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ABSTRACT

The Thomas Jefferson High School for Science and Technology (Fairfax County, Virginia) offers a comprehensive college preparatory program emphasizing the sciences, mathematics, and technology. The school serves students selected on the basis of aptitude and interest in the biological, physical, mathematical, and computer sciences, and who intend to persue college preparation in the sciences, engineering, or related fields. This report addresses the selection and admission process for students attending the school. Selection of students is a competitive process, with the majority of the students entering the program in the ninth grade. Data is presented concerning the current enrollment patterns and the makeup of the student body. Some refinements to the admission process are discussed. An overview and an assessment of the selection process currently used for freshmen, sophomores, and juniors/seniors is presented and discussed. It is concluded that, overall, the selections and admissions process has worked well to date. (TW)

THE THOMAS JEFFERSON HIGH SCHOOL FOR SCIENCE AND TECHNOLOGY

Report #2
The Admissions and Selections Process
December 20, 1984 - October 1, 1986

Fairfax County Public Schools
Fairfax, Virginia

October 1986

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Thomas Jefferson High School for Science and Technology is a unique Fairfax County public school offering a comprehensive college preparatory program emphasizing the sciences, mathematics, and technology for students selected on the basis of their aptitude, interest, and achievement in these fields. Selection of students is a competitive process; the majority of the students enter at the ninth grade level. Currently, there are 804 ninth and tenth graders enrolled in the program. Thirty-seven percent of the students are female; and 25 percent of the student body is composed of minority students. Approximately 17 percent of the student body are out-of-county students for whom the participating school divisions are paying tuition charges of $5,460 per pupil. Overall, the selections and admissions process has worked well; students selected for the school have experienced success in the program. Eighty-five percent of the first class of students ended their freshmen year with GPAs of 3.0 and higher; sixty (60) of the students have GPAs of 3.9 or higher; 38 of them have GPAs of 4.0.

Refinements are continually made to improve this process of matching students with the educational environment at the school for science and technology. Efforts to secure commercial development of an admissions examination designed for the school have been fruitless; in-house development of an admissions examination is currently under consideration. So that students can more easily meet the graduation requirement of completing a calculus course, they will be required to complete a first-year algebra course prior to entering the school as freshmen. Enrollment in an algebra course as an eighth grader is not a condition of eligibility to apply for or to be selected for the freshman class; however, if selected, students without the algebra course will be required to take it prior to entering the school in the fall. Because of the school's unique program, the expectation is that few students will meet the prerequisite course and educational experience requirements for entry at the junior and senior levels. Due to the likelihood of few new students at the upper levels and the expectation of normal attrition rates at the freshman and sophomore levels, class size at the freshman and sophomore levels will be increased from 400 to approximately 430 students each.

INTRODUCTION

The Thomas Jefferson High School for Science and Technology is a unique Fairfax County public school offering a comprehensive college preparatory program emphasizing the sciences, mathematics, and technology. The school serves students selected on the basis of aptitude and interest in the biological, physical, mathematical, and computer sciences and who intend to pursue college preparation in the sciences, engineering, or related fields. The school opened with a freshman class of 400 in 1985. There are approximately 800 freshmen and sophomores at the school for the 1986-87 session. By 1988 there will be 1,600 students in grades 9-12.

The school is the result of a partnership of the private and public sectors created to improve and strengthen education in mathematics, science, and technology. Representatives from business and industry and staff of the Fairfax County Public Schools worked together in curriculum and facilities development for the school. The Fairfax County Public Schools Education Foundation, Inc., governed by chief executive officers of the local business community, has successfully raised business and industry support for the school including cash, equipment, training, and technical assistance for the school and its staff. To date, this contrtibution exceeds two million dollars.

As the Governor's School for Science and Technology in northern Virginia, the Thomas Jefferson High School for Science and Technology receives some funding from the Virginia Department of Education. The regional status of the school means that students residing in the participating northern Virginia school districts are eligible to apply for admission. School districts eligible to participate include the counties of Arlington, Fairfax, Loudoun, and Prince William; and the cities of Alexandria, Falls Church, Manassas, and Manassas Park. Prior to application deadlines each year, the specified school districts announce their intention to participate or not to participate in the regional school.

Because the Thomas Jefferson High School for Science and Technology is a public school, no payment for tuition or transportation is made by students. Each school division participating in the regional school funds costs associated with attending the school, including bus transportation. An extensive network of bus routes services the 900 square mile school boundary area. Each participating school division provides transportation for its students. The tuition charge for 1985-86 was $4,985 per student; for the 1986-87 session the charge is $5,460.

OVERVIEW OF THE SELECTION PROCESS

Selection of students for admission to the Thomas Jefferson High School for Science and Technology is a competitive process. The majority of students attending the school enter as ninth graders. Replacements are selected for the vacancies at the sophomore level. Entrance at the junior and senior levels is by special placement.

FRESHMAN SELECTION

Students whose legal residence is in the region served by a participating school division and who are enrolled as eighth graders in any public or private school in a given academic year are eligible to apply for admission to the freshman class for the next academic year. Applicants are selected based on the following criteria:

- aptitude for successful study of science, mathematics, computer science, and related technological fields;
- record of prior academic achievement; and
- interest and motivation in the study of science, mathematics, computer science, and related technological fields.

All applicants take an admisisons examination which consists of two parts. One part is a standardized, multiple-choice examination measuring aptitude in abstract reasoning, numerical reasoning, space relations, and verbal reasoning. The other part is an essay portion.

The score on the aptitude examination is combined with grade point averages of grades earned in academic courses in grade seven and first semester of grade eight. The courses included are English, social studies, mathematics, science, and foreign language. The formula by which the grades and test score are combined serves to weight the admissions examination 80 percent and the grade point average 20 percent. All applicants are then ranked on this variable of combined test score and grades. The top scoring 800 applicants form the applicant pool; the remaining applicants are not considered any further for admission.

Materials of the top scoring 800 applicants are then reviewed by three independent committees, each composed of five educational professionals. In addition to test score and GPA, the committees review student-authored data sheets, student's responses to essay questions administered during the entrance examination, and recommendations of three adults (one mathematics teacher, one science teacher, and one other teacher or adult of applicant's choice).

Based on the majority recommendation of the committees, applicants are placed in categories of "accepted," "wait-listed," and "not accepted." Within each category, applicants are ranked based on committee members' votes. These recommendations are then reviewed by an oversight committee of five educational professionals for final decisions. All applicants are notified of selection decisions at the conclusion of this process.

A summer round of application and selection is conducted for those students who become eligible to apply after the initial deadline. Summer round applicants take the admissions examination and are selected in the same manner as applicants in the initial round of selection.

SOPHOMORE SELECTION

Students whose legal residence is in the region served by a participating school division and who are enrolled as ninth graders in any public or private school in a given academic year are eligible to apply for vacancies in the sophomore class for the next academic year. Applicant selections are based on the following criteria:

- aptitude for successful study of science, mathematics, computer science, and related technological fields;
- record of prior academic achievement; and
- interest and motivation in the study of science, mathematics, computer science, and related technological fields.

Additionally, admission requirements for entrance to the sophomore class include

- completion of the following credits prior to the beginning of the sophomore academic year:

English 9	1 credit
Foreign Language	1 credit
Geometry	1 credit
Biology	1 credit
Health/Physical Education	1 credit
Elective	1 credit

- successful completion of a spring/summer instructional experience at the school for science and technology designed for sophomore candidates.

There is no admission examination for sophomore applicants. A selection committee of five educational professionals reviews materials of all applicants. The committee reviews

- grades earned in all courses taken for graduation credit;
- student-authored data sheets;
- student-authored essay; and
- recommendations of the mathematics teacher, the science teacher, and one other teacher or adult of applicant's choice.

The applicants selected by the committee are offered admission conditional upon successful completion of the spring/summer instructional experience conducted by faculty of the school for science and technology. No applicants are wait-listed.

The spring/summer instructional program is an intensive sequence of instructional, diagnostic, and testing activities designed:

- to provide participants prerequisite experiences and instruction prior to entering the sophomore class; and
- to determine, by testing and other diagnostic and evaluative techniques, which participants should be admitted to the sophomore class.

JUNIOR/SENIOR PLACEMENT

Students whose legal residence is in the region served by a participating school division and who are enrolled as tenth or eleventh graders in any public or private school in a given academic year may request placement in the junior or senior class for the next academic year. Placement requests are evaluated on the basis of:

- aptitude for successful study of science, mathematics, computer science, and related technological fields;
- record of prior academic achievement;
- interest and motivation in the study of science, mathematics, computer science, and related technological fields;
- completion of course work or comparable experiences in computer utilization, electronics, engineering graphics, and materials science equivalent to the one-year Principles of Technology course required of freshman students at the school for science and technology; comparable experiences may include in-school and/or out-of-school activities or projects in the specified areas;
- readiness for research, experimentation, or independent study in one of the school's technology laboratories; readiness may be demonstrated by successful science-fair projects and/or other experiences, activities, or projects (in or out-of-school) in science, engineering, computer science, and other technology areas; and
- completion of specified graduation credits:

By the beginning of the junior year,

English	2 credits
Social Studies	1 credit (World Studies)
Foreign Language	2 credits in same language
Health/Physical Education	2 credits
Fine Arts	1 credit
Computer Science	1 credit
Science	2 credits (Biology & Chemistry)
Mathematics	3 credits (Algebra I, Geometry, & Algebra II-Trig.)

By the beginning of the senior year,

English	3 credits
Social Studies	2 credits (World Studies & US/VA History)
Foreign Language	3 credits in same language
Health/Physical Education	2 credits
Fine Arts	1 credit
Computer Science	1 credit
Science	3 credits (Biology, Chemistry, & Physics)
Mathematics	4 credits (all prerequisite courses for AP Calculus)

Student records are reviewed by the Office of Admissions, by a committee of faculty and staff of the school for science and technology, and by the admissions oversight committee. The committees review

- PSAT or SAT scores,
- transcript records,
- student-authored data sheets,
- student-authored essay, and
- recommendations of the mathematics teacher, the science teacher, and the English teacher.

RESULTS OF THE SELECTION PROCESS

The results of the selection process presented in this section are for the freshman selections for the class of 1989 and the class of 1990, and for the sophomore replacements selections for the class of 1989. Currently, the sophomore class is the class of 1989 and the freshman class is the class of 1990. The data and analysis are presented in chronological order with parallel presentation of data for the classes of 1989 and 1990 to facilitate year-by-year comparisons.

As shown in Table I, the number of freshman applicants for the class of 1990 was smaller than the number of freshman applicants for the class of 1989 by 295 students. There are several possible contributing factors to this drop in the number of applicants. One reason is that the second class making application had more information than the first class in terms of length of bus rides, amount of homework, and the social consequences of attending school outside of the local neighborhood. Counselors in the intermediate schools designated to assist eighth graders in making application believed that the difference in number of applicants was directly attributable to the fact that letters to parents were sent home by students instead of being sent via U.S. mail services as they had been the prior year. The decrease in number of applicants apparently had no effect on the quality of applicants. Selection committee members who served both years reported that the quality of applicants for the class of 1990 was quite high.

TABLE I: NUMBER OF FRESHMAN APPLICANTS

	Class of 1989	Class of 1990
Completed Applications	1224	838
Number Not Taking Admissions Exam	115	24
Total Number	**1109**	**814**

Efforts to advertise application deadline dates and to publicize the admissions process have been increased for the class of 1991. Letters to parents of all eighth graders in Fairfax County public schools were sent via U.S. mail on September 12, 1986. Media coverage and public announcements are being more agressively pursued. Contacts with PTA and other community groups have been made, making information about the school available to them for publication in newsletters.

Tables II and III provide profile data on the freshman applicants. There was little change in the allocation of spaces among the participating school divisions (Table II). Allocation of student spaces is based on proportion of eighth grade population in each participating school division. The percent of out-of-Fairfax County freshman applicants accepted increased from 15.3% for the class of 1989 to 17.7% for the class of 1990.

For the class of 1989, 40 spaces were held for summer-round applicants and 66 applicants were wait-listed. The first year experience of summer-round selections and of attrition rates between time of selection and first day of classes dictated a change. For the class of 1990, more students were offered admission during spring selections to accomodate for predictable attrition, and 60 students were placed on a wait-list; ten spaces were held for summer-round applicants.

TABLE II: FRESHMAN APPLICANTS BY SCHOOL DIVISION

	TOTAL		ALLOCATION		ACCEPTED	
	1989	1990	1989	1990	1989	1990
Fairfax	909/81.97%	656/80.6%	278/69.50%	286/71.5%	305/84.7%	354/82.3%
Falls Church	4/ .36%	2/ .2%	3/ .64%	2/ .5%	1/ .3%	0/ .0%
Loudoun County	55/ 4.96%	49/ 6.1%	31/ 7.73%	28/ 7.0%	10/ 2.8%	20/ 4.7%
Manassas City	13/ 1.17%	12/ 1.5%	7/ 1.74%	8/ 2.0%	2/ .6%	7/ 1.6%
Manassas Park	6/ .54%	2/ .2%	3/ .70%	4/ 1.0%	3/ .8%	1/ .2%
Prince William	122/11.00%	93/11.4%	79/19.69%	72/18.0%	39/10.8%	48/11.2%
TOTAL	**1,109**	**814**	**401**	**400**	**360**	**430***

* Because Manassas and Manassas Park decided to limit their participation after selections were made, only 426 offers of admissions were actually extended.

TABLE III: FRESHMAN APPLICANTS BY SEX AND BY ETHNIC GROUP

	Class of 1989		Class of 1990	
	Pool	Accepted	Pool	Accepted
Female	253/31.6%	112/31.1%	296/36.4%	186/43.3%
Male	547/68.4%	248/68.9%	518/63.6%	244/56.7%
White	649/81.1%	273/75.9%	629/77.3%	336/78.1%
Black	23/ 2.9%	12/ 3.3%	38/ 4.7%	11/ 2.6%
Hispanic	13/ 1.7%	5/ 1.4%	15/ 1.8%	6/ 1.4%
American Indian	0/ .0%	0/ .0%	1/ .1%	0/ .0%
Asian American	112/14.0%	70/19.4%	130/16.0%	77/17.9%
Other	3/ .3%	0/ .0%	1/ .1%	0/ .0%

Gains were made in the number of female applicants from the first year to the second year (Table III). For the class of 1989, 31.1% of the selected students were female compared to 43.3% female in the class of 1990. Efforts to increase the number of female applicants will continue. A seminar series, SCIENCE BY WOMEN, begun in 1985-86 will continue in 1986-87. This series of Saturday seminars, sponsored by faculty of the school for science and technology, is open to female students enrolled in any Fairfax County Public School high or intermediate school. The primary goal is to encourage female participation in mathematics and science no matter what high school they may attend; a secondary goal is to recruit applicants from the intermediate school level. Efforts to increase the number of Black applicants for the class of 1990 resulted in a modest increase. For the class of 1991, efforts to increase the number of applicants have been intensified. Community groups and human relations staff are working with Office of Admission personnel on programs and methods for encouraging greater participation.

Table IV shows the number of freshman applicants from each of the Fairfax County intermediate schools and the number of students selected from each school. These data are not necessarily reflective of the current enrollment at the school for science and technology because not all of the students initially selected chose to attend the school. Not suprisingly, schools with center-based gifted and talented programs tend to have more applicants and more students accepted for admission than other schools. Records of those who actually enroll and attend the school for science and technology show that for each of the classes of 1989 and 1990, 25% of the students were in center-based gifted and talented programs as eighth graders. These students represent 10% of all center-based gifted and talented enrollment at their grade level, which means that 90% of center-based gifted and talented students are not attending the school for science and technology.

TABLE IV: NUMBER OF FRESHMAN APPLICANTS BY INTERMEDIATE SCHOOL

Intermediate School	CLASS OF 1989 Number Applying	CLASS OF 1989 Number Accepted	CLASS OF 1990 Number Applying	CLASS OF 1990 Number Accepted
Cooper	28	10	12	7
Franklin	34	14	17	9
Frost	55	25	55	29
Glasgow	62	26	49	29
Hayfield	43	8	26	17
Herndon	26	4	15	4
Holmes	42	11	32	10
Hughes	58	18	48	32
Irving	19	14	28	8
Jackson	56	18	32	10
Key	28	6	20	13
Kilmer	21	4	18	7
Lake Braddock	56	23	35	25
Lanier	27	8	18	7
Longfellow	48	24	36	29
Poe	35	7	21	8
Robinson	55	18	23	15
Rocky Run	50	17	28	20
Sandburg	41	13	30	15
Thoreau	28	8	18	10
Twain	50	13	29	18
Whitman	22	2	16	6
TOTAL	**884**	**291**	**606**	**328**

Data of the summer selection round for both classes (1989 and 1990) are given in Table V. By the summer deadline date for the class of 1989, 18 students remained on the wait list and were considered with the summer applicants for admission. All wait-listed applicants and 22 summer applicants were offered admission. By the summer deadline date for the class of 1990, the wait list was exhausted and 13 summer applicants were offered admission.

TABLE V: NUMBER OF FRESHMAN APPLICANTS IN SUMMER ROUND OF SELECTIONS

	Class of 1989	Class of 1990
Number of Applicants	42	22
Number Selected	22	13

First day enrollments of the freshman year are given in Table VI. The attrition patterns of the two classes are very similar. Attrition patterns of the two classes during the first two weeks of school are remarkably similar. Nine freshmen in the class of 1989 withdrew during the first two weeks and seven freshmen in the class of 1990 withdrew in the same time period. Long bus rides and missing friends were the most frequently cited reasons for their withdrawal from the school. For the class of 1989, enrollment stablized after the first two weeks of the freshman year; the next student withdrawal was in January of the freshman year when the student's family moved out of the state.

TABLE VI: FRESHMAN ENROLLMENTS FIRST TWO WEEKS OF SCHOOL

	Class of 1989	Class of 1990
Total Number Offered Admission[1]	448	499
Enrollment First Day of School	393	420
Attrition Rate by First Day of School	12%	16%
Withdrawals During First two Weeks	9	7
Attrition Rate During First two Weeks	2%	2%

[1]Includes spring and summer accepted and wait-listed students.

Tables VII-IX contain profile data for the classes of 1989 and 1990 based on enrollment figures of the last day in September of the freshman year. Enrollment by school division is given in Table VII. From the time of initial selection to the last day in September of the freshman year, the proportion of out-of-county students increased from 15.3% to 16.7% for the class of 1989 and increased from 17.7% to 18.4% for the class of 1990.

TABLE VII: END-OF-SEPTEMBER FRESHMAN ENROLLMENTS BY SCHOOL DIVISION

	Class of 1989	Class of 1990
Fairfax	320/83.3%	337/81.6%
Falls Church	0/ .0%	0/ .0%
Loudoun County	12/ 3.1%	24/ 5.8%
Manassas City	6/ 1.6%	4/ 1.0%
Manassas Park	1/ .3%	0/ .0%
Prince William	45/11.7%	48/11.6%
TOTAL	**384**	**413**

Table VIII contains data on sex and ethnicity for end-of-September freshman enrollments for the classes of 1989 and 1990. The proportion of females for the class of 1989 increased slightly from 31.1% when originally accepted to 32.8% at the end-of September date. A decrease in the proportion of females for the class of 1990 occurred over the same time period, from 43.3% to 40.7%.

The proportions of ethnic groups in the classes of 1989 and 1990 at the end of September in the freshman year are identical; 24% of both classes were minority students. Changes in proportions of each minority ethnic group from one year to the next are minimal, differing at most by .6 percent. Comparison of total minority population of the group originally offered admission (Table III) to total population at the end of September shows that the proportion of minority population held steady or increased slightly over that time period. Comparisons of numbers of students in each minority ethnic group at time of original acceptance and at the end of September of the freshman year show that gains in number of minority students are made over that time period.

TABLE VIII: END-OF-SEPTEMBER FRESHMAN ENROLLMENTS BY SEX AND BY ETHNIC GROUP

	Class of 1989	Class of 1990
Female	126/32.8%	168/40.7%
Male	258/67.2%	245/59.3%
White	292/76.0%	314/76.0%
Blacks	13/ 3.3%	11/ 2.7%
Hispanic	6/ 1.6%	7/ 1.7%
American Indian	1/ .3%	1/ .2%
Asian American	72/18.8%	80/19.4%

Table IX contains the number of freshmen attending the school for science and technology who reside within the boundaries of each Fairfax County public high school. For the class of 1990, the number of those students who were public or private school students as eighth graders is indicated. Possible factors influencing the variance in the numbers among the school boundary areas include size of local school population; distance between local school neighborhoods and the site of the school for science and technology; and local community perceptions and expectations of school programs.

TABLE IX: END-OF-SEPTEMBER FRESHMAN ENROLLMENTS BY FCPS HIGH SCHOOL BOUNDARY

	Class of 1989	Class of 1990	
		Public School Students	Private School Students
Annandale (and pre-merge Jefferson boundary)	37	28	4
Chantilly	19	21	
Edison	7	9	3
Fairfax	7	10	
Falls Church	14	19	
Hayfield	13	20	
Herndon	10	9	
Lake Braddock	18	19	
Langley	10	8	
Lee	8	19	
Madison	13	17	
Marshall	9	12	
McLean	12	15	4
Mt. Vernon	4	11	
Oakton	32	13	
Robinson	25	12	1
South Lakes	12	18	1
Stuart	16	14	5
West Potomac	18	12	1
West Springfield	14	14	2
Woodson	22	14	2
TOTAL	**320**	**314**	**23**

In April of the freshman year for the class of 1989, there were 12 actual and 18 projected vacancies. Replacements were chosen for the class of 1989 to enter as sophomores. Table X gives sophomore replacement applicant data by school division. Of the 36 applicants offered admission conditional upon completion of the required summer instructional program, 30 successfully completed the program and six (6) declined offers or withdrew from the program prior to the completion date.

TABLE X: CLASS OF 1989 SOPHOMORE REPLACEMENT APPLICANTS BY SCHOOL DIVISION

	Pool	Conditionally Accepted	Accepted	Allocation
Fairfax	57/80.3%	28/77.8%	27/90.0%	-
Falls Church	0	0	0	1
Loudoun County	2/ 2.8%	0	0	2
Manassas City	1/ 1.4%	1/ 2.8%	1/ 3.3%	1
Manassas Park	0	0	0	1
Prince William	11/15.5%	7/19.4%	2/ 6.7%	7
TOTAL	**71**	**36**	**30**	

Table XI contains data on sex and ethnicity for the sophomore replacement students. Because it was not requested of all applicants on the application forms, information on ethnicity is available for accepted applicants only.

TABLE XI: CLASS OF 1989 SOPHOMORE REPLACEMENT APPLICANTS BY SEX AND BY ETHNIC GROUP

	Pool	Conditionally Accepted	Accepted
Female	30/42.3%	14/38.9%	12/40.0%
Male	41/57.7%	22/61.1%	18/60.0%
White	-	22/61.0%	16/53.3%
Black	-	2/ 5.6%	2/ 6.7%
Hispanic	-	2/ 5.6%	2/ 6.7%
American Indian	-	0	0
Asian American	-	10/27.8%	10/33.3%

The first sophomore replacement instructional program was conducted on Saturdays in May and on weekdays in June between the closing of regular school and the opening of summer school. The 80-hour program was an intensive sequence of instructional, diagnostic, and testing activities designed to provide unique learning experiences, to determine placement in certain academic areas, and to determine what additional experiences and competencies would be required prior to admission in the fall.

In addition to the sophomore replacement instructional program, eleven of the students (30%) had to take a prerequisite course in summer school. For all but three, the missing course was biology. Two took a geometry course and one took a foreign language course in summer school. Approximately half of the students were placed in directed independent study for diagnosed deficiencies in foreign language and/or mathematics. All of the students attend special classes held in the fall during the activities period to complete the technology course required of freshmen.

End-of-September enrollments for the class of 1989 in their sophomore year are reported in Tables XII and XIII. The proportion of out-of-Fairfax County students in the class of

1989 decreased slightly from 16.7% in September of the freshman year to 15.9% in September of the sophomore year (Tables VII and XII). The balance between males and females in the class of 1989 did not change significantly from September of the freshman year to September of the sophomore year (Tables VIII and XIII); females still comprise between 32% and 33% of the class. The minority population of the class of 1989 increased from 24% in September of the freshman year to 26% in September of the sophomore year (Tables VIII and XIII).

TABLE XII: END-OF-SEPTEMBER SOPHOMORE ENROLLMENTS FOR CLASS OF 1989 BY SCHOOL DIVISION

	Number	Percent
Fairfax County	329	84.14%
Falls Church	0	0%
Loudoun County	13	3.33%
Manassas City	6	1.53%
Manassas Park	1	.26%
Prince William	42	10.74%
TOTAL	**391**	

TABLE XIII: END-OF-SEPTEMBER SOPHOMORE ENROLLMENTS FOR CLASS OF 1989 BY SEX AND BY ETHNIC GROUP

	Number	Percent
Female	27	32.48%
Male	264	67.52%
White	289	73.91%
Black	15	3.84%
Hispanic	6	1.53%
American Indian	0	0%
Asian American	81	20.72%

Tables XIV and XV display data on the classes of 1989 and 1990 based on enrollment as of September 30, 1986. Overall, enrollment in the regular program at the school for science and technology in grade nine (class of 1990) and grade ten (class 1989) on September 30, 1986, is 37 percent female and 63 percent male. Approximately 25 percent of the student body is composed of minority students; the largest minority group is the Asian American group which comprises 20 percent of the school population. Approximately 17.16 percent of the students reside outside of Fairfax County. The largest non-Fairfax County group is the Prince William County group with 90 students or 11.19 percent of the student population.

TABLE XIV: SEPTEMBER 30, 1986 ENROLLMENT AT THE SCHOOL FOR SCIENCE AND TECHNOLOGY BY SCHOOL DIVISION AND BY GRADE LEVEL

	Grade 9 Class of 1990	Grade 10 Class of 1989	TOTAL
Fairfax County	337/81.6%	329/84.1%	666/82.84%
Falls Church	0/ .0%	0/ .0%	0/ .0%
Loudoun County	24/ 5.8%	13/ 3.3%	37/ 4.61%
Manassas City	4/ 1.0%	6/ 1.5%	10/ 1.24%
Manassas Park	0/ .0%	1/ .3%	1/ .12%
Prince William	48/11.6%	42/10.7%	90/11.19%
TOTAL	413	391	804

TABLE XV: SEPTEMBER 30, 1986 ENROLLMENTS AT THE SCHOOL FOR SCIENCE AND TECHNOLOGY BY SEX AND BY ETHNIC GROUP

	Grade 9 Class of 1990	Grade 10 Class of 1989	TOTAL
Female	168/40.7%	127/32.5%	295/36.69%
Male	245/59.3%	264/67.5%	509/63.31%
White	314/76.0%	289/73.9%	603/75.00%
Black	11/ 2.7%	15/ 3.8%	26/ 3.23%
Hispanic	7/ 1.7%	6/ 1.5%	13/ 1.62%
American Indian	1/ .2%	0/ .0%	1/ .12%
Asian American	80/19.4%	81/20.7%	161/20.03%

ASSESSMENT OF THE SELECTION PROCESS

FRESHMAN SELECTION

The purpose of the selection process is to identify students for whom the school for science and technology is the most appropriate educational environment in which to be placed. The key factors in achieving that purpose with the established selection process are as follows:

- the self-selection of students into the applicant pool,
- the instruments used to measure aptitude for the sciences, and
- the methods and processes used by staff to review applicant materials and make admission decisions.

With respect to the latter factor, the selection process appears to be working very well. It is perceived as fair and thorough by all involved in the process - students, parents, and educational staff of the participating school divisions. The use of multiple criteria and multiple measures assures a broad assessment of each applicant's potential. The use of three independent committees, each with five voting members, assures that each applicant is considered carefully by 15 professionals, including teachers, counselors, administrators, and human relations specialists. This extensive review of applicants and elaborate decision-making process will be continued.

The very positive feature of the factor of self-selection of students into the applicant pool is that it is open to all eighth graders residing within the participating jurisdictions; no other restrictions are placed on who may apply. The self-selection factor influences the females and minority students who are traditionally underrepresented in the sciences. The research literature on females and traditionally underrepresented groups shows that they often do not actively seek or avail themselves of opportunities in the study of mathematics and science. Although some gains were made in the second year of selections in the number of female applicants, the number of Black applicants, and the number of Hispanic applicants, efforts to encourage members of these groups to apply for admission to the school will be intensified. The assistance of intermediate school-based staff in this effort is invaluable and will be encouraged.

Subtests of the Differential Aptitude Test (DAT) are currently used as the admission examination to measure aptitudes related to success in the sciences. The two years of experience with this test have shown that there are ceiling effects with the instrument when used with this student population. That is, most applicants tend to score high on the test, making discriminations among the applicants on the aptitude criterion difficult for selection committee members to make.

Although there are two forms of the DAT available from the vendor, only one form is available for use for school for science and technology admissions testing. The alternate form is reserved for use by FCPS high schools as a guidance tool. The non-availability of alternate forms of the test may present problems.

For two consecutive years, a request for proposals (RFP) for commercial development of a test designed for the specific use as an admissions examination for the school for science and technology have been fruitless. There were no acceptable bids on the first RFP; and to the second RFP, no response met both technical specifications and cost limitations. In-house development of an admissions examination is currently under consideration. Resource requirements for test development are being identified.

Some adjustments to the freshman admissions process were implemented the second year of selections. The number of spaces reserved for summer round applicants was changed from exactly 40 to a number less than or equal to 40, determined each year based on analysis of prior years' experience. Also based on the first year of experience with attrition rates, adjustments were made in the actual number of offers of admission made in the initial selection round. Accounting for attrition rates in determining the number of original offers of admission minimizes the number of student vacancies occuring throughout an academic year and maximizes the use of the school's specialized facilities and unique instructional program.

For the past two years in admitting students as freshmen, eighth grade Algebra 1 has been neither an eligibility requirement to apply for the ninth grade nor an admissions requirement for entry as a ninth grader at the school for science and technology. Because completion of calculus is required for graduation, students entering the ninth grade without a first-year algebra course have a mathematics program accelerated even more than the program for the rest of the freshman class in order to complete a four-year pre-calculus sequence in three years. The experience of the first group entering without Algebra 1 is such that an adjustment in current practice is planned for implementation during the 1986-87 admissions process for students entering as freshmen in 1987-88. Algebra 1 in grade eight will not be a condition of eligibility to apply for admission but, if accepted, students without Algebra 1 will be required to complete the course prior to entering the school in the fall. The course will be available at the school for science and technology as well as at all Fairfax County Public Schools summer school centers.

Overall, the process for selecting and admitting freshmen to the school for science and technology has worked well. Faculty report that the students selected to attend the school are highly motivated and are interested in the sciences. End-of-year grade point averages of the first class indicate a high level of academic achievement: 9 percent of the class had 4.0 grade-point averages; 52 percent had averages of 3.5 and higher; and 85 percent of the students had averages of 3.0 and higher. Sixty students in the class of 1989 earned an academic letter for their 3.9 or higher GPAs.

SOPHOMORE SELECTION

The process of selecting students to fill vacancies in the sophomore class appears to be effective. After one month in the school, the replacement students appear to be functioning well in their classes and are adapting to the school and its environment. Faculty and staff recommend no changes in the sophomore replacement selection process at this time. Final evaluation of the first year experience with sophomore replacements will not be made until the end of this academic year.

JUNIOR/SENIOR PLACEMENT

This academic year of 1986-87 will be the first year of junior admissions. The expectation is that few students will meet the prerequisite course and educational experience requirements. That expectation is based on our own experience of admitting at the sophomore level and on the experience of similar high schools across the nation which do not admit any students at the junior or senior class levels. Because of the likelihood of few new students at the junior and senior levels and the expectation of normal attrition rates at the freshman and sophomore levels, class size at the freshman and sophomore levels will be increased to approximately 430 students each so that graduating classes of approximately 400 will be possible.