VENTURES IN SCIENCE
STATUS REPORT
SUMMER - 1992

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PROGRAM DESCRIPTION

The Ventures in Science summer program is directed towards students who are from underrepresented minority groups in mathematics and science professions. The target group of 40 was drawn from eligible students who will be entering high school freshman in the fall of 1992. 450 students applied.

The school day begins at 9:00am and ends at 3:00pm. Mondays are reserved for field trips that stimulate science activities. The theme for the summer is Chicago as an Ecosystem.

The students are instructed in integrated math and science (2 hours), English/ESL (1 1/2 hrs.), counseling (1 hr.) and, physical education (1 hr.) each day four days a week. Integrated math and science are team taught.

Parents are invited to participate in two workshops that will be presented based on their input. Parents may also visit the program at any time and participate in any field trip.

CURRICULUM

The University of Illinois at Chicago has made available their material on Teaching Integrated Math and Science (TIMS). The TIMS material is used within the theme of the Ecosystem. The English, counseling, and physical education components complement the math and science activities through literature, speakers, and videos, including "Futures" with Jaime Escalante, and assignments coordinated with the math/science faculty.

In addition to the primary goals of achieving growth in math and science, cooperative learning skills and skills that will ease the transition to high school are emphasized by the experienced high school teachers.

For students who are limited in English proficiency, assessments are made to determine whether these students are best served by integrating them with English only or bilingual students, by grouping them, or by a combination of approaches. An individualized approach is used based on English language and subject matter proficiency. Each class includes professional staff who are experienced bilingual/ESL teachers who use their skills to ensure the participation of the LEP students.

FACULTY

All faculty for the summer program were hired by mid-May. Two faculty members are from Truman College and the chair of the Department of Mathematics and Physical Education respectively. Two faculty members are high school teachers from the Chicago Public Schools with credentials in English/ESL and counseling. These two teachers also have extensive expertise in cooperative learning. The science teacher is on the faculty of the Math and Science Teachers' Academy. All hold masters degrees.

A fourth year student from the University of Illinois at Chicago, College of Education assists in the math and science component of the program.

In addition the director, three of the five faculty members and the student program aide are bilingual in Spanish and English.

STAFF INSERVICE

The entire team met for at least 10 hours of intensive group planning prior to the beginning of the program in order to share strategies, materials and timetables.

In addition, the Physical Education instructor participated in an intensive five-day workshop with Project Adventure, a course designed to foster trust, cooperation, and physical skills to participants. The math instructor participated in a five-day TIMS workshop sponsored by the University of Illinois.

In order to ensure collaboration in all activities, the team meets for at least two hours weekly for the purpose of sharing insights into the students, discussing possible problems, and sharing expertise, in particular ESL and cooperative learning techniques. The teachers are encouraged to visit each other's class rooms.

SELECTION OF STUDENTS

In concert with the Chicago Public Schools, information about the program was sent to all Chicago Public schools in April through the Personnel Bulletin, the official communication vehicle of the system.

The target students for the summer program were graduating eighth grade students. Elementary schools in reasonable proximity to Truman were visited and follow-up phone calls made to ensure that program information was being disseminated. The director also spoke at the target area subdistrict principals' meeting.

Applications in English and Spanish were made available through packets sent to target schools.

Approximately 450 applications were received. After applying criteria which established priority and the desired numbers from the target groups, a lottery was implemented in order to select fifty participants.

Complete information packets in Spanish and English describing the program were sent to the accepted group. This included a program description, calendar of activities, and rules and procedures of Ventures in Science and Truman College.

The program began on June 22 and within a short period of time, the program stabilized at the desired number of participants - a total of thirty-eight divided into two groups. Approximately half of the students consider themselves to be "B" students, one-fourth "A" students and one-fourth "C" students. Of the 38 students 9 are limited English proficient Hispanics, 9 are Hispanic, 14 are African American, 6 are other. 20 are females, 18 are males.

PARENTS

Communication with parents whether written or verbal has been in the appropriate language for the parent. On the opening day of the summer program parents attended a breakfast and orientation to the program.

Parents have been invited to visit the program at any time and to participate in field trips as dictated by their interest. At least two have been present at each of the field trips.

Parent questionnaires have yielded areas of interest and appropriate speakers have been selected for workshops.

The design for the Fall program will be discussed with parents and their interests and preferences will be incorporated into the design.

EVALUATION

An evaluator was hired and appropriate examinations and questionnaires were identified or developed in order to assure that both formative and summative evaluations could be conducted.

Pre-tests were conducted the first week of the program.

COMMENT

We are presently mid-way through the summer program, morale is extremely high among the faculty and students. Students attendance is at 90% and improving.

All faculty plan to remain with the program for the 1992-93 year. Parents have expressed a keen desire for their children to continue with the program. Students have asked to come back next year.

Evaluation Report

A Report on the Effect of

Ventures in Science,

a Summer Program Held at

Truman College

in 1992

Prepared by Dr. Wayne C. Fredrick, Consultant

October, 1992

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The Effect of Ventures in Science

Introduction

Ventures in Science (VIS) was developed to prepare students for their entry into high school and to support their progress as they continued through their freshman year. A six-week summer program was the first part of VIS to be implemented for a group of 40 pre-ninth graders from across Chicago. The summer program emphasized preparation in math/science, English language arts, and physical education. In addition, the students were provided with daily counseling activities, field trips to view Chicago as an ecological system, and real-time treatment as high school students.

Staff and Students

The teachers and staff were selected for their ability to assist inner-city and bicultural students to awaken to the possibility of math and science as a career path. Some staff were college-level teachers, others were high school level. The aide was a college intern in education. Several staff were bilingual in Spanish.

Students were selected who were unlikely to realize the opportunities that existed for them in math and science. Applications for the program were solicited through the Chicago Public Schools, emphasizing geographical areas in the vicinity of Truman College, and targeting groups who might have reservations about taking math and science courses in high school.

Application Process

Females and minorities were encouraged to apply. Applications were received from over 400 graduating eighth graders. These were checked for completeness and eligibility. Two criteria were used to determine eligibility. One was the proximity to Truman College. Those who were too far to make the daily traverse conveniently were excluded. The second criterion was grades in math and science. The students with grades of D or below were excluded.

The eligible pool of candidates was stratified by sex, ethnic group and primary language. The students were drawn by lot for acceptance into the program. They consisted of 19 males and 21 females in four categories; 11 Hispanic, 14 Black, 9 Limited-English Proficient, and 6 Other. A, B, and C students were mixed in each category. Students were invited personally to attend the summer program. Most accepted. The few refusals were replaced by other candidates from the same stratification.

Program Design

Forty students reported for the program, which began on June 22, 1992, and finished on July 31. The underlying theme of the program was ecology. The daily program was from 9:00 to 3:00 each weekday. On five days field trips were taken to a total of seven locations

to look at Chicago as an ecosystem. On five occasions, speakers from agencies or businesses related to ecology made presentations. The culminating activity was an overnight trip to Yerkes Observatory to view the stars and place Chicago in context.

On regular days the schedule included two hours of integrated math/science, one and one-half hours of English language arts, one hour of counseling activities, and one hour of physical education. Absences and tardies were recorded just as would be done in high school. A stipend of $8 was paid for each day of attendance. Three tardies resulted in the loss of one day of attendance.

Evaluation Efforts for the VIS Program

Because the program was seen as experimental, efforts were made to document its effects. Instruments were selected to measure pretest and posttest skills and attitudes. The aspects of the program itself were rated by the students and parents. Teachers kept logs of their daily curriculum. Plans were made to obtain students' achievement scores as eighth graders and to track their progress through the first year of high school.

In addition, a control group of students was randomly drawn from the stratified lists of applicants who were not selected in the lottery for the VIS program. These students and their parents also responded to some of the same instruments as the VIS students, timed to coincide with the posttesting of the VIS students. Their eighth-grade performance and a follow-up of their grades as ninth graders was also planned.

The following data sources were used for VIS students:

*Eighth-grade reading comprehension scores on ITBS
*Eighth-grade mathematics total scores on ITBS
TIMS Scientific Thinking Test - Form A (pretest)
TIMS Scientific Thinking Test - Form B (posttest)
Truman Math Test - Form A (pretest)
Truman Math Test - Form B (posttest)
*Monroe-Sherman Arithmetic Test (Control group only)
*Feelings About High School
Feelings About High School and VIS (posttest)
COPS-R Interest Inventory (pretest)
*COPS-R Interest Inventory - Item Subset (posttest)
Self-Esteem and Self Perception Scale (pretest)
*Self-Esteem and Self Perception Scale (posttest)
Open-ended questions about VIS classes (posttest)
Ventures in Science Program Assessment (posttest)
*Parent Questionnaire (posttest)
Attendance, Attrition and Tardy rates in VIS
Continuation rate in the Fall program of VIS
*Ninth-grade scores on TAP (planned follow-up)
*Ninth-grade attendance rate (planned follow-up)
*Grades in High School (planned follow-up)

*The starred items were also gathered for the Control group.

Attendance Rate in the Ventures in Science Program

Forty students were accepted into the program as of June 22, 1992. These were drawn by random lottery from the set of students who were eligible for the program on the basis of four criteria. The criteria were: proximity to Truman College, prior grades of C or better in math and science, a student within the Chicago Public School system, and the application form complete and on time.

A stratification procedure, based on race and sex, was used to assure that sufficient minority group students were accepted into the program. Random lots were used to draw from the stratified sets until the quotas of each category of student were filled.

Of these 40 pre-ninth graders, 37 registered and entered the program. Three new students were randomly drawn from the stratified sets of eligibles to replace the three no-shows.

Later in the program, in the third week, two students dropped out. These two were not replaced. In the third, fourth and fifth weeks of the six-week program, four students were granted excused absences (for camp and for family obligations).

The total number of days of the program was 30. The total number of students was 40, resulting in a potential of 1200 attendance days. The late entry of three students cut this amount by 10 days, the drop-out of two students cut this another 35 days, and the excused absences removed another 25 days. This left a potential of 1130 attendance days.

The actual days of attendance, counted from the daily records, were 1038, for a rate of 91.86 percent. Thirteen of the 40 students had perfect attendance, 11 missed one or two days, seven missed three to five days, six missed six to eight days and one missed 12 days. (The excused absences were prorated according to the attendance rate of the students during the days they were expected to attend.)

For comparison purposes, the rate of attendance at summer programs run for students of the Chicago Public Schools is typically 81 percent. Thus the attendance in the VIS program was substantially higher than usual. Even counting the drop-outs, late starts and excused absences, the attendance rate in the VIS program would still be 86.5 percent.

Tardies were also counted during the program. The teachers wanted students to experience what high school would be like, so they adhered to a rather hard line on promptness. With 1038 attendance days times four classes per day, there were 4152 potential tardy marks during the program. Only 90 tardies were received by the students, so that 97.83 percent of classes attended were attended on time. This rate of tardies was considered quite low.

Nine students had no tardies, nine students had one tardy, and the others ranged up to seven tardies. The rate of tardies (tardies per number of classes attended) ranged from zero to 6.3 percent among those who stayed in the program. One of the students who later dropped had a tardy rate of 12.5 percent.

Thus to summarize the situation on attendance and related matters, the VIS program had good holding power. Its rate of no-shows was 7.5 percent, its drop-out rate was 5 percent, its rate of attendance was 92 percent, and its on-time attendance was 98 percent. Excused absences were 2 percent of the attendance days. These results were better than expected for summer sessions, and even compared well to regular-year rates of high school attendance. Later, at registration for the Fall, 79 percent continued in VIS. This continuation rate was seen as exceedingly strong and positive.

The Control Group Survey

Students who were eligible to enroll in the VIS program but who were not selected in the stratified random drawing were put into the set eligible to be controls. This set was stratified using the same criteria that had been used for the experimental students. Individuals were drawn randomly until 60 were selected. These 60 were sent surveys during the fifth week of the program, to be completed and returned about the time when the VIS students would be in their sixth week of the program.

The survey for controls consisted of five instruments: a parent questionnaire, a student survey of vocational interests, a student survey of expectations about high school, an arithmetic test, and a self-esteem scale. Similar instruments were also completed by the VIS students at about the same time in the summer.

The surveys sent to the control students were undeliverable in four cases, leaving 56 possible returns. After three weeks, 27 were completed for a return rate of 48 percent.

The Control and Experimental Groups

The Iowa Test of Basic Skills had been given to many of these students in April of 1992. The scores they received as eighth graders in reading and math were tabulated. Scores were available for 28 of the students in the VIS program and for 48 students in the control group. The control group was subdivided into two groups, based on whether or not they had returned a mailed survey regarding their anticipations about high school. The scores on ITBS reading comprehension and mathematics are shown below.

These three groups did not differ significantly on their ITBS scores in reading or math. The randomized procedures for selecting students from the pool of eligibles had apparently worked very well. Students who returned surveys were not significantly different on their scores in reading and math from the group of students that did not return their surveys.

Table 1. ITBS Scores of VIS and Control Group Students in Grade 8

Group of Students	Number of Scores	Mean GE Reading (SD)	Mean GE Math (SD)	Range in Reading	Range in Math
VIS Students	28	8.1 (1.9)	8.4 (1.3)	3.2-12.2	5.4-10.6
Control, Survey Returned	21	8.2 (1.5)	8.4 (1.6)	5.2-10.7	4.9-11.2
Control, No Return	27	8.0 (1.4)	8.5 (1.2)	4.4-10.7	5.4-10.0

The control and experimental groups could also be compared on the math test that was given. Control groups took the math test (a variation on the Monroe-Sherman) at home on the honor system. VIS students took a pretest version, and five weeks later a posttest version, of the Truman Math Test under classroom conditions. The Truman test had 35 math problems, the Monroe-Sherman variant had 30 math problems. The VIS students also took a pre and posttest on the TIMS material which measured aptitude for scientific thinking. The TIMS test had 34 problems in scientific reasoning. The numbers of problems done correctly in each group were as follows:

Table 2. Math Test Scores of VIS and Control Group Students

Group of Students	Number of Scores	Math Test	Science Test	Range in Math	Range in Science
VIS Students (Pretest)	38	13.5	16.0	5-24	5-29
VIS Students (Posttest)	38	14.5	20.2	2-22	7-27
Control Group	26	22.0	--	11-30	--

The slight improvement for the VIS students from pre to posttest on both the math and science test was encouraging. The difference between pre and posttest score for science was significant at the .01 level ($t = 4.06$ for 31df).

The math test scores of the control group (unlike the ITBS math scores where the groups were equal, were much higher for the control group than for the VIS students) were viewed with some suspicion for two reasons. One was the fact that the 30-item math test was taken under uncontrolled conditions, and two, that the return rate of the test for the control group was only about 50 percent. It was very possible that only those students who could handle math well returned the survey, and only if they felt they had performed well on the particular problems.

The parents of control and VIS students completed a survey about what they noticed in their children regarding interest in school and interest in math and science. The comparisons between the responses to the surveys are below:

Table 3. Survey Questions Asked of Parents of VIS and Control

Questions Asked of Parents During Sixth Week	VIS Group n = 14		Control Group n = 26
Were there any indications that your child discussed or read about these things during the last month?	5 = Much 0 = None		5 = Much 0 = None
Some day attending college	4.6	*	3.5
High school courses	4.5		4.0
Occupations or careers	4.3		3.8
Math as an attractive topic	4.0	*	3.2
Science as an interest area	3.9	*	3.0
The ecology of the earth	3.7	*	2.9
How far do you feel your child will get in education? (in years beyond grade 8)	8.2 yrs		7.8 yrs
To what level would you like your child to continue?	8.7 yrs		8.2 yrs
Does your child have a proper time and place to study?	77% Yes		88% Yes
Do you have basic knowledge about loans, scholarships and support that students can get for college?	38%		46%
Have you gotten information on high school counseling?	31%		42%
Have you been told about the choices that exist for your child in math/science careers?	40%		42%
Are you optimistic about your child's high school?	90%		100%

The asterisks in Table 3 show that some of the differences between the control and VIS students were significant at the .05 level. At the sixth week of the VIS program, the students were more likely to talk about attending college, they were more likely to see math and science as interest areas for themselves, and to discuss ecology of the earth. On each of these areas, the parents of control group students noted less interest than did the VIS parents.

These differences in interest developed despite the fact that the control group seemed to be more capable in math, and as we shall see later, more proficient in English skills as well. On other measures the two groups were similar. Both sets of parents expected about equal amounts of education for their children. The amount expected was to finish college.

On questions about basic knowledge regarding high school courses, college courses, and careers, the parents of the control group children were slightly more positive, but this did not reach a significance level on these questions. Overall, it appeared that the VIS program had a specific effect on interest in the topics taught and in raising general consciousness about the approaching high school and college years, but did not boost knowledge among parents about options and assistance that they could access.

In Table 4, additional data is presented from questions that were asked only of the VIS parents and not of the control group. Note the low percents who have received information about colleges at this stage and the high proportion of VIS students who have begun talking about college.

In the second section of Table 4, the ratings of the parents are shown for specific aspects of the VIS program. Their children were definitely interested and enthused by the program, they talked about it and seemed able to handle the content adequately. The parents were nearly unanimous in rating it as a helpful program. Form their experience as parents connected to the program, they rated the field trips highest. These received largely "Great" ratings. Next in value was the counseling, then the other four areas clumped halfway between great and good on the rating scale.

Table 5 shows the responses of VIS students on questions that were particular to the VIS program, and on others that probed their general feelings toward schooling and careers. Control students were not asked to complete these items. The most uniformly sure response from the VIS students was that they would continue with their education even if their friends dropped out. They were also certain that if their parents didn't realize fully the value of going to college, that they would reason with them.

As a result of the VIS program, they felt more able to deal with high school material, and they were planning to take more math. The students were quite definite that they worked hard because they realized the importance of the subject, and that they would tell others to take the VIS program if they had the chance. Their

overall rating of VIS was 4.3, with 94 percent giving it a "Great" or near great rating. They liked math more after being in the program, and they felt the counseling component had helped them to understand themselves better.

Less certain, but still quite positive, were responses about how much was learned, about liking science, about the self testing that was done in the program, and physical education classes. When asked about whether they would continue with VIS in the fall, only 12 percent wavered. On the value of the language arts, there was a sharp divergence, with 60 percent quite positive but 25 percent questionning the usefulness. Later we will see that several of the students viewed the language arts component as too easy.

Table 4. Questions Asked of Parents of VIS Students (n = 14)

Have you received good information on college costs?	23% yes
Do you know that some colleges are quite low cost?	38% yes
Does your child talk about going to college?	85% yes
Do you feel it is worthwhile to learn about ecology?	80% yes
Was your child interested and enthused about VIS? (5 = Yes much; 0 = No)	4.62 on a 5-point scale
Did you feel VIS helped a lot?	4.62
Did your child talk about VIS with you?	4.38
Was the content of VIS at a good level?	4.33
What rating would you give to VIS Field Trips? (4 = Great; 1 = Poor)	3.85 on a 4-point scale
VIS Counseling Activities?	3.64
VIS Physical Skill Training?	3.43
VIS Mathematics Activities?	3.43
VIS Language Arts Activities?	3.36
VIS Ecology Activities?	3.31

Table 5. Results From Ventures in Science Program Posttest Survey
(N=34 VIS students, results ranked from most postitive)

Item No. in Survey	Question	Mean	Certainly = 5 Percent Selecting: 5	4	3	2	1	No = 0 0
24.	If your friends drop out, will you continue?	4.88	94	6	0	0	0	0
25.	If your parents are unsure about college, will you help them realize its value?	4.66	78	13	6	3	0	0
21.	Do you feel more able to do high school material?	4.59	66	28	6	0	0	0
10.	Have your plans about courses become clearer?	4.41	50	41	9	0	0	0
12.	Are you planning to take more math in school because of this summer program?	4.38	56	32	6	6	0	0
26.	What rating given to VIS? (Great = 5, Poor = 0)	4.35	41	53	6	0	0	0
11.	Did you work hard because you knew it was important?	4.26	50	32	12	6	0	0
15.	Would you tell others to take this summer program?	4.16	53	22	13	12	0	0
18.	Do you like math more?	4.06	41	34	19	19	3	3
22.	Did the counselor help you understand yourself better?	4.03	44	34	10	9	0	3
13.	Was your family impressed with how much you learned?	3.76	38	32	15	3	6	6
17.	Do you like science more?	3.68	32	32	21	3	9	3
20.	Did you like self tests?	3.62	25	44	16	6	3	6
23.	Was P.E. a good class?	3.47	25	34	19	13	3	6
16.	Will you continue with the VIS program in the fall?	3.47	25	34	19	10	9	3
19.	Did writing/reading help?	3.00	19	38	15	3	3	22

Ratings of the VIS Summer Program

During the sixth and final week of the summer program, the students were asked to respond to a series of questions on a survey and also to open-ended writing tasks regarding how they felt about VIS. The results of the survey are shown in Table 6. Each field trip was rated, as was each speaker. Two of the field trips were given very high ratings; the trip to Indiana Dunes where sand dune ecology was studied, and the trip on Lake Michigan, where the relationship of Chicago and the lake were viewed.

The five other trips received neutral ratings from students. The comments by students showed that several thought that the degree of control was too high and they were not allowed to have much fun. Some bus trips, also, were seen as long.

The ratings of speakers averaged slightly higher than that of the field trips. Three, in particular, were rated positively; that from Amoco, from Genetic Engineering and from the Science Academy. The presentations on the Water Reclamation District and on Neighborhood Technology were seen as neutral.

The aspects of the day-to-day VIS program were rated very highly. Students felt the teachers did a good job, that they themselves did their work well, and made some good friends in the process. They even felt positive about working in groups and asking for help, if needed. Overall, they gave themselves a grade of "B+" for the VIS courses.

In advising on how the program might be improved, they were split as to either keeping the program the same length each day or making it a shorter day. The were in general agreement on the importance of the stipend of $8 per day. For half the students it was rated very important. The issue of homework also drew a mixed response, but it was surprising to the program team that a strong minority (38%) said that there should be some assignments to make the VIS program a better one.

The highest agreement was on whether or not the students were going to continue with VIS when it began in the Fall. Four out of five said yes. This high interest level was verified later when the Fall program drew an amazing 79 percent of the original group.

In Table 7 and 7a the responses to open-ended items are displayed. The particular course that the students most often noted as being of benefit to them was math, followed closely by science. Counseling, language arts and physical education also received frequent votes on this item.

When asked about difficult material, many (27%) said all of it was manageable, but math and science were each cited by about a fourth of the students. Smaller numbers (18%) thought language arts was difficult, and sometimes the tests and group work were difficult. No one cited physical education, and counseling was cited once.

Table 6. The Rank-Order of the Ratings of the VIS Field Trips, Speakers and Other Aspects of the Program - Summer 1992

Field Trip	Mean Rating (where 1 = high; 5 = low)
Indiana Dunes	1.45
Boat Tour	1.97
Argonne National Lab	2.67
Lincoln Park Zoo	2.70
Metropolitan Water Reclamation Trip	2.75
Solid Waste Disposal	3.16
Deep Tunnel	3.23
Speakers	
Amoco	1.41
Genetic Engineering	1.81
Science Academy	2.13
Water Reclamation District	2.70
Neighborhood Technology	2.77
Other Aspects	
I learned to make new friends.	1.35
The teachers did their job.	1.41
I did my job.	1.41
I completed my assignments.	1.71
I'd like to keep my new friends.	1.76
I asked for help when I needed it.	1.82
I like to work in groups.	1.88
The students did their job.	2.32
How would you grade your overall performance in the program? (A=1, B=2, C=3)	1.76
	18% A's
	71% B's
	12% C's
Would you like the program day to be longer, shorter or the same in the Fall?	44% Shorter
	50% The Same
	6% Longer
How important is the stipend to your continuing in the program?	48% Very Important
	43% Not too Important
	9% Not at all Important
If homework were assigned, would the program be better for you?	48% said No
	38% said Yes
	15% Weren't Sure
Are you interested in continuing to attend the VIS program in the Fall?	79% said Yes
	12% said Maybe
	9% said No

Table 7. Responses to the Open-Ended Items in the VIS Program Assessment

Question in Survey	Responses
In what area did you get the most benefit?	69% said Math 63% Science 38% Counseling 28% Language Arts 22% Physical Education
What was the most difficult part of the program?	27% said Nothing 27% Mathematics 25% Science 18% Language Arts 12% Tests, Group Work 9% Physical Education 3% Counseling
Which VIS course or courses did you like best? (Mark 1 or more)	71% Counseling 68 Math/Science 47 Physical Education 18 English Language Arts

Students in the VIS program were asked to write about each of their VIS classes as an exercise in language arts. The responses were read and coded for how positive or negative the student felt about the class. The mean ratings are presented below;

Table 7a. Responses of VIS Students to Open-Ended Questions about the Program

Subject Area	Number of Responses	Students Rating (6=High Positive; 1=High Negative)	Percent of Ratings Given 6	5	4	3	2	1
Counseling	30	5.0	20	50	17	10	0	3
Math/Science	31	4.5	13	42	36	6	3	0
Physical Education	28	4.0	4	25	39	21	11	0
Language Arts	31	3.5	3	13	32	36	10	6

What the Students in VIS Liked Best

This question was put to the students in two forms during the VIS program. One was asked on the survey form (What course or courses did you like best?) and the other was asked as part of a writing assignment in language arts. The results of the first are shown in Table 7 and the other are in 7a.

Counseling was liked the most, narrowly eclipsing the math/science juggernaut. Later review of comments indicated that students liked the care and concern of the instructor, the high interest methods used to evoke information about themselves, and the down-to-earth advice about what high school and college would be like. Math and science were appreciated for the confidence that was built, for the helpfulness of the instructors, and the hands-on nature of what was studied.

Physical education received votes from nearly half of the students. They liked the idea of "practicing" this course to see what it would be like in high school. They liked most of the sports, but were a little perturbed when explanations sometimes took up a large chunk of class time.

English language arts received the fewest votes. It was seen from students' comments that by trying to aim the level so that all students (limited English and native English speakers combined) could participate in the language activities, that many were not challenged while a few were.

The same rank order of courses was seen in the open-ended comments that students made in the writing assignment in language arts. The modal ratings of the students' feelings about the courses are shown in Table 7a. Modal scores of 5, 4.5 and 4 were each positive on the scale, while the 3.5 for language arts was exactly neutral. Note the high proportions of students having positive views of the VIS courses; that is, ratings of 4, 5, or 6 on the rating scale.

Feelings About High School

Table 8 presents the results from the instrument titled, Feelings About High School. This instrument was taken by the VIS students as a pretest during the first week, and again as a posttest during the sixth week of the summer program. Control students also took this during the sixth week of the summer. In Table 8, significant differences are noted with an asterisk between values that differ.

In many areas, while the results were illuminating, the expected changes from pretest to posttest did not occur. The differences between VIS and control students were also rarely significant.

At the sixth week, however, the VIS students were less positive about high school than were the controls, and they were less positive than they had been. They were still somewhat positive, but not like they had been. Discussions of this change, which was

Table 8. Feelings Among the VIS Students and Control Group about Schooling, with Changes between Pre and Posttest Noted

Question in Survey	VIS Pretest N=32		VIS Posttest N=38		Control Group N=26
Describe High School (low values indicate positive; 7=neutral; high values negative)	5.1	*	5.8	*	4.5
Describe Math/Science (low values positive; 5.5=neutral, high values negative)	3.3		3.0		2.7
Factors in Finishing High School (percent weight given by median student in group)					
My own effort	37%		36.5%		39%
My teachers	25		24.5		24.7
My friends	19.5		20.5		17
Being lucky	16		16		14
Factors in Going to College					
My own effort	36%		33.5%		37%
Family help	29		27.5		29
Being lucky	16		19.2		14
My friends	17		18.3		13
Factors in a Career					
My schooling	31.3%		27%		30%
Choices I make	28		28		29
My abilities	28.5		28		28.7
Lucky breaks	11		16.5		11
How certain that you will:					
Do well in English	85.1%		85.6%		82.5%
Do well in Math	85.2		88.2		82.5
Do well in Science	81.3		84.3		83.9
Do well in Phys Ed	88.7		87.7		87.3
Do well in History	79.8		82.8		86.0
How certain that you will:					
Finish Grade 9	96.9%		97.9%		--
Finish Grade 10	97.6		97.1		96.7%
Finish Grade 11	96.7		97.0		95.8
Finish High School	98.2		97.5		97.4
Go to College	88.8		89.5		89.1
Finish College	86.6		89.0		--

Table 8 (continued)	Pretest		Posttest
How likely are these things to happen to you: (1=Strong chance; 2= medium; 3=little; 4=No)			
Job using some science	2.12	*	1.79
Job using some math	1.72		1.59
Job using much science	2.32		2.12
Job using much math	1.84		1.85
Job title "Scientist"	2.74		2.53
Job as "Mathematician"	2.52		2.53
Job title "Ecologist"	2.87		2.76
Rating of VIS compared to last month of grade school: (Higher numbers indicate more positive ratings.)	Grade School		VIS Program
Liked the program	3.75	**	4.53
Prepared for H.S.	3.84	**	4.38
Math/Science confidence	3.50	*	4.09
Want to make progress	4.12	*	4.50
Thought about career	4.22		4.29
Learned about choices	4.06		4.29
Care about environment	3.47	**	4.06

Likelihood of these things happening in your life: (Lower values mean the event is more likely.)	Pretest		Posttest	Control
Teenage parent	3.52		3.65	3.88
Dropping out	3.52		3.76	3.62
Gang member	3.39	*	3.76	3.85
Being truant	3.55		3.68	3.77
Illegal drug use	3.81		3.97	3.92
Arrested for crime	3.61	*	3.88	3.88
Work, leave school	3.44		3.68	3.69
Babysit, leave school	3.81		3.88	3.92
Go to college	1.34		1.35	--
Enter a profession	1.26		1.29	1.42
Work on ecology project	2.42		2.21	--
Write about science	2.13		2.32	2.08
Develop algebra skill	1.69		1.50	1.65
Study environment	2.23		2.06	1.77
Conserve resources	2.26		2.12	--
Littering	3.03		2.97	--
Study literature	--		--	2.15

An asterisk between the pairs of scores indicates that the difference between them was significant beyond the .05 level.

in an unexpected direction, revealed that the VIS students had perhaps become more realistic about their approaching schooling. Analysis of specific terms selected from the list showed that the students more often thought of high school as big, confusing, demanding and a little boring; but less helpful at the posttest than at the pretest.

In comparing the Control and VIS students, the terms that differed were big, dangerous and helpful. VIS students saw high school more often as big, more dangerous, and less helpful than the Control group. The general trend of the responses was quite similar, as will be seen in a later section of this report.

The second item in Table 8 shows how positive the descriptions of math and science were. There was a trend toward more positive descriptions at the posttest than at the pretest, but this was not statistically significant. Likewise, the Control group also tended to be slightly more positive than the VIS students. Review of the specific terms used showed that VIS students saw themselves as needing more math and science, that it was a powerful tool, and not just something to get out of the way. They realized these things more at the posttest than they did at the pretest. In comparison to the Control group, the VIS students were less likely to see math and science as courses to get out of the way.

In general the description of math and science by all students was that it opened your mind, it was fun to explore, it was a powerful tool and they needed more of it. These basic feelings did not change from pretest to posttest, nor did the Control and VIS groups differ on their view of these terms as apt descriptors.

Other items in Table 8 show that students generally cited their own efforts as being the first determiner of how far they would get in high school and college. This was seen as the factor that would account for one-third to 40 percent of the outcome. The quality of teachers would account for another one-fourth or more. Luck and the help of friends were each seen to account for less than 20 percent of the outcome.

As for one day determining a career, each of these factors: one's abilities, schooling, and choices made, were each weighted about equally in importance. Luck was seen as of smaller importance. In each of these items, there were no significant changes in how the group viewed the factors between pretest and posttest, nor were there significant differences between VIS and Control groups.

The VIS students were slightly more confident about high school courses at the posttest than they had been at the pretest, but this was not statistically significant. They were also more confident than the Control group, especially about math.

On the likelihood of finishing high school and attending college, the results showed a high expectation for both groups which did not change from pretest to posttest. On the likelihood of someday

having a job that entailed the use of some science, the posttest ratings of the VIS students showed that they now expected to have a job that used some science, but not necessarily one that used a lot of science. In general, they saw the chances of math, science and ecology as more likely in their future work after taking the VIS program.

VIS Compared to Elementary School

VIS students were asked to compare the last month of eighth grade to the last month of the VIS program. Many of the ratings were higher for VIS than for grade school. The students liked the program more, and they definitely felt it prepared them for high school better. They became more confident about math and science, and they wanted to make educational progress as a result of VIS. Finally, they were also more aware of caring for the environment as a result of VIS than in grade school.

The emphasis on careers and choices that would have to be made were rated about equally between grade school and VIS. It appears from these ratings that the VIS program reached most of its objectives of building confidence and awareness in math, science, and ecology. Career choices were kept low key and didn't catch on as much, but one should realize that ninth grade is very early to deal with this heavily.

Events in Students' Lives

The students rated how likely certain events were in their lives. This was done to see if VIS had some general effect on how students perceived their future. Most items did not change much from pre to posttest, as can be reviewed in the last part of Table 8. On two items, however, the likelihood decreased at the posttest. One was that gang membership was seen as less likely, and the other that arrest for a criminal activity was rated as less likely at the time of the posttest.

On a few measures there were some interesting trends from pretest to posttest. VIS students felt it was somewhat more likely that they would study ecology and the environment, that they would also develop skill in algebra, and be less likely to leave school to go to work. These were not statistically significant, however.

Results of the Interest Inventory

The VIS and Control students took the COPS-R Interest Inventory to see how much they liked or disliked the tasks and skills required in various professions. The results are shown in Table 9. The Control students generally had a higher interest level in all areas than the VIS students. The changes from pre to posttest were not significant for the VIS group. As with other career oriented questions used to evaluate the effect of the VIS program, it seems that career aspirations didn't develop very much over six weeks, and perhaps it was too optimistic to expect such change.

Table 9. Comparison Between VIS Students and Control Group on COPS-R Interest Inventory.

From COPS-R Inventory	Group (n)	Pre*	Post*
Interest in A: Professional Scientific Activities	VIS (33)	17	18
	Control (26)	--	23
Interest in B: Technical Skills in Science	VIS (33)	16	14
	Control (26)	--	20
Interest in C: Non-Technical Professions	VIS (33)	14	14
	Control (26)	--	16

*Degree to which various tasks and skills relevant to the interest area were liked by the respondents. Higher numbers indicate a greater liking of the tasks.

Anticipating High School

The descriptions that students used to anticipate what high school might be like were tabulated from Feelings About High School, which both control and VIS students completed. VIS students completed the form twice, as a pretest and as a posttest.

The control and VIS students anticipated high school as follows: (Responses in order from most frequently selected to least)

Table 10. Descriptors Used for High School Prior to Entry (33 VIS and 28 Control students' responses)

Control Group		VIS at Pretest		VIS at Posttest	
92%	Nervous	78%	Exciting	82%	Exciting
88	Exciting	72	Important	71	Important
88	Important	67	Nervous	62	Nervous
46	Helpful	42	Helpful	44	Big
38	Confusing	31	Big	44	Confusing
27	Demanding	25	Confusing	24	Demanding
15	Quality	14	Loud	15	Quality
15	Big	14	Demanding	15	Dangerous
15	Lonely	11	Quality	15	Helpful
8	Far	11	Dangerous	12	Lonely
8	Dangerous	8	Far	12	Boring
4	Loud	8	Lonely	3	Loud
0	Boring	0	Boring	0	Far

Career Interests of VIS Students

Students were also asked about careers. The question was: Based on the information you have gotten from the program, what career interests have you developed? (34 respondents) As can be seen from the list below, technology-oriented professions and scientific careers were very popular among this group, probably as a result of the topics and themes of the VIS program.

Computer
In computers
Computer analyst
In landscape, computer programming and architecture.
Architect
Architecture
Architecture
Architecture, biology, accountant
Accountant
I have developed interest in accounting.
I like to develop in the business category.
Chef
Doctor
Doctor
Basketball
Engineer
Engineering
Probably engineering
After coming to the program, I'd like to be an engineer (ceramics).
Engineer or something like Majo
Cartoonist or archeologist
Archeologist
Mathematics
Math and English
Math and science built my career up.
I've developed a better interest in science.
I'll work more in math/science, that's what I need more.
Scientist or math
Science
Science
Career in science
Mostly science and business, I liked them the most in the program.
I've been wanting to become a pediatrician. This program made me feel even stronger about my career choice because of the science in the world.
Medicine/science
Medicine, scientist, actress
I had decided on this before the program.

Changes Suggested by VIS Students to Improve the Program

The VIS students were generally very pleased with the program, but they were also confident enough that their views would be respected that they gave the team many ideas on what could be changed. The ideas went from time allotments to being challenged in English.

The students were asked to make suggestions about how the program should be changed. The responses were as follows to the question: How should the program be changed in order to make it better? (34 respondents)

None
It's great.
Well I liked it the way it is.
It shouldn't, it's good already.
I want to make everything good.
I don't think the program should change. All the teachers did their part to help us understand and know for high school.
Better trips
More trips, less speakers.
Make field trips more fun (two respondents)
Get better field trips that we would enjoy more.
Have more activities
Try to make the classes funner.
Use different materials in math and science and try to explain a little more, but slowly
Math have to teach different types, especially math problems.
Shorter periods (two respondents)
By getting off at two.
We should be let out earlier.
The classes should be 45 minutes with 10 minutes break.
Cut down on some of the time for each class.
Have less class time
Longer gym
More pool days
Counseling needs more time.
The classes should be extended to more time.
More English
English class should be shorter (three respondents).
New language teacher
Make the English more exciting. (The words were so babyish. We could have had more challenging words.)
Make the English class in high school level.
The language arts should be more challenging.
English have to teach more about grammar.
Give more time in science/math, don't give that much in English.
More time with counseling, less time with language arts
Play different sports in gym, not just basketball.
No gym because gym was boring.
Different sports
More time for swimming.
The gym class needs more time.
I think the swimming program should show you how to swim.
If some of us are not coming or if something is not right.
Some people don't like groups, so, not always groups.
The teachers not to talk too much (it bore) and teach things we don't know instead of things we already know.
Not to stay in the same room.
More work on the MacIntosh.
Tighter discipline

Self-Esteem and Self Perception Scale

39 students in the Ventures in Science program responded to the items in the scale in July of 1992. This is a report on the group as a whole. Individual responses were kept confidential.

1. Students graded themselves on 15 skills. The average grades and the rank order of the skills from highest down were:

A : Looking nice when dressed up
A-: Knowing right from wrong
A-: Listening to teachers
A-: Helping people who need it
B+: Getting along with others
B+: Being in a good mood
B : Controlling my bad thoughts
B : Finding things for others
B : Talking to younger children
B : Choosing interesting movies

The lowest grades were given for:

C : Inventing new games
B-: Telling funny stories
B-: Doing drawings and art
B-: Making meals and snacks
B-: Improving myself each day

2. Students rated the areas in which they did well. The highest areas (among nine rated on a 9-point scale) were:

7.9 Knowing what to study
7.8 Being able to work hard
7.7 Making friends in school
7.6 Using my free time
7.3 Keeping my body in shape
7.1 Being a fast reader

The lowest areas were:

6.3 Getting over disappointment
6.4 Impressing the other sex
6.4 Pleasing my parents

3. Students rated the problems in their lives. The problems were rated using a scale from 0 to 5, with five indicating a serious problem. There were few serious problems. The ratings were:

2.0 Coping with my friends' wishes
1.6 My feelings of weakness
1.6 Following my parent's values
1.4 My feelings of ugliness
1.4 Taking the advice of adults

Things that were seen as no problem were:

1.0	Not knowing what to do about sex
1.0	Wondering so much about religion
1.1	Keeping up with schoolwork
1.2	My ability to think clearly

4. Students were asked about the areas of their lives over which they had control. The scale used was from 0 to 6, with the six indicating full control. They said they had full control over:

6.0	Use or abuse of drugs/alcohol
5.3	Decisions about jobs and career
5.0	Who becomes my friend
4.9	What time I get up in the morning
4.9	The amount of studying I do
4.5	Making plans for my activities
4.2	Amount of my television watching
3.5	Whether my group breaks rules
3.5	Whether others like me or not

5. Students were asked to mark their weak spots. The following were marked with an X most often (the number before the item shows how many of the 39 students marked it as weak):

15	Speed	1	Clothes
14	Eyesight	3	Knowledge
14	English	3	Mind
13	Speaking	4	Vigor
12	Height	4	Family
11	Courage	4	Wellness
9	Face	5	Hair
9	Mood	5	Morals
9	Money	5	Style
7	Figure	5	Humor
7	Sexiness	6	Listening
6	Character	6	Strength

6. Students were also asked to select their strong points from the list. The items circled from least to most often as strengths were:

4	Speed	23	Mind
7	Sexiness	21	Family
7	Eyesight	20	Knowledge
9	Height	18	Clothes
10	Money	16	Listening
10	Morals	15	Character
10	English	15	Humor
12	Vigor	15	Strength
13	Figure	15	Mood
13	Face	15	Wellness
13	Speaking	14	Style
14	Hair	14	Courage

7. Students were asked to predict what problems they would face in high school and how able they would be to cope with them. The most frequent problems that the VIS students expected were (the numbers show how often the item was marked by one or more of the 39 VIS students):

19	Losing my old school friends
18	Having teachers who are mean
16	Getting into gang trouble
16	Being lost in a big place
14	Sexual activity and dating
14	Being afraid to ask for help
12	Doing what my parents want
11	Losing interest in studies
10	Keeping up with the others
9	Not being well liked
9	Temptations to party
9	Not knowing what I want to be

Of these problems, they believed they would need the most help with the following (a 9-point scale was used, with lower values meaning they would need help):

4.2	Getting into gang trouble
4.7	Sexual activity and dating
5.1	Having teachers who are mean
5.1	Not being well liked
5.1	Losing my old school friends
5.2	Being lost in a big place
5.3	Not knowing what I want to be
5.3	Losing interest in studies

The self-esteem level of the VIS students seemed very high. They said they had few problems, none serious; they felt they had good control over most areas of their lives; they gave themselves high grades in many skill areas; they marked, on average, only six weak spots, but 14 strengths; and most problems that they anticipated for high school were such that they felt they could handle without assistance. The VIS students were scheduled to take the same self-esteem scale during the first month of the Fall program.

Report of the Control Group on the Self-Esteem and Self Perception Scale, Revised Version

Twenty-six students in the control group responded to the items in the self-esteem scale in July of 1992. Most items were the same as those given the VIS group, but some were revised with new choices added and old ones deleted. Item 2, on things they did well, was combined with the former item 1 when the Control group completed the scale. Thus, item 2 below is comparable to the item numbered 3 above, and so on.

1. Students graded themselves on 12 skills. The highest grades were given for:

A : Knowing right from wrong
A-: Listening to teachers
A-: Planning for the future
A-: Helping people who need it
A-: Getting along with others
B+: Improving myself each day
B+: Figuring out math problems
B : My ability to make friends
B : Doing sports and athletic things

The lowest grades were given for:

C+: Doing drawings and art
B-: Writing about myself
B-: Being in a good mood

2. Students rated which things were problems in their lives (on a scale from 0 to 5, with five indicating a serious problem). The ratings were:

0.5 Not having interest in school
0.6 Keeping up with schoolwork
0.7 My ability to think clearly
0.9 Wondering so much about religion
1.2 Following my parent's values
1.7 Coping with my friends' wishes

3. Students were asked about the degree of control that they felt they had over various aspects of their lives. They rated the amount of control on a scale from 0 to 6, 6 meaning full control:

5.6 Use or abuse of drugs/alcohol
5.4 Decisions about jobs and career
5.1 The amount of studying I do
4.8 Amount of my television watching
3.8 Whether my group breaks rules
3.3 Whether others like me or not

4. Students were asked to mark their weak spots. The following listing shows how often one of the 26 control students marked the item:

11	Mood	0	Mind
7	Speed	0	Vigor
7	Height	1	Knowledge
7	Speaking	2	English
7	Figure	3	Humor
6	Eyesight	3	Listening
6	Strength	3	Character
5	Face	3	Morals
4	Courage	4	Hair

5. Students were also asked to select their strong points from the list. The numbers of times the items were circled are shown below:

3	Face	19	Mind
3	Vigor	19	Knowledge
3	Figure	18	English
5	Hair	18	Character
6	Mood	14	Humor
7	Height	13	Speaking
8	Strength	13	Listening
9	Eyesight	13	Courage
10	Morals	10	Speed

6. Students were asked to predict what problems they would face in high school and how able they would be to cope with them. The ratings were on a 7-point scale, with 7 indicating a big problem:

4.3	Having teachers who are mean
3.3	Losing my old school friends
3.2	Being lost in a big place
3.0	Not knowing what I want to be
2.8	Being afraid to ask for help
2.8	Not being well liked
2.7	Temptations to party
2.6	Keeping up with the others
2.6	Doing what my parents want
2.4	Sexual activity and dating

The students did not anticipate much problem in these areas:

1.5	Getting into gang trouble
1.8	Losing interest in studies

The control group showed a level of self-esteem equal to and even higher than the VIS students. Controls gave themselves high grades on skills, marked no problems as being serious, had an average of only four weak spots and ten strengths, and anticipated only minor problems in high school.

Minor variations were seen in the ratings of some items that were common to both versions of the self-esteem scale. VIS students graded themselves lower than controls on "improving myself each day," but higher than the controls on "being in a good mood." The control group checked "mood" most often as a weak spot, but for VIS students this item was eighth.

The control group marked their "English" as a strength much more frequently than did the VIS students. English was the third high strength out of 18 items for controls, but nineteenth of 24 for the VIS group. The controls, however, were less sure of what career they wanted to be in and felt it might be more of a problem than did the VIS students. The final difference worth mentioning was that VIS students anticipated that it was more likely that there would be gang trouble in high school than did the control students.

Executive Summary of Ventures in Science

Program Design

VIS was a six-week summer program begun in June of 1992. It was attended by 40 students of the Chicago Public Schools who had just graduated from eighth grade. The students were mainly minority, the intention being to give Hispanic, Black and female students an impetus toward math and science, and to support their approaching high school entry.

The program was located at Truman College, with support from other academic and business interests. Staff were from high school and college level, a mixture of people chosen to be able to work with limited English, math and science skills. The curriculum consisted of integrated math/science, language arts, counseling and physical education. Frequent field trips and outside speakers augmented the basic class experience. The theme of the program was ecology and how the city of Chicago was part of an ecological system.

Evaluation Design

Numerous data sources were used to measure the status of the VIS students prior to entry into the program, again upon completion of the program, and then as follow-up into high school. Since the students were randomly selected from a pool of applicants, it was possible to form a Control group drawn randomly from the same pool. The Control group was also measured on some of the same measures used with the VIS group.

The measures included aptitude scales for math and science; scores on reading and math achievement tests; an interest inventory; rates of attendance and attrition while in VIS; a parent survey; a survey of feelings about high school, college and careers; and rating scales specifically about VIS and various aspects of the program. All measures were reported on here except for the follow-up scores which will only become available after June of 1993.

Implementation and Participation Level in VIS

VIS was up and running on schedule and completed all aspects of the planned summer session. It had a full complement of 40 students and a shadow group of 60 control students. The attendance rate of VIS students for the 30 days of the program was 92 percent, which is high for summer. On-time attendance was 98 percent. Only five percent left the program, and at completion, an amazing 79 percent of the students returned for Saturday sessions of VIS in the Fall.

Staff was diligent and completed its role as contracted. All staff returned for the fall session. Field trips, speakers, and supplies were procured as planned. Documentation of effects and student measures of performance were gathered as planned. Staff met weekly to review curriculum, student needs, and to plan the program. The high rate of participation of students and staff was outstanding.

How VIS Was Rated by Students

The overall rating by students was that VIS was a great program for them. On a 5-point rating scale, 94 percent of them said VIS was great or near great. All said they'd tell others to take the VIS program. At the end, large majorities said they liked math more now, liked science more, understood themselves better, would argue with parents to go to college and felt more able to do high school. Details on these measures are in Table 5.

On specific aspects, the students said they liked most of the field trips and speakers. Students felt they worked hard and deserved a high "B" for their efforts. The teachers did a good job and the students made friends that they would like to keep. To improve the program, they felt the class times could be somewhat shorter and that homework might be necessary. The stipend of $8 per day was seen as quite important by most students. Details are in Table 6.

The VIS classes that the students most enjoyed were math/science and counseling. They were especially pleased with the practical and hands-on nature of the activities in these classes, as well as the skill and friendliness of the teachers. Physical education and language arts were also seen as helpful, but weren't rated as high. Table 7 and 7a show the summary data.

Significant Effects on VIS Students

About five weeks elapsed between the pretest and posttest measures that were used. Several of these showed changes over that period, but most did not change. The significant developments were:

Science aptitude on the TIMS test increased (Table 2)
The likelihood of a career using science increased (Table 8)
They became more concerned about the environment (Table 8)
They developed confidence in math/science skills (Table 8)
Being into gangs or crime was seen as less likely (Table 8)
They felt better prepared for high school (Table 8)
Descriptions of high school became less glowing (Table 8)
High school was viewed as less helpful (Table 10)

On several measures there were promising trends from pretest to posttest, but not enough to be statistically significant. These were as follows:

Math aptitude improved slightly (Table 2)
Math and science were described more positively (Table 8)
A career in math was somewhat more likely (Table 8)
They learned more about choices to be made (Table 8)
There was more chance they'd be involved in ecology (Table 8)

The general conclusion from these changes was that the program did meet its objectives of helping students prepare seriously for high school, to think about math and science as possible career options, and to be aware of one's community as an interrelated environment.

How VIS Parents Viewed the Program

The parents were surveyed during the sixth week of the program to gather their reaction to VIS. The return of surveys was not very good at 37 percent. From what was returned, the consensus seemed to be that their children really benefited a great deal from the VIS program. Their children talked about the program, they were interested and enthused, and they seemed able to handle the content well. From the parents' perspective, they rated the field trips as of highest value, then the counseling, followed by physical education, math and language arts; all of which received high ratings. The details are shown in Table 4.

The parents of VIS students were more likely than the Control group to report that their children talked about ecology, about math and science as interest areas, and about attending college. This was despite the greater knowledge claimed by the Control parents as to high school and college procedures. Table 3 shows details on these results. The educational aspirations of the VIS and Control parents were about equal, with a slight edge for the VIS parents.

VIS parents did not feel that they had much good information on colleges and the costs involved. Table 4 shows the pertinent data. While such information may be premature, it is certainly an area that VIS staff could review to supply this apparent need.

VIS and Control Students Compared

Because the students for each group were randomly drawn from the same pool, it was assumed that they would be very similar. This was true for their eighth grade scores on the ITBS reading and math. They were almost exactly equal, which means that follow-up measures to compare the long-term effects of VIS should be very fruitful. Table 1 shows the ITBS scores.

However, in the survey of the Control group, a new factor became apparent. The students returning the surveys seemed to be more skilled in English than the VIS group, to have more interest in science and technology, and to see high school more positively. These and other variations between Control and VIS are shown in Tables 3, 8, 9 and 10.

The Control and VIS groups should still be strictly comparable on the long-term measures, which won't depend on whether or not forms are returned. These measures will include attendance rate in high school, grades in math, science and language arts, and achievement scores on the Tests of Achievement and Proficiency in high school.

The Success of the Limited-English Proficient Students

The group of nine LEP students showed good performance. All nine stayed in the program. Their attendance rate was 90 percent and their tardy rate was only 1.5 percent, both showing high participation levels. On the science aptitude pre and posttests, they

averaged 13.2 and 17.3 items correct, respectively, showing significant improvement over the 6-week program.

The LEP students rated VIS as 4.7 on the 5-point scale for overall rating. They obviously liked it very much. They were helped much in the areas of knowing about high school course work, resisting pressures to drop out, thinking about college and liking math more. Each of these areas received ratings of 4.7 or higher.

They also said they learned a lot about themselves through the self-testing, and they rated the value of the math, language arts and physical education classes higher than did the other VIS students. Ratings of the value of science were about equal to the other VIS students.

General Conclusion About the Ventures in Science Program

It was evident that this program set out some worthwhile goals and then operated effectively to reach the goals. Students voted with their feet and stayed in the program. The director and staff are to be commended for their good work and for documenting the effort.

Appendix

Instruments Constructed for VIS Evaluation

Date_____

VENTURES IN SCIENCE
PROGRAM ASSESSMENT

1) Please rate field trips in terms of your interest, knowledge gained and presentation. (leave blank if you did not attend)
(from 1 to 5, the highest being 1, and 5 the lowest rating)

Argonne 1 2 3 4 5

Boat Tour 1 2 3 4 5

Metropolitan Water Reclamation 1 2 3 4 5

Lincoln Park Zoo 1 2 3 4 5

Deep Tunnel 1 2 3 4 5

Solid Waste Disposal 1 2 3 4 5

Indiana Dunes 1 2 3 4 5

Comments

_____

_____

2) Rate speakers - **Water Reclamation District** 1 2 3 4 5
(Peggy Bradley)
Science Academy 1 2 3 4 5
(Doug Rainey)
Genetic Engineering 1 2 3 4 5
(Mojo)
Neighborhood Technology 1 2 3 4 5
(Mary O'Connel)
Amoco 1 2 3 4 5
(Joe Martinez)
(from 1 to 5, the highest being 1, and 5 the lowest rating)

Comments

_____

_____

3) The teachers did their job. 1 2 3 4 5

4) The students did their job. 1 2 3 4 5

5) I did my job? 1 2 3 4 5

6) I completed my assignments. 1 2 3 4 5

7) I asked for help when I need it. 1 2 3 4 5

8) I learned to make new friends. 1 2 3 4 5

9) I'd like to keep my new friends. 1 2 3 4 5

10) I like to work in groups. 1 2 3 4 5

11) In what area did you get the most benefit?

_____

_____

12) What was the most difficult part of the program?

_____

_____

13) How would you grade your overall performance in the program? A B C D

_____

_____

14) How should the program be changed in order to make it better?

_____

_____

_____

_____

15) Based on the information you have gotten from the program, what career interests have you developed?

_____

_____

16) If you continued the Ventures in Science program in the Fall, would you like the program day to be [longer], [shorter], [the same]?

17) How important is the stipend to your continuing in the program?
[very] [not too much] [not at all]

18) If homework were assigned, would the program be better for you?
YES NO

19) Are you interested in continuing to attend the Ventures in Science program in the Fall? YES NO

Please mark the choices that best show your feelings or beliefs about schooling at this time in your life. The choices you make will be confidential and will not count against you in any way.

Name: _____ Sex: __ Male __ Female

Elementary School: _____

High School: _____

Ethnic Group: __ Hispanic __ Black __ Asian __ White

1. Select four (4) words that are most like your thoughts about attending high school:

___ nervous
___ big
___ exciting
___ dangerous
___ loud
___ confusing
___ helpful
___ far
___ lonely
___ important
___ demanding
___ quality
___ boring
_____
_____

2. Select four (4) phrases that are most like your thoughts about math and science:

___ out of reach
___ not my bag
___ a powerful tool
___ who needs it
___ need more, need more
___ opens up the mind
___ too difficult
___ fun to explore
___ makes me sleepy
___ something to get through
_____
_____

3. How much do your decisions about schooling and career depend on these factors? Circle the percent:

3a. My finishing high school depends on:

my own effort:	100	90	80	70	60	50	40	30	20	10	0
being lucky:	100	90	80	70	60	50	40	30	20	10	0
my teachers:	100	90	80	70	60	50	40	30	20	10	0
my friends:	100	90	80	70	60	50	40	30	20	10	0

3b. My going to a college depends on:

my own effort:	100	90	80	70	60	50	40	30	20	10	0
being lucky:	100	90	80	70	60	50	40	30	20	10	0
family help:	100	90	80	70	60	50	40	30	20	10	0
my friends:	100	90	80	70	60	50	40	30	20	10	0

3c. The career or vocation I follow depends on:

my schooling:	100	90	80	70	60	50	40	30	20	10	0
choices I make:	100	90	80	70	60	50	40	30	20	10	0
my abilities:	100	90	80	70	60	50	40	30	20	10	0
lucky breaks:	100	90	80	70	60	50	40	30	20	10	0

4. Circle the percent for how certain you are that you will:

do well in English in high school	100	90	75	67	50	33	25	10
do well in math in high school	100	90	75	67	50	33	25	10
do well in science in high school	100	90	75	67	50	33	25	10
do well in phys ed in high school	100	90	75	67	50	33	25	10
do well in history in high school	100	90	75	67	50	33	25	10

5. Circle how certain you feel about these possibilities:

finishing 9th grade	100%	90	75	67	50	33	25	10%
finishing 10th grade	100%	90	75	67	50	33	25	10%
finishing 11th grade	100%	90	75	67	50	33	25	10%
finishing high school	100%	90	75	67	50	33	25	10%
going to college	100%	90	75	67	50	33	25	10%
finishing college	100%	90	75	67	50	33	25	10%

6. Mark how likely this is in your life:

Strong Chance	Medium Chance	Little Chance	No Chance	Life Event (in YOUR life)
___	___	___	___	a job that uses some science
___	___	___	___	a job that uses some math
___	___	___	___	a job that uses much science
___	___	___	___	a job that uses much math
___	___	___	___	a job title of "scientist"
___	___	___	___	a job title of "mathematician"
___	___	___	___	a job title of "ecologist"

7. During the last month: (Circle the rating to finish the phrase)

	Very Much					Not a Bit
7a. During the last month I liked the school program:	5	4	3	2	1	0
7b. During the last month the school helped me feel better about going to high school:	5	4	3	2	1	0
7c. During the last month my confidence in my own skill in math/science increased:	5	4	3	2	1	0
7d. During the last month, my desire to make progress in school increased:	5	4	3	2	1	0
7e. During the last month, the times I thought about a career increased:	5	4	3	2	1	0
7f. During the month I learned more about academic choices that I will have to make:	5	4	3	2	1	0
7g. During the last month, my feelings about caring for the environment have grown:	5	4	3	2	1	0

8. Mark how likely these things are to happen in your life:

Life Event (in YOUR life)	Strong Chance	Medium Chance	Little Chance	No Chance
8a. becoming a teenage parent	___	___	___	___
8b. not finishing high school	___	___	___	___
8c. winding up in a violent gang	___	___	___	___
8d. being truant from school	___	___	___	___
8e. using illegal drugs	___	___	___	___
8f. being arrested for a crime	___	___	___	___
8g. working instead of school	___	___	___	___
8h. babysitting instead of school	___	___	___	___
8j. going to college	___	___	___	___
8k. entering a profession	___	___	___	___
8m. working on ecology projects	___	___	___	___
8n. writing paper on science topic	___	___	___	___
8p. becoming skilled in algebra	___	___	___	___
8q. studying environmental problems	___	___	___	___
8r. conserving natural resources	___	___	___	___
8s. littering	___	___	___	___

(Circle the response that shows how you feel about the question)

	Yes much					Not at all
10. Have your plans about courses that interest you become clearer?	5	4	3	2	1	0
11. Were you able to work at hard tasks because you knew of their importance?	5	4	3	2	1	0
12. Are you planning to take more math in high school as a result of this summer program?	5	4	3	2	1	0
13. Was your family impressed with how much you learned?	5	4	3	2	1	0

14. Which VIS course or courses did you like best? (Mark 1 or more)

___ Counseling ___ Language Arts
___ Phys. Ed. ___ Math/Science

	Certainly			Yes		No
15. Would you tell your friend or brother or sister to take this summer program?	5	4	3	2	1	0
16. Will you continue with the <u>Ventures in Science</u> program in the fall?	5	4	3	2	1	0
17. Do you like science more than before?	5	4	3	2	1	0
18. Do you like math more than before?	5	4	3	2	1	0
19. Did the writing/reading tasks help?	5	4	3	2	1	0
20. Did you like the various self tests?	5	4	3	2	1	0
21. Do you feel more confident and able to handle high school material?	5	4	3	2	1	0
22. Did the sessions with the counselor help you understand yourself better?	5	4	3	2	1	0
23. Was P.E. a good learning experience?	5	4	3	2	1	0
24. If your friends drop out of high school will you stay firm and continue?	5	4	3	2	1	0
25. If parents are unsure about college, will you help them realize its value?	5	4	3	2	1	0

	Great	Good		Fair		Poor
26. What rating would you give VIS?	5	4	3	2	1	0

27. Please comment about the VIS program on the back of this page:

HIGH SCHOOL - YOUR FEELINGS ABOUT IT

Please mark the choices that best show your feelings or beliefs about schooling at this time in your life. The choices you make will be confidential and will not count against you in any way.

Name: _____ Sex: __ Male __ Female

Elementary School: _____ High School: _____

Ethnic Group: __ Hispanic __ Black __ Asian __ White

1. Select four (4) words that are most like your thoughts about attending high school:

___ nervous
___ big
___ exciting
___ dangerous
___ loud
___ confusing
___ helpful
___ far
___ lonely
___ important
___ demanding
___ quality
___ boring

_____
_____

2. Select four (4) phrases that are most like your thoughts about math and science:

___ out of reach
___ not my bag
___ a powerful tool
___ who needs it
___ need more, need more
___ opens up the mind
___ too difficult
___ fun to explore
___ makes me sleepy
___ something to get through

_____
_____

3. How much do your decisions about schooling and career depend on these factors? Circle the percent:

3a. My finishing high school depends on:

my own effort:	100	90	80	70	60	50	40	30	20	10	0
being lucky:	100	90	80	70	60	50	40	30	20	10	0
my teachers:	100	90	80	70	60	50	40	30	20	10	0
my friends:	100	90	80	70	60	50	40	30	20	10	0

3b. My going to a college depends on:

my own effort:	100	90	80	70	60	50	40	30	20	10	0
being lucky:	100	90	80	70	60	50	40	30	20	10	0
family help:	100	90	80	70	60	50	40	30	20	10	0
my friends:	100	90	80	70	60	50	40	30	20	10	0

3c. The career or vocation I follow depends on:

my schooling:	100	90	80	70	60	50	40	30	20	10	0
choices I make:	100	90	80	70	60	50	40	30	20	10	0
my abilities:	100	90	80	70	60	50	40	30	20	10	0
lucky breaks:	100	90	80	70	60	50	40	30	20	10	0

4. Circle the percent for how certain you are that you will:

do well in English in high school	100	90	75	67	50	33	25	10
do well in math in high school	100	90	75	67	50	33	25	10
do well in science in high school	100	90	75	67	50	33	25	10
do well in phys ed in high school	100	90	75	67	50	33	25	10
do well in history in high school	100	90	75	67	50	33	25	10

5. Circle how certain you feel about these possibilities:

finishing 10th grade	100%	90	75	67	50	33	25	10%
finishing 11th grade	100%	90	75	67	50	33	25	10%
finishing high school	100%	90	75	67	50	33	25	10%
going to college	100%	90	75	67	50	33	25	10%

6. Mark how likely these things are to happen in your life:

Life Event (in YOUR life)	Strong Chance	Medium Chance	Little Chance	No Chance
6a. becoming a teenage parent	___	___	___	___
6b. not finishing high school	___	___	___	___
6c. winding up in a violent gang	___	___	___	___
6d. being truant from school	___	___	___	___
6e. using illegal drugs	___	___	___	___
6f. being arrested for a crime	___	___	___	___
6g. working instead of school	___	___	___	___
6h. babysitting instead of school	___	___	___	___
6j. entering a profession	___	___	___	___
6k. writing paper on science topic	___	___	___	___
6m. becoming skilled in algebra	___	___	___	___
6n. studying environmental problems	___	___	___	___
6p. being interested in literature	___	___	___	___

Parents Name of your child: _____

1. Were there any indications that your child discussed or read about these things during the last month?

	Yes much					Not any
occupations or careers	5	4	3	2	1	0
high school courses	5	4	3	2	1	0
some day attending college	5	4	3	2	1	0
math as an attractive topic	5	4	3	2	1	0
science as an interest area	5	4	3	2	1	0
the ecology of the earth	5	4	3	2	1	0

2. How far do you feel your child will get in education?

___ finish 10th grade
___ finish 12th grade
___ a year of college
___ two-year college
___ finish four years of college
___ do graduate work in college

3. To what level would you like your child to continue?

___ finish 10th grade
___ finish 12th grade
___ a year of college
___ two-year college
___ finish four years of college
___ do graduate work in college

4. Answer yes or no to the following questions:

Have you received good information on college costs?	Yes	No
Do you know that some colleges are quite low cost?	Yes	No
Does your child have a proper time and place to study?	Yes	No
Do you have basic knowledge about loans, scholarships, and support that students can get for college?	Yes	No
Does your child talk about going to college?	Yes	No
Have you gotten information on high school counseling?	Yes	No
Have you been told about choices that exist for your child in math or science careers?	Yes	No
Are you optimistic about your child's high school?	Yes	No
Do you feel it is worthwhile to learn about ecology?	Yes	No

5. From your knowledge of how your child reacted to the Ventures in Science program, tell us about the following:

	Yes Much					No
Was your child interested and enthused?	5	4	3	2	1	0
Did you feel VIS helped quite a lot?	5	4	3	2	1	0
Was the content of VIS at a good level?	5	4	3	2	1	0
Did your child talk about VIS with you?	5	4	3	2	1	0

6. From what you saw in the reaction of your child to the topics, how productive were activities in each of the following areas?

ecology	Great	Good	Fair	Poor
field trips	Great	Good	Fair	Poor
mathematics	Great	Good	Fair	Poor
counseling	Great	Good	Fair	Poor
language arts	Great	Good	Fair	Poor
physical skill	Great	Good	Fair	Poor

7. What comments or suggestions would you make:

_____

_____

_____

Thank you very much. Please return forms in the envelope provided.

Parents Name of your child: _____

1. Were there any indications that your child discussed or read about these things during the last month?

	Yes much					Not any
occupations or careers	5	4	3	2	1	0
high school courses	5	4	3	2	1	0
some day attending college	5	4	3	2	1	0
math as an attractive topic	5	4	3	2	1	0
science as an interest area	5	4	3	2	1	0
the ecology of the earth	5	4	3	2	1	0

2. How far do you feel your child will get in education?

___ finish 10th grade
___ finish 12th grade
___ a year of college
___ two-year college
___ finish four years of college
___ do graduate work in college

3. To what level would you like your child to continue?

___ finish 10th grade
___ finish 12th grade
___ a year of college
___ two-year college
___ finish four years of college
___ do graduate work in college

4. Answer yes or no to the following questions:

Have you received good information on college costs?	Yes	No
Do you know that some colleges are quite low cost?	Yes	No
Does your child have a proper time and place to study?	Yes	No
Do you have basic knowledge about loans, scholarships, and support that students can get for college?	Yes	No
Does your child talk about going to college?	Yes	No
Have you gotten information on high school counseling?	Yes	No
Have you been told about choices that exist for your child in math or science careers?	Yes	No
Are you optimistic about your child's high school?	Yes	No
Do you feel it is worthwhile to learn about ecology?	Yes	No

SELF-ESTEEM and SELF PERCEPTION SCALE

This is kept confidential

Directions: Circle the letter, number or word that best describes how you feel about yourself at this age.

Remember that most people, yourself included, will change over time.

June 1992

Chicago Public Schools

SELF-ESTEEM and SELF PERCEPTION Your Name: _____

Your answers will not be made public. Think about each item before answering. Truthful answers will help you learn about yourself.

1. Grade Yourself on these skills:

improving myself each day	A	B	C	D	E	F
getting along with others	A	B	C	D	E	F
inventing new games	A	B	C	D	E	F
talking to younger children	A	B	C	D	E	F
listening to teachers	A	B	C	D	E	F
making meals and snacks	A	B	C	D	E	F
choosing interesting movies	A	B	C	D	E	F
controlling my bad thoughts	A	B	C	D	E	F
telling funny stories	A	B	C	D	E	F
doing drawings and art	A	B	C	D	E	F
looking nice when dressed up	A	B	C	D	E	F
being in a good mood	A	B	C	D	E	F
helping people who need it	A	B	C	D	E	F
finding things for others	A	B	C	D	E	F
knowing right from wrong	A	B	C	D	E	F

2.In which areas do you do well? Rate from 1 to 9, 9 is highest.

making friends in school	9	8	7	6	5	4	3	2	1
impressing the other sex	9	8	7	6	5	4	3	2	1
knowing what to study	9	8	7	6	5	4	3	2	1
being a fast reader	9	8	7	6	5	4	3	2	1
getting over disappointment	9	8	7	6	5	4	3	2	1
pleasing my parents	9	8	7	6	5	4	3	2	1
using my free time	9	8	7	6	5	4	3	2	1
being able to work hard	9	8	7	6	5	4	3	2	1
keeping my body in shape	9	8	7	6	5	4	3	2	1

3. What are problems in your life?	No Problem					Serious Problem
my ability to think clearly	0	1	2	3	4	5
my feelings of weakness	0	1	2	3	4	5
my sense of ugliness	0	1	2	3	4	5
following my parent's values	0	1	2	3	4	5
coping with my friends' wishes	0	1	2	3	4	5
not knowing what to do about sex	0	1	2	3	4	5
keeping up in schoolwork	0	1	2	3	4	5
wondering so much about religion	0	1	2	3	4	5
taking the advice of adults	0	1	2	3	4	5

4. In what areas do you have control?

	Full Control						No Control
who becomes my friend	6	5	4	3	2	1	0
whether my group breaks rules	6	5	4	3	2	1	0
the amount of studying I do	6	5	4	3	2	1	0
use or abuse of drugs/alcohol	6	5	4	3	2	1	0
decisions about jobs and career	6	5	4	3	2	1	0
what time I get up in the morning	6	5	4	3	2	1	0
amount of my television watching	6	5	4	3	2	1	0
whether others like me or not	6	5	4	3	2	1	0
making plans for my activities	6	5	4	3	2	1	0

5. What do you see as your weak spots? X over the word if weak:

hair face mind mood humor strength speed

eyesight height sexiness speaking listening

clothes courage money figure character morals

family wellness English style knowledge vigor

6. What are your strong points? Circle the word above if strong:

7. In high school what do you imagine your problems will be:

Check if this will be a problem: (Do left side first, then right)	Do you feel you will be able to overcome or compensate for this? Yes I can						Only with help
___ keeping up with the others	7	6	5	4	3	2	1
___ getting into gang trouble	7	6	5	4	3	2	1
___ doing what my parents want	7	6	5	4	3	2	1
___ not being well liked	7	6	5	4	3	2	1
___ losing interest in studies	7	6	5	4	3	2	1
___ being lost in a big place	7	6	5	4	3	2	1
___ sexual activity and dating	7	6	5	4	3	2	1
___ temptations to party	7	6	5	4	3	2	1
___ losing my old school friends	7	6	5	4	3	2	1
___ not knowing what I want to be	7	6	5	4	3	2	1
___ being afraid to ask for help	7	6	5	4	3	2	1
___ having teachers who are mean	7	6	5	4	3	2	1

Thank you very much. Close cover, then hand to your teacher.

SELF-ESTEEM and SELF PERCEPTION
(Revised Version) Your Name: _____ _____

Please circle or mark the answer that best describes your feelings. Your answers will not be made public. Think about each item before answering. Truthful answers will help you learn about yourself.

1. Grade yourself on these skills:

improving myself each day	A	B	C	D	E	F
getting along with others	A	B	C	D	E	F
listening to teachers	A	B	C	D	E	F
writing about myself	A	B	C	D	E	F
my ability to make friends	A	B	C	D	E	F
figuring out math problems	A	B	C	D	E	F
doing drawings and art	A	B	C	D	E	F
planning for the future	A	B	C	D	E	F
being in a good mood	A	B	C	D	E	F
helping people who need it	A	B	C	D	E	F
doing sports and athletic things	A	B	C	D	E	F
knowing right from wrong	A	B	C	D	E	F

2. What are problems in your life?

	No Problem					Serious Problem
my ability to think clearly	0	1	2	3	4	5
following my parent's values	0	1	2	3	4	5
coping with my friends' wishes	0	1	2	3	4	5
keeping up in schoolwork	0	1	2	3	4	5
wondering so much about religion	0	1	2	3	4	5
not having interest in school	0	1	2	3	4	5

3. In what areas do you have control?

	Full Control						No Control
whether my group breaks rules	6	5	4	3	2	1	0
the amount of studying I do	6	5	4	3	2	1	0
use or abuse of drugs/alcohol	6	5	4	3	2	1	0
decisions about jobs and career	6	5	4	3	2	1	0
amount of my television watching	6	5	4	3	2	1	0
whether others like me or not	6	5	4	3	2	1	0

4. What do you see as your weak spots? X over the words if weak:

hair face mind mood humor strength speed

eyesight height English speaking listening

knowledge courage vigor figure character morals

5. What are your strong points? Circle the words above if strong:

6. In high school what do you imagine your problems will be?

Check how much of a problem you feel these will be in high school:

	Big Problem						Little Problem
keeping up with the others	7	6	5	4	3	2	1
getting into gang trouble	7	6	5	4	3	2	1
doing what my parents want	7	6	5	4	3	2	1
not being well liked	7	6	5	4	3	2	1
losing interest in studies	7	6	5	4	3	2	1
being lost in a big place	7	6	5	4	3	2	1
sexual activity and dating	7	6	5	4	3	2	1
temptations to party	7	6	5	4	3	2	1
losing my old school friends	7	6	5	4	3	2	1
not knowing what I want to be	7	6	5	4	3	2	1
being afraid to ask for help	7	6	5	4	3	2	1
having teachers who are mean	7	6	5	4	3	2	1

Thank you very much.

Your Name: _____

Interest Inventory -- by EDITS of San Diego CA

Activities from different jobs and professions are listed below. Decide whether or not you would like to do the activities listed.

Read each item and circle LL if you think you would like it very much, L if you would like it, D if you would dislike it, DD if you would dislike it very much.

You may not be familiar with some of the activities, but try to judge your own feelings toward the activity. Be sure to answer every item. For each activity, mark how much you would like it.

Job-Related Activity	Like		Dislike	
1. Put photos on signs or cards	LL	L	D	DD
2. Write a daily column for a newspaper	LL	L	D	DD
3. Learn how ocean currents affect the weather	LL	L	D	DD
4. Study animals' reactions to new foods in a lab	LL	L	D	DD
5. Use a microscope to study the cause and find cures for diseases	LL	L	D	DD
6. Test water samples to find harmful chemicals	LL	L	D	DD
7. Study rocks and fossils to find minerals	LL	L	D	DD
8. Study information about the sun and stars	LL	L	D	DD
9. Take and compare fingerprints	LL	L	D	DD
10. Do chemical research in a college lab	LL	L	D	DD
11. Make dental plates for people who need false teeth	LL	L	D	DD
12. Test blood samples to find traces of alcohol	LL	L	D	DD
13. Take measurements to find defects in eyeglasses	LL	L	D	DD
14. Study the way an animal's brain works	LL	L	D	DD
15. Inspect farm crops or livestock for diseases	LL	L	D	DD
16. Protect and maintain grounds in a national forest	LL	L	D	DD
17. Find new ways to make nylon cloth	LL	L	D	DD
18. Design ceramic parts for computers	LL	L	D	DD
19. Design a cafeteria ramp for the handicapped	LL	L	D	DD
20. Make a plan for a lighter vacuum or sweeper	LL	L	D	DD
21. Develop ways to identify voice quality in telephone messages	LL	L	D	DD
22. Improve the design of a kitchen appliance	LL	L	D	DD
23. Help direct traffic during road repairs, fires or parades	LL	L	D	DD
24. As a waiter or waitress serve people in restaurant	LL	L	D	DD

COMPUTATION PROBLEMS Name:

Directions: Do as many problems correctly in 5 minutes as you can.

1. $\begin{array}{r} 6 \\ +\ 9 \\ \hline \end{array}$

2. $\begin{array}{r} 7 \\ 4 \\ +\ 4 \\ \hline \end{array}$

3. $\begin{array}{r} 18 \\ -\ 5 \\ \hline \end{array}$

4. $\begin{array}{r} 25 \\ -\ 8 \\ \hline \end{array}$

5. $\begin{array}{r} 236 \\ 43 \\ +\ 180 \\ \hline \end{array}$

6. $\begin{array}{r} 441 \\ -\ 255 \\ \hline \end{array}$

7. $14 + 92 =$ _____

8. $\begin{array}{r} 3 \\ \times\ 7 \\ \hline \end{array}$

9. $75 - 66 =$ _____

10. $4\overline{)12}$

11. $6\overline{)696}$

12. $7 \times 11 =$ _____

13. $\begin{array}{r} 14 \\ \times\ .5 \\ \hline \end{array}$

14. $\begin{array}{r} 86 \\ \times\ 37 \\ \hline \end{array}$

15. $\begin{array}{r} 4.7 \\ -\ 3 \\ \hline \end{array}$

16. $\frac{1}{4} + \frac{1}{8} =$ _____

17. $34\overline{)578}$

18. $\begin{array}{r} 4093 \\ -\ 987 \\ \hline \end{array}$

19. $\begin{array}{r} 21.9 \\ 106.03 \\ +\ 18.104 \\ \hline \end{array}$

20. $\frac{3}{5} + \frac{2}{3} =$ _____

21. $\begin{array}{r} 95.81 \\ -\ 88.8 \\ \hline \end{array}$

22. $7 - 5.5 =$ _____

23. $\frac{3}{8} \times \frac{5}{8} =$ _____

24. $3.2\overline{).64}$

25. $\begin{array}{r} 4.25 \\ \times\ 1.7 \\ \hline \end{array}$

26. $\frac{7}{3} - \frac{4}{6} =$ _____

27. $\frac{1}{2} + \frac{2}{3} + \frac{3}{4} =$ _____

28. $.008\overline{)65.68}$

29. $(15 + 3) \times (6 - 4) =$ _____

30. $\frac{3}{4} \div \frac{1}{8} =$ _____

3	4	5	6	7	8	9	10
3-4	6-7	9-10	12-13	15-16	18-19	21-22	24-25

Stop after #30, this section for scoring.

CHICAGO PUBLIC SCHOOLS

July 1992

Dear Student:

We hope you are looking forward to entering high school in Sept. A number of students like yourself are being asked to complete a survey form. They will be asked similar questions again after they have finished their first year of high school. You have been selected as part of this group.

Will you please answer the questions on these forms as best you can. These are the forms to do:

Parent Form	1 page	(give this one to your parent)
High School Form	2 pages	
Self-Esteem Scale	2 pages	
Interest Inventory	1 page	
Math Test	1 page	(this one has a 5-minute limit, have someone time you exactly)

All of these forms are to be your own work and thinking. After you have completed the whole set, including the form for your parent or guardian to do, fold them carefully and put them in the return envelope and mail the forms back to us. It does not need a stamp.

Thank you for your effort in completing these surveys. We wish you the best as you enter your high school years. Expect to hear from this project again after you have completed your first year.

Sincerely,

Wayne Fredrick

Dr. Wayne C. Fredrick, Consultant

Department of Research, Evaluation and Planning

P.S. My number if you have questions is 535-4027 (from 8:00-4:00)

END

DATE FILMED

11/30/92