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ABSTRACT

Presented is a study of the career plans of women and minorities who indicated interest in science careers. The primary purpose of the study is to provide information about the characteristics of women and minorities who do, or do not, choose to pursue science careers. The objective of this study is to assess career intent in relation to home and school influences as well as to self assessments of skills and abilities, achievement, preferences, and aspirations. (Author)

Supplementary

REPORT OF POLL NO. 101
OF
THE PURDUE OPINION PANEL

FACTORS INFLUENCING THE SCIENCE CAREER PLANS OF WOMEN AND MINORITIES

April 1977

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FACTORS INFLUENCING THE SCIENCE CAREER PLANS OF WOMEN AND MINORITIES

by

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The late Dr. H. H. Remmers first proposed the Purdue Opinion Panel of American Youth in 1941. During the past 35 years, it has provided a rich and continuing documentation of the ever changing values of society. Since it is likely that this will be the last Purdue Opinion Panel report in the forseeable future, it is with some nostalgia and considerable feeling that the writers dedicate this report to the late Dr. Remmers and his students who have contributed so much.

Factors Influencing the Science Career Plans of Women and Minorities

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Abstract

This is a study of the career plans of women and minorities who indicated interest in science careers. The primary purpose of the study is to provide information about the characteristics of women and minorities who do, or do not, choose to pursue science careers. The objective of this study is to assess career intent in relation to home and school influences as well as to self assessments of skills and abilities, achievement, preferences, and aspirations.

The subjects were the total sample of respondents (N = 8,621) to a 1975 Purdue Opinion Panel nationwide survey of secondary school students. Subgroups examined indicated that men are more likely to expect to have careers in physical science, but women to have careers in the humanities and life sciences, especially nursing. Non-white respondents who had given consideration to a career in science, mathematics, or engineering often lacked the courses and experiences which the majority white groups had in school and at home.

Results of the study showed that able, capable, achieving women are attracted to science or mathematics careers. If the school and family climate is supportive, and if students have considered and have been encouraged to consider science careers, they are more likely to do so. Many high school women and minorities, however, appear to lack the experiences, success and information necessary to enable them to seriously consider science careers. A quarter to a third of the respondents interested in being a scientist indicated that they could not do so for academic reasons, e.g., lack of required courses, poor grades, etc. and a third because they had made "other career choices". Many high school students lack understanding of science and the requisite mathematics and science preparation.

Females and minorities interested in science careers showed more similarities to male peers in interests and achievements. However, males have more technical experiences in school, e.g., shop courses and mechanical drawing, and out of school, e.g., working with power tools and reading Popular Mechanics which females and minorities lack. Women planning careers in science are more likely to plan to marry later and to combine marriage and career than are women not planning science careers.

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I. Narrative

Problem

A disproportionate number of qualified women and ethnic minority group members do not choose to pursue careers in science,[1] There is a need to identify the barriers to full participation in science careers and to remove them. Information that would help to identify and to understand the barriers to full participation of all individuals could be useful in making decisions about the retention or modification of present counseling, instruction or supplemental programs and activities, and the possible need for additions in these areas so that women and ethnic minority group members could reach their potential growth in career development.

Purpose and Objectives of the Study

The primary purpose of this study was to provide information on the reasons why more women and minority group members do not choose to study science. The focus of the study was an investigation of the relationships, if any, between occupational choices, school subjects, and skills or abilities, especially in the area of mathematics and science. The methods used included (1) the analyses of existing relevant data from past Purdue Opinion Panel studies, and (2) the initiation of a new study to collect and analyze important but non-existing data. Attention was given to the opportunity for exposure to

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[1] The word "science" is used as a general term referring to the following disciplines: the mathematical, physical, biological, medical (but not clinical), engineering, and social sciences, and the history and philosophy of science; also included are interdisciplinary fields which comprise overlapping areas of two or more sciences, e.g., biophysics, geochemistry, meterology, and oceanography.

innovative science curricula, e.g., Biological Science Curriculum Study, etc., and an examination of the possible relationships to occupational choices and attitudes toward science issues. For the new study, a special questionnaire, Poll 101, was developed.

The outcomes of the national representative sample for Poll 101 (N = 2000) were supplemented by examination of the total sample of all respondents to Poll 101, so that more analytic tests could be conducted. For instance, the total sample of all respondents to Poll 101 (N = 8,621 usable questionnaires) was sufficiently large so that all or most of the selected permutations of the classifications could be examined for hypotheses about subsample membership. To use representative national samples in this manner would require equally large sizes to perform satisfactorily the same analyses. The cost of obtaining national samples of such enormous size would be prohibitive.

The researchers compared responses of the national sample and the total respondents to Poll 101 and found close approximation of the results. The reader interested in comparisons of these groups can refer to the report on the national results (Erlick & LeBold, 1975) and to the Appendix B of this report.

The practical outcome of the procedure adopted in this study was to obtain additional evidence about the characteristics of individual occupational families so that knowledge and understanding of the paths toward these goals could become evident. Information obtained from analyses of the national sample for Poll 101 (Erlick & LeBold, 1975) is supplemented by this report which includes information obtained from analyses of the total sample of all respondents to Poll 101 and a recent American Physical Science paper (LeBold, 1976).

The objectives of this study were: (1) to compare responses of subgroups inclined toward science careers with each other and with those of respondents-

in-general, and (2) to relate present school experiences to future educational and career aspirations.

The administration of Poll 101 provided information on several topics:[2]

1. School subjects
   a. those taken
   b. attitudes toward
2. Teacher behaviors
3. Innovative science programs
4. Educational levels
   a. parents'
   b. students' expectations
5. Self-concepts
   a. skills and abilities
   b. activities and achievements
6. Science orientation
   a. career choices
   b. job family preferences
   c. consideration given toward entering
7. Work preferences
   a. parents' for children
   b. students' own
8. Attitudes
   a. toward sex roles
   b. toward or away from science

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[2] See Appendix B for individual responses to all items.

Several questions were raised in this study:

1. What are the effects of stimuli from school courses on career decisions in science areas?

2. What are the conditions which produce differential points of view with regard to science careers among various groups, e.g., females and minority group members? Conditions to be examined are those within the school, within the family, and within the student.

3. Are there interactions between attitudes toward science as a career and/or behavior patterns which occur simultaneously?

In the present study, a stringent guide was used to assess results from existing studies. Response differences were examined for deviations greater than ten percent in order to report genuine differences ($p < .001$ in most instances) rather than to risk reporting sample biases as differences. Unless otherwise reported, differences in sex and ethnic responses will be reported only in instances where deviations of at least ten percent occurred.[3]

School Information

School personnel in the Purdue Opinion Panel were asked to respond to a questionnaire seeking information about the nature of special programs in science areas. Information sought concerned the names of science programs, grades covered, and length of time the programs had been in operation. The following subject areas were examined: mathematics, physics, chemistry, biology, English. The returns from schools were reviewed to ascertain the extent to which potential student participants had opportunity to be exposed to innovative science programs.

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[3] See Appendix A for details of procedures.

Schools were also asked to provide information about the ethnic make-up of the school, information similar to that provided to the Office for Civil Rights (1972). The information obtained was helpful in insuring the participation of minority groups in responding to the student questionnaire. Comparisons were made between the school's description of the ethnic make-up and respondents' own description of ethnic origin. School-by-school comparisons were made to verify similarity of the proportions.

II. Results

School Subjects

Past Purdue Opinion Panel studies have shown attitudes of high school students to be generally favorable toward mathematics and science courses. In 1961 (Poll 63), over seven out of ten respondents reported that they liked the high school subjects of mathematics and science, equally as many who liked English and history or social studies. Fewer than one out of five respondents reported that mathematics and science courses were boring (Poll 66, 1962). (See Table 1.)

About seven out of ten respondents to Poll 66 (1962) reported that they had taken or wished to take mathematics and science courses. There were no sex differences in intent to take mathematics and science courses nor in the extent of hard work expended on the courses. Males exceeded females in reports that mathematics and science courses were very interesting and enjoyable as well as having potential to be helpful to adults in enjoying life.

In 1975 (Poll 101), about eight out of ten respondents reported that they had taken or will take algebra and biology. About half of the respondents had taken or planned to take plane geometry while more than a third had taken or planned to take chemistry. Only in the advanced courses, trigonometry and physics, did males outnumber females in course preparations.

Table 1

Attitudes Toward Mathematics and Science Courses [4]

Issues	Mathematics		Science	
	Males	Females	Males	Females
Courses taken or wish to take	73	68	70	65
To earn a living:				
Especially useful	55	38	39	24
Not useful	6	8	12	19
Attitudes toward courses:				
A. Enjoyed taking	32	22	32	22
Did not enjoy taking	21	29	15	24
B. Very interesting	30	20	40	28
C. Worked very hard	38	35	30	29
Did little work	15	13	14	14
D. Are boring	18	20	14	22
To enjoy life:				
Will help	19	9	26	12
Will not help	12	16	13	16

4

Blumenfeld, W. S., Franklin, R. D., & Remmers, H. H. Youth's attitudes toward sports, the Peace Corps, military service, and course offerings. Report of Poll 66, The Purdue Opinion Panel, Purdue University, 1962, 21(3).

Note: All data are percentages of responses. Responses may not total 100% in some instances due to rounding errors, omissions or multiple responses.

That group of science-leaning non-white respondents to Poll 101[5] resembled the total respondents to Poll 101 in having taken, or in plans to take, mathematics and science courses. These non-white females did, however, exceed females-in-general[6] in having taken biology and chemistry.

Respondents Selecting Science Careers

Respondents to Poll 101 selected from a list of 138 types the one occupation closest to that expected in future employment. Respondents to Poll 101 who selected one of the science careers[7] were isolated for future examination. Males and females in the science career choice group (SCCG) differed (by 10% or more) from male and female respondents-in-general in course grades, in self-perceptions of abilities and skills, and in attitudes toward mathematics and science courses. This group had a higher proportion of respondents (a) whose grades were above average or higher, (b) whose ratings of academic ability and mathematics abilities were above average, (c) whose ratings of problem solving skills were above average, and (d) who like the following subjects: algebra, plane geometry, trigonometry, chemistry, and physics. These respondents were also more likely to have participated in honors or advanced placement programs than were respondents-in-general.

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5 Science-leaning non-white respondents: those who responded "yes" to Item 34 in Poll 101 that they had given consideration to a career in science, mathematics, or engineering.

6 Females-in-general: all females in the total respondent group to Poll 101.

7 Science careers: architect, chemist, engineer (n.e.c., aerospace, chemical, civil/hydraulic, electrical/electronic, mechanical/automotive), geologist, mathematician/statistician, college mathematics teacher, physical scientist (n.e.c.), college science teacher, biologist/zoologist, dentist, pharmacist, physician, veterinarian, economist, psychologist, social scientist.

The four high school subjects taken most frequently by all respondents to Poll 101 were: English, social studies, algebra and biology (Item 12).[8] These subjects were also among the five subjects liked by most of the respondents to Poll 101.

In comparison to respondents-in-general to Poll 101, those who selected science occupations (SCCG) were the most likely to have taken advanced mathematics and science courses such as plane geometry, trigonometry, chemistry and physics. (See Table 2.) Liking for these subjects was also most widespread in the SCCG. Females in the SCCG were less likely than were females-in-general to like home economics and bookkeeping. Liking for mechanical drawing was more widespread among the SCCG males but was also slightly greater among the SCCG females than among female respondents-in-general.

Sex differences were noted for attitudes toward some school subjects with similarities between the respondents in the SCCG and respondents-in-general to Poll 101. Female SCCG respondents were more likely than were their male peers to have taken typewriting, home economics and bookkeeping, while male SCCG respondents were more likely to have taken mechanical drawing and auto mechanics. In addition, trigonometry was taken or will be taken by more SCCG males (58%) than by their female peers (47%). The incidence of taking trigonometry was two times greater among males and females in the SCCG compared with male and female respondents-in-general. Female SCCG respondents were also more likely to like English, typewriting and home economics while their male peers were more likely to like mechanical drawing and auto mechanics. In addition, SCCG males were more likely than their female peers to like chemistry and physics. The SCCG males and females were, however, more likely to like chemistry and physics than were respondents-in-general.

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[8] All items referred to in the text can be found in Appendix B.

Table 2

Percentage of School Subjects Taken or Plan to Take and Liked by Respondents in General and Those Expecting to Have Science Careers[9]

Subjects	Taken or Will Take						Like Subjects					
	Total Resp.			Sci. Careers			Total Resp.			Sci. Careers		
	Total	M	F	Total	M	F	Total	M	F	Total	M	F
English	96	95	98	99	98	99	67	54	79	65	56	79
Social Studies	92	90	93	95	95	96	63	61	65	67	67	68
Algebra	80	81	80	93	94	94	51	51	51	70	71	68
Biology	79	78	81	87	86	88	61	59	64	70	68	73
Plane Geometry	51	54	49	76	77	75	31	35	27	53	56	49
Typewriting	76	61	88	72	63	87	55	39	70	47	38	61
Chemistry	39	42	36	64	66	62	26	29	22	44	48	37
Trigonometry	27	32	23	53	58	47	16	20	13	37	40	31
Art	51	48	54	50	48	51	49	43	54	50	47	54
Physics	25	31	21	47	52	41	16	20	13	33	37	27
Home Economics	51	23	78	37	17	67	44	21	65	33	18	55
Mechanical Drawing	26	44	9	35	50	12	26	40	13	37	50	18
Band, Orchestra	30	29	32	33	33	33	28	24	32	31	28	35
Auto Mechanics	20	32	8	19	26	8	27	41	13	27	37	13
Bookkeeping	30	21	39	20	16	27	25	17	32	17	15	20

[9] Data obtained from all respondents to Poll 101.

Non-white respondents to Poll 101 who indicated that they had considered science careers (Item 34) tended to resemble closely respondents-in-general in access to, and in attitudes toward, high school subjects. Non-white science-leaning respondents were less inclined to like algebra, plane geometry, and trigonometry than were the SCCG although there were no differences between these groups in attitudes toward biology. Non-white males were less inclined than were males in the SCCG to like chemistry, physics or mechanical drawing.

Teacher Behaviors

In Poll 101, responses were obtained from twelve statements (Item 37) about different kinds of teacher behaviors in the classroom. Nearly six out of ten (59%) respondents-in-general reported that most of their high school teachers do encourage students to consider education and/or training beyond high school. Nearly a third (32%) also reported that their teachers do encourage students to explore many choices for post high school plans. Few (9%) reported that teachers tell students that science course work is difficult. No differences on the three issues were noted between respondents-in-general and those in the SCCG, or non-white respondents who had given consideration to science careers.

Among respondents to Poll 101 who selected science careers (SCCG), there were no significant differences between responses of males and females for any of the twelve teacher behaviors.

Non-white respondents to Poll 101 who had given consideration to science careers differed from respondents-in-general and/or the SCCG in reports of teacher behaviors. This non-white group was more likely (39%) to be told by teachers which jobs offer the best opportunities for males and females than was the SCCG (22%). The non-white group, especially females (46%), was also more likely to be given advice by teachers on what to do after high school than were SCCG females (30%).

One interesting finding was that non-white science-leaning females (67%) were the most likely to report that their teachers encourage students to be creative and original, more so than were their male peers (48%), or SCCG females (56%). Non-white science-leaning females were also more likely than were SCCG females (27%:13%) to be told by teachers in which courses males and females can expect to be most successful.

Males who selected science occupations and non-white females who had considered science careers were more likely than their peers to report the opportunity to talk individually with their teachers. On the other hand, SCCG females (24%) were slightly less likely than were their male peers (31%), or the non-white science-leaning group (29%), to report encouragement to take mathematics courses. Non-white science-leaning males (36%) were less likely than were their female peers (52%), and the SCCG (51%), to report encouragement from teachers to build basic skills.

Innovative Science Programs

Table 3 presents an estimate of exposure to innovative science programs (Item 5) by student report with comparisons of groups choosing science occupations and non-white respondents who had considered science careers. There were no significant differences among these groups in exposure to the programs. It is evident, however, that exposure to SMSG was greater for the non-white group while exposure to IPS was greater for the SCCG. Females apparently had less access to ECCP and HPP, although there were no sex differences in exposure to HPP in the SCCG.

Educational Levels

Comparisons were made between students' reports of parents' present levels of education and students' own aspirations for future education (see Table 4). These results show that parents' level of education is highest for respondents in the SCCG and lowest for respondents-in-general to Poll 101, with high student aspirations for total education.

Table 3

Estimates of Exposure to Innovative Science Programs

Have you ever used any of these materials in your science courses? (Mark as many as apply)	All respondents			Science Career Choices[10]			Non-White Science-leaning[10]		
	Total	M	F	Total	M	F	Total	M	F
School Math Study Group (SMSG)	8	9	7	6	7	5	14	14	14
Physical Science Study Committee (PSSC)	6	7	6	7	9	4	9	12	5
Chemical Education Material Study (CHEMS)	8	9	6	11	13	9	11	12	10
Biological Science Curriculum (BSCS)	29	29	29	30	30	31	33	33	33
Harvard Project Physics (HPP)	2	3	1	4	4	4	3	4	1
Engineering Concepts Curriculum (ECCP)	1	2	0	2	2	1	3	4	1
Introductory Physical Science (IPS)	19	20	18	22	23	20	16	14	17
Intermediate Science Curriculum Study (ISCS)	7	7	6	6	8	4	6	8	4

[16] See Appendix B for definitions.

Table 4

Comparisons of Students' Educational

Expectations by Parents' Level of Education

Highest Level of Education	All respondents			Science Career Choices			Non-white Science-leaning		
	Total	M	F	Total	M	F	Total	M	F
Father:									
High school graduate or less	57	56	57	42	44	39	64	65	64
Vocational, business or apprentice training, military service	15	13	16	14	12	16	11	12	11
Community college, 1 to 3 years of college	9	9	9	13	12	14	7	7	7
College graduate or higher	18	19	18	32	31	31	17	16	17
Mother:									
High school graduate or less	67	66	67	56	56	57	70	73	68
Vocational, business or apprentice training, military service	8	7	9	10	9	10	6	6	5
Community college, 1 to 3 years of college	11	11	11	11	12	10	10	9	10
College graduate or higher	13	14	12	22	22	21	14	13	15
Self:									
High school graduate or less	20	18	22	6	6	8	11	13	9
Vocational, business or apprentice training, military service	19	21	18	9	9	8	17	19	15
Community college, 1 to 3 years of college	15	12	18	9	8	11	13	11	16
College graduate or higher	42	45	39	73	73	73	55	53	58

For non-white science-leaning respondents to Poll 101, parents' educational levels resembled that of parents of respondents-in-general. Fewer in the non-white group had parents who had completed post high school vocational or higher education (ratio 3:2 or higher). Nearly two thirds of the parents (64%) of non-white science-leaning respondents had high school, or less than high school education.

The evidence in Table 4 is clearthat most respondents to Poll 101 aspire to higher educational levels than their parents have achieved. This is especially true for the SCCG where three out of four (73%) expect to complete four or more years of college compared with about one out of three (32%) of the fathers and one out of five (22%) of the mothers who have done so. However, educational aspirations are also high for the non-white science-leaning group where more than half (55%) aspire to four or more years of college compared with about one out of six (17%) of the fathers and about one out of seven (14%) of the mothers who had done so.

Self-Concepts

Estimates of self-concepts were obtained in Poll 101 by self-assessments of several attributes (Item 11'. In Table 5, the attributes are ranked in order of their selection by the SCCG.

In self-perceptions of personal characteristics, a third of the respondents to Poll 101 reported academic ability at the "above average" level with no sex differences for respondents-in-general nor for science-leaning non-white respondents. There were sex differences, however, in reports of mathematics, problem solving and science abilities. About three out of ten male respondents-in-general reported mathematics and problem solving abilities at the above average levels while only about two out of ten of the females did so. Scientific ability received lower ratings for both sexes with one male in four or five and one female in seven or eight reporting above average levels.

Table 5

Self Ratings of Abilities and Skills

	Above Average Ratings								
	All respondents			Science career choices			Non-white Science-leaning		
Characteristics	Total	M	F	Total	M	F	Total	M	F
Academic ability	34	33	34	54	54	54	35	34	36
Drive to achieve	42	41	42	51	50	54	52	51	53
Mathematical ability	26	30	22	46	47	45	30	34	24
Problem solving ability	25	29	21	44	47	38	29	31	26
Athletic ability	33	41	25	38	44	28	40	50	25
Scientific ability	17	22	13	36	40	30	23	23	24
Speaking ability	26	24	27	30	29	31	32	30	35
Social skills	26	23	29	29	26	33	29	27	31
Mechanical ability	18	30	6	26	35	13	21	31	8
Artistic ability	19	18	19	20	19	23	21	22	20

Similar sex ratios were found for science-leaning non-white respondents except that about a third of these males and a fourth of these females reported high mathematical abilities; about a fourth of these females reported high problem solving abilities. No sex differences were found for non-white science-leaning respondents in reports of scientific abilities.

For the SCCG as well as for respondents-in-general, the two highest ranked attributes were self-assessments of academic ability and drive to achieve. Drive to achieve was ranked equally high among the SCCG and the non-white science-leaning group with no evidence of sex differences for respondents in the two groups.

The SCCG assigned higher ranks for mathematical, problem solving and scientific abilities than did members of the non-white science-leaning group, and respondents-in-general.

No sex differences by subgroups were noted in ranks for academic ability, drive to achieve, speaking and artistic abilities. In general, a tendency was found for males to assign higher ratings for athletic, mechanical and problem solving abilities, but for females to assign higher ratings for social abilities. No sex differences were found for the ratings of mathematical ability by the SCCG nor for the ratings of scientific ability by the non-white science-leaning group. Males in the non-white science-leaning group and males-in-general tended to give higher ratings to mathematical ability than did their female peers. Higher ratings were found for males in the SCCG and males-in-general for scientific ability than for their female peers.

Non-white science-leaning respondents to Poll 101 resembled respondents-in-general in self-assessments of most of the ten characteristics offered. In three instances, however, non-white science-leaning females differed by 10% or more from females-in-general. Non-white females interested in science rated their scientific ability above average by a ratio of nearly two to one (24%:13%)

over females-in-general. There were no significant differences between non-white science-leaning males, white males-in-general, and non-white science-leaning females in ratings of scientific ability at the above average levels. Non-white science-leaning females' attitudes toward the subjects biology and chemistry were more positive than were the attitudes of females-in-general towards these subjects. The proportion of non-white science-leaning females who liked biology was greater than that for non-white science-leaning males; however, there were no sex differences for non-white respondents in attitudes toward chemistry.

Science-leaning vs. Non-science-leaning Students

In this study, a comparison was made of the total sample of respondents to Poll 101, with subgroups who indicated interest in job family preferences or occupational choices in the physical or life sciences, or in humanities including the behavioral sciences. Two target groups were closely examined: (1) respondents who selected one in a list of science occupations for future employment (SCCG), and (2) non-white respondents who reported having given consideration to future careers in science, mathematics or engineering. (See Appendix B for the composition of these subgroups.) By use of the total sample of respondents to Poll 101, the division into subgroups of interest yielded over one hundred individuals each so that many comparisons could be made.

When compared with respondents-in-general to Poll 101, science-leaning respondents reported: (1) higher academic achievement, (2) positive self-assessments of skills and abilities, and (3) parents having more post high school education or training.

Respondents selecting science careers differed little from respondents-in-general in several types of accomplishments offered (Item 14). There was little or no difference between the sexes or between the SCCG and the total group of respondents in any of the following: (1) having had a major part in a play,

(2) participation in a state or regional music contest, (3) winning a prize or award in an art competition, and (4) receiving a high rating in a state or regional music contest. Although differences fell below the level accepted in this study (10%), there was a greater tendency for respondents selecting science careers to differ from respondents-in-general in having entered a project in a science fair (males +7%; females +6%). The SCCG also showed a greater tendency to achieve recognition for mathematics (males +5%; females +6%).

Similar sex differences were found in the SCCG as in respondents-in-general in several accomplishments. Females in both groups were more likely than males to have: (1) achieved recognition for a 4-H project, (2) edited a school publication, and (3) become a member of a scholastic honor society. Males were more likely than females to have been an active participant in scouting.

The home possessions (Item 13) of mechanics tool kits and sewing machines yielded little differentiation among respondents to Poll 101. Yet non-white science-leaning respondents were the most likely to report having a ham radio while humanities-leaning males were the least likely to do so.

Females interested in physical science careers reported having power tools such as saws and drills to a greater extent than did females-in-general or females interested in humanities careers. No sex differences were found among physical science-leaning respondents who reported having power tools. Non-white science-leaning respondents, especially females, were less likely than were respondents-in-general to report having power tools in the home.

Pocket or desk calculators were more prevalent among physical science-leaning females and humanities-leaning males than among respondents-in-general. Calculators were about equally prevalent among the SCCG, the physical science occupations group and males in the life sciences and humanities. Calculators were the least prevalent among the non-white science-leaning group.

The possession of a large library differentiated science-leaning respondents to Poll 101 from respondents-in-general. Compared to respondents-in-general, science-leaning respondents were the most likely to have in their homes a library containing more than 250 books. Males inclined toward physical science occupations were less likely than other respondents inclined toward science occupations to report large home libraries.

A series of twelve activities (Item 15) adapted from Holland's (1965) personality types and range of competencies were offered in Poll 101. Reports were based upon those activities which respondents can do reasonably well. Compared with respondents-in-general, the SCCG is more skilled in each of the following: (1) interpreting simple chemical formulae, (2) describing the function of the blood stream, (3) using logarithmic tables, and (4) using a microscope.

There were no sex differences in reports of skills in the use of a microscope and in the description of the function of the blood stream except that humanities-leaning males tended to outnumber humanities-leaning females in both skills.[10] Sex differences were evident for the eight remaining activities for the SCCG as well as for respondents-in-general. Males outnumbered females (ratios 9:7 to 6:1) in the SCCG in all of the following: (1) using a voltmeter (38%:6%), (2) making mechanical drawings (48%:9%), (3) using wood shop power tools (73%:18%), (4) using a slide rule (53%:35%), (5) interpreting simple chemical formulae (57%:42%), and (6) using logarithmic tables (36%:25%). On the other hand, females outnumbered males in this group in all of the following: (1) designing clothing, posters, furniture, etc., (51%:25%), (2) making handicrafts, e.g., weaving, carving, pottery, leather tooling, etc., (65%:41%), (3) typing 40 words a minute (45%:28%), and (4) playing a musical instrument (55%:43%).

[10] See Appendix B for definition.

Females inclined toward the physical sciences differed from females-in-general as well as from females inclined toward the life sciences or humanities in greater tendency to report skill in making mechanical drawings (ratio about 3:1), although females inclined toward physical science differed from their male peers by the same ratio. Physical science inclined females were also the least likely of the female respondents to Poll 101 to report competency in typing.

Non-white science-leaning respondents to Poll 101 resembled respondents-in-general in reporting skills with one exception. Non-white males in the group reported skill in using a slide rule nearly equal to that of males in the SCCG.

Respondents to Poll 101 inclined toward the sciences apparently were more active leisure readers over a broad range of content than were respondents-in-general. Science-leaning respondents exceeded respondents-in-general in reports that one or more magazines or books had been read during the past year in each of these groups (Item 36): (1) Popular Science, Psychology Today (42%:24%), (2) science fiction other than comic books (46%:33%), and (3) other kinds of fiction (57%:48%). Respondents inclined toward physical science occupations were more likely to have read Popular Mechanics and/or Mechanics Illustrated than were respondents-in-general. Although males inclined toward physical science outnumbered their female peers in reading mechanics content, females in the group were nearly twice as likely as were females-in-general (21%:11%) to have read these mechanics publications. On the other hand, publications concerned with social-political or cultural problems were most likely to have been read by humanities inclined respondents as well as by females inclined toward the physical sciences.

Several questions were included in Poll 101 to assess the nature of the school climate. Among respondents in the SCCG, more than half reported that most of their high school teachers do the following: (1) encourage students to consider education and/or training beyond high school (59%), (2) encourage students to be creative and original (57%), and (3) encourage students to build basic skills (51%). About a third or more of the SCCG reported that most of their teachers do the following: (4) offer frequent opportunity to talk with teachers individually (38%), (5) give students advice on what to do after high school (34%), and (6) encourage students to explore many choices for post high school plans (33%). No sex differences were found among SCCG respondents for any of the above except that males in this group were somewhat more likely to be given advice by teachers on post high school plans (males 37%; females 30%). SCCG males were more likely than were males-in-general (a) to be encouraged by teachers to be creative or original (58% to 49%), (b) to build basic skills (51% to 40%), and (c) to have frequent opportunity to talk individually with teachers (40% to 31%). Females in this group, however, responded similarly to respondents-in-general. Respondents in the SCCG were somewhat more likely to be encouraged by teachers to take mathematics courses than were respondents-in-general (28% to 19%), but SCCG males (31%) to a greater extent than were SCCG females (24%).

In career related behaviors, talking about jobs, work, or careers with friends was far more prevalent (81%) among respondents-in-general to Poll 101 than was talking with workers about workers' career decisions (34%). Comparatively few (16%) respondents-in-general had attended a "career" or "job" fair where materials were displayed and business representatives talked to students. A third of the respondents-in-general had had a job interview. No significant differences were found for talking with friends, workers or business representatives, or attending career fairs among respondents-in-general and among the subgroups SCCG or non-white science-leaning respondents.

No sex differences were found between respondents-in-general and the SCCG for talking about career-related issues with counselors, family members, or teachers. No significant differences were evident between the SCCG and respondents-in-general for talking with counselors, family members or teachers on career issues except that SCCG males were somewhat more likely than were males-in-general to have talked with their teachers (45% to 37%).

Ethnic differences were evident in career-related behaviors. Non-white science-leaning females (39%) were the most likely of all respondents to Poll 101 (respondents-in-general, 25%; SCCG, 30%) to report that they had discussed post high school education or training more than three times during the past year with their guidance counselor. The non-white science-leaning group (23%) tended to report more frequent contact (more than three times) with the guidance counselor during the past year to discuss jobs or occupations than did other respondents (14%) to Poll 101. Non-white science-leaning males were the least likely (72%) of all respondents (86%) to Poll 101 to report career-related discussions with family members. Non-white science-leaning females (53%) were the most likely of all female respondents (females-in-general, 41%; science-career group females, 43%) to Poll 101 to have had career-related discussions with teachers, and to a greater extent than were non-white science-leaning males (39%). Females, especially non-white science-leaning females (38%), were the most likely of all respondents to Poll 101 (respondents-in-general, 25%; SCCG, 28%) to have sought information from the school career file or occupational library.

Although only a minority of those surveyed tended to have negative and traditional attitudes toward career roles for females, consistent males bias was noted on several issues in ratios of two to one or higher. Males-in-general, SCCG males, and science-leaning non-white males were more likely than their female peers to endorse all of the following. (1) working women take jobs away from men, (2) women should stick to "women's jobs", (3) a woman's place

is in the home, and (4) education is wasted on women since they usually get married and raise a family. Science interests appear unrelated to male endorsement of these statements. Non-white science-leaning males were somewhat more inclined than were other males to endorse the statement concerning the waste of education on females. SCCG females were slightly less inclined than were other females to endorse statements concerning women's place being in the home and education being wasted on women.

Respondents-in-general to Poll 101 gave favorable endorsements to several statements concerning career roles for females. Endorsement was made for each of the following: (1) selection of a dentist on qualifications other than sex (71%), (2) equality of science ability between sexes (67%), (3) equality of interest in mathematics between sexes (61%), (4) females possess ability and endurance required for successful space flights (40%), (5) strong approval of electing female governors (39%), and (6) approval of the appointment of a female chairman of the Atomic Energy Commission (33%).

In general, females and males in the SCCG and non-white science-leaning females tended to endorse to a greater extent than did respondents-in-general to Poll 101, each of the following: (1) selection of a dentist on other than basis of sex, (2) equality of science ability between the sexes, (3) equality of interest in mathematics between the sexes, (4) females possess ability and endurance required for successful space flights, (5) the appointment of a female chairman of the Atomic Energy Commission, and (6) the election of female governors.

Females clearly held more favorable attitudes toward female career roles than did male respondents to Poll 101. Females-in-general, SCCG females, and non-white science-leaning females endorsed by ratios of 3:2 or 2:1, compared with male peers, each of the following: (1) females possess ability and endurance required for successful space flights, (2) the appointment of a

female chairman of the Atomic Energy Commission, and (3) the election of a female governor. In addition, females-in-general, SCCG females, and non-white science-leaning females exceeded (more than 10%) their male peers in endorsing the following statements: (a) belief in the equality of mathematics interest between sexes, and (b) belief in equality of science ability between the sexes.

One interesting observation of these data was made. Male and female respondents-in-general and SCCG males and females differed little in reactions to a statement concerning males' attitudes toward working for female supervisors. About half of each group endorsed this statement. While males and females would select a dentist regardless of sex, and both sexes did agree that females are equal to males in mathematics interest and science ability, SCCG acceptance of female roles apparently does not extend to the area of supervision of work.

Science Issues

In general, respondents to Poll 101 showed positive attitudes toward the benefits and by-products of past scientific research with a willingness to provide tax support for several science programs. Only limited support would be offered, however, for continued space research, for science education programs, and for scientific research unless it had practical value.

No differences by sex were noted for science-leaning non-white respondents to Poll 101 (a) in belief in the benefits of the by-products of scientific research, (b) in belief that science and technology have done more good than harm, and (c) in belief that high altitude flying should be halted to prevent possible break in the ozone layer.

Compared with respondents-in-general to Poll 101, SCCG male and female respondents strongly endorsed (1) the need to seek alternate energy sources (61%), (2) support for science education programs (34%), and (3) continuation of space research (27%).

SCCG female respondents (80%) gave stronger support than did their male peers (69%) to the need for cancer research and the need to improve the environment (76% - 68%) as was the case for females in almost every group.

Support for space research was greater for females inclined toward the physical sciences than for those inclined toward life sciences or humanities.

Work Preferences

Results of Poll 101 showed student interest in doing theoretical or research work to be associated with high grades, plans to attend college, parental support for theoretical or research work, and inclination toward science careers (Items 23 and 24).

Nearly equal proportions of males (29%) and females (26%) in the SCCG indicated preference for such work. Student preference for theoretical work was greater than estimates of parental support both for males (20%) and for females (21%) in the SCCG. (It should be noted that there was no way in this study to determine what parents actually preferred for their children in future work.)

Sex differences were noted for all subgroups of interest for student work preferences as well as for estimates of parents' preferences. Females were the most likely to prefer serving others and teaching while males were the most likely to prefer making, building or growing things, and servicing, maintaining or repairing things.

There was remarkable similarity in students' reports of parents' work preferences for them and students' own work preferences -- for whatever reason. Preference for serving others was more widespread among female respondents-in-general and female non-white science-leaning respondents than among parents of these females. Non-white females were also less inclined to teach than their parents were said to prefer. Females inclined toward humanities also showed greater preference than did their parents for serving others and for doing theoretical work.

Among respondents inclined toward the physical sciences, 31% of the males and 28% of the females preferred theoretical work. About equal proportions preferred to make, build, or grow things. Females in this group were three times as likely as males to prefer teaching and were supported similarly by their parents' preference.

Respondents inclined toward life sciences, excluding nursing, showed similar preference and parental support for theoretical work as did physical science inclined respondents. However, nearly a third of the males (30%) and more than half (56%) of the females preferred to serve others, with parental support for this preference.

In addition, more than half the SCCG and non-white science-leaning respondents indicated that they had been encouraged to consider a career in science, mathematics, or engineering.

Reasons for not Becoming Scientists

Two major reasons were given, by respondents to Poll 101, for not becoming scientists. About four out of ten respondents-in-general indicated interest in some other career, including military service, while a third gave academic reasons.

It was a surprise to find that 33% of the SCCG and 39% of the non-white science-leaning respondents indicated intent "to get into some other kind of a career". Furthermore, fully a third or more of the respondents inclined towards physical or life sciences, and humanities careers also indicated such intent.

Academic reasons, such as poor grades, lack of required courses, required courses too hard, and long preparation needed, was the second major reason given for each of the subgroups with a range of 25% to 33% doing so. For non-white science-leaning respondents, academic reasons were the most important for four out of ten females and half the males.

Few (zero to 6% by subgroup) parents were against science careers for their children. For all subgroups in the study, males as well as females, marriage was a minor factor (ranging from 1% to 5% by subgroup) in movement away from science careers.

Financing science careers was limited as a deciding factor, ranging from 3% to 11% by subgroup, for not pursuing science careers. Financial reasons were greatest for non-white science-leaning males (11%), but were nearly as high in the SCCG (6%).

Intent to become a scientist ranged from 4% of respondents-in-general to 15% of the SCCG. It should be noted that such intent was 13% among physical science, and 12% among life science inclined respondents, but only 3% among humanities inclined respondents.

Occupational Profiles of Females

In the last item in Poll 101, respondents were asked to select from 138 occupations which were arranged in 12 job families used in Project TALENT (Flanagan, et al., 1971). The occupation or job titles were taken primarily from the Dictionary of Occupational Titles (U.S. Department of Labor, 1965). Figure 1 gives in descending order the percentage of females who selected occupations in each job family. The Secretarial-clerical job family represents the highest percentage of females (96%), followed by Teaching and social service (80%). Females constituted 60% of those expecting to pursue jobs in the Medical and biological science; 56% of those in Humanities, law, social and behavioral science, and 21% of those expecting Engineering, physical science, mathematics and architecture jobs. The lowest percentages of females were represented in the Mechanics and industrial trades fields (19%), and in the Construction trades (2%).

Of the 138 occupations offered to respondents to Poll 101, those occupations were selected for further examination if 100 or more of the respondents indicated expected future employment in the occupation. Figure 2 gives the percentages of females in the selected occupations having 100 or more respondents. The highest percentages of females in specific jobs were Secretary (98%) and Nurse (96%); the lowest percentages of females were in Engineer (4%) and Auto mechanic (1%) occupations.

Figure 3 gives in descending order the percentages of females selecting science or science related occupations. The highest percentages of females expecting science or science related jobs were in Nursing (96%) and Veterinarian (69%), and the lowest percentages were for Engineer (14%) and Physical Scientist (12%). Appendix C gives the number and percentages of males and females selecting each of the 138 jobs by job families. Comparisons were also made by ethnic groups.

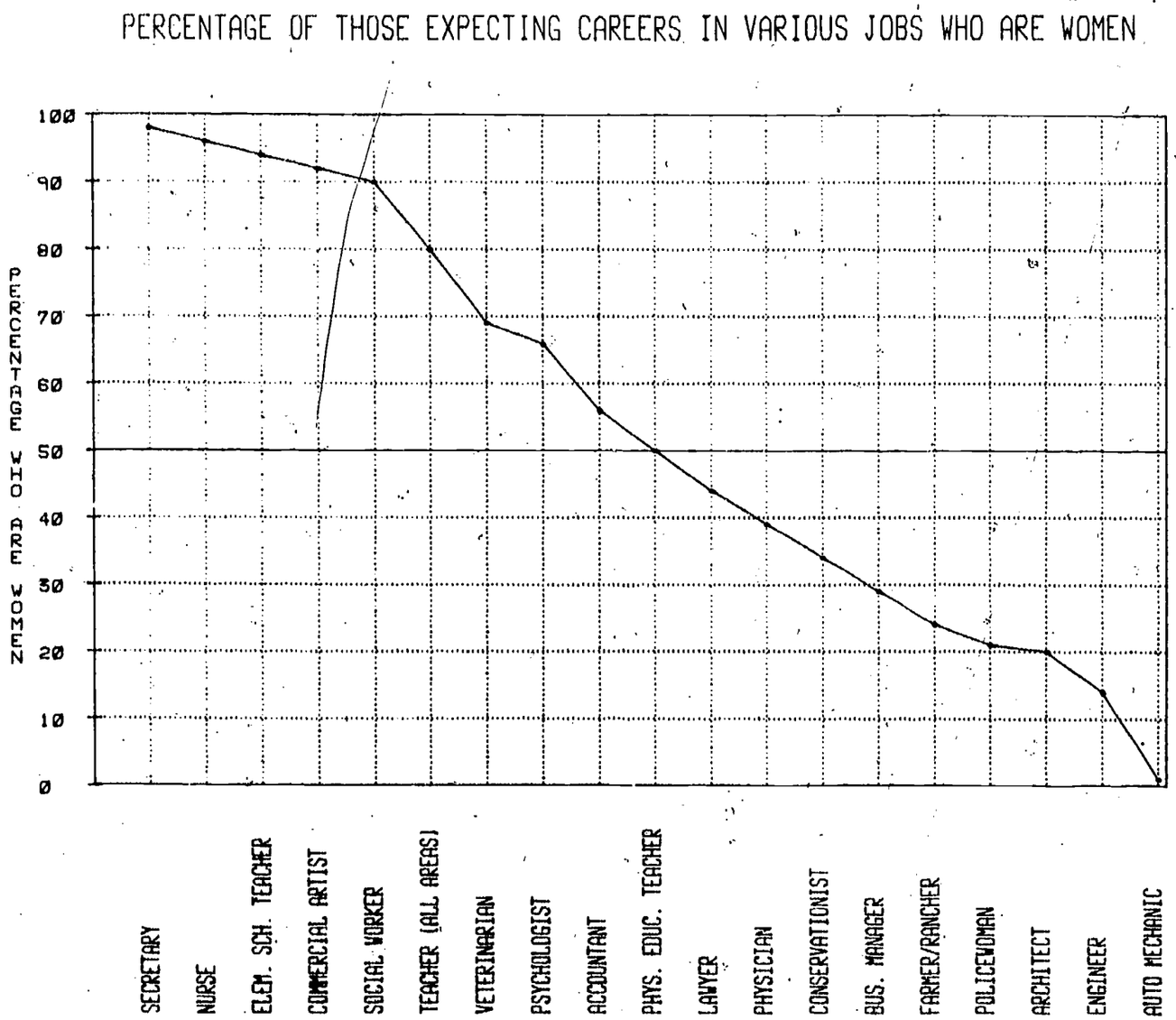

Fig. 2. Percentage of high school females by occupation, selected occupations having 100 or more respondents; total respondents to Poll 101 (N=8,621).

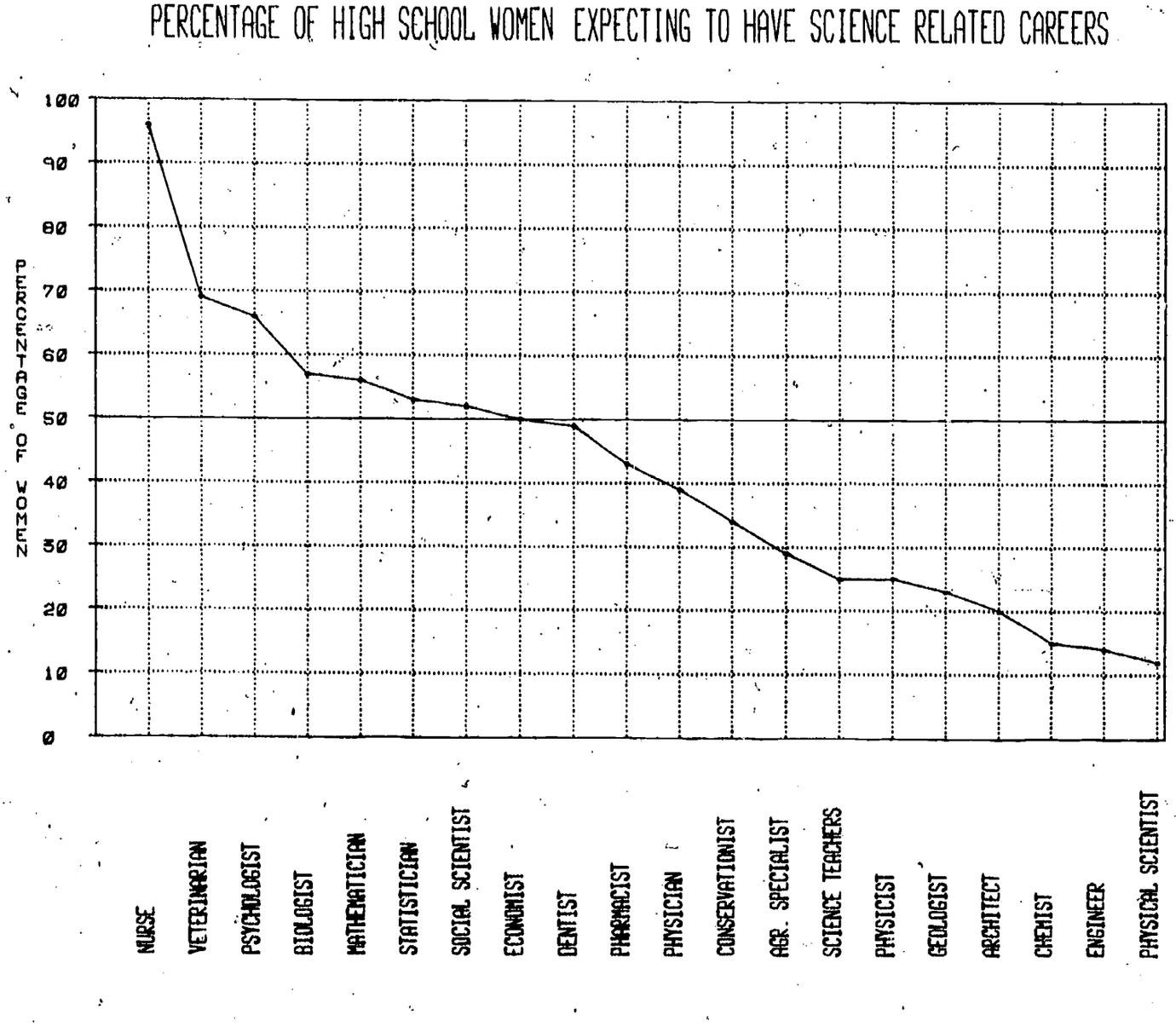

Fig. 3. Percentage of high school females by occupation in science careers, total respondents to Poll 101 (N=8,621).

A series of key items and sets of items constituting quasi scales were selected from Poll 101 to provide a profile of characteristics of high school seniors. The items and scales were used to contrast females from respondents-in-general in the high school senior group. Comparisons were then made to determine the extent to which females planning careers in science fields could be discriminated statistically[10] from females not planning on science careers. To provide a common base for comparison of items and scales, all variables were converted to standard scores having a mean of 50 and a standard deviation of 10.

Figure 4 gives the profile of high school senior females who expect to be employed in science fields in the future with senior females who plan to pursue non-science careers that would normally require college preparation. Only items and scales that were statistically significant in contrasting the two groups were included in Figure 4. Clearly the most important factors (standard scores over 55) are: (1) consideration of a science field, (2) encouragement to consider a science field, (3) high estimates of mathematical and science ability, (4) high expected educational level, (5) mathematics and science honors received, (6) number of mathematics courses taken, (7) number of science courses taken, (8) reading of science and mathematics books, and (9) level of mathematics and science skills. Similar profile analyses were used to discriminate between male and female groups planning to pursue careers in the physical sciences, the life sciences and humanities as well as analyses based on analyzing the women only. The results are also summarized in Appendix D.

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10 The statistical technique used was the discriminant analysis (Tatsuoka, 1971; Cooley and Lohnes, 1971). The particular method used in this study was Version 6-Discriminant from the (SPSS) Statistical Package for the Social Sciences (Nie, et al., 1975).

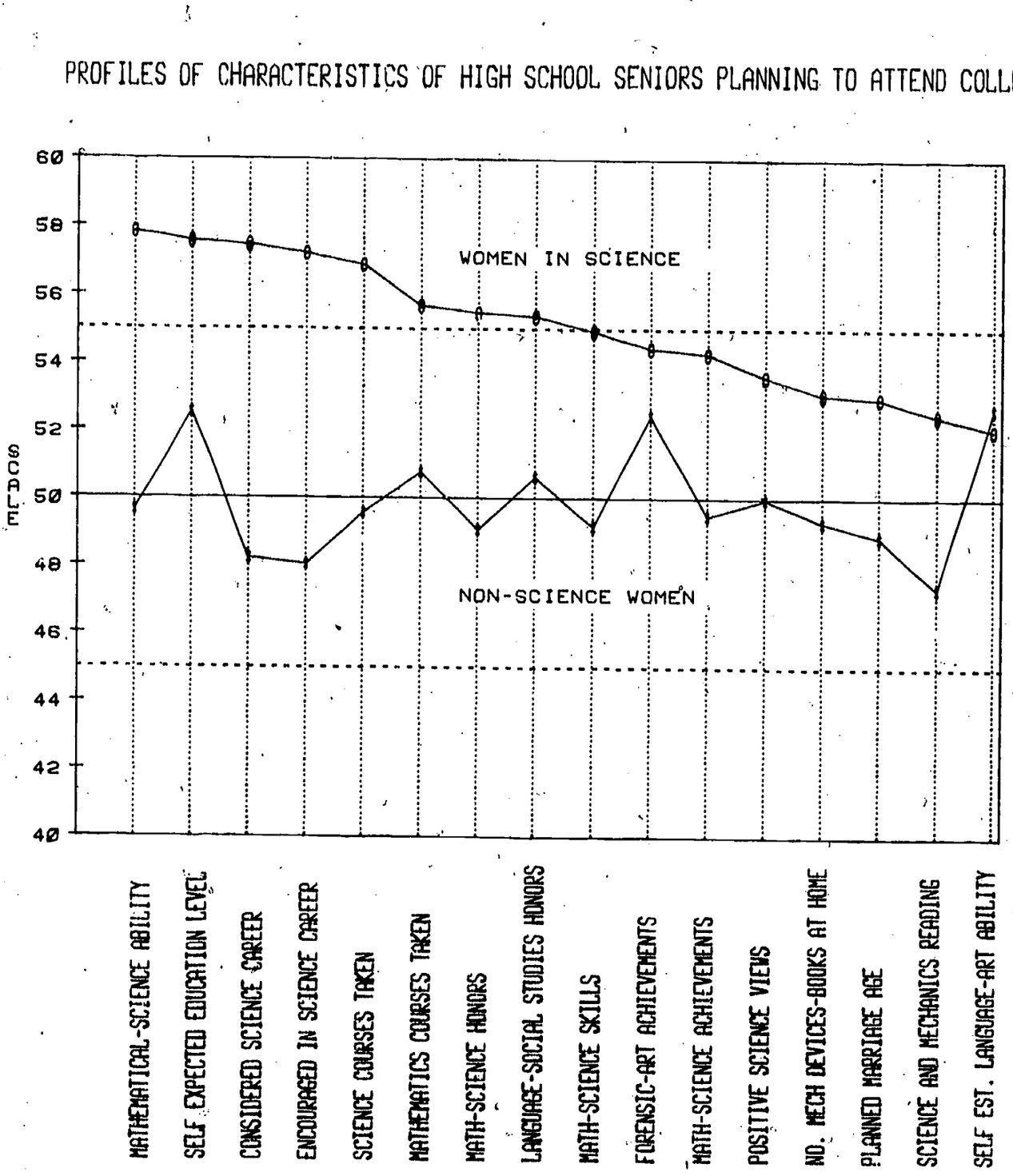

Fig. 4. Profiles by characteristics for female high school seniors planning to attend college: (a) science career goals, (b) non-science career goals.

For the purposes of this report, it seems sufficient to summarize the results. There are strong factors (educational, cultural, family, etc.) that tend to differentiate men from women; these include the tendency for females to take typing, language and home economics courses and for males to take shop, science and mechanical drawing courses. The tendency is for females to be more people and service oriented and for males to be more thing and job oriented, and for the orientation of females to become proficient in sewing and homemaking skills in contrast to males who are oriented toward the developing of mechanical skills and knowledge. A second series of factors tends to separate those planning on science careers from non-science careers somewhat independent of sex; these include consideration and encouragement to pursue science careers, taking of science and mathematics courses in contrast to business, home economics or shop-mechanical drawing classes; high self estimates and achievements in mathematics and science in contrast to lower language and social studies achievements. A third set of factors tends to include those survey items and scales on which high school females planning on careers in science differ primarily from females not planning on science careers, including being encouraged to consider science careers, like taking science courses, planning to marry at a later age, and self estimates of physical and mechanical abilities.

III. Discussion

This study sought to examine career intentions of high school students and the reasons why science careers are, or are not, being pursued. Several conclusions can be drawn from the results of this study.

1. Those expecting to have science careers are able, capable high school students: (a) having positive attitudes toward mathematics and science courses and science issues, (b) having parental support for theoretical or research work

and teaching, (c) having been encouraged to consider science careers, and (d) having given consideration to science careers.

2. Women planning to have careers in science when compared with those not planning to do so had taken stronger mathematics and science programs in high school, expected to achieve more education and were more likely to plan to marry later and combine marriage and career.

3. Teachers often provide a favorable climate for academic growth, and are a major source of help with career development especially for the non-white science-leaning females.

4. High school students share parents' work values and may be closely internalizing these with their aspirations for post-secondary education and careers.

5. High school students frequently lack experiences and sufficient information to make informed decisions about career choices which may be the primary reason many lack the academic preparation for post-secondary studies in the sciences.

6. High school students who would like to become scientists give academic deficiencies as a major reason while others cite the greater attractiveness of other careers.

7. High school students especially women generally have positive attitudes toward science and the role and abilities of women in science and mathematics.

8. Minorities who have considered science are less likely to have taken or plan to take the high school mathematics and science courses or to have home and hobby than the majority white students.

Several implications can be drawn from the results of this study.

a. Teachers are a major resource for high school students, especially for the non-white students. Teachers appear to be concerned about career development and to be serving some of the needs of students through encouragement to expand options. If teachers are to be effective in filling information gaps, career information should be more readily accessible through the classroom or counseling offices.

b. Parents and family are a major resource and source of support in career development and should, therefore, be included in career processes provided by the school. School and families should be encouraged: (1) to provide technical and science reading materials, and (2) mathematics and science activities, (3) to stress on the helping nature of science, and (4) to encourage more women and minorities to pursue science careers.

c. Career information should be more readily accessible to students to enhance peer-to-peer discussions. Females and minorities especially appear to be seeking career information. Counseling services appear to need improvement since a large group of interested students indicated academic deficiencies as primary reasons for not becoming scientists. It cannot be determined from this study what the effects of counseling might be on any career decision. However, high school students appear to have limited, and perhaps erroneous, understanding of what is or is not a scientist, one indication that career information has been lacking. This lacking may also explain why one out of three students who would like to become scientists indicated the intent to enter "other kinds of careers" where presumably career information is available and appealing.

d. Females may not have had as much exposure to technical reading and "hands-on" activities as their male peers have had while growing up. These minorities may not have as strong backgrounds in science courses and experience.

These could be handicaps in science courses which are taught based on the assumption of prior experiences and vocabulary. Failure in the courses, low grades, or extensive amounts of time and energy expended to achieve may be possible outcomes for females and minorities enrolled in such courses in competition with white males equipped with such experiences prior to post-secondary science entry.

e. Females inclined toward the sciences have different interests and preferences than do their male peers. They are more likely to be interested in careers which are people related, such as the life sciences, or in other science areas that are service oriented and prove to be an increasingly positive force in science and society.

Clearly more information about the nature of science and science careers is needed if science is to become a viable option for capable and interested high school students, especially women and minorities. Educational experiences to learn about science as a positive helping way of life could also help to make science a more viable career for women and minorities.

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APPENDIX

A. Survey procedures

B. Composition of respondents
Poll 101 Items

C. Occupational choices from list of 138 occupations

D. Results of analysis of variance of male and female seniors planning to have science and non-science careers on selected variables

APPENDIX A

Questionnaire Development

In this study, an item pool was formed (a) by selecting relevant questions in existing data from Purdue Opinion Panel studies on career topics, and (b) by developing new questions on the basis of a review of the literature on a wide range of career and science issues. Items were individually critiqued by four members of the research team for potential effectiveness. Criteria for item selection were the following: (1) the extent to which the universe of content was sampled, (2) the simplicity of item wording -- clarity, comprehension, etc., (3) results of item analyses, and (4) avoidance of response bias. In addition, items were ranked on the extent to which the items demonstrated respondent differentiation on the basis of sex, ethnic group, and science-leaning attitudes.

Selection of Panel

A multi-stage stratification was used to draw a sample of schools to participate in this study. The target group was public and private secondary schools throughout the United States.

The following sources were used in making the selection: a directory of schools in selected districts published by the Office for Civil Rights (1972), Pattersons' American Education (1974), and the Statistical Abstract of the United States (1973). Five waves of invitations were issued: (1) a random selection, with ratio of 1/125, from all secondary schools, (2) a random selection of 10% of all secondary schools in 13 of the 50 largest metropolitan cities, (3) a random selection of 60 schools in rural areas of the East, the South, and the West, (4) a random selection of schools in cities with population of 50,000 or more, and (5) a random selection of schools in cities with population of 100,000 or more. A total of 129 schools accepted invitations to participate, referred to as the Panel. Further information on this study can be found in Report of Poll 101 (Erlick & LeBold, 1975).

APPENDIX B

COMPOSITION IN PERCENTAGES AND FREQUENCIES OF THE RESPONDENTS ON WHICH THIS ANALYSIS IS BASED

Total Number of Respondents 8621*

	% in Sample	no. in Sample
All Respondents		
Males	48.3	4160
Females	51.7	4461
Science Career Choices[1]		
Males	6.6	568
Females	4.4	379
Non-white Science Leaning[2]		
Males	3.2	274
Females	2.3	196
Job Family Preferences[3]		
Physical Sciences		
Males	4.8	417
Females	1.4	124
Life Science		
Males	4.2	365
Females	8.2	707
Humanities		
Males	3.3	281
Females	4.7	409
Occupational Choices[4]		
Physical Sciences		
Males	4.5	391
Females	1.2	102
Life Science		
Males	5.1	443
Females		
Nurses	3.4	306
Non-nurses	4.1	351
Humanities		
Males	2.5	213
Females	3.5	300

*Data obtained from the total responses available to Poll 101.

[1]All respondents to Poll 101 who selected one of the following occupations as the ONE closest to the occupation expected in future employment: architect, chemist, engineer (n.e.c., aerospace, chemical, civil/hydraulic, electrical/electronic, mechanical/automotive), geologist, mathematician/statistician, college math teacher, physical scientist (n.e.c.), college science teacher, biologist/zoologist, dentist, pharmacist, physician, veterinarian, economist, psychologist, social scientist.

[2]Non-white respondents who responded to Item 34 that they had given consideration to careers in science, mathematics, or engineering.

[3]Responses to Item 25 that the following job families are preferred for future employment: Physical Science (engineering, physical science, mathematics and architecture), Life Science (medical and biological sciences), and Humanities, (humanities, law, social and behavioral sciences).

[4]Occupations selected from a list of 138 types and grouped into job families.

Physical Science: Engineering, Physical Science, Mathematics, & Architecture
- Architect
- Chemist
- Engineer (n.e.c.)
  - aerospace
  - chemical
  - civil, hydraulic
  - electrical, electronic
  - mechanical, automotive
- Geologist
- Mathematician, statistician
  - college math teacher
  - high school math teacher
- Physical scientist (n.e.c.)
- Physicist
- Science teachers
  - college science teacher
  - high school science teacher

Life Science: Medical & Biological Sciences
- Agricultural specialist
- Biologist, zoologist
- Dentist
- Nurse
- Pharmacist
- Physician
- Veterinarian
- Wildlife/conservation specialist

Humanities: Humanities, Law, Social & Behavioral Sciences
- Diplomat
- Economist
- Journalist, reporter
- Lawyer
- Librarian
- Psychologist
- Social scientist
- Teacher
  - college (n.e.c.)
  - English
    - college
    - high school
  - Foreign language
    - college
    - high school
  - Social sciences & studies
    - college
    - high school
- Writer

	Total National Sample*	All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
1. Are you male or female?										
Male	51	48	100	0	60	100	0	58	100	0
Female	49	52	0	100	40	0	100	42	0	100
2. What is your grade in school?										
Grade 10	35	33	33	33	32	27	39	34	33	36
Grade 11	33	34	34	35	35	36	33	31	31	31
Grade 12	32	33	34	33	33	37	28	35	36	33
3. Which <u>one</u> of the following do you plan to do immediately after finishing high school? (Mark only ONE.)										
Go to college	48	46	45	47	71	70	73	53	47	60
Take special training other than college	10	10	10	10	5	6	4	13	14	11
Go to work	20	19	20	19	8	8	7	14	15	13
Enter military service	5	5	8	3	4	4	2	9	11	5
Other plans or don't know	18	18	17	20	12	11	13	13	14	11
4. Which of the following best describes the kind of grades you <u>usually</u> get in high school?										
Below average	4	4	6	2	2	3	1	4	5	2
Average	44	48	50	46	31	32	30	52	51	53
Above average	41	39	36	42	49	50	49	35	34	37
Excellent	11	8	8	9	17	14	20	9	10	8

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* Erlick, A. C., and LeBold, W. K. Factors Influencing the Science Career Plans of High School Students. <u>Report of Poll 101</u> of the Purdue Opinion Panel, © by the Purdue Research Foundation, 1975, <u>34</u>.

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
77	100	0	34	100	0	41	100	0	79	100	0	40	100	0	0	42	100	0
23	0	100	66	0	100	59	0	100	21	0	100	60	0	100	100	58	0	100
29	27	35	34	36	33	28	30	28	28	26	35	37	34	38	42	29	26	31
37	37	36	32	29	33	33	30	36	39	39	37	31	33	28	32	33	31	34
34	36	28	34	35	34	38	40	37	33	35	27	31	33	34	27	38	43	34
70	69	74	71	78	67	73	76	71	66	67	65	64	72	49	69	82	84	80
6	6	6	8	2	11	4	5	3	8	8	9	9	5	20	4	2	2	2
7	8	4	6	5	7	7	4	10	9	10	7	10	7	14	9	5	4	7
6	7	1	4	6	3	3	5	3	5	5	5	3	4	4	1	2	1	2
11	10	15	11	8	12	13	11	14	11	10	15	14	12	12	17	9	8	9
2	3	1	1	2	1	2	2	1	3	3	3	3	4	2	2	2	2	1
30	32	27	32	28	34	30	31	29	33	34	27	37	35	47	32	21	18	24
47	48	44	51	53	49	51	48	53	45	47	38	47	47	43	48	54	57	52
20	17	30	16	17	16	17	19	16	18	15	30	13	14	8	18	23	22	23

	Total National Sample	All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
5. Have you ever used any of these materials in your science courses? (Mark as many as apply.)										
School Math Study Group (SMSG)	7	8	9	7	6	7	5	14	14	14
Physical Science Study Committee (PSSC)	7	6	7	6	7	9	4	9	12	5
Chemical Education Material Study (CHEMS)	9	8	9	6	11	13	9	11	12	10
Biological Science Curriculum (BSCS)	31	29	29	29	30	30	31	33	33	33
Harvard Project Physics (HPP)	2	2	3	1	4	4	4	3	4	1
Engineering Concepts Curriculum (ECCP)	1	1	2	0	2	2	1	3	4	1
Introductory Physical Science (IPS)	22	19	20	18	22	23	20	16	14	17
Intermediate Science Curriculum Study (ISCS)	7	7	7	6	6	8	4	6	8	4
6. Which of the following are you?										
White	89	85	85	86	91	90	92	4	6	1
Black	4	8	8	8	4	4	3	51	48	56
American Indian	2	2	2	2	2	2	2	15	17	11
Spanish American (Mexican, Puerto Rican, Cuban, etc.)	2	3	3	3	2	2	2	21	21	21
Some other than above	2	2	2	2	2	2	2	14	15	13
7. Did you ever participate in an honors or advanced placement program in any of these? (Mark as many as apply.)										
Mathematics	21	18	20	15	29	31	26	23	24	21
Biology	10	9	10	8	14	15	12	12	12	12
Chemistry	5	3	5	2	8	10	4	6	7	5
Physics	2	2	3	1	3	4	2	5	7	3
English	17	15	14	16	19	17	22	20	19	22
Social Studies	9	8	9	7	11	11	10	12	12	12
Foreign Languages	7	6	6	7	10	9	11	7	5	9

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
															Non-Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
4	4	2	7	7	6	7	9	5	6	6	4	8	9	9	6	5	7	4
9	9	6	5	8	4	6	9	5	8	9	4	6	7	6	5	5	6	5
12	13	10	13	16	11	9	12	7	10	10	7	12	15	11	10	9	9	8
29	28	31	33	33	33	30	33	29	27	26	31	35	36	32	35	32	35	29
6	5	7	3	6	1	3	4	2	4	3	7	3	5	2	2	3	4	2
2	2	2	1	1	0	1	1	0	2	2	1	1	2	0	0	1	1	0
21	22	19	18	20	18	21	20	22	23	24	21	19	20	18	20	23	23	23
6	7	5	6	7	6	6	7	5	7	8	3	6	7	6	6	6	8	5
87	86	90	88	89	87	89	88	90	90	90	88	90	89	88	91	90	89	91
5	5	6	6	6	7	6	7	5	4	4	6	4	4	5	3	5	5	4
1	1	1	2	1	2	1	1	1	2	1	3	2	2	1	2	1	2	1
3	3	3	2	2	2	2	2	2	2	2	4	2	2	3	2	3	1	3
1	1	1	2	2	2	2	3	1	2	2	1	1	1	1	2	1	1	1
38	37	40	23	28	20	22	24	20	34	33	36	21	24	15	23	26	30	24
12	13	10	15	18	14	10	11	10	12	13	11	13	16	8	14	12	12	12
9	10	6	7	10	5	4	7	3	9	9	7	6	8	3	5	6	9	4
5	6	2	2	4	2	1	2	1	5	5	4	3	4	1	3	2	2	1
18	18	19	20	18	21	24	23	25	17	17	21	16	15	15	20	29	30	28
11	11	10	9	11	8	12	12	11	11	10	12	8	9	5	9	15	18	13
8	7	12	8	8	8	13	12	14	9	8	14	8	8	6	11	19	18	19

	Total National Sample	All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
8. Indicate the highest level of education of your father.										
Less than high school graduate	25	27	26	29	16	15	17	37	35	41
High school graduate	31	30	32	28	26	29	22	27	30	23
Vocational, business, or apprentice training, military service	14	15	13	16	14	12	16	11	12	11
Attended community college, 1 - 3 years of college	10	9	9	9	13	12	14	7	7	7
Graduated from 4-year college (bachelor's degree)	12	11	11	11	18	17	18	8	8	7
Advanced college degree (master's or doctor's degree)	8	7	8	7	14	14	13	9	8	10
9. Indicate the highest level of education of your mother.										
Less than high school graduate	19	22	19	24	13	13	14	35	35	36
High school graduate	47	45	47	43	43	43	43	35	38	32
Vocational, business, or apprentice training, military service	9	8	7	9	10	9	10	6	6	5
Attended community college, 1 to 3 years of college	11	11	11	11	11	12	10	10	9	10
Graduated from 4-year college (bachelor's degree)	10	10	11	9	17	18	15	9	8	10
Advanced college degree (master's or doctor's degree)	4	3	3	3	5	4	6	5	5	5
10. Indicate the highest level of education <u>you expect to have during your life</u>.										
Less than high school graduate	1	1	1	1	1	1	1	1	2	0
High school graduate	17	19	17	21	5	5	7	10	11	9
Vocational, business, or apprentice training, military service	20	19	21	18	9	9	8	17	19	15
Attended community college, 1 to 3 years of college	16	15	12	18	9	8	11	13	11	16
Graduated from 4-year college (bachelor's degree)	26	26	27	25	33	35	31	27	27	27
Advanced college degree (master's or doctor's degree)	18	16	18	14	40	38	42	28	26	31

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
															Non-Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
17	15	23	19	15	21	15	12	17	18	18	20	19	14	26	19	16	11	19
28	31	20	26	23	27	27	30	25	27	28	25	28	30	35	20	21	24	18
12	12	12	16	14	17	16	12	18	12	11	14	16	13	18	18	14	13	15
12	12	14	11	13	10	11	11	11	13	13	15	9	10	8	9	13	13	13
18	18	18	15	16	14	18	20	16	16	17	15	14	15	10	17	19	22	17
11	11	12	13	18	11	14	15	13	13	13	14	12	16	4	15	17	18	16
15	14	19	14	8	17	11	9	13	16	16	19	15	10	24	14	12	8	14
44	43	45	42	44	41	39	37	40	42	42	43	42	42	43	42	37	38	36
8	7	8	10	8	11	10	10	11	8	8	7	9	6	5	11	12	11	12
13	14	9	13	12	13	13	15	11	12	13	9	13	16	14	9	13	13	13
16	17	12	14	19	12	18	21	15	17	18	16	14	19	5	15	17	18	17
4	3	6	5	6	4	8	8	8	3	3	5	4	5	2	6	8	10	6
1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0
5	4	7	3	2	4	5	4	6	7	6	9	7	4	12	7	4	1	5
9	10	9	10	5	13	7	6	8	11	12	10	10	6	20	8	4	3	5
9	8	9	16	7	20	11	10	11	9	8	10	16	10	26	15	5	3	7
42	43	37	31	29	31	33	28	36	37	39	31	29	33	27	26	34	29	37
32	29	40	37	53	28	41	48	36	31	29	41	33	42	9	42	50	60	44

	All Respondents			Science Career Choices			Non-white Science Leaning		
	Total	M	F	Total	M	F	Total	M	F
11. Rate yourself on each of the following traits as you really think you are compared with the average student of your own age. We want the most accurate estimate of how you see yourself. (Mark one for each trait.)									
A. Academic ability									
Above average	39	34	33	34	54	54	54	35	34	36
Average	51	55	54	56	41	41	41	54	53	56
Below average	7	8	9	7	3	4	2	9	10	7
B. Athletic ability										
Above average	33	33	41	25	38	44	28	40	50	25
Average	53	53	47	59	52	46	61	47	39	58
Below average	11	10	8	12	8	7	9	7	4	10
C. Artistic ability										
Above average	20	19	18	19	20	19	23	21	22	20
Average	42	42	40	44	45	43	47	42	45	39
Below average	34	34	36	32	31	33	28	28	25	32
D. Mathematical ability										
Above average	31	26	30	22	46	47	45	30	34	24
Average	50	53	51	55	40	40	40	50	48	53
Below average	15	16	13	18	10	8	13	14	12	18
E. Mechanical ability										
Above average	19	18	30	6	26	35	13	21	31	8
Average	45	42	46	39	46	47	43	41	43	39
Below average	30	32	17	47	23	12	39	29	20	41
F. Speaking ability										
Above average	26	26	24	27	30	29	31	32	30	35
Average	60	60	58	62	61	61	61	52	52	51
Below average	10	9	11	7	7	7	6	9	9	9
G. Scientific ability										
Above average	19	17	22	13	36	40	30	23	23	24
Average	53	54	52	56	50	46	55	53	51	54
Below average	21	23	20	26	10	9	12	16	16	15
H. Problem solving skills										
Above average	27	25	29	21	44	47	38	29	31	26
Average	63	63	59	67	51	48	56	57	53	63
Below average	6	7	6	8	3	3	4	7	8	6
I. Social skills										
Above average	27	26	23	29	29	26	33	29	27	31
Average	62	61	60	62	61	61	60	55	54	55
Below average	8	7	10	5	7	9	4	9	11	5
J. Drive to achieve										
Above average	44	42	41	42	51	50	54	52	51	53
Average	49	50	48	51	43	43	42	38	38	38
Below average	4	4	6	3	3	5	2	5	6	4

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
															Non-Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
58	55	68	52	58	49	57	58	56	53	51	60	47	52	32	53	67	72	64
37	40	28	44	39	47	40	37	42	41	42	34	48	44	58	43	30	27	32
4	4	4	3	3	3	2	2	2	4	4	2	4	4	8	2	2	1	2
38	42	25	34	46	28	38	54	27	39	43	22	34	46	19	32	35	50	24
52	49	61	56	47	60	49	37	57	51	47	64	56	47	65	59	53	42	61
8	7	10	9	6	10	11	6	15	8	7	13	9	7	14	8	11	6	15
19	17	26	19	22	18	20	15	23	19	17	28	18	19	13	22	20	18	21
43	44	40	46	39	50	44	43	45	43	43	43	47	42	48	52	45	43	46
38	34	29	32	37	29	33	38	29	32	34	24	32	36	34	24	33	37	30
61	59	68	35	41	31	32	37	28	53	51	60	35	41	23	38	38	45	34
31	33	23	50	47	51	48	43	52	36	38	28	48	45	56	46	46	40	50
4	3	7	13	10	14	17	15	18	7	6	9	13	12	17	12	14	13	15
36	40	20	13	24	8	11	17	7	37	40	25	15	27	5	10	11	20	5
43	44	42	48	55	45	47	55	42	43	43	42	48	53	41	47	47	51	45
14	10	29	34	17	43	37	20	48	13	10	25	32	16	48	39	36	24	45
24	25	23	32	32	32	43	49	39	25	24	26	28	29	25	30	50	57	44
63	62	68	58	57	58	49	41	54	64	64	61	60	58	63	61	45	38	51
10	12	6	8	9	7	6	6	6	9	8	11	8	10	7	7	3		4
41	43	35	37	49	31	22	30	17	37	38	32	33	42	16	36	27	36	20
49	47	56	52	42	57	59	56	61	48	46	57	53	48	63	52	55	52	57
7	7	6	9	6	10	15	9	20	10	11	7	11	7	18	10	15	8	21
51	49	57	32	42	27	36	43	30	51	49	57	33	41	22	32	40	49	34
45	47	40	61	53	65	57	51	62	44	45	40	60	54	68	61	54	47	59
2	2	3	5	3	6	4	3	6	2	3	2	5	3	8	5	4	2	5
23	21	28	33	33	34	47	48	46	22	22	20	29	26	27	34	51	57	46
65	65	66	58	56	58	47	45	48	66	64	73	62	62	66	59	44	38	49
12	12	3	6	9	4	4	5	4	9	9	6	6	9	4	3	3	4	3
52	49	63	55	57	55	54	55	54	49	48	57	51	53	45	54	58	59	57
43	45	35	40	36	42	41	39	42	43	45	35	43	39	49	44	39	36	40
4	5	0	3	5	1	3	2	3	4	5	3	3	6	2	2	1	2	0

Total National Sample.

		All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
12. Here is a list of high school subjects. Indicate (1) whether or not you have taken each course, and (2) whether you like (more than dislike) or dislike (more than like) each subject.										
A. Algebra										
Taken or taking	80	78	78	78	91	92	91	72	70	74
Have not taken	16	18	18	19	7	7	8	21	22	20
Will take	3	2	3	2	2	2	3	5	7	4
B. Plane geometry										
Taken or taking	49	46	48	44	70	71	68	44	46	42
Have not taken	40	43	40	47	21	20	23	41	40	42
Will take	6	5	6	5	6	6	7	9	9	8
C. Trigonometry										
Taken or taking	15	14	17	12	30	35	23	14	16	10
Have not taken	65	66	61	72	41	36	48	62	60	65
Will take	14	13	15	11	23	23	24	14	14	13
D. Biology										
Taken or taking	78	75	74	77	84	83	85	78	74	84
Have not taken	14	16	16	15	10	11	9	10	11	7
Will take	4	4	4	4	3	3	3	6	6	7
E. Chemistry										
Taken or taking	27	25	28	22	43	48	35	28	28	28
Have not taken	52	54	49	59	31	29	36	46	47	43
Will take	15	14	14	14	21	18	27	16	14	18
F. Physics										
Taken or taking	11	12	16	9	21	26	15	14	18	9
Have not taken	66	66	59	71	46	41	53	59	57	63
Will take	14	13	15	12	26	26	26	13	11	17
G. English										
Taken or taking	95	94	92	96	97	96	98	91	90	93
Have not taken	2	2	3	1	1	1	1	3	4	1
Will take	2	2	3	2	2	2	3	4	3	5
H. Social studies										
Taken or taking	88	88	86	89	89	90	89	83	81	86
Have not taken	4	4	5	4	4	4	4	5	6	4
Will take	5	4	4	4	6	5	7	5	5	5
I. Mechanical drawing										
Taken or taking	22	21	37	6	28	43	6	24	36	8
Have not taken	67	68	49	85	61	47	82	61	46	82
Will take	5	5	7	3	7	7	6	6	8	4
J. Auto mechanics										
Taken or taking	11	11	18	4	10	15	3	17	23	9
Have not taken	73	72	59	85	74	66	86	62	52	76
Will take	9	9	14	4	9	11	5	12	17	6

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
															Non-Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
93	93	94	91	94	90	88	88	89	91	91	89	87	88	82	90	93	94	92
7	7	7	8	5	9	9	8	10	8	8	9	12	10	17	9	6	4	8
1	1	0	3	3	2	2	4	1	2	2	2	3	3	3	2	2	2	2
75	75	77	64	73	59	64	65	63	70	68	75	60	66	46	64	74	78	72
15	15	16	25	18	29	27	23	30	20	22	16	30	23	44	26	19	15	22
7	7	6	8	7	8	6	8	4	6	6	8	7	8	7	7	4	5	4
36	37	33	23	32	19	23	27	20	34	35	29	22	26	16	21	28	33	24
30	30	30	53	39	59	58	52	62	34	35	33	53	45	69	50	51	45	55
29	27	36	19	24	17	15	15	15	24	23	29	20	23	9	24	18	19	18
82	81	89	88	88	88	85	84	85	81	81	82	84	86	80	85	85	85	86
10	11	5	5	5	6	9	8	10	13	14	13	8	7	12	7	8	7	8
4	4	3	4	5	4	4	5	3	2	2	3	5	4	5	5	4	7	3
48	49	45	47	52	44	36	42	32	43	45	35	41	47	37	37	42	50	35
27	27	27	24	18	27	42	33	47	33	31	37	31	26	38	31	37	29	43
21	19	27	26	26	26	18	18	18	18	17	24	25	23	24	29	16	16	16
28	29	23	16	23	12	15	19	11	25	26	19	16	19	13	13	15	21	12
37	35	44	51	40	56	63	54	70	41	39	47	53	47	62	53	59	52	65
29	29	30	27	32	25	17	21	13	26	26	27	25	28	18	29	18	21	16
96	95	99	97	96	98	98	96	99	95	95	95	96	95	95	99	97	96	98
1	1	0	1	1	0	1	2	0	1	2	1	1	1	2	0	1	2	1
1	1	1	2	2	2	3	4	2	2	2	2	3	2	2	3	3	2	4
91	91	90	91	91	91	91	88	93	89	89	89	89	89	91	89	92	92	93
2	3	2	3	3	3	3	4	3	4	4	2	4	3	5	4	3	4	1
5	4	8	5	5	5	4	5	3	5	5	7	6	6	2	8	4	4	5
39	48	7	12	29	4	15	30	5	41	49	12	17	34	5	5	12	23	5
47	40	73	79	60	88	76	59	87	46	40	69	74	55	90	85	79	67	88
10	9	15	4	7	3	4	7	2	9	7	14	5	7	1	5	3	6	1
11	13	1	6	11	4	9	12	6	13	16	3	7	12	5	3	5	7	4
73	67	91	82	73	86	79	69	87	68	63	87	79	68	88	85	83	79	86
10	12	4	6	10	4	6	11	2	10	12	3	6	11	2	4	5	7	3

	All Respondents			Science Career Choices			Non-white Science Leaning		
	Total	M	F	Total	M	F	Total	M	F
K. Typewriting									
Taken or taking	63	64	50	76	56	49	68	62	54	74
Have not taken	21	20	32	10	24	32	13	23	29	14
Will take	12	12	11	12	16	14	19	10	9	12
L. Bookkeeping										
Taken or taking	17	17	13	22	9	8	11	14	12	17
Have not taken	64	62	68	56	72	75	68	65	69	59
Will take	12	13	8	17	11	8	16	11	7	18
M. Art										
Taken or taking	48	47	44	50	45	43	46	41	45	37
Have not taken	41	41	42	40	45	45	44	40	38	44
Will take	4	4	4	4	5	5	5	6	5	7
N. Home economics										
Taken or taking	42	45	15	73	31	10	61	41	16	75
Have not taken	46	43	68	20	57	74	31	44	65	15
Will take	7	6	8	5	6	7	6	10	10	9
O. Band, orchestra										
Taken or taking	30	28	26	30	31	30	32	23	22	26
Have not taken	61	62	61	62	60	61	59	64	64	64
Will take	2	2	3	2	2	3	1	4	4	3
P. Algebra										
Like	53	51	51	51	70	71	68	57	56	58
Dislike	35	37	37	37	25	25	26	30	31	29
Q. Plane geometry										
Like	34	31	35	27	53	56	49	36	38	33
Dislike	37	39	37	42	29	27	32	35	33	37
R. Trigonometry										
Like	18	16	20	13	37	40	31	21	23	17
Dislike	33	33	33	34	22	22	20	29	30	28
S. Biology										
Like	62	61	59	64	70	68	73	69	64	76
Dislike	23	23	24	21	18	19	17	16	19	13
T. Chemistry										
Like	28	26	29	22	44	48	37	35	35	35
Dislike	30	31	30	31	21	22	21	25	27	23
U. Physics										
Like	17	16	20	13	33	37	27	24	26	20
Dislike	29	30	30	31	17	17	17	26	27	24
V. English										
Like	65	67	54	79	65	56	79	70	61	82
Dislike	28	26	37	16	30	38	18	19	23	12
W. Social studies										
Like	63	63	61	65	67	67	68	67	64	71
Dislike	26	26	25	27	24	24	23	20	19	20
X. Mechanical drawing										
Like	27	26	40	13	37	50	18	29	40	13
Dislike	25	25	22	28	17	14	22	24	24	26
Y. Auto mechanics										
Like	27	27	41	13	27	37	13	33	44	18
Dislike	19	19	13	26	18	15	22	17	14	22

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
56	52	69	65	52	72	67	57	74	50	46	65	61	48	67	71	66	58	72
25	29	13	17	27	12	17	26	11	30	34	14	20	31	14	12	19	26	13
14	14	14	16	17	16	15	15	15	15	13	21	16	15	16	17	15	15	15
9	9	7	11	8	13	13	9	16	8	8	7	10	8	13	10	11	9	12
74	75	73	72	73	71	72	75	70	73	73	74	72	74	73	70	73	77	70
11	8	19	11	11	11	10	7	11	10	8	15	12	11	10	15	10	6	12
41	41	42	45	41	47	44	40	46	42	43	39	47	43	47	53	44	43	46
48	47	50	45	47	44	46	49	43	46	45	48	44	44	45	41	46	51	43
6	6	5	4	5	4	4	3	5	6	6	6	4	6	4	3	4	1	6
21	10	56	52	15	71	44	14	65	19	10	56	46	12	75	66	40	8	62
67	76	37	38	70	22	47	71	30	67	74	36	43	72	19	28	51	80	31
7	7	6	6	7	5	6	10	4	7	6	8	6	9	5	5	5	7	4
33	32	34	35	33	37	30	29	31	30	28	37	31	30	34	31	30	30	31
59	59	61	57	56	57	62	60	63	59	61	53	61	61	60	61	62	63	62
2	3	0	3	5	1	2	2	2	2	3	1	3	5	1	2	2	1	3
80	79	85	65	68	64	56	56	57	75	74	79	62	64	56	65	58	58	57
16	18	10	30	28	31	37	39	35	21	23	15	30	29	36	28	37	38	36
67	66	68	45	55	40	39	43	36	58	56	65	43	51	32	45	46	50	44
20	19	21	35	29	37	40	38	42	26	28	18	33	28	39	34	39	36	41
51	49	55	25	36	20	22	27	19	44	43	47	25	33	13	25	25	27	24
15	16	10	26	22	28	28	31	27	20	23	8	26	21	34	26	27	29	25
71	71	71	84	85	84	70	70	69	64	64	63	78	80	73	81	67	63	69
18	17	23	7	7	7	20	21	20	25	25	25	10	9	14	9	24	26	22
51	52	50	47	52	44	30	38	25	48	50	42	41	46	35	40	34	41	29
19	18	23	20	19	20	31	29	33	21	22	18	22	20	26	20	28	27	29
42	45	33	24	33	20	18	24	15	40	41	33	24	30	16	23	19	21	18
17	13	27	22	21	23	25	25	25	17	16	19	23	20	29	22	22	24	21
58	53	77	75	67	79	82	75	86	59	54	76	69	60	73	77	84	75	91
36	41	20	21	28	17	15	21	11	36	40	22	25	33	22	17	13	20	7
65	64	67	69	69	70	78	80	77	64	65	61	66	64	64	69	79	81	78
28	27	30	22	21	23	15	11	17	28	27	30	24	23	27	22	15	11	17
52	56	30	19	35	11	18	26	12	52	56	35	23	38	12	14	14	21	9
14	13	19	26	24	27	26	29	24	14	14	14	24	21	28	25	27	27	26
32	37	15	19	32	12	20	30	14	36	41	16	20	32	10	13	15	21	12
18	15	28	22	17	25	19	16	21	16	15	22	22	15	28	25	19	16	21

	Total National Sample	All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
Z. Typewriting										
Like	55	55	39	70	47	38	61	58	47	73
Dislike	20	22	30	14	25	29	19	19	25	12
AA. Bookkeeping										
Like	24	25	17	32	17	15	20	26	22	33
Dislike	26	24	30	19	27	31	21	24	30	15
BB. Art										
Like	49	49	43	54	50	47	54	51	51	50
Dislike	19	18	21	15	18	21	13	15	16	14
CC. Home economics										
Like	42	44	21	65	33	18	55	44	23	74
Dislike	21	21	28	15	25	29	18	22	30	11
DD. Band, orchestra										
Like	28	28	24	32	31	28	35	29	24	36
Dislike	28	27	31	23	27	32	20	27	34	18
13. In your home, how many of these things do you have?										
Mechanics tool kit	74	75	78	71	78	79	75	71	73	70
Power tools (saw, drill, etc.)	80	79	81	76	83	84	82	63	68	56
3 to 4 bookcases full of books (250+)	61	59	56	62	69	64	78	56	52	62
Sewing machine	87	85	80	90	86	82	92	79	72	89
Voltmeter	30	30	36	24	37	42	30	27	29	23
Pocket or desk calculator	48	45	47	42	54	55	53	36	39	33
Ham radio	21	21	22	20	17	17	17	30	32	28

Job Family Preferences									Occupational Choices								
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
48	43	67	57	45	63	57	45	65	42	36	67	52	39	63	59	58	46	67
26	28	19	19	27	15	22	28	18	28	31	18	21	28	12	19	19	24	16
19	18	21	20	16	22	18	13	22	16	15	20	19	16	25	19	18	14	21
28	28	25	23	29	20	25	31	20	32	35	23	23	26	20	22	21	23	19
46	44	52	51	46	53	50	44	54	47	47	47	51	45	50	60	47	39	53
20	22	15	17	20	15	15	19	12	20	22	14	17	19	19	12	17	22	13
27	17	58	47	24	59	43	25	56	25	17	56	44	20	65	54	38	21	51
27	30	16	20	24	18	20	23	18	29	33	17	20	24	16	20	22	20	24
32	31	36	36	31	38	31	27	35	28	28	30	31	26	36	33	31	28	33
27	28	23	22	27	20	21	27	17	33	34	28	23	27	20	21	21	24	19
79	80	74	76	77	75	70	73	67	80	80	80	77	81	70	76	68	71	66
84	85	82	80	81	80	75	79	72	86	86	87	81	83	77	82	75	78	73
66	65	72	70	68	71	74	73	74	64	62	72	69	70	59	77	75	78	73
86	83	94	89	81	93	86	77	92	85	82	96	88	83	92	91	86	78	92
41	46	27	29	33	27	30	36	26	41	43	33	32	38	27	29	30	38	24
59	60	52	50	55	47	49	54	45	54	54	54	49	54	41	49	52	59	46
17	17	17	18	18	19	14	12	16	16	17	13	18	17	19	19	12	10	14

	All Respondents			Science Career Choices			Non-white Science Leaning		
	Total	M	F	Total	M	F	Total	M	F
14. This question deals with accomplishments that might possibly apply to your Jr. -Sr. High School years. It covers many areas of interest and few students will be able to say "yes" to many items. (Mark all that apply.)									
Had a major part in a play	16	18	17	18	18	19	18	24	23	27
Won a prize or award in an art competition	9	9	9	10	8	7	9	16	19	12
Took part in a National Science Foundation program	5	5	5	4	7	8	6	8	9	5
Entered a project in a science fair	20	19	20	19	26	27	25	23	23	22
Achieved recognition for a 4-H project	12	13	9	17	12	8	17	12	11	14
Received a high rating in a state or regional music contest	10	10	8	11	10	10	10	8	8	8
Participated in a state or regional speech debate contest	3	3	3	4	4	4	4	6	7	4
Edited a school paper, yearbook, or literary magazine	12	13	10	16	15	12	19	19	18	22
Active participant in scouting	14	15	18	13	21	24	17	17	20	12
Am a member of a scholastic honor society	14	13	11	16	21	19	24	20	17	23
Elected to student or public office	20	22	19	25	24	23	27	30	28	32
Achieved recognition for mathematics	7	6	7	5	12	12	12	15	16	13

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
20	19	23	20	21	20	24	22	25	19	16	29	17	18	15	18	24	25	23
8	8	7	9	9	9	9	6	10	7	7	7	9	9	7	10	8	5	9
8	7	9	6	7	6	6	6	5	8	7	8	7	7	5	8	5	5	4
24	22	31	23	25	22	22	21	22	27	25	35	23	25	22	22	20	21	20
9	7	15	13	8	16	12	6	15	10	7	18	14	9	17	19	8	5	10
14	13	15	11	8	12	12	9	14	12	10	16	8	7	9	10	11	7	14
3	3	3	3	3	3	6	6	6	4	3	5	3	4	2	4	8	7	8
16	16	19	16	15	17	19	14	22	14	12	25	14	11	15	16	20	16	22
22	23	17	18	23	16	17	21	14	22	23	20	18	24	12	15	16	17	15
24	21	34	21	19	22	20	18	22	20	18	28	20	17	17	25	26	20	30
24	23	27	29	27	30	34	34	34	21	19	29	26	25	26	28	32	32	31
17	16	20	7	8	6	7	8	6	14	13	18	7	9	4	9	8	9	8

	All Respondents			Science Career Choices			Non-white Science Leaning		
	Total	M	F	Total	M	F	Total	M	F
15. Examine the activities listed below and indicate by marking responses for any that you can now do reasonably well. (Mark as many as apply.)									
Use wook shop power tools (power saw, drill, lathe, etc.)	45	45	75	16	51	73	18	49	73	15
Make mechanical drawings	24	21	38	6	33	48	9	23	36	5
Use a voltmeter	19	18	33	4	25	38	6	20	31	6
Use logarithmic tables	18	16	20	13	32	36	25	20	23	15
Use a slide rule to multiply and divide	31	32	37	28	46	53	35	45	48	40
Use a microscope	76	76	77	74	85	87	82	77	75	79
Describe the function of the blood stream	37	35	39	32	53	55	51	39	40	37
Interpret simple chemical formulae	31	29	34	24	51	57	42	31	31	30
Make handicrafts, (weaving, Carving, pottery, leather tooling)	49	51	42	59	51	41	65	49	45	53
Play a musical instrument	43	41	36	46	48	43	55	42	39	46
Design clothing, posters, furniture, etc.	36	36	22	49	35	25	51	38	28	52
Type 40 words a minute	40	41	26	55	35	28	45	41	33	52
16. Mark the appropriate age at which you would most like to marry.									
Less than 18	3	3	2	4	1	1	2	4	4	4
18 to 21	30	30	22	38	19	15	23	21	15	29
22 to 25	45	45	47	43	54	54	54	43	42	45
26 to 28	10	9	11	7	14	14	12	16	18	13
Over 28	4	4	6	2	4	7	1	6	9	2
Don't plan to marry	8	8	11	6	7	8	6	14	19	7

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
65	71	21	37	73	18	34	61	16	63	74	19	43	78	16	82	29	54	11
46	53	19	14	33	4	12	24	3	48	56	20	18	36	6	5	11	22	3
34	43	5	13	28	5	14	26	6	35	42	10	16	32	3	6	16	31	5
44	45	40	25	31	23	23	27	21	35	36	32	23	29	16	23	29	34	26
57	60	45	44	49	41	37	44	32	52	55	42	40	44	34	39	36	41	32
88	88	88	88	92	87	82	85	79	86	86	84	84	89	78	84	81	86	77
55	55	57	60	66	57	46	52	43	52	52	52	52	57	42	55	50	55	46
57	58	56	54	62	50	41	51	33	53	54	48	47	54	39	44	46	58	37
46	41	64	54	42	61	49	36	57	46	41	66	54	44	52	68	45	31	55
48	47	53	54	48	57	48	39	54	44	42	54	48	41	49	56	50	40	57
30	25	48	39	22	47	36	22	45	32	27	50	38	23	45	51	35	19	46
35	31	46	45	35	51	43	28	52	29	26	43	41	28	49	48	44	32	53
1	1	2	1	1	1	2	1	2	0	0	1	2	2	4	2	1	1	1
17	16	22	22	13	28	20	14	24	19	17	26	24	15	35	27	17	13	19
53	53	55	54	55	53	54	53	55	52	53	49	51	52	52	48	55	57	54
13	12	14	13	17	10	14	17	11	13	13	13	12	15	4	15	16	16	15
5	6	1	2	4	1	4	7	2	5	6	0	3	5	1	2	5	8	3
9	9	6	5	8	4	6	7	5	8	8	7	6	10	2	5	6	6	6

	All Respondents			Science Career Choices			Non-white Science Leaning		
	Total	M	F	Total	M	F	Total	M	F
17. If and when you marry, do you think you (females) or your wife (males) will be employed?									
Will not work at any time	5	5	9	2	5	7	1	6	11	1
Will work no more than part-time	15	14	16	12	14	17	9	10	12	8
Will work full-time before having children, and when children are at least school age	32	33	20	46	32	21	48	35	25	49
Will work full-time without interruption	10	10	9	11	12	9	17	14	12	16
Don't know	32	31	37	24	32	39	21	27	31	22
Don't plan to marry	6	6	8	4	6	7	5	10	13	6
18. Which <u>one</u> of these do you approve for <u>most</u> women? (Mark only ONE.)									
Marriage and/or family only	25	25	33	18	23	31	12	17	23	8
Marriage and/or family and career	68	67	57	77	69	61	83	70	63	81
Career only	3	4	4	3	3	4	3	7	7	7
19. How many times did you talk about training or education after high school with your guidance counselor during the past year?									
Never	39	35	37	33	33	34	32	31	36	22
Once or twice	35	36	33	38	35	33	38	35	33	37
Three or four times	14	15	15	14	17	16	17	16	14	19
Five times or more	9	10	10	10	13	13	11	18	16	20
20. How many times did you talk about jobs or occupations with your guidance counselor during the past year?									
Never	46	42	43	42	45	45	45	35	39	30
Once or twice	34	34	32	36	32	31	32	30	31	30
Three or four times	8	9	9	9	11	10	11	13	11	16
Five times or more	5	6	6	5	4	4	4	10	11	9

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
												Non-Nurse		Nurse				
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
5	6	1	3	8	1	4	7	2	6	7	0	4	8	1	1	3	5	1
16	17	13	10	15	7	12	15	10	15	17	7	11	15	10	8	13	17	10
20	18	51	41	19	52	39	23	50	27	20	54	37	19	55	45	36	20	48
9	7	13	14	10	17	9	6	11	9	9	12	12	9	11	17	10	5	13
35	41	18	27	41	20	31	43	23	35	38	22	30	40	21	25	33	48	22
8	9	6	4	5	3	4	5	3	7	8	6	5	8	2	4	4	3	5
27	30	16	18	30	12	18	25	12	28	31	13	20	29	14	13	17	28	9
65	61	79	77	65	84	77	67	84	65	60	83	75	64	83	82	78	63	88
4	4	2	2	1	2	2	3	1	3	4	2	2	2	1	3	2	3	1
32	33	27	29	32	27	26	28	25	34	35	32	31	34	26	32	25	22	27
35	33	42	36	33	38	38	37	39	37	35	43	35	32	36	39	37	36	38
16	16	16	18	19	18	18	15	20	15	15	14	18	19	17	16	18	17	19
15	15	15	14	13	14	14	16	13	12	13	11	12	11	15	11	16	19	15
45	45	43	42	45	40	41	42	40	45	45	47	42	44	40	43	46	46	45
32	32	34	35	34	35	37	36	37	31	31	29	34	32	37	36	32	31	32
9	9	12	10	9	10	9	9	9	10	10	11	9	10	8	8	8	8	9
6	6	6	5	3	6	6	5	6	5	4	8	4	3	6	4	4	4	4

	Total National Sample	All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
21. In the past year, did you talk about jobs, work, or careers with any of these? (Mark as many as apply.)										
Member(s) of my family	88	86	83	89	91	89	94	79	72	88
Teacher(s)	39	39	37	41	44	45	43	45	39	53
My friend(s)	83	81	75	87	84	81	89	79	75	85
Worker(s) about how he/she came to be in the job	35	34	33	34	37	36	39	34	33	36
Class discussion(s)	23	24	21	27	26	25	27	32	26	41
22. In the past year, did you do any of these things? (Mark as many as apply.)										
At a library, read something related to jobs or work	36	35	33	37	42	40	45	45	41	50
Had a course in school in occupations or careers	27	25	23	28	22	21	22	27	23	34
Took a field trip to a local business or industry to observe workers	25	24	25	24	23	26	20	34	36	30
Attended a "career" or "job" fair where job materials were displayed and business representatives talked	16	16	16	16	18	18	17	21	18	24
Had a job interview	34	33	34	33	35	37	32	34	36	31
Filled out job application	49	48	47	49	48	48	47	54	55	54
Sought information from the school career file or occupational library	25	25	22	28	28	25	33	31	26	38
23. Which one of these types of work would you most prefer to do in your future employment? (Mark only ONE.)										
Service, maintain or repair things	12	12	22	2	10	15	3	15	23	4
Serve others	28	29	15	43	21	12	36	26	17	38
Make or build things, grow things	17	16	23	10	20	24	15	15	18	10
Manage or direct people or work	16	16	19	14	14	17	11	17	20	13
Teach or instruct	15	15	10	20	9	6	13	14	10	20
Do theoretical or research work	10	10	14	8	28	29	26	17	18	15

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
															Non-Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
89	89	89	94	92	95	92	90	93	88	87	90	93	91	93	95	94	92	95
47	46	52	47	46	48	48	48	47	44	43	47	45	46	45	45	50	50	49
82	79	93	87	80	91	90	86	93	82	80	88	87	82	91	91	91	87	93
37	36	40	40	36	42	38	39	38	34	35	33	38	36	39	39	37	37	38
25	24	30	26	25	27	28	26	30	25	23	31	26	25	32	24	32	32	32
41	41	42	44	43	44	41	37	43	39	38	44	42	42	42	43	43	40	45
23	23	20	21	16	23	21	17	24	24	24	22	23	21	28	20	18	15	21
27	28	22	22	18	24	20	21	19	26	27	23	23	25	27	19	19	23	16
18	19	17	19	18	19	16	18	15	17	17	21	19	19	20	19	15	15	15
35	37	28	34	37	33	38	37	39	35	36	28	32	34	30	31	38	40	37
49	49	48	48	48	48	51	50	52	47	48	43	47	47	48	46	51	54	48
28	28	27	33	28	36	31	26	33	25	25	24	32	27	36	35	28	23	32
6	8	1	3	5	2	2	4	1	16	19	2	5	9	2	3	2	4	0
7	5	14	48	30	56	43	37	47	8	5	20	42	24	72	40	35	31	38
30	30	29	7	13	4	7	7	6	30	29	31	15	25	1	15	6	5	6
17	18	12	8	10	7	17	22	14	15	16	14	10	14	9	6	18	22	16
8	5	18	7	8	7	16	13	18	9	6	18	7	6	7	9	21	17	23
31	31	28	26	33	21	14	17	12	27	26	28	20	25	7	26	18	23	15

		All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
24. Which one of these types of work do you think your parents most prefer for you? (Mark only ONE.)										
Service, maintain or repair things	10	10	18	2	8	12	2	14	21	5
Serve others	24	24	14	34	19	13	27	20	12	30
Make or build things, grow things	13	13	19	7	14	16	11	13	18	7
Manage or direct people or work	18	18	21	15	20	25	13	18	21	14
Teach or instruct	16	16	10	22	10	6	16	20	14	29
Do theoretical or research work	10	9	11	8	20	20	21	15	17	13
25. In which one of these job families would you most prefer to be employed in the future? (Mark only ONE.)										
General labor, community, and public service	8	8	8	8	3	3	4	7	7	7
Secretarial-clerical, office work	12	14	2	25	2	1	4	10	5	18
Construction trades	6	6	12	1	4	6	2	9	13	3
Mechanics, industrial trades	10	10	20	1	7	11	1	14	22	4
Proprietors, sales	3	3	4	3	2	2	1	5	6	4
Technical jobs	6	5	8	3	5	8	1	9	13	3
Fine arts, performing arts	9	9	7	11	4	4	5	9	8	10
Humanities, law, social and behavioral sciences	9	9	8	10	13	7	22	11	11	12
General teaching and social service	9	9	5	12	3	3	4	8	7	9
Business administration	6	6	8	5	2	2	1	8	11	4
Medical and biological sciences	14	14	10	17	28	20	39	20	13	30
Engineering, physical science, mathematics, and architecture	9	8	12	4	31	41	17	14	18	8

Job Family Preference									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
															Non-Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
7	8	2	3	5	1	2	4	1	14	17	2	4	6	3	1	2	4	0
8	6	13	44	30	51	31	28	34	8	7	13	40	26	64	35	28	25	29
21	22	19	6	10	3	4	4	3	19	19	20	10	17	1	11	4	4	4
22	25	11	10	14	8	21	25	19	23	26	15	13	17	10	9	22	28	18
18	6	23	8	6	9	17	14	20	9	6	24	9	6	9	13	20	17	22
24	24	25	20	28	16	12	13	11	20	19	24	17	21	8	19	14	15	14
0	0	0	0	0	0	0	0	0	3	4	3	6	5	8	5	3	3	4
0	0	0	0	0	0	0	0	0	1	1	3	4	2	6	5	3	0	5
0	0	0	0	0	0	0	0	0	7	8	6	2	5	1	0	1	2	1
0	0	0	0	0	0	0	0	0	12	14	3	3	6	0	1	1	2	1
0	0	0	0	0	0	0	0	0	2	2	3	1	2	1	0	1	0	2
0	0	0	0	0	0	0	0	0	8	9	4	3	5	1	1	1	2	1
0	0	0	0	0	0	0	0	0	5	5	7	3	2	2	5	10	8	11
0	0	0	0	0	0	100	100	100	3	2	5	6	5	4	8	61	62	60
0	0	0	0	0	0	0	0	0	3	3	4	2	2	3	2	9	9	9
0	0	0	0	0	0	0	0	0	3	3	3	2	3	2	1	2	4	1
0	0	0	100	100	100	0	0	0	4	4	7	62	53	72	65	4	5	3
100	100	100	0	0	0	0	0	0	58	57	62	5	8	2	5	2	4	1

		All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
26. Which of these do you think are highly important in a job or position? (Mark as many as apply.)										
A secure job or future	66	65	65	65	71	71	70	60	58	62
High wages or salary	48	48	53	44	53	57	47	54	56	51
Chance to use skills and abilities fully	60	58	55	60	66	65	67	59	55	64
Chance to increase skills and abilities, to grow	63	60	56	64	66	63	71	57	54	61
Work which seems important to me	59	57	51	62	64	60	69	48	43	55
Opportunity for adventure	38	37	37	38	43	42	45	35	35	36
Opportunity to be creative, original	37	35	31	39	44	41	47	36	34	38
Opportunity to be helpful to others	52	51	40	60	54	47	65	51	42	63
Job freedom, independence	38	36	38	33	46	48	44	33	36	29
Availability of job openings	26	25	25	26	29	28	31	23	23	23
Possibility for rapid advancement	33	31	35	27	38	43	31	33	34	31
Work with people	55	55	44	65	51	45	60	54	47	65
27. If you want to become a scientist but feel that you cannot, indicate the main reason for your decision. (Mark only ONE.)										
I can't afford it.	6	6	7	4	6	7	5	7	11	3
My parents are against it.	1	2	2	1	1	2	0	4	6	1
Because I haven't taken courses required for admission.	10	10	11	10	9	9	9	17	19	15
Because my grades are not good enough	12	12	13	11	11	10	12	12	14	10
Preparation takes too long.	5	5	6	4	6	6	6	9	8	9
Required courses are too hard.	7	6	6	7	5	5	5	9	10	7
I want to get married.	4	4	3	5	2	2	3	4	5	3
I want to go into military service.	3	3	5	2	1	2	1	5	6	5
I want to get into some other kind of career.	40	39	37	41	33	35	30	39	40	39
I want to become a scientist.	5	4	6	3	15	16	13	6	8	4

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
77	[illegible]	71	71	73	70	63	62	64	73	74	68	70	72	70	69	65	65	65
54	[illegible]	38	50	53	49	46	50	43	55	58	44	50	54	49	44	46	52	42
71	69	77	67	64	69	62	59	64	67	65	75	65	63	63	68	66	63	68
71	70	77	68	65	70	68	60	73	65	64	71	66	64	62	71	69	60	75
64	60	78	68	64	70	68	64	71	62	61	69	66	63	66	68	73	68	77
46	47	44	43	46	42	46	47	45	42	42	41	45	47	35	51	46	45	47
53	51	60	34	33	34	45	42	47	46	45	52	35	34	27	45	51	47	54
50	46	64	68	57	74	64	57	69	45	42	53	64	55	74	68	63	58	67
47	50	39	36	44	32	46	48	45	48	48	47	39	47	21	45	50	50	49
32	31	35	32	30	33	26	24	28	29	28	32	30	30	30	32	27	26	28
46	49	34	31	36	29	32	37	29	43	45	34	32	37	25	30	33	38	30
45	42	56	64	52	70	64	59	68	44	41	54	59	48	80	57	66	60	70
6	7	5	6	6	6	4	4	4	6	7	3	6	7	5	7	4	3	4
1	1	1	0	1	0	1	1	0	1	1	1	1	2	0	0	0	1	0
9	9	8	6	5	6	6	5	7	10	10	10	8	8	9	7	6	6	6
8	7	10	11	12	11	8	9	7	10	9	12	12	12	13	12	6	7	6
4	4	3	6	6	6	6	7	5	3	3	4	7	8	5	7	6	8	5
4	4	5	5	5	5	7	8	7	5	6	5	6	5	6	5	7	8	7
[illegible]	[illegible]	5	2	1	2	3	2	4	2	2	4	2	1	4	2	2	1	2
[illegible]	4	0	2	3	1	2	2	2	2	3	1	2	1	3	1	1	1	1
38	38	38	35	29	37	43	40	45	36	37	33	34	33	43	28	46	40	50
[illegible]	14	9	13	20	9	3	3	2	13	14	9	12	15	2	16	3	4	2

	Total National Sample	All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
Items 28 to 32 are concerned with major world issues. Give your opinion on the topics.										
28. **Money should not be given** for scientific research unless it has practical value.										
Agree; probably agree	69	67	63	70	62	60	65	64	61	67
Disagree; probably disagree	28	27	29	25	35	37	34	31	34	28
29. The by-products of past scientific efforts have been, on the whole, beneficial to man.										
Agree; probably agree	75	71	69	73	81	82	79	65	62	69
Disagree; probably disagree	18	19	19	19	14	13	17	26	27	24
30. Overall, would you say that science and technology do more good than harm?										
Agree; probably agree	71	68	67	70	76	76	77	65	66	64
Disagree; probably disagree	22	22	22	22	18	18	18	26	23	29
31. Some people would stop all high altitude flying to prevent possible break in the ozone layer. How do you feel about this?										
Agree; probably agree	41	38	38	38	39	39	39	47	46	48
Disagree; probably disagree	48	47	48	46	52	54	49	42	43	41
32. Assume that as a taxpayer, you are asked to pay to support these programs. Which ones would you willingly pay more taxes to support? (Mark any that apply.)										
Conduct cancer research	72	69	60	78	73	69	80	65	56	78
Support science education programs	22	21	22	20	34	34	34	27	26	27
Improve the environment	66	63	60	65	71	68	76	59	59	60
Seek alternate sources for energy	51	47	50	44	61	63	58	45	47	42
Continue space research	18	16	21	11	27	32	19	19	21	17
Improve techniques for food production	54	51	51	52	58	58	58	57	55	59

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
															Non-Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
63	64	58	67	61	70	67	62	70	61	62	57	66	61	72	67	64	60	67
34	32	39	31	36	29	31	35	28	35	34	39	31	36	25	31	34	38	31
82	82	81	82	83	81	79	78	79	81	83	76	78	80	74	79	82	83	81
12	11	15	13	11	14	16	17	15	14	13	19	17	15	19	18	13	11	15
77	77	76	77	78	77	72	69	74	76	76	77	74	72	72	77	72	70	73
17	17	19	17	16	18	22	26	19	19	19	19	20	21	20	19	22	23	21
36	36	33	41	44	40	41	40	42	40	40	39	40	42	35	40	41	40	42
55	55	54	48	48	48	49	54	44	52	53	48	48	49	47	49	48	54	44
69	66	80	79	70	84	79	70	84	72	70	79	75	65	85	80	79	71	84
86	35	40	34	36	33	25	27	24	35	33	42	30	33	21	33	28	29	27
70	67	81	71	70	71	75	71	78	69	66	76	71	73	63	76	77	75	78
64	67	65	57	64	53	62	65	60	64	64	64	55	63	45	55	65	67	63
31	33	26	19	29	14	19	28	13	32	34	23	20	28	12	17	22	29	16
55	55	56	59	61	58	60	62	58	56	56	54	58	58	57	59	61	64	59

	Total National Sample	All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
33. How do you feel about careers in science fields for females?										
Approve; probably approve	89	85	80	90	90	88	95	88	83	94
Disapprove; probably disapprove	8	9	12	6	7	9	4	9	13	4
34. Have you ever considered a career for yourself in science, mathematics, or engineering?										
Yes	49	45	53	38	77	81	72	100	100	100
No	45	46	36	55	17	13	24	3	4	1
35. Has anyone ever encouraged you to consider a career in science, mathematics, or engineering?										
Yes	44	39	45	33	61	65	56	60	58	62
No	42	42	34	50	24	21	29	24	23	24
36. In your spare time reading, have you read one or more magazines or books in any of these groups during the past year? (Mark any that apply.)										
Popular Mechanics, Mechanics Illustrated	31	29	49	11	40	58	14	33	49	12
Popular Science, Psychology Today	27	24	30	19	42	46	36	31	35	26
Science fiction (not comic books)	35	33	33	33	46	45	47	37	36	37
Other kinds of fiction	51	48	38	57	57	50	66	42	34	52
Health, physical fitness, diet, Yoga, etc.	37	36	22	49	38	29	52	42	36	51
Social-political, cultural problems	30	29	25	32	38	34	42	36	34	38

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
90	88	98	93	88	96	93	88	96	90	88	94	92	88	92	97	92	87	95
6	7	2	4	7	2	4	10	1	7	8	5	6	9	5	2	6	11	3
89	89	88	75	82	71	53	58	49	84	83	91	70	76	56	74	53	61	48
7	6	10	21	12	25	43	36	47	10	11	8	26	20	41	22	43	35	49
73	71	78	61	66	58	47	51	44	67	66	74	55	58	45	60	49	56	44
16	16	16	24	17	28	39	31	44	19	20	17	30	27	40	26	37	30	43
51	62	16	22	45	11	22	42	8	53	62	21	26	48	8	13	19	32	9
42	45	33	32	38	29	39	44	35	41	43	31	31	39	21	31	41	44	39
43	45	39	41	41	41	40	43	38	44	45	42	42	42	40	44	42	45	40
52	47	68	58	54	61	62	52	69	52	49	65	58	53	56	66	65	56	72
33	26	53	50	33	59	42	27	53	29	26	42	44	30	56	51	41	26	52
32	29	42	38	38	38	51	48	54	33	30	45	34	33	32	38	59	59	58

		All Respondents			Science Career Choices			Non-white Science Leaning		
		Total	M	F	Total	M	F	Total	M	F
37. Examine the statements below, and then indicate any which most of your high school teachers do. (Mark as many as apply.)										
Encourage students to be creative, original	54	53	49	57	57	58	56	56	48	67
Tell students which jobs offer the best opportunities for males and for females	25	27	25	28	22	22	21	39	37	41
Offer frequent opportunity to talk with teachers individually	32	31	31	31	38	40	35	36	32	41
Encourage students to consider education and/or training beyond high school	59	56	53	60	59	58	60	59	53	66
Tell students science course work is difficult	9	10	12	7	12	13	11	13	15	10
Give students advice on what to do after high school	33	33	32	34	34	37	30	44	43	46
Encourage students to take mathematics courses	20	19	22	17	28	31	24	29	28	31
Encourage students to explore many choices for post-high school plans	32	31	29	32	32	33	32	33	29	27
Tell students in which courses males and females can expect to be most successful	16	17	16	17	14	15	13	24	22	27
Encourage students to build basic skills	46	45	40	49	51	51	52	43	36	52
Treat students as if they were children	23	21	21	21	23	22	23	17	18	15
Seldom take students' opinions seriously	30	28	28	29	29	28	29	24	26	22

Job Family Preferences									Occupational Choices									
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
57	55	64	59	59	59	54	48	59	58	57	61	56	56	57	57	55	54	56
25	25	25	25	21	27	22	21	22	23	24	23	25	23	32	23	19	18	19
39	37	44	38	45	35	38	41	35	36	37	31	38	42	32	38	39	43	36
59	57	64	65	63	66	60	56	62	58	57	63	64	62	66	66	58	57	58
12	13	8	15	19	13	10	11	9	13	13	12	13	15	8	13	10	11	9
37	37	35	35	35	34	31	31	31	37	38	31	36	37	39	32	29	31	27
34	35	27	25	25	25	22	19	25	31	33	25	24	25	20	26	22	24	21
35	35	38	37	38	36	35	33	36	33	32	37	36	38	37	34	36	37	35
18	18	19	16	15	16	14	15	14	16	15	21	17	17	20	15	10	11	8
51	48	60	52	51	52	52	47	56	53	51	59	51	50	52	52	52	51	54
19	19	19	19	17	21	23	23	23	22	23	19	21	21	20	24	24	24	24
28	27	28	27	25	28	30	32	28	26	27	24	29	28	26	31	31	34	29

	All Respondents			Science Career Choices			Non-white Science Leaning		
	Total	M	F	Total	M	F	Total	M	F
38. Do you agree with any of these statements? (Mark as many as apply:)									
A woman's place is in the home.	18	18	24	12	16	22	6	17	23	9
Women are as interested in mathematics as are men.	63	61	52	68	67	60	78	63	53	78
Men don't like to work for women supervisors.	51	49	47	50	53	55	50	43	39	50
Women should stick to "women's jobs."	19	18	25	11	16	22	6	16	24	6
Women have as much science ability as men do.	70	67	58	75	76	70	85	67	57	82
Education is wasted on women since they usually get married and raise a family.	9	9	13	5	7	10	2	13	18	6
Women have the ability and endurance to make successful space flights.	43	40	30	50	48	39	61	44	34	59
Working women take jobs away from men.	18	18	25	12	21	25	15	20	25	14
According to the latest Census data, equal job opportunities have now been achieved.	23	24	21	27	19	19	18	31	27	35
I strongly approve the election of women as governors.	40	39	25	52	44	30	65	41	28	59
I approve of appointing a woman as chairman of the Atomic Energy Commission.	34	33	23	42	40	31	54	37	26	53
I would choose for myself the best qualified dentist available regardless of sex.	75	71	66	77	80	78	82	74	68	82

Job Family Preferences									Occupational Choices								
Physical Science			Life Science			Humanities			Physical Science			Life Science				Humanities		
														Non-Nurse	Nurse			
Total	M	F	Total	M	F	Total	M	F	Total	M	F	Total	M	F	F	Total	M	F
16	18	9	11	10	7	12	17	9	19	22	9	13	21	11	6	10	16	
67	62	81	70	59	76	70	59	77	65	61	80	70	62	70	79	70	61	77
54	54	53	51	51	50	54	53	56	54	53	56	51	52	52	50	58	61	55
17	19	10	11	22	6	11	17	7	17	20	5	15	23	13	6	10	18	5
71	68	81	80	71	85	80	69	87	70	67	81	79	71	78	89	84	76	89
8	9	3	6	12	3	7	10	4	8	9	2	7	11	4	3	6	10	4
46	39	68	52	38	59	54	40	63	42	37	62	50	40	48	64	58	44	67
21	23	15	17	26	13	19	28	12	22	23	18	18	26	14	13	16	27	9
19	20	15	22	18	24	19	17	21	18	19	13	22	19	30	18	19	17	20
41	31	73	50	28	62	54	36	67	39	30	75	45	28	50	62	59	39	73
38	30	62	41	26	49	50	39	58	39	32	64	39	26	39	55	54	40	64
79	78	83	81	77	83	81	80	87	78	77	84	81	79	79	85	86	85	87

APPENDIX C

TABLE C1

PERCENTAGE OF MEN AND WOMEN AND WHITE AND NON-WHITE BY SEX WHO EXPECT VARIOUS OCCUPATIONS AND THE NUMBER AND PERCENTAGE OF THE TOTAL GROUP SURVEYED WHO CHECKED AT LEAST SOME FUTURE OCCUPATION

Expected Future Occupation	Sex[1]		White		Non-White		Total[1]	[2]
	M	F	M	F	M	F	(n)	(%)
All respondents occupation	47	53	42	48	5	5	6584	100
Engineering, Physical Science, Mathematics, and Architecture	79	21	72	19	6	3	494	7.5
Architect	80	20	74	17	7	3	122	1.9
Chemist	85	15	75	17	8	0	13	.2
Engineer	86	14	80	13	6	2	260	3.9
n.e.c.	80	18	69	19	12	0	45	.7
aero	65	35	65	29	0	6	17	.3
chemical	81	19	74	19	7	0	27	.4
civil	79	21	80	15	0	5	39	.6
electrical	95	5	87	5	8	0	63	1.0
mechanical	90	10	87	9	3	1	69	1.0
Geologist	77	23	69	23	8	0	13	.2
Mathematician,	44	56	39	52	4	5	57	.9
Statistician	47	53	41	44	6	9	34	.5
College math teacher	40	60	40	60	0	0	5	.1
H.S. math teacher	39	61	35	65	0	0	18	.3
Physical Scientist	88	12	76	12	12	0	17	.3
Physicist	75	25	43	14	29	14	8	.1
Science teachers								
College	100	0	100	0	0	0	1	.0
H.S.	67	33	33	33	33	0	3	.0
Medical and Biological Science	40	60	37	54	4	5	1100	17
Agr. Specialist	71	29	69	26	3	3	35	.5
Biologist, Zoologist	43	57	41	55	2	2	98	1.5
Dentist	51	49	42	43	9	2	55	.8
Nurse	4	96	6	84	1	9	319	4.8
Pharmacist	57	43	49	33	8	10	49	.7
Physician	61	39	57	33	5	5	174	2.6
Veterinarian	31	69	29	67	2	2	128	1.9
Wildlife/Conservation	66	34	60	31	6	3	241	3.7

[1]Percentage based on the number (n) selecting each occupation.

[2]Percentage based on the total number (n) selecting at least one of the occupations (n = 6584).

TABLE C1

(Continued)

	Sex		White		Non-White		Total	
	M	F	M	F	M	F	(n)	(%)
All respondents occupation	47	53	42	48	5	5	6584	100
Business Administration	62	38	55	34	7	3	518	8
Accountant, Auditor, Comptroller	44	56	40	54	3	3	120	1.8
Advertising	29	71	29	64	0	7	14	.2
Bus. Adm. & Mgt.	71	29	62	25	9	5	131	2.0
C.P.A.	65	35	60	36	4	0	26	.4
Efficiency expert, Ind. Engr., Prod. Mgr.	71	29	57	29	14	0	7	.1
Finance Worker	60	40	60	40	0	0	5	.1
Industry, Bus., Commerce	90	10	90	10	0	0	10	.2
Investment consultant	100	0	50	0	50	0	4	.1
Mfg. Mgt.	60	40	60	40	0	0	5	.1
Marketing	63	37	56	37	7	0	27	.4
Military Officer	74	26	60	19	16	6	70	1.1
Personnel Administration	67	33	70	15	9	6	12	.2
Pilot	79	21	70	15	9	6	53	.8
Purchasing Agent	17	83	17	83	0	0	6	.1
Retail Buyer	23	77	23	77	0	0	13	.2
Stockbroker	73	27	82	18	0	0	11	.2
Teacher-Commercial	25	75	25	75	0	0	4	.1
General Teaching and Social Service	20	80	18	72	3	7	760	11.5
Clergy	74	26	70	26	4	0	23	.3
Guidance-Counseling	29	71	21	65	6	9	35	.5
Guidance - Voc. & Ed.	60	40	60	40	0	0	5	.1
Social Worker	10	90	11	73	2	14	179	2.7
Teacher	20	80	18	75	3	5	518	7.9
n.e.c.	7	93	4	82	4	11	28	.4
elementary	6	94	7	91	0	2	126	1.9
high school	29	71	23	65	6	6	52	.8
preschool	4	96	4	84	0	12	51	.8
handicapped	6	94	9	88	0	3	95	1.4
home ec.	9	91	9	89	0	3	35	.5
phys. ed.	50	50	43	45	7	5	131	2.0

TABLE C1

(Continued)

	Sex		White		Non-White		Total	
	M	F	M	F	M	F	(n)	(%)
All respondents occupation	47	53	42	48	5	5	6584	100
Humanities, Law, Social & Behavioral Sciences	44	56	39	51	4	5	464	7.0
Diplomat	45	55	50	45	0	5	22	.3
Economist	50	50	40	40	10	10	10	.2
Journalist, Reporter	42	58	40	56	0	5	65	1.0
Lawyer	56	44	49	39	7	6	167	2.5
Librarian	0	100	0	88	0	12	8	.1
Psychologist	34	66	29	60	5	6	102	1.5
Social Scientist	48	52	48	48	0	5	21	.3
Teacher	39	61	36	56	3	6	36	.5
college (n.e.c.)	25	75	25	50	0	25	4	.1
English								
college	67	33	67	33	0	0	3	.0
high school	14	86	14	86	0	0	7	.1
Foreign Language								
college	25	75	25	75	0	0	4	.1
high school	42	58	33	50	8	8	12	.2
Social Sciences								
college	100	0	100	0	0	0	2	.0
high school	50	50	50	50	0	0	4	.1
Writer	24	76	24	73	3	0	33	.5
Fine Arts, Performing Arts	31	69	27	64	4	5	450	6.8
Artist, Painter, Sculptor	28	72	24	59	4	13	71	1.1
Commercial Artist	8	92	7	88	1	3	121	1.8
Musical/Instrum.	51	49	44	45	8	2	86	1.3
Teacher								
Art	35	65	28	60	7	5	58	.9
Music	43	57	39	52	4	4	72	1.1
Theater Worker	31	69	31	60	2	7	42	.6
Technical Jobs	51	49	43	44	7	6	408	6.2
Computer	56	44	48	30	9	13	23	.3
EAM Operator, Supv.	57	43	48	30	9	13	23	.3
Programmer	64	36	50	36	12	?	52	.8
Repair Service	92	8	80	10	10	0	12	.2
Dental Hygienist	11	89	11	77	0	13	47	.7
Drafting	82	18	70	13	11	6	56	.9

TABLE C1

(Continued)

	Sex		White		Non-White		Total	
	M	F	M	F	M	F	(n)	(%)
All respondents occupation	47	53	42	48	5	5	6584	100
Technical Jobs (continued)	51	49	43	44	7	6	408	6.2
Electronics	67	33	61	28	7	4	80	1.2
technician	86	14	73	11	14	2	44	.7
worker	44	56	47	47	0	6	36	.5
Lab Technician	25	75	25	75	0	0	20	.3
biol., dent., med.	19	81	19	81	0	0	16	.2
phys. sci., eng., etc.	50	50	50	50	0	0	4	.1
photographer	45	55	39	50	4	7	47	.7
physical therapist	20	80	13	70	10	7	30	.5
spec. therapist	12	88	13	88	0	0	8	.1
surveyor	100	0	80	0	20	0	5	.1
technologist/med.,dent.	21	79	21	68	0	11	28	.4
Proprietors, Sales	69	31	61	30	7	3	246	3.7
Clerk/Sales	17	83	17	74	0	9	54	.8
Farming/ranching-owner	92	8	82	8	9	0	99	1.5
Manager/sales	62	38	50	36	11	4	29	.4
Proprietor, Contractor	81	19	81	19	0	0	21	.3
Sales	77	23	60	23	17	0	31	.5
Auto	83	17	67	17	17	0	12	.2
Insurance	100	0	60	0	40	0	5	.1
Other	60	40	50	40	10	0	10	.2
Real Estate	75	25	67	33	0	0	4	.1
Supervisor, Business	83	17	83	17	0	0	12	.2
Mechanics, Ind. Trades	81	19	72	15	9	4	507	7.7
Clothing, Fashion	4	96	4	75	1	20	79	1.2
Electrician	93	7	80	4	13	2	45	.7
Machinist/Mechanic	96	04	82	3	14	1	97	1.5
Airplane	96	4	84	4	12	0	25	.4
Auto	99	1	89	1	10	0	167	2.5
Other (n.e.c.)	93	7	93	7	0	0	41	.6
Metal Worker	88	12	80	8	8	4	25	.4
Printing Trades	67	33	44	33	22	0	9	.1
Repair	84	16	84	11	0	5	19	.3
Appliance	100	0	100	0	0	0	8	.1
Industrial Machine	100	0	100	0	0	0	2	.0
Office Machine	No data							
Telephone (including Installation)	67	33	67	22	0	11	9	.1

TABLE C1

(Continued)

	Sex		White		Non-White		Total	
	M	F	M	F	M	F	(n)	(%)
All respondents occupation	47	53	42	48	5	5	6584	100
Construction Trades	98	2	84	2	14	0	250	3.8
Bricklayer, mason, painter, roofer, plasterer, etc.	100	0	85	0	15	0	33	.5
Building construction/ misc.	96	4	84	5	11	0	48	.7
Carpenter	100	0	86	0	14	0	74	1.1
Foreperson (n.e.c.)	100	0	100	0	0	0	3	.0
Heavy Equip. Op.	99	1	87	1	12	0	69	1.0
Mining, quarrying, etc.	75	25	75	25	0	0	4	.1
Plumber, pipefitter	90	10	58	11	32	0	19	.3
Secretarial-Clerical Office Workers	4	96	5	84	1	10	768	11.7
Accounting recording worker, etc.	17	83	22	72	0	6	18	.3
Bookkeeper	6	94	6	81	0	14	72	1.1
Clerical Worker/Misc.	7	93	6	81	1	12	83	1.3
Clerk	8	92	8	85	0	8	39	.6
Bank	8	92	8	84	0	8	24	.4
Misc.	7	93	7	87	0	7	15	.2
Operator	16	84	19	74	0	7	43	.7
Keypunch	7	93	11	82	0	7	27	.4
Radio, telegraph, teletype	50	50	50	33	0	17	6	.1
Telephone (PBX)	20	80	20	80	0	0	10	.2
Secretary	2	98	3	87	1	9	412	6.3
n.e.c.	2	98	4	86	1	10	283	4.3
legal	4	96	4	88	1	7	82	1.2
medical	0	100	0	92	0	8	47	.7
Stenographer, etc.	0	100	0	91	0	9	33	.5
Typist	0	100	0	82	0	18	68	1.0
General Labor, Community and Public Service	59	41	53	37	6	5	619	9.4
Butcher, meat cutter	95	5	67	0	28	6	19	.3
Driver: auto, bus, truck	81	19	72	16	9	3	75	1.1
Farming/ranching	76	24	73	23	3	1	138	2.1
Fire person	86	14	79	14	7	0	14	.2
Hairdresser	2	98	1	92	1	6	83	1.3
Laborer/general	46	54	41	47	3	9	35	.5
Military/enlisted	56	44	52	34	4	10	73	1.1
Nurse/practical	2	98	3	80	0	17	40	.6
Police	79	21	70	18	10	2	137	2.1

APPENDIX D

TABLE D1

STANDARD SCORE MEANS FOR COLLEGE BOUND HIGH SCHOOL MALE AND FEMALE SENIORS EXPECTING TO HAVE SCIENCE CAREERS AND NON-SCIENCE CAREERS AND RAW SCORE MEANS AND STANDARD DEVIATION FOR COLLEGE AND NON-COLLEGE BOUND SENIORS

ITEM NO.	VARIABLES	STANDARD SCORE GROUP MEAN SCIENCE M	SCIENCE F	NON-SCIENCE M	NON-SCIENCE F	RAW SCORE[2] TOTAL MEAN	TOTAL SD	F-VALUES[3] 4-GROUP	F-VALUES[3] 2-GROUP
04	High School Grades	55	57	51	52	2.70	.70	7.8***	11.8***
08	Father Education Level	55	55	53	51	2.68	1.60	6.2***	8.6**
09	Mother Education Level	54	53	53	50	2.53	1.40	6.0***	3.1
10	Expected Education Level	59	58	56	53	4.22	1.37	24.4***	21.3***
16	Planned Marriage Age	53	53	53	49	2.99	1.07	10.3***	14.9***
18	Women Marriage Vs. Career	49	53	48	53	1.78	.47	13.1***	.6
19	Counselor Education Talks	52	54	52	52	2.48	1.00	.8	1.9
20	Counselor Occupation Talks	49	52	50	51	1.99	.90	1.4	.1
33	Approve Female Science Role	50	52	47	52	.94	.23	8.2***	.2
34	Considered Science Career	57	57	52	48	.53	.50	49.0***	61.7***
35	Science Career Encouragement	56	57	52	48	.49	.50	36.9***	61.0***
05	No. New Science Courses	54	52	51	49	.85	1.08	8.2***	5.3*
07A[1]	Mathematics-Science Honors	56	55	51	49	.39	.79	16.4***	25.1***
07B	Language-Social Studies Honors	50	55	52	51	.32	.64	5.0**	12.2***
11A	Mathematical-Science Ability	59	58	53	50	.70	1.76	45.9***	50.7***
11B	Language-Art Ability	51	52	52	53	.26	1.22	1.1	.3
11C	Physical-Mechanical Ability	55	51	54	47	.53	1.22	30.0***	11.0***
12AA	Mathematics Courses Taken	57	56	54	51	.59	1.93	21.7***	17.2***
12AB	Science Courses Taken	58	57	54	50	.19	1.79	36.2***	39.2***
12AC	Humanities Courses Taken	50	51	51	51	1.57	1.43	.3	.1
12AD	Mechanical Courses Taken	54	45	52	45	-1.13	1.24	64.7***	.1
12AE	Business-Home Ec Courses Taken	43	50	45	53	.42	1.82	68.1***	12.4***
12AB	Mathematics Courses Liked	57	55	52	51	.18	1.99	15.7***	12.9***
12BB	Science Courses Liked	57	54	51	49	.37	1.72	21.9***	14.3***
12BC	Humanities Courses Liked	48	52	50	53	1.36	1.83	9.7***	.9
12BD	Mechanical Courses Liked	55	48	51	47	.08	1.18	28.4***	.9
12BE	Business-Home Ec Courses Liked	47	49	46	53	.86	1.64	29.6***	16.9***
13	Mech Devices-Books at Home	53	53	50	49	4.06	1.51	5.6***	10.0**
14A	Forensic-Art Achievements	51	54	50	52	1.18	1.24	4.2**	2.2
14B	Math-Science Achievements	52	54	50	50	.34	.62	5.4**	13.9***
14C	4H-Scouting Achievements	50	51	50	50	.28	.49	.2	.2
15A	Mechanical Hand Tool Skills	57	45	55	44	.65	.79	127.8***	1.9
15B	Mathematics-Science Skills	59	55	53	49	2.49	1.70	34.9***	24.0***
15C	Handicraft-Music Skills	47	53	46	54	1.93	1.20	41.1***	.5
21	Career Talks with Others	51	52	50	52	3.20	1.19	.6	.0
22	Job Search Activities	49	50	49	51	2.64	1.63	1.2	.2
26A	Importance of Salary-Security	53	50	50	49	2.08	1.36	5.6***	.7
26B	Importance of Job Relev-Indep	53	53	51	51	3.41	2.00	2.5	3.7
26C	Importance of People in Job	52	50	50	50	1.04	.77	1.7	.1
28-31	Positive Science Views	53	54	50	50	.50	.94	5.2**	8.1**
32	Taxpayer Support of Science	55	53	51	51	3.20	1.66	6.5***	5.2*
36A	Science and Mechanics Reading	57	52	53	47	1.04	.99	35.7***	21.4***
36B	Fiction-Current Reading	50	56	50	53	1.41	1.00	13.9***	5.2*
37A	HS Teacher Encouragement	52	50	49	52	2.81	1.69	2.5	1.3
37B	HS Teacher Advice	50	49	51	49	.98	1.06	1.3	.1
37C	HS Teacher Disinterest	50	50	50	49	.52	.76	.7	.6
38A	Negative Women Role Attitude	51	46	52	47	1.18	1.13	19.8***	2.8
38B	Positive Women in Science Att	49	56	48	54	3.65	1.81	25.7***	4.8*

[1] Only part of the items used.

[2] The Standard Score Mean = 50 and Standard Deviation = 10 for total group on all variables.

[3] F value based on Single Classification Analysis of Variance of 4 Group Means with 3 and 719 degrees of freedom and F value for the 2 Group (Women Only) Mean Analysis of Variance with 1 and 404 degrees of freedom.

* p > .05; ** p > .01; *** p > .001

TABLE D2

STANDARD SCORE MEANS FOR COLLEGE AND NON-COLLEGE BOUND HIGH SCHOOL MALE AND FEMALE SENIORS EXPECTING TO HAVE SCIENCE CAREERS AND NON-SCIENCE CAREERS AND RAW SCORE MEANS AND STANDARD DEVIATION FOR COLLEGE AND NON-COLLEGE BOUND SENIORS

ITEM NO.	VARIABLES	STANDARD SCORE GROUP MEAN[2] SCIENCE M	SCIENCE F	NON-SCIENCE M	NON-SCIENCE F	RAW SCORE[2] TOTAL MEAN	TOTAL SD	F-VALUES[3] 4-GROUP	F-VALUES[3] 2-GROUP
04	High School Grades	55	57	47	50	2.70	.70	38.5***	31.7***
08	Father Education Level	55	55	49	49	2.68	1.60	24.1***	29.9***
09	Mother Education Level	54	53	50	49	2.53	1.40	15.0***	11.7***
10	Expected Education Level	59	58	49	48	4.22	1.37	69.5***	67.4***
16	Planned Marriage Age	53	53	52	48	2.99	1.07	25.1***	22.1***
18	Women Marriage Vs. Career	49	53	48	51	1.78	.47	16.2***	3.6
19	Counselor Education Talks	52	54	49	50	2.48	1.00	9.9***	13.6***
20	Counselor Occupation Talks	49	52	50	50	1.99	.90	1.1	1.3
33	Approve Female Science Role	50	52	48	51	.94	.23	11.3***	.6
34	Considered Science Career	57	57	51	47	.53	.50	72.2***	84.0***
35	Science Career Encouragement	56	57	51	47	.49	.50	53.8***	76.8***
05	No. New Science Courses	54	52	50	49	.85	1.08	13.5***	8.2**
07A[1]	Mathematics-Science Honors	56	55	50	48	.39	.79	34.6***	49.9***
07B	Language-Social Studies Honors	50	55	50	50	.32	.64	8.2***	24.2***
11A	Mathematical-Science Ability	59	58	50	48	.70	1.76	85.0***	86.5***
11B	Language-Art Ability	51	52	49	51	.26	1.22	5.0**	1.7
11C	Physical-Mechanical Ability	55	51	53	46	.53	1.22	77.3***	21.3***
12AA	Mathematics Courses Taken	57	56	50	48	.59	1.93	48.6***	44.5***
12AB	Science Courses Taken	58	57	50	48	.19	1.79	64.5***	70.6***
12AC	Humanities Courses Taken	50	51	49	50	1.57	1.43	1.7	.6
12AD	Mechanical Courses Taken	54	45	56	45	-1.13	1.24	157.8***	.0
12AE	Business-Home Ec Courses Taken	43	50	45	55	.42	1.82	181.6***	29.9***
12AB	Mathematics Courses Liked	57	55	49	49	.18	1.99	35.7***	29.6***
12BB	Science Courses Liked	57	54	49	49	.37	1.72	34.2***	20.9***
12BC	Humanities Courses Liked	48	52	47	52	1.36	1.83	28.9***	.0
12BD	Mechanical Courses Liked	55	48	54	46	.08	1.18	81.6***	2.5
12BE	Business-Home Ec Courses Liked	47	49	45	54	.86	1.64	116.7***	33.0***
13	Mech Devices-Books at Home	53	53	50	49	4.06	1.51	7.8***	12.5***
14A	Forensic-Art Achievements	51	54	48	51	1.18	1.24	14.8***	9.1**
14B	Math-Science Achievements	52	54	50	49	.34	.62	8.0***	19.8***
14C	4H-Scouting Achievements	50	51	50	50	.28	.49	.2	.1
15A	Mechanical Hand Tool Skills	57	45	57	44	.65	.79	331.3***	2.4
15B	Mathematics-Science Skills	59	55	51	47	2.49	1.70	74.9***	55.1***
15C	Handicraft-Music Skills	47	53	45	54	1.93	1.20	87.8***	.1
21	Career Talks with Others	51	52	48	51	3.20	1.19	7.8***	.6
22	Job Search Activities	49	50	49	51	2.64	1.63	5.9***	.5
26A	Importance of Salary-Security	53	50	51	49	2.08	1.36	6.1***	.3
26B	Importance of Job Relev-Indep	53	53	49	50	3.41	2.00	7.3***	8.6**
26C	Importance of People in Job	52	50	49	50	1.04	.77	3.1*	.0
28-31	Positive Science Views	53	54	49	50	.50	.94	8.8***	11.3***
32	Taxpayer Support of Science	55	53	50	49	3.20	1.66	15.9***	13.6***
36A	Science and Mechanics Reading	57	52	53	46	1.04	.99	76.6***	37.4***
36B	Fiction-Current Reading	50	56	46	52	1.41	1.00	43.4***	14.3***
37A	HS Teacher Encouragement	52	50	49	50	2.81	1.69	4.2**	.0
37B	HS Teacher Advice	50	49	50	50	.98	1.06	.6	1.0
37C	HS Teacher Disinterest	50	50	51	50	.52	.76	1.6	.1
38A	Negative Women Role Attitude	51	46	53	48	1.18	1.13	29.6***	8.5**
38B	Positive Women in Science Art	49	56	46	52	3.65	1.81	53.3***	11.7***

[1] Only part of the items used.

[2] The Standard Score Mean = 50 and Standard Deviation = 10 for total group on all variables.

[3] F value based on Single Classification Analysis of Variance of 4 Group Means with 3 and 1485 degrees of freedom and F value for the 2 Group (Women Only) Mean Analysis of Variance with 1 and 806 degrees of freedom.

* p > .05; ** p > .01; *** p > .001