map. *Congratulations!*
2. Look up "Oregon Trail" in a World Book encyclopedia. Read the information there and then answer the questions on the Oregon Trail Expert Worksheet

HINTS:

1. If someone is sick, it may pay to rest a few days.
2. If you need more water, try to "LOOK AROUND".
3. You can buy more supplies at the Forts along your route. Check for what you may be low on, especially food! But if you buy too much, it is hard on your oxen and wagon.

You Need: Oregon Trail Map

Blank Paper for letter in Good level.

Oregon Trail Expert Worksheet in Expert level.

Oregon Trail

Expert Worksheet

1. About how many miles long was the Oregon Trail?

2. About what year did settlers begin using the trail?

How many years ago was that?

3. When was the Territory of Oregon set up?

4. Name 3 rivers that the Oregon Trail ran along.

5. Name 2 mountain ranges that the Oregon Trail crossed.

6. What is the name of the settlement where it ended?

7. Which three present day states were included in the Oregon Territory? (Check the United States map for 1848 in your social Studies book p. 119.)

T. Outnumbered

The Master of Mischief is causing trouble for the *WIZARD* again! He is hiding out at the Shady Glen TU station which he is trying to take over. By solving math challenges and answering Telly's questions, you can collect clues and secret code that will lead you to the Master of Mischief's hideout. He must be found before midnight! The *WIZARD* has left some hints for you below and in the game to help in the search.

The Plan - How to Capture the Master of Mischief (MofM):

- * **Look for math challenges** in the rooms at the TV station by moving up to maps, charts, monitors, and other interesting objects. Solve the math challenges carefully to collect clues about each room.

- * Zap Telly the robot with your zapper to protect yourself and to capture secret code that tells about the MofM's hideout.

- * Run **away from or zap LiveWire** before he charges you.

- * **Use your decoder often** to study the room clues and secret code you've collected. Match room clues and secret code to locate the hideout.

- * **Watch the clock and energy meter.** The game is over at 12:00 midnight! The energy meter starts out half full. If it gets low, find the energy meter in the hall and get more energy for your zapper.

BEGINNER:

1. Warm up for Telly's drill questions by playing "**Customized Drill for Skill**". Select the settings shown to the left. Each partner complete one set of problems.

2. Now you are ready to play Outnumbered! Select "**Customized Game**". Select Level 2. Play one game. Good luck with the capture of the MofM!

GOOD:

1. Complete BEGINNER.

2. Play two more games choosing "**Customized Game**" and Level 3. You must capture the Master of Mischief at least once to complete this level.

EXPERT:

1. Complete GOOD.

2. Play the "**Customized Game**" at Level 4, with the calculator off. Play until you capture the Master of Mischief two more times! Note: Turn the calculator off under the "Options" menu.

U. Super Munchers

TROGGLES TROGGLES+ EVERYWHERE! And Troggles love to munch Munchers! Your job as a Muncher is to eat as many place names as you can that fit the category at the top of the screen, without being eaten by a dastardly Troggle. If you eat 20 correct place names in a row you can go into a special box to become a SUPERMUNCHER, capable of munching Troggles. But beware, your Supermuncher status lasts only about 20 seconds, then you are a lowly Muncher again.

BEGINNER

1. Start the game and select "Play Munchers". Choose Beginner Level.
2. You and your partner will have to work together. One of you will munch while the other looks at maps to decide what to munch.
3. Trade places with your partner after each screen, playing until you finish Level 3 (listed at the lower right of the screen.)
4. Each player find the Central America Map in their notebook. Fill in the **names** of all **the Countries in Central America and the Caribbean Sea.**

GOOD:

1. Complete Beginner plus 3 more levels in a row.
2. Each player get a Supermuncher Playpage. Work separately and secretly, each thinking of a geography category that is different from those you already played. Use maps to fill in your screen with place names, some fitting the chosen category, some not.
3. Trade Playpages with your partner. Using maps, try to circle all the appropriate place names on your partner's Playpage. Put your own Playpage in your folder.

EXPERT

1. Complete GOOD, then start Supermunchers again **at the Advanced Level**. Finish Level 3 again.
2. Each player find the Supermuncher South America Map in their folder. Fill in the names of all the countries plus the Pacific Ocean, Atlantic Ocean and Caribbean Sea. Draw in and label South America's tallest mountains, the Andes, and biggest river, the Amazon.

You Need: Central America Map for the Beginner Level.
Supermuncher Playpage for the Good level. Supermuncher South America Map for the Expert level.

V. SWAMP GAS VISITS AMERICA

You will be visiting the United States from outer space with the mission of stopping at a specified list of states or state capitals. You have a **limited time to accomplish this mission before your Mother Ship returns** to whisk you back to the outer reaches of the Universe. Good luck and happy journey to You!

Swamp Gas Strategy - After release of your spaceship over the United States:

- (1) Check your location printed in lower middle of the screen, also noted by the flashing + on the small map at lower left..
- (2) Check your mission (under the mission sign) to find out where to go.
- (3) Go to any mission locations close to you first . You travel to them by clicking on the flashing city boxes. You can only travel along the roads drawn on the map.
- (4) **Click on the HELP button to learn where states and cities are** for mission locations you don't know. Use HELP as often as you like.
- (5) Click the WARP button to get to far away locations quickly. You are allowed to WARP only twice during each mission.

BEGINNER:

Choose **OPTIONS**. Select **Beginner, 5 locations, and States**. On the next screen, select Two pilots.

1 . Play the game, looking at a map if needed. Your partner will fill in your Swamp Gas Mission Sheet as you play

2 . **Return to Swamp Gas** . Play again, filling in your partner's mission sheet as he/she plays.

3 . Find your Swamp Gas USA MAP. Find and label the states written on your mission sheet. Then label more until 20 are done.

GOOD:

1 . Complete BEGINNER. Choose **OPTIONS**, then **BEGINNER, 10 locations, States** and Two pilots.

2. Each partner play the game twice. Then label the rest of the 50 states on your SWAMP GAS USA MAP.

3. If you got to all 10 states on at least one of your missions, you may go on to EXPERT. If **not**, use your labeled map as you TRY AGAIN!

EXPERT :

1. Complete GOOD.

Choose OPTIONS, then

Beginner, 10 locations, State Capitals (click States to turn it off), and Two pilots.

2. Each partner play the game twice. Don't forget *to use HELP when you need it!*

3 . Get a new Swamp Gas USA MAP. Label ALL 50 state capitals on your new map. Use your Social Studies book to help if you need to.

You need:

Swamp gas Mission Sheet and Swamp Gas USA MAP

Your Social Studies Book to consult the USA MAP in the back

An additional Swamp Gas USA Map for Expert.

SWAMP GAS MISSION SHEET

BEGINNER - Your partner will fill in this information as you play:

	Mission 1	Mission 2
State started in:		
States visited:		

W. USA PUZZLE

Where's Georgia located? What state is shaped like a saucepan? Is Nebraska North or South of Kansas? What's the capital of Maine? If you know the answers to these questions, maybe you will be particularly good at USA puzzle! See how quickly you can put all the states in place!

How To Put Together USAPuzzle!:

- 1 Read the state name of the puzzle piece at the top right of the screen.
- 2 Pick up the puzzle piece by **pushing in and dragging the mouse**.
- 3 Rotate the pieces by pressing the right and left arrows while the mouse is still pressed in.
1. Place the piece in the correct location on the USA puzzle and release the mouse.
2. You may skip a piece and come back to it later by **clicking SKIP** at the top center of the screen.

BEGINNER :

- 1 . Start USAPuzzle! Click on LEVEL and set pixels to 20. Click on LOOK and select SHOW. Click on the FLAGS; icon and then GO to start the game.
2. Play one game each of USAPuzzle! While one partner is playing, the other label all the states on their USAPuzzle! Map. Remember to read the state name of the puzzle pieces at the top right to help you in placing them.
3. Find your **USAPuzzle! World Map**. Label the 7 continents and 4 oceans. (You will have to draw in Antarctica.)

GOOD:

- 1 . Complete Beginner.
- 2 . Click on LOOK and select HIDE. Click on the F L A G S icon and GO to start game.
3. Play one game each, with no lines to help you place the pieces. You may consult your labeled USAPuzzle Map for help. HINT: It may be easier to SKIP all the center pieces at first and start with only states around the border.
4. How many states have you visited . Write to the WIZ listing those states, then telling which one you liked most and least, and why. If you have only been in California, tell what places in California you like most and least.

EXPERT:

1. Complete GOOD.
2. Click on LOOK and select SHOW. Click on the STAR icon to start.
3. Play one game each, placing the capitals in their correct locations. While one partner is playing, the other label all the capitals on their USAPuzzle Map. It works well to label each capital as your partner is placing it on the puzzle.

You Need: USAPuzzle! Map
USAPuzzle World Map for Beginner.

IV. Appendix B. Sample Curriculum for University Child Development Courses offering undergraduates field work opportunities in elementary school 5th Dimension Programs

A. *HDP131 5D for Elementary Schools*

Professor: Maria daVenza Tillmanns, Ph.D.

Course Objective:

This course is designed to provide students with an intense experience in combining theory and practice in the study of human development. Students will learn to use ethnographic, participant observation techniques as the foundation for evaluating theories of learning, communication, and development.

Core Required Activities:

1) To attend class twice a week on campus. These class sessions will be devoted to instructor-led and student-led discussions of readings.

2) To attend an in-school activity site at Torrey Pines Elementary School an average of once a week. During the activities, students work and play directly with children to promote their intellectual and social development. Interactions with children occur around computer games.

3) To write detailed field notes on the experience following each school site visit. Field notes for Friday visits (from 1:00-3:30) must be submitted by Email no later than 9:00 PM on the Sunday following the site visit. Field notes turned in after this time will be considered late. A printed version of your field notes must be turned in at class following the site visit. A penalty will be assessed on late field notes.

4) In addition students will be asked to write one 5-7 page paper due at the end of the term, which will develop a research question generated by the student's experience in working with children and will draw upon any articles read for the course and upon field notes and Wiz Mail for evidence.

Grading:

Grades for the course will be based on performance of work in class and at the field site. Students will be graded on class participation, field notes, the final paper and Wiz Mail.

This is a six-unit class. This is considered a lab course. Attendance is mandatory at the Torrey Pines Elementary site. If you miss two site visits, you will be dropped from the class. This can have ramifications if it means you drop below the required number of units for scholarships or financial aid.

Required Texts:

Fine, G.A. & Sandstrom, K.L., *Knowing Children: Participant Observation with Minors*. The text will be available at Groundworks.

There is a Reader available from CalCopy in Holiday Court (next to Dominos Pizza)

Weekly Schedule

Week 1: Introductions

Tuesday, April 2: Torrey Pines parent volunteers, students, instructor. TB test.

Thursday, April 4: Course Introduction. Wizard/Wizard Mail, Olt & Woodbridge, "An Assessment of Learning Through the Qualitative Analysis of Fieldnotes," Guidelines for field notes, Field note examples. Video - LCHC 5D.

Friday, April 5: (at Torrey Pines Elem.) Introduction to 5th Dimension.

Week 2: Introduction - Group work

Tuesday, April 9: Collaborative Reasoning - R.C. Anderson. (Video)

Thursday, April 11: Barbara Rogoff. "Observing sociocultural activity on three planes: participatory appropriation, guided participation, and apprenticeship."

Friday, April 12: (at Torrey Pines) 5th Dimension.

Make sure you get a TB test, or show proof of having taken one within the past two years.

Week 3: Research Practicum I

Tuesday, April 16: Crook, C. "Collaborative Interactions at Computers."

Thursday, April 18: Roschelle, J. "Learning in Interactive Environments."

Friday, April 19: (at Torrey Pines) 5th Dimension.

Week 4: Research Theory

Tuesday, April 23: Vygotsky, L., *Mind in Society*, Chapter 6: "Interaction between Learning and Development."

Thursday, April 25: Vygotsky, L., *Mind in Society*, Chapter 7: "The Role of Play in Development."

Friday, April 26: (at Torrey Pines) 5th Dimension.

Week 5: Research Methods

Tuesday, April 30: Fine, G.A. & Sandstrom, K.L., *Knowing Children: Participant Observation*. Chapters 1-3.

Thursday, May 2: Cohen, L. & Manion, L., *Research Methods in Education*, "Action Research."

Friday, May 3: (at Torrey Pines) 5th Dimension.

Week 6: Power and Culture in the Classroom I

Tuesday, May 7: Darder Antonia, Culture and Power in the Classroom, Chapter 1 - "The Problem with Traditional American Pedagogy and Practice."

Thursday, May 9: Darder, Antonia. Culture and Power in the Classroom, Chapter 2 "The Link Between Culture and Power."

Friday, May 10: (at Torrey Pines) 5th Dimension.

Week 7: Research Practicum II

Tuesday, May 14: Griffin, P., & Cole, M., "Current Activity for the Future: The Zo-ped."

Thursday, May 16: Laboratory of Comparative Human Cognition, "Kids and Computers: A Positive Vision of the Future."

Friday, May 17: (at Torrey Pines) 5th Dimension.

Week 8: Power and Culture in the Classroom II

Tuesday, May 21: Delpit, Lisa. Harvard Educational Review, "The Silenced Dialogue: Power and Pedagogy in Educating Other People's Children."

Thursday, May 23: Streitmatter, J., Toward Gender Equity in the Classroom, Chapter 2 - "Socialization."

Friday, May 24: (at Torrey Pines) 5th Dimension.

Week 9: Education

Tuesday, May 28: Buber, Martin. Between Man and Man, "The Education of Character."

Thursday, May 30: Final Paper Presentations

Friday, May 31: (at Torrey Pines) 5th Dimension

Week 10: Final Paper Presentations

Tuesday, June 4: Final Paper Presentations

Thursday, June 6: Final Paper Presentations and Wrap-up.

Friday, June 7: (at Torrey Pines) 5th Dimension. Final Impressions.

Final Paper Due

Tuesday, June 11: FINAL PAPER DUE

V. Appendix C. Contacts for further information.

The 5th Dimension was created as an after-school computer club by the University of California, San Diego, professor Michael Cole and his colleagues. More than 10 sites are presently in existence in the US, Russia, and Mexico. Torrey Pines Elementary is the first public school to set up an in-school version of the 5th Dimension.

The Torrey Pines 5th Dimension program is also featured in the videotape *The 5th Dimension*, produced by UCSD-TV.

For further information about the 5th Dimension,

contact: Virginia Gordon vgordon@eudoramail.com.

or check out the web site: www.uclinks.org.