ASVAB

CAREER EXPLORATION PROGRAM

Counselor Manual

Table of Contents

LIST OF TABLES

LIST OF FIGURES

Acknowledgments

The U.S. Department of Defense (DoD) has provided the Armed Services Vocational Aptitude Battery (ASVAB), a nationally normed, multi-aptitude test battery, to high school and postsecondary schools since 1968. The ASVAB Career Exploration Program (CEP) has been designed to encourage students to learn more about themselves while exploring potential career options.

The ASVAB CEP has been completely redesigned under the guidance of an Expert Panel. The redesign started in 2001 with the implementation of a three-factor model and the development of a competency-based, three-dimensional occupational linkage system. Technical information on the ASVAB career exploration model is provided in Chapter 4 of this publication. The new model is more appropriate and useful in connecting students with potentially satisfying occupations whether they are planning on immediate employment after high school in civilian or military occupations, or further education at a university, community college, or vocational institution. The competency-based linkage system provides virtually all students, regardless of their gender, ethnicity, or ability level, a full spectrum of career options to consider. The redesign culminated with the implementation of a new interest inventory. **FYI (Find Your Interests)** is a 90-item, RIASEC-based inventory (see Chapters 3 and 4) that is available in both a self-scoring paper version and electronically on our website.

The new ASVAB CEP provides students with a more comprehensive career exploration and planning experience. The Program materials were designed to empower students, foster career exploration, and emphasize the importance of career planning and decision making. Our website—**www.asvabprogram.com**—allows students to take the **FYI** inventory online, sort and explore occupations based on their interests and different skill levels, and complete various career planning tools online.

A number of people contributed to the development of the **FYI**. Of the many item writers, Ms. Sherlyn Moore distinguished herself by the sheer volume and the quality of the items she wrote. Ms. Gail Budda

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Nancy Betz, Ph.D.
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developed a database that tracked the development of items through three studies and was responsible for the preparation, distribution, and processing of all study materials.

Drs. Lenore Harmon, Harley Baker, David Blustein, and Mary Pommerich played central roles in the development and validation of the **FYI** inventory. From writing items through the selection of the final items, they shared in the responsibility for the **FYI**. In addition, these individuals reviewed the program materials to ensure they are developmentally appropriate, comprehensive, and reflect sound counseling theory and practice.

Ms. Denise Lawson, Dr. Jan Bayer, and Dr. Susan Stiles at Booz, Allen and Hamilton were instrumental in the development of the website and the student and counselor Program materials. Graphic designers, Ms. Annie Tang and Ms. Joanie Hickey, were responsible for the layout and design of the publications and websites. Mr. Doug Halpern and Mr. Jim Meyer assisted in the preparation and quality assurance of program materials.

Dr. Dan Segall, Ms. Kathy Moreno, Mr. Robert Brandewie, Dr. Alan Nicewander, and Dr. John Welsh ensured that the necessary resources were available to revise the ASVAB Program and develop quality materials for students' and counselors' use. Members of the Defense Advisory Committee on Military Personnel Testing provided empirical oversight. Dr. Jane Arabian, Associate Director of Accession Policy, Office of the Assistant Secretary of Defense (Personnel and Readiness), provided policy oversight.

Jane S. Styer, Ph.D.
Manager of the ASVAB Career Exploration Program

1

Introduction to the ASVAB Career Exploration Program

The ASVAB Career Exploration Program is a comprehensive career exploration and planning program that includes the most widely used multiple-aptitude test battery in the world. The Program also offers an interest inventory and other activities designed to help students explore the world of work and gain confidence in making career decisions.

The ASVAB Program is aimed at students in the 10th, 11th, and 12th grades, as well as students in post-secondary schools. Results of the aptitude test and the interest inventory enable students to evaluate their skills, estimate their performance in academic and vocational endeavors, and identify potentially satisfying careers. The ASVAB Program provides both web-based and printed materials to help students consider their results and explore possible career choices. Structured activities are also available to help students organize the information they need to begin making coursework decisions in line with their tentative career choices. Students are encouraged to consider their own work-related values as they explore the world of work and learn career exploration skills that will benefit them throughout their work lives.

PROGRAM GOALS AND FEATURES

The goal of the ASVAB Career Exploration Program is to give students the opportunity to explore a variety of careers using knowledge they have gained about their interests and skills through assessment components and structured activities. Career development during adolescence and early adulthood is an ongoing process. Students' career plans are still in the formative stages, and these plans will continue to develop and change over time. The ASVAB Career Exploration Program emphasizes the importance of planning and decision making, skills that can benefit students throughout their lives.

The Program is designed to help students:

- Learn more about themselves and the world of work
- Explore occupations in line with their interests and skills
- Develop an effective strategy to realize their career goals

Students are encouraged to explore their tentative career goals and compare their academic preparation against the requirements for entry into desired programs of study or occupations. They can also complete activities designed to help them identify high school courses that will increase their skills and readiness for future education or employment. Seeing the connection between their current educational planning and their future goals will help to foster a greater sense of responsibility for that planning.

In a survey of former participants, 63% reported that the ASVAB Career Exploration Program helped them connect their skills and interests with appropriate career choices.

The ASVAB Career Exploration Program is designed to be helpful to virtually all students, whether they plan to enter the workforce right away or pursue further education at a university, community college, or vocational institution.

The ASVAB test has been recognized as an important component in career counseling. Ryan Krane and Tirre (2005) have written that the ASVAB test "is distinguished by superior norms, a thorough investigation of test fairness, and unsurpassed criterion-related validity data" (p. 346). In addition, they point out that objective ability assessments such as the ASVAB test are more accurate and useful than other ability self-estimate assessments. In self-estimate assessments, people tend to underestimate their own abilities and thus limit their career choices. Objective ability assessments can help people override false beliefs about potential career paths and also encourage them to explore new career avenues.

Career development experts and career counselors from universities across the country reviewed key components of the ASVAB Career Exploration Program to ensure its soundness and accuracy.

OVERVIEW OF PROGRAM COMPONENTS

The major components of the ASVAB Career Exploration Program are listed in Table 1-1 and described in more detail in this chapter.

With results from the ASVAB test and the FYI (Find Your Interests), students can explore occupations. Together with their parents, counselors, and teachers, they can begin to develop initial educational and career plans.

Table 1-1. ASVAB Program Components

Program Component	Description
Program Benefits Video	Short video that discusses why students should participate in the ASVAB Career Exploration Program.
ASVAB Test	Multiple-aptitude battery that tests a student's knowledge in eight areas including: general science, mathematics, word knowledge, paragraph comprehension, electronics information, auto and shop information, and mechanical comprehension. Results are presented on an ASVAB Summary Results sheet, a report that describes standard and percentile scores on individual ASVAB tests, military entrance scores, and Career Exploration Score composites.
ASVAB Summary Results	A score report provided to students that describes standard and percentile scores on individual ASVAB tests, Career Exploration Score composites, and military entrance score.
FYI (Find Your Interests)	A 90-item RIASEC-based interest inventory designed to help students identify their work-related interests.
Exploring Careers: The ASVAB Career Exploration Guide	A guide designed to help students: ▸ Understand and use their ASVAB scores for career exploration with the OCCU-Find, a list of almost 500 occupations grouped by the six RIASEC interest areas ▸ Learn about sources of occupational information ▸ Consider work-related values when making career decisions ▸ Evaluate their current academic preparation for admission or entry into a program of study or an occupation ▸ Learn about various educational opportunities ▸ Learn planning and career decision-making skills
www.asvabprogram.com	Program website that contains the online **FYI** and OCCU-Find. Has links to the Occupational Outlook Handbook, **www.careersinthemilitary.com**, and O*NET OnLine.
Military Careers	A publication that provides a broad overview of career opportunities in the military.
www.careersinthemilitary.com	Website that complements *Military Careers* by providing more extensive information about job duties for approximately 140 military occupations.
My Educational and Career Plans	An activity for students to help them make future education and career plans. See Appendix A (p. 89) for a copy of this.
Coursework Planner	A worksheet to help students plan their remaining high school courses based on tentative career choices. See Appendix A (p. 96).

These materials were developed to help schools meet the National Standards for School Counseling Programs set forth by the American School Counselors Association (ASCA) and the Career Development Competencies established by the National Career Development Association (NCDA). See Appendix B (p. 113) for a copy of ASCA standards and NCDA career development competencies.

THE ASVAB TEST

The ASVAB is the most widely used multiple-aptitude test battery in the world. It consists of eight tests, contains a total of 200 items, and requires three hours to complete (134 minutes of actual test time and 36 minutes of administration time). Each test is strictly timed, with permitted time ranging from 9 minutes for the 20-item Electronics Information test to 36 minutes for the 30-item Arithmetic Reasoning test. Table 1-2 shows the number of items and time limits for each test.

A more comprehensive description of each of the eight ASVAB tests can be found on page 56 of this document (Figure 4-1). Sample items for each test are provided in *The ASVAB Career Exploration Program Overview Guide (see Table 2-2 on p. 11)*.

The ASVAB test has been updated frequently. The current student versions (Forms 23 and 24) are interchangeable with previous ASVAB forms. Forms 23 and 24 of the ASVAB test consist of eight power tests. Power tests allow maximum performance with generous time limits.

Table 1-2. ASVAB Tests

Tests	Description	Test Time
(GS) General Science	25-item test measuring knowledge of life science, earth and space science, and physical science.	11 minutes
(AR) Arithmetic Reasoning	30-item test measuring ability to solve basic arithmetic word problems.	36 minutes
(WK) Word Knowledge	35-item test measuring ability to understand the meaning of words through synonyms.	11 minutes
(PC) Paragraph Comprehension	15-item test measuring ability to obtain information from written material.	13 minutes
(MK) Mathmatics Knowledge	25-item test measuring knowledge of mathematical concepts and applications.	24 minutes
(EI) Electronics Information	20-item test of knowledge of electrical current, circuits, devices, and electronic systems.	9 minutes
(AS) Auto & Shop Information	25-item test measuring knowledge of automotive maintenance and repair, and wood and metal shop practices.	11 minutes
(MC) Mechanical Comprehension	25-item test measuring knowledge of the principles of mechanical devices, structural support, and properties of materials.	19 minutes
TOTALS	**200 Items**	**134 minutes**
ADMINISTRATIVE TIME		**36 minutes**
TOTAL TESTING TIME		**170 minutes**

EXPLORING CAREERS: THE ASVAB CAREER EXPLORATION GUIDE

Exploring Careers: The ASVAB Career Exploration Guide introduces students to career exploration and planning. It provides an appealing and engaging framework that helps students focus on their future and begin to identify their career interests. Students also learn how to apply the knowledge they have gained about their interests, skills, and work values to career exploration.

The *Guide* can be used in a number of ways. Counselors and teachers may want students to use the *Guide* in class, in a small group setting, or even independently at home. The two primary components of the *Guide* are the **FYI (Find Your Interests)** and the OCCU-Find.

FYI (Find Your Interests)

The **FYI** is a 90-item interest inventory based on John Holland's (1973, 1985, 1997) widely accepted theory and taxonomy of career choice. Students respond to items by indicating a preference for the various activities presented to them. Based on the answers to these questions, the inventory determines the student's resemblance to each of six interest types (RIASEC types). (A brief introduction to the theory and a description of the RIASEC types can be found in Appendix C, p. 115). The **FYI** is provided with *Exploring Careers: The ASVAB Career Exploration Guide* and is also available on **www.asvabprogram.com** for students who have taken the ASVAB.

Students can complete the **FYI** in about 15 to 20 minutes with little or no assistance. Most students easily understand the instructions for scoring the **FYI**. After scoring the **FYI** and considering the influence of gender on their scores, students identify their three highest Interest Codes. Students use these Interest Codes along with their ASVAB Career Exploration Scores to identify potentially satisfying occupations for exploration. A summary of the technical research supporting the **FYI** is presented in Chapter 4 of this manual. Further detail will be provided in the U.S. Department of Defense's forthcoming *Technical Manual for the ASVAB Career Exploration Program (Technical Manual)*. This will be made available on the ASVAB website.

The ASVAB Program website, www.asvabprogram.com, contains the OCCU-Find and the FYI as well as links to the *Occupational Outlook Handbook*, O*NET™ Online, and www.careersinthemilitary.com.

The OCCU-Find

The OCCU-Find organizes close to 500 occupations by Interest Codes so students can quickly identify the occupations that match their own interests. It provides students with important information derived from the Occupational Information Network (O*NET) occupational database. For example, the importance of verbal, math, and technical skills for each of the occupations is listed so students can determine the degree to which these broad skills are needed for jobs that interest them.

The OCCU-Find invites students to further investigate their tentative career choices. Students can refer to appropriate printed materials and Internet websites for more information about their selections.

These sources include the *Occupational Outlook Handbook* (U.S. Department of Labor, 2002), **www.careersinthemilitary.com**, O*NET OnLine, and **www.asvabprogram.com**.

The technical underpinnings of the OCCU-Find and a summary of the research supporting the validity of the OCCU-Find are reported in Chapter 4. Additional detail will be found in the *Technical Manual*.

CAREER EXPLORATION WEBSITES

The following websites are designed to complement the ASVAB Program. Both websites encourage students to explore a wide variety of occupations based on their ASVAB test scores and **FYI** Interest Codes. The ASVAB Program website also contains information for parents and instructional tools for teachers. The two primary websites for the ASVAB Program are **www.asvabprogram.com** and **www.careersinthemilitary.com**.

www.asvabprogram.com

The ASVAB Program website provides key information about the ASVAB Career Exploration program for students, parents, educators, and counselors. Counselors and educators can download program materials such as Fact Sheets that introduce students and parents to the ASVAB Program and highlight its key components. Counselors can also download this manual as well as guided career exploration and planning activities that educators can use with students. These activities are described in more detail on page 7.

In addition, the website promotes career exploration. Students can take the **FYI** online using the access codes that they receive on their ASVAB Summary Results sheet. With the same access code, students can also access an expanded version of the OCCU-Find. The OCCU-Find provides links to occupational information resources where students can view descriptions of careers and learn how their skills compare with the skill profiles of the occupations they are exploring. These online resources include the *Occupational Outlook Handbook* (U.S. Department of Labor, 2002), *O*NET Online*, and **www.careersinthemilitary.com**.

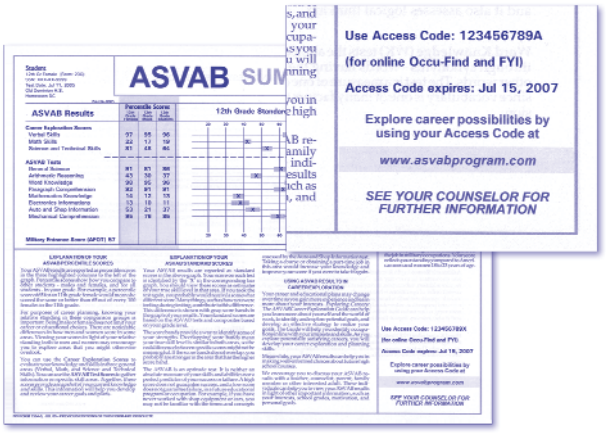
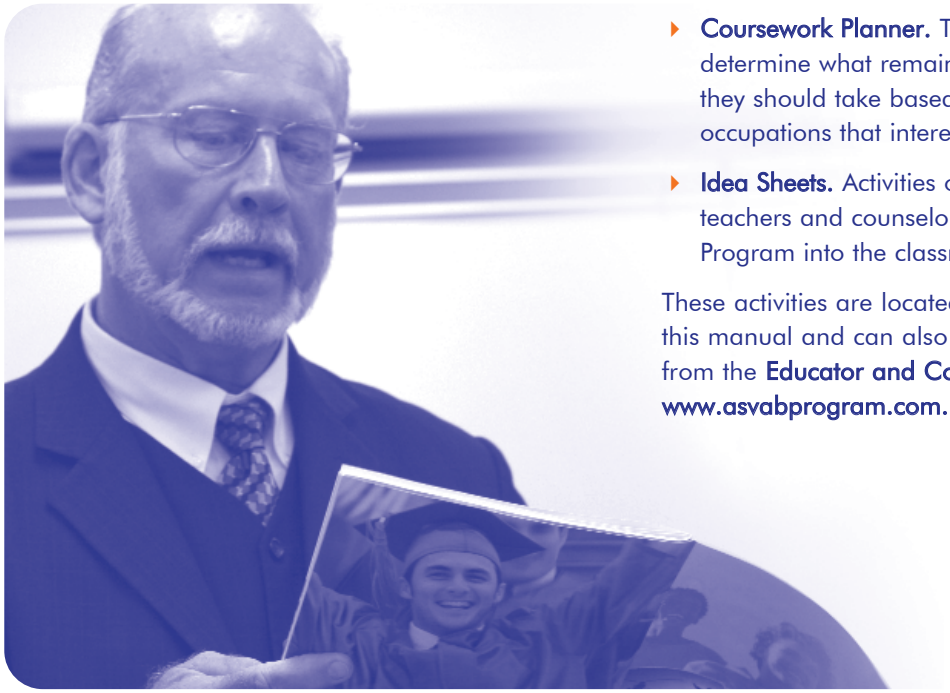


Figure 1-1. ASVAB Summary Results sheet showing access code.

www.careersinthemilitary.com

Careersinthemilitary.com is the leading career information resource for the military world of work. The website provides an overview of enlisted and officer occupations in all of the military Services. It contains information about the type of work performed, training, advancement opportunities, and employment for a sample of Army, Navy, Air Force, Marine Corps, and Coast Guard careers. Even if a student is not interested in joining the military, he or she can use **www.careersinthemilitary.com** to learn more about occupations of interest.

Students who do not have Internet access can browse the publication, *Military Careers*, which summarizes occupational opportunities in the military.



ADDITIONAL CAREER PLANNING TOOLS

Additional activities and tools can make the career exploration and planning process a richer experience for students. After students have identified tentative occupational choices based on their interests and skills, they are encouraged to explore these choices further, by planning the remainder of their high school courses and clarifying their post-high school goals. We provide them with the following activities and tools:

- **My Educational and Career Plans Summary Sheet.** This worksheet encourages students to explore occupations based on their interests, past experiences, work values, and post-high school goals.
- **Coursework Planner.** This activity helps students determine what remaining high school courses they should take based on the requirements for occupations that interest them.
- **Idea Sheets.** Activities on these sheets help teachers and counselors integrate the ASVAB Program into the classroom.

These activities are located in Appendix A (p. 89) of this manual and can also be downloaded from the **Educator and Counselor** section of **www.asvabprogram.com.**

2

ASVAB Test Administration in Your School

Administering the ASVAB is similar to administering any standardized achievement test. This chapter will describe the support personnel who oversee and coordinate test administration. It will also highlight promotional materials that you can pass on to students and outline procedures for test administration at your school.

ASVAB SUPPORT PERSONNEL

One of the strengths of the ASVAB Career Exploration Program is the extensive support network that is available to you. Many individuals are involved in the ASVAB test administration process from the time schools are initially contacted through the return and interpretation of students' results. Various resource people are available from the Department of Defense (DoD) to aid counselors in the testing process.

In general, the **Education Services Specialist (ESS)** is the primary point of contact for counselors throughout this process. ESSs are civilian U.S. Department of Defense (DoD) employees with training and experience in education and testing. These educational professionals work with schools and counselors to help ensure that schools and students get the most out of the ASVAB Program. These specialists provide training in explaining ASVAB test and **FYI (Find Your Interests)** scores, assist with the mechanics of the testing arrangements, and support counselors who use the ASVAB Program in their schools.

An Education Services Specialist is available at each Military Entrance Processing Station (MEPS). Contact information is available from the following toll-free number: 1-800-323-0513, or from the counselor section of our website at **www.asvabprogram.com**.

Counselors may also be in contact with some other resource people. Descriptions of the primary resource people related to ASVAB testing are listed in Table 2-1.

Education Services Specialists and recruiters are also available to speak at school functions such as assemblies, career fairs, and PTA and other parent meetings. You can make arrangements for a speaker by contacting your local Education Services Specialist or Military Service representatives.

Table 2-1. ASVAB Support Personnel

Name	Description	Responsibilities
Education Services Specialists	Civilian government employees with training and experience in education who serve as liaisons with the education community.	Provide schools with resource materials for the ASVAB Career Exploration Program, train counselors on how to interpret ASVAB scores, and educate counselors and students on strategies for exploring careers using ASVAB results.
Military Education Specialists	Government employees who also work with educators.	Provide support and assistance in areas related to the administration of the ASVAB in schools.
Test Coordinator	MEPS employee who coordinates the scheduling of ASVAB testing in the schools.	Finalizes scheduled testing dates, determines the availability of test administrators and proctors, and ensures that the ASVAB results are returned to the school. Can also provide advice to school personnel regarding the need for proctors.
Test Administrators and Proctors	DoD or the U.S. Office of Personnel Management (OPM) employees who ensure secure testing.	Provide security of the test booklets.
Recruiters	Military employees who identify and screen individuals for their particular service.	Contact prospective enlistees and advise them about job and career opportunities in their Service. Contact schools regarding the ASVAB and make preliminary arrangements for testing. May assist in the testing situation as proctors, talk with students about military opportunities, and/or help in the explanation of the ASVAB and **FYI** results.

Table 2-2. ASVAB Program Materials

Item	Description	Purpose
ASVAB Parent and Student Brochure	Summarizes the benefits for students participating in the ASVAB Career Exploration Program.	Introduces parents and students to the program. For general distribution in the schools.
ASVAB Educator and Counselor Brochure	Summarizes the ASVAB Career Exploration Program. Emphasizes how the program can be used in conjunction with career counseling.	Introduces counselors and educators to the program.
ASVAB Career Exploration Program Overview Guide	Highlights key elements of the program such as content, use of test information, and practice questions.	Provides a working knowledge of the ASVAB Program to students interested in taking the test and counselors/educators involved in testing.
How to do an ASVAB Test Interpretation Session	Provides information on how to interpret ASVAB scores, administration and scoring of the **FYI**, and how to explore careers using the OCCU-Find.	Serves as training tool for counselors and Education Services Specialists.
Program Benefits Video	Presents key information about the ASVAB Career Exploration Program for students.	Encourages students to participate in the program.

PROMOTIONAL MATERIALS

The promotional publications listed in Table 2-2 can help you explain the ASVAB Program to students, parents, and faculty.

You can obtain copies of these materials from your local ASVAB Program representatives by calling your local Military Entrance Processing Station (MEPS) toll-free at 1-800-323-0513.

CHALLENGE:

I have students asking for information about the ASVAB, but I don't have materials to give them.

Contact your local ESS (1-800-323-0513) for informational brochures and copies of the Overview Guide. Also, direct students to the ASVAB website—www.asvabprogram.com—where they can learn about the exam and career exploration.

PREPARING FOR TEST ADMINISTRATION

Once you have decided to offer the ASVAB Career Exploration Program at your school, you will need to consider the following factors as you plan for ASVAB testing.

ASVAB Program Costs

There are no direct costs associated with adopting the ASVAB Program. DoD provides the test materials, administration and scoring services, resource personnel, and reference materials at no cost to schools or students.

Student Eligibility for ASVAB Testing

The ASVAB has nationally representative norms for the 10^{th}, 11^{th}, and 12^{th} grades and for postsecondary students. Consequently, freshmen in high school are not permitted to participate in the ASVAB Program.

Scheduling the Testing Session

You should work with the local ASVAB representative to schedule the testing session. You will need to consider the school calendar, other tests that will occur during the school year, activities that might compete for students' time and attention, and any local events that might affect students' participation in the program.

Time Required for Testing

In most cases, a three-hour block of time is necessary for administering the battery. For larger test sessions, more time will be necessary. For groups of 100 or more, an additional 15-20 minutes should be scheduled. This is because it will take longer to hand out and collect the materials, ensure that the students have followed the directions, and handle other administrative details. For really large groups (e.g., 200 students or more), you should talk with your Education Services Specialist.

Room Arrangements

The testing facilities should conform to good testing procedures. Ideally, the facilities need to be well lighted, ventilated, comfortable, free of extraneous noise and interruptions, and with sufficient flat work surfaces to accommodate the number of students taking the test.

Proctors

The ASVAB is a secure test, so maintaining test security is of paramount importance. Test security requires a minimum of one proctor for every 40 students to be tested. To create a familiar atmosphere, it is highly useful for counselors and school personnel to attend the session or serve as proctors if needed. The military Services will also provide proctors for the test.

Counselor Codes

If student results are to be distributed to more than one counselor, counselor codes can be used. In this case, the school assigns a three-digit counselor code to each counselor. On the day of testing, students enter the appropriate counselor code on their answer sheets. The ASVAB Summary Results will be grouped alphabetically, within grade, by counselor code. At the school's discretion, the code also can be used to group student results by other school-designated divisions, such as homeroom.

Privacy

ASVAB testing does not require a signed parental release statement. The ASVAB is exempt from the provisions of the Family Educational Rights and Privacy Act of 1974 (the Buckley Amendment) that require a signed parental release statement. In 1974, the General Counsels of both DoD and the Department of Health, Education, and Welfare, ruled that ASVAB test results become records of the school only after those results are provided to the schools.

Options for Recruiter Contact

Table 2-3 shows eight options for releasing ASVAB test results to military recruiters. ASVAB test results are withheld from the military Services for at least seven business days to allow counselors time to distribute the results and counsel students. You may wish to have additional time to discuss the results with students before any recruiter contact. Review the score reporting options in Table 2-3. The option you select will apply for all students taking the ASVAB test at your school during the scheduled test sessions.

These options apply only to recruiter contact efforts resulting from ASVAB testing. Students in grades 11

Table 2-3. Options for Recruiter Contact

Option 1	Option 2	Option 3	Option4
No special instructions. Release results to recruiting military Services 7 days after test scores are mailed.	Release results to recruiters 60 days after test scores are mailed. No recruiter contact prior to that time.	Release results to recruiters 90 days after test scores are mailed. No recruiter contact prior to that time.	Release results to recruiters 120 days after test scores are mailed. No recruiter contact prior to that time.

Option 5	Option 6	Option 7	Option 8
Release results to recruiters at the end of the school year. No recruiter contact prior to that time.	Release results to military Services 7 days after test scores are mailed. No telephone solicitations by recruiter based on the student names provided with the listing of student results.	Not valid for enlistment purposes. Results not released to recruiting military Services.	No recruiter contact from this listing of student results. Results not released to recruiting military Services.

and 12 and postsecondary students may be contacted by military recruiters independent of ASVAB testing. It is important to note that recruiting personnel encourage high school students to graduate before enlisting into the military Services. In fact, a recruiter must notify the school if a non-graduate tries to enlist.

Additional Issues to Consider

Throughout the testing process, you will play a central role. Your involvement will help to ensure that the testing process is a positive experience for students and that they are able to make optimal use of the test results. In planning for testing, you will need to consider such things as how ASVAB test results can be used most effectively in your school and which students will benefit the most from ASVAB testing. The following list of questions highlights some issues associated with administering the ASVAB Program. Answering these questions ahead of time will help you ensure a positive test and post-test environment for your students.

- How will the school use the ASVAB Program?
- Which grade levels would benefit the most from testing?
- Who will take the ASVAB test?
- What activities will be conducted to inform students, parents, and faculty about ASVAB testing?
- When will the test be administered?
- Where will students take the test?
- What school staff are available that might serve as test proctors if necessary?
- Who (e.g., students, parents, faculty) will receive feedback on the ASVAB testing?
- What type of feedback will be provided?
- What assistance will students receive to help them understand their results?
- What counseling will be provided using the ASVAB results?
- What other school or district personnel need to be informed about the ASVAB testing plan?

Test Administration

Testing in the ASVAB Program is a two-part process. The first part consists of announcing the ASVAB test to students and administering the test to them. The second part involves setting up an interpretation session in which students can review their scores, take the **FYI**, and do preliminary career exploration

CHALLENGE:

My students do not want to take a test associated with the military.

First, remind students that the high-school version of the ASVAB is not primarily for use by the military. In fact, in a national survey, most participants in the ASVAB Program stated that they were not interested in joining the military. Then, emphasize that the ASVAB Career Exploration Program can give students an idea of their current interests, strengths and weaknesses, and help them learn about a wide range of careers regardless of their post-high school plans. You can also show students the video that explains the benefits of the Program.

using their results. Test support personnel including Education Services Specialists, Military Education Specialists, and military recruiters are resources for you in developing your testing plan. Throughout the testing process, you will work as a team with different and overlapping responsibilities. The following table summarizes counselors' and the Military Services Representatives' roles and responsibilities in each of the test administration and post-administration/interpretation phases.

Table 2-4. Test Administration Responsibilities

Pre-Test Responsibilities

Counselors	ESS/MEPS Personnel
Request ASVAB informational materials	Provide ASVAB Program informational materials
Verify testing schedule	Finalize and agree upon the testing schedule
	Participate in ASVAB Program awareness activities

Test-Day Responsibilities

Counselors	ESS/MEPS Personnel
Provide facilities for testing	Provide testing materials
Introduce the test and be present to support an optimal testing environment	Provide a test administrator
	Provide proctors, as needed
	Take student answer sheets for scoring
	Secure testing materials for future use

Post-Test Responsibilities

Counselors	ESS/MEPS Personnel
Support test interpretation session, as requested	Provide interpretation session on test results to students, as requested
Distribute test results to students	Return test results to the school
Request supportive materials for interpretation	Provide ASVAB resource materials, as requested by counselors
	Provide sufficient number of copies of *Exploring Careers: The ASVAB Career Exploration Guide*
	Arrange for scoring student answer sheets
	Provide technical support, as requested by counselors

3

The ASVAB Program and Career Exploration

This chapter provides you with suggestions for helping students use their ASVAB test results for career exploration. It walks you through the major components of *Exploring Careers: The ASVAB Career Exploration Guide*, presents time estimates for each component of the *Guide*, and offers options for conducting career exploration activities with students. You can use this information to consider the best approach for your school and modify the content to suit your specific needs and the needs of your students.

The ASVAB Career Exploration Program helps students see connections between their current educational planning and their future goals.

DEVELOPING A CAREER EXPLORATION ACTIVITIES PLAN

It is very important that you develop a post-test interpretation session after the students have completed the ASVAB test. *This session is the heart of the ASVAB Program.* The session typically takes place after the school receives the ASVAB Summary Results. The post-test session focuses on the use of the ASVAB test results for career exploration. In addition, it includes administration, scoring, and interpretation of the **FYI (Find Your Interests)**. Typically, civilian DoD Education Service Specialists lead the post-test interpretation (or train school or military personnel to conduct a session). In this session, students learn how to use their test scores along with *Exploring Careers: The ASVAB Career Exploration Guide* to begin the career exploration process. The post-test interpretation session also should review role of gender in the

Counselor-facilitated discussion of ASVAB Program materials is important because it:

- Ensures that students' interpretations of their ASVAB test and **FYI** results are accurate
- Allows you to determine the extent to which the ASVAB test results are consistent with each student's grades and other test results
- Presents an opportunity to discuss how intervening circumstances, such as illness, might have influenced performance on the day of testing
- Allows you to show how Career Exploration Scores and OCCU-Find Skill Importance Ratings work together
- Ensures that supplemental materials such as *My Educational and Career Plans* and the *Coursework Planner* are used effectively for career exploration

development of career interests and skills and ways that students can improve their academic performance, thereby enhancing their career options. Knowing that your time is at a premium, and how difficult it can be to arrange meetings with groups of students, we have tried to make the interpretive materials as self-guiding as possible so that students can use them independently. There are, however, times when counselor-facilitated discussion and review greatly enhances both the process and the outcome for students.

Remind students that they are on a process of discovery and should consider as many career interests as possible.

CHALLENGE:

Due to scheduling constraints, less than 40 minutes has been allocated for the ASVAB post-test interpretation session.

If you have limited time for a test interpretation session, consider distributing ***Exploring Careers: The ASVAB Career Exploration Guide*** *to students a few days prior to the scheduled interpretation session. Students can then read* ***Exploring Careers: The ASVAB Career Exploration Guide*** *ahead of time, take the* ***FYI*** *on their own, and bring their* ***FYI*** *results to the interpretation session. During the post-test interpretation session, you or your local ESS can explain the ASVAB test results, answer student questions about the* ***FYI****, and show students how to use their results with the OCCU-Find to explore careers.*

Note: ASVAB test scores should not be handed out ahead of time.

With the ASVAB Program, students can benefit from learning about themselves and various career options. Through informed exploration and planning, students have a unique opportunity to find potential careers that can be richly satisfying. Also, they can rule out options that may not be suitable without investing time and money studying a field that won't be satisfying.

Estimated Time Requirements for ASVAB Program Materials

Exploring Careers: The ASVAB Career Exploration Guide is designed so that you have considerable flexibility in using it with students. You can use the *Guide* in a career guidance class or combine homework assignments with individual, small group, or classroom sessions. As you read this chapter, it would be useful to have your copy of the *Guide* open.

Tables 3-1 and 3-2 on page 20 outline the key components of *Exploring Careers: The ASVAB Career Exploration Guide* and the ASVAB website—**www.asvabprogram.com**—along with the estimated time required to cover each section. You can use these estimates as a guideline in planning an interpretation session. A discussion of ways to cover the material (both in class and outside of class) follows.

My Educational and Career Plans, Coursework Planner, and several Idea Sheets are also available in Appendix A of this manual.

Options for Using ASVAB Program Materials

One of the strengths of the ASVAB Program is that you can decide how to use the materials to suit your needs and preferences. If you have more than one class period available to work with students, you can spend more time helping students so that they have a more thorough understanding of the concepts presented. In-class discussions focusing on their **FYI** results and the results of their career exploration will help students gain insight into their goals. Additionally, incorporating real-world experience via guest speakers, job-shadowing days, or interviewing job incumbents enhances their knowledge and experience.

Your students will benefit the most if the ASVAB Program is integrated into the school's curriculum. Establishing career goals and identifying the necessary education and other requirements for potential careers allows students to see the link between school and work. An increased awareness of how their current school coursework relates to their career goals may encourage students to better apply themselves.

We recommend incorporating this program into the school's curriculum (e.g., through an English, Communications, or Computer Science class). With teacher and/or counselor guidance, students will be more likely to apply the information provided in a meaningful way. Furthermore, the activities included as part of the ASVAB Program are appropriate for a combination of in-class and outside-of-class assignments.

In addition, by reviewing the ASVAB results with students, you may be able to help enhance their

Table 3-1. Estimated Time Requirements for Materials in the Career Exploration Guide

Career Exploration Guide Section	Page #	Content	Estimated Time
Interests	3-13	Describes interpretation of **FYI** results, the influence of gender on interest codes, and includes descriptions of each of the RIASEC types.	10 min.
FYI (Find Your Interests)		Includes the **FYI** and scoring instructions.	15-20 min.
Skills and Abilities	14-15	Provides an explanation of ASVAB results, describes how to use the ASVAB scores with the OCCU-Find, and suggests ways to improve skills.	10 min.
Work Values	16-17	Describes work values that are relevant in choosing a career and provides examples.	5 min.
Educational Opportunities	20-22	Presents a variety of educational paths that students can take and provides case examples.	5 min.
Types of Employers	23	Describes the impact that different types of employers (e.g., military, private sector) may have on job experiences.	5 min.
The OCCU-Find	24-41	Describes how students can use their **FYI** results and ASVAB scores to explore occupations; a chart with information on almost 500 occupations, sorted by RIASEC codes. Includes the following: ▸ **Secondary Interest Code** - the second most common RIASEC code associated with the occupation ▸ **Skill Importance Ratings** - relative importance of Verbal, Math, and Science and Technical skills for success in each occupation	15 min.
Career Information Resources	42-43	Provides information about career websites.	5 min.
Let's Review/Wrap-Up	44	Lists steps that students can take to continue their career exploration.	5 min.

Table 3-2. Estimated Time Requirements for Materials on the ASVAB Website

Website Activity	Content	Estimated Time
FYI	Online **FYI** with automatic scoring, descriptions of the RIASEC types, and explanation of gender-based scores	10-15 min.
OCCU-Find	Close to 500 occupations sorted by RIASEC codes and Skill Importance Ratings. Links into O*NET OnLine, *Occupational Outlook Handbook*, and *Military Careers* provide more detailed information about each occupation.	20 min.
My Educational and Career Plans	Thought-provoking activity for students to help them make future career and education plans.	30 min.
Coursework Planner	Activity that helps students plan their remaining high school courses based on tentative career choices.	30 min.
Idea Sheets	Classroom activities designed to relate high school studies to career choices.	30 min.

school engagement. Research has supported the idea that helping students to become more focused on their long-term career goals can help to stimulate greater levels of engagement and motivation at school. Workshops and post-test sessions that explicitly link students' futures with their performance in school can be maximally helpful in promoting student engagement.

INTERPRETING ASVAB TEST RESULTS

ASVAB test results are provided on the ASVAB Summary Results sheet (see Figure 3-1). This report shows grade-specific standard scores and score bands for all eight tests as well as three Career Exploration Scores. It also provides students with percentile-based scores. The ASVAB Summary Results sheet includes appropriate explanations of the scores and suggestions for their use. In addition, students receive a Military Entrance Score. This score, also called the Armed Forces Qualification Test (AFQT) score, is the score that determines whether a student has scored high enough to meet the entrance requirements for military service.

Counselors also receive a copy of the ASVAB Summary Results for each student. This copy will be useful for talking with students about their ASVAB test results and can be placed in the student's file, if desired. It is important for students to understand their ASVAB test results to begin career exploration. Your assistance in helping them draw accurate conclusions is crucial so that they can see how their results relate to their current abilities and skills. Students need to understand what the scores mean, how they

ASVAB Summary Results Sheet

ASVAB Results	Percentile Scores: 11th Grade Females	11th Grade Males	11th Grade Students	11th Grade Standard Score Bands (20 30 40 50 60 70 80)	11th Grade Standard Score
Career Exploration Scores					
Verbal Skills	62	64	63		55
Math Skills	44	45	45		46
Science and Technical Skills	66	43	54		51
ASVAB Tests					
General Science	56	43	49		49
Arithmetic Reasoning	36	34	35		44
Word Knowledge	75	74	75		57
Paragraph Comprehension	44	56	50		51
Mathematics Knowledge	49	56	53		48
Electronics Information	77	52	65		53
Auto and Shop Information	68	35	51		48
Mechanical Comprehension	76	48	62		52
Military Entrance Score (AFQT) 39					

Figure 3-1. ASVAB Summary Results sheet.

scored on each of the eight ASVAB tests and the three Career Exploration Score composites, and what the implications are for each score.

After distributing the ASVAB Summary Results sheets, you might want to begin by reviewing the purpose of the ASVAB. Next, "walk students through" the explanations and interpretation information provided on the front of the score sheet and the definitions of the tests and Career Exploration Scores on the back. In this process, you might ask students the following questions:

- Do you understand your standard and percentile scores?
- What were your reactions to your percentile scores?
- Did the tests give you a chance to show what you could do?
- Would you like to change any of your scores? If so, in what ways?

These questions should help initiate important discussion. You may find the following definitions useful for facilitating the discussion and providing explanations to your students.

Standard Scores

The students' scores on the eight ASVAB tests and the three Career Exploration Score composites are reported as both standard and percentile scores. A standard score is calculated by converting the student's raw score based on a standard distribution of scores with a mean of 50 and a standard deviation of 10. On the ASVAB Summary Results sheet, the standard scores are provided and shown in a graph with the corresponding error bands. You might emphasize to students that test scores are never an exact measure of skills and abilities. If they took the test again, their scores might change somewhat. The error bands show them the range that their scores would probably fall in if they took the test again. When working with students, you might tell them that the standard scores are not like what they are used to seeing—where the scores range from 1 to 100 with the majority of students scoring between 70 and 100. With standard scores, the majority of students score between 30 and 70. This means that a standard score of 50 is an average score and a score of 60 would be an above average score.

You might want to focus students' attention on the graph of the standard scores to see if any of their score bands stand out (i.e., are located to the left or the right of the other score bands). Such scores would suggest either a strength (to the right of the others) or a weakness (to the left of the others). This is helpful information for students to take into consideration as they consider various career options.

Percentile Scores

While standard scores are familiar to psychometricians, we find percentile scores more useful for students. Percentile scores indicate how well each student did in relation to others in the same grade. For each test and composite, students receive a same grade/same sex, same grade/opposite sex, and same grade/combined sex percentile score. In explaining a percentile score to a student, it is helpful to use the following phrase: "as well as or better than X out of 100 students of (name the norm group)." For example, for a female 11th grader with a same grade/same sex percentile score of 72 on Math Skills, you could say: "You scored as well or better than 72 out of 100 11th grade females in Math Skills." It is important for students to understand that the percentile scores are not the same as percent correct. In addition, there are no passing or failing percentile scores.

It is important for students to understand that the percentile scores are not the same as percent correct. In addition, there are no passing or failing percentile scores.

Because the experiences of males and females differ, they can score somewhat differently on the ASVAB tests. On the more technically-oriented tests, such as Electronics Information, the mean performance of males is higher than that of females. This does not mean that women cannot learn this information or that they should be discouraged from considering occupations in related areas. Typically, these differences occur because more males than females have had exposure to electronic principles and related learning opportunities. As a result, it is optimal to report how students do when compared to their own sex but also to let them know how they compare to the opposite sex on tests that might be important to them. For example, a female student might be interested in a career in mechanics, surveying, or civil engineering. Knowing how she scores relative to her own sex and the opposite sex is useful information. In the past, these career fields have traditionally been populated by males. Since she will be competing with males, it is important for her to know how she stands relative to males. The same is true for males interested in occupations traditionally populated by females.

Career Exploration Scores

The ASVAB test provides results for three factors or composite scores: Verbal Skills, Math Skills, and Science and Technical Skills (see Table 3-3 on p. 24). With students, these composites are referred to as Career Exploration Scores. These Career Exploration Scores give students an estimate of their verbal, math, and science and technical skills as compared to other students in the same grade. These three factors can be used by students to connect with occupations that best match their specific interests and skill sets.

In addition to their ASVAB test scores, students receive three composite scores to help them begin their career exploration. These scores give students a good sense of their verbal, math, and science and technical skills compared to other students in the same grade.

Table 3-3. Description of Career Exploration Scores

Career Exploration Scores	Description
Verbal Skills	A general measure of language and reading skills which combines results from the Word Knowledge and Paragraph Comprehension tests.
Math Skills	A general measure of mathematics skills which combines results from the Mathematics Knowledge and Arithmetic Reasoning tests.
Science and Technical Skills	A general measure of science and technical skills which combines results from the General Science, Electronics Information, and Mechanical Comprehension tests.

Students' scores on these three ASVAB composites can be viewed as snapshots of their current knowledge, skills, and abilities (KSAs) in the verbal, math, and science and technical domains. These KSAs, in turn, can be linked to the KSAs required for successful performance of tasks in different occupations.

The Skill Importance Ratings in the OCCU-Find were generated using information in the O*NET database. The O*NET includes data on the relative importance of a wide variety of KSAs for each occupation in the database. The O*NET KSA importance ratings were used to establish the importance of Verbal Skills, Math Skills, and Science and Technical Skills for most OCCU-Find jobs[1]. Each occupation in the OCCU-Find includes the relative importance[2] (very important, moderately important, less important) of each composite for successful task performance. This occupational linkage system allows students to identify the importance of various skill sets for occupations that interest them.

Students compare their skills profiles (i.e., Verbal Skills, Math Skills, and Science and Technical Skills Career Exploration Scores) with the corresponding OCCU-Find skill importance profiles for various occupations. This approach is particularly helpful for students with differing levels of skills in these three areas, and provides a flexible approach to career exploration.

For example, a student can use his or her Math Skills score from the ASVAB test to facilitate career exploration by using the score as feedback about the current level of preparation and skill in mathematics. Suppose a student is interested in a particular occupation that places high importance on mathematics, yet the student has a relatively low Math Skills score. Rather than eliminating this occupation as a potential career choice, a low Math Skills score implies only that the student has yet to gain the appropriate skills for the occupation. Because *Exploring Careers: The ASVAB Career Exploration Guide* provides suggestions to students about how to improve their skills now and over the next few years, students need not abandon potentially interesting and satisfying career choices simply because of low test scores.

[1] *The O*NET does not contain detailed information for military-specific jobs. For these occupations, expert judgment was used to estimate the importance of Verbal Skills, Math Skills, and Science and Technical Skills.*

[2] *Please note: These ratings refer to the importance of skills for an occupation and do not reflect the level of skills needed.*

Student Satisfaction with Scores

In *Exploring Careers: The ASVAB Career Exploration Guide*, students are encouraged to think about their ASVAB test results as only one measure of their skills and abilities. You might want to describe students' ASVAB test scores as a *snapshot* of their skills in progress. With more education and training, their skills can improve. These scores are only one source of feedback about their skills at one point in time. There are numerous other sources of information about the students, such as their grades. It is important for students to view the test scores as an estimate of their knowledge and achievements at this point in their lives. The scores are not fixed; they are a function of a student's learning opportunities as well as a host of other factors. Students, educators, and communities can do a great deal to help students achieve their fullest potential. If students are not satisfied with their scores on the ASVAB test, you might suggest they ask themselves the following questions:

- Effort
  - Have I put as much effort into my school work in an area (be it verbal, math, or science and technology) as I can? In other words, have I put in my maximum effort?
- Academic Preparation
  - To what extent have I taken the relevant classes? Have I avoided the extra math or English classes that would have likely allowed me to increase my scores? *(If students have not taken the necessary courses, now is a good time to take them.)*
  - Has the fact that I have not taken some of the technical classes lowered my scores? Will this impact my readiness for a career?
- Environmental Factors
  - To what extent has my home or school environment played a role in my performance? Did the climate at home or in school make it difficult to focus on school work? Were there frequent disruptions at home or in class that made it hard for me to concentrate? *(If so, you may want to provide students with guidance on ways to reduce stress.)*

CHALLENGE:

Several students missed the ASVAB interpretation session. What should I do?

Try to schedule time to meet with them, either individually or as a group, even if you only have 10-15 minutes. Focus on their ASVAB test results and make sure that they understand their scores. Then, show them Exploring Careers: The ASVAB Career Exploration Guide or the ASVAB website so they can take the FYI and browse the OCCU-Find occupations on their own time.

Once students have asked themselves these sorts of questions, they can begin to seek additional experiences to develop their skills. For example, if a student's Math Skills score is not as high as desired, the student could strive to improve these skills by taking more courses or pursuing tutoring. If the effort of some students has been consistently high, yet there has been little improvement, it may be wise to consider some other choices. For example, if a student is interested in an occupation where Math Skills are very important yet has a low Math Skills score, he or she should first research the specific entry requirements for the occupation of interest. If these appear to be too stringent, the student could explore other, similar occupations that may have fewer math requirements (e.g., engineering technician instead of engineer).

We also offer the following as suggestions:

- Remind students about the limits of aptitude tests. They are not absolute measures of ability, but rather provide estimates of general levels of developed abilities.
- Students all too often equate test scores with fixed traits and assume that ability scores do not change. It is important to let students know that education and experience may change their scores.
- Explain the concept of test error and the presence of error bands in the standard scores graphed on student score reports.
- Clarify the Career Exploration Scores and the eight ASVAB test scores.
- Define potentially confusing or misunderstood terms (e.g., standard scores, percentile scores, and norm groups).
- Remind students that an aptitude test is only one tool used in career exploration. Suggest that they integrate their ASVAB results with other information about themselves. They should keep in mind formal information (e.g., grades, achievement test scores) and informal information (e.g., teacher reports, paid and non-paid work experiences).
- Offer personal assistance for those students who want or need it. Arrange to meet with students in small groups or individually to discuss their scores.

Remind students about the limits of aptitude tests. They are not absolute measures of ability, but rather provide estimates of general levels of developed abilities.

ADMINISTERING AND INTERPRETING THE FYI

This section describes the **FYI (Find Your Interests)**, an interest inventory developed for the ASVAB program. The **FYI**, based on John Holland's (1973, 1985, 1997) widely accepted theory of career choice, assesses students' occupational interests in terms of six interest types. The *Technical Manual* will contain a complete description of the development of the **FYI**.

Holland's Theory of Career Choice

Holland's (1973, 1985, 1997) theory of career choice is one of the most widely accepted contemporary theories of vocational choice (Brown & Gore, 1994; Weinrach & Sreballus, 1990). Holland (1973, 1985, 1997) identified six different personality types, and found that most people tend to fall into at least one of these six RIASEC (pronounced REE-uh-sek) types:

- **R** **Realistic** - Mechanical and Outdoor
- **I** **Investigative** - Science and Mathematics
- **A** **Artistic** - Art, Music, and Literature
- **S** **Social** - Social Service
- **E** **Enterprising** - Business Contact
- **C** **Conventional** - Business Detail

Holland arranged the six RIASEC types in a specific order according to the hexagonal model shown in Figure 3-2. In this hexagon, adjacent types (e.g., Realistic and Investigative) are more similar to each other than are intermediate types (e.g., Realistic and Artistic). To read more information about the salient points of Holland's theory, turn to Appendix C (p.115). The summary includes a discussion of the six RIASEC types and important aspects of Holland's theory that describe the relationship between the individual and the work environment. We invite you to review Appendix C since it provides a sound basis for understanding the scores provided by the **FYI**. If teachers will be involved in assisting students, you might consider sharing the contents of Appendix C with them, as knowledge of RIASEC types will help them provide students with a richer career exploration experience.

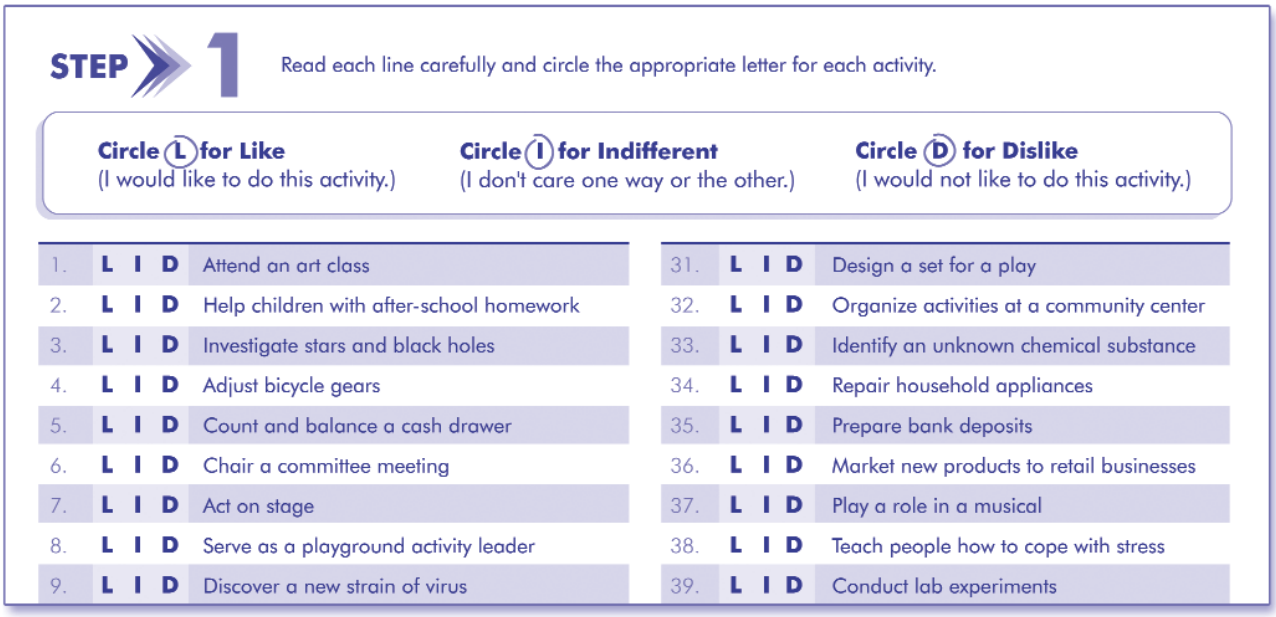
Figure 3-2. The RIASEC hexagon.

Administering the FYI

Students can complete and score the **FYI** on their own in approximately 15 to 20 minutes, so it can be assigned as homework or done in class, and students can discuss the results. The **FYI** is included as an insert in the back of the *Guide*. Figure 3-3 shows a sample page from the **FYI**.

Alternatively, students can take the **FYI** online at **www.asvabprogram.com**. The online version is identical to the paper version and will automatically score the students' results. In specific situations, the online version of the **FYI** will provide additional information not included in the paper version. Any differences between the information provided to the students in the two versions will be noted in this manual. Students will need their Access Code from their ASVAB Summary Results sheet in order to login to the online version of the **FYI**.

You can offer a few instructions to students whether they complete the **FYI** as homework or in class. You might begin by making them aware of the value of taking an interest inventory to gain an understanding of their current career interests. Honest and accurate answers to the items are critical to obtain meaningful and valid results. For many of the inventory items, students will know their answers almost immediately. For other items, however, they may not be so certain. On these items, students should probably base their answers on their first impression. If, however, students do not understand an item or what is being referred to in an item, they should be encouraged to ask for clarification.



STEP 1 Read each line carefully and circle the appropriate letter for each activity.

Circle (L) for Like (I would like to do this activity.)
Circle (I) for Indifferent (I don't care one way or the other.)
Circle (D) for Dislike (I would not like to do this activity.)

1.	L	I	D	Attend an art class	31.	L	I	D	Design a set for a play
2.	L	I	D	Help children with after-school homework	32.	L	I	D	Organize activities at a community center
3.	L	I	D	Investigate stars and black holes	33.	L	I	D	Identify an unknown chemical substance
4.	L	I	D	Adjust bicycle gears	34.	L	I	D	Repair household appliances
5.	L	I	D	Count and balance a cash drawer	35.	L	I	D	Prepare bank deposits
6.	L	I	D	Chair a committee meeting	36.	L	I	D	Market new products to retail businesses
7.	L	I	D	Act on stage	37.	L	I	D	Play a role in a musical
8.	L	I	D	Serve as a playground activity leader	38.	L	I	D	Teach people how to cope with stress
9.	L	I	D	Discover a new strain of virus	39.	L	I	D	Conduct lab experiments

Figure 3-3. Sample **FYI** items.

In addition, you should remind students that interest inventories are not like other tests. There are no right or wrong answers. In addition, they are not choosing occupations. Ask them instead to consider whether they would like, dislike, or are indifferent to doing a given activity. They should not be concerned with how well they would do any activity or whether they have the experience or training to do it.

Scoring the FYI

Students who take the **FYI** online will simply follow the on-screen instructions to complete the **FYI**, and their scores will automatically be calculated. Students using the paper version of the **FYI** will need to follow the scoring instructions printed on each copy. As shown in Figure 3-3, students answer the **FYI** questions by indicating their response [*Like* (L), *Indifferent* (I), or *Dislike* (D)]. Each response has a corresponding point value:

Like **(L) = 2 points**

Indifferent **(I) = 1 point**

Dislike **(D) = 0 points**

Students will not be able to see the point values while they take the **FYI**. The reason for this is to reduce the potential for confusion or response bias. For example, some students may answer items in

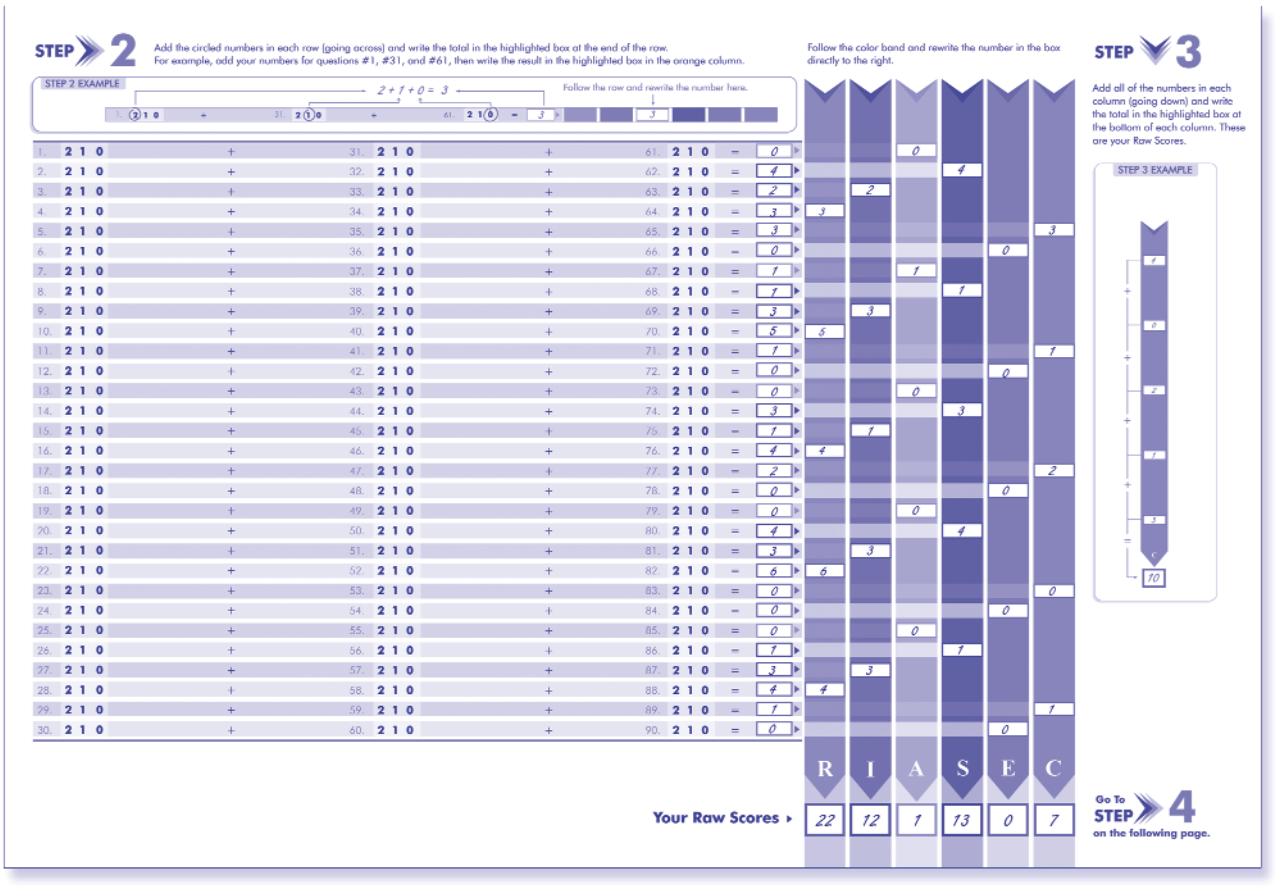


Figure 3-4. FYI point values and score sheet.

such a way to increase their numeric score, using the erroneous assumption that a higher score is better. Once students finish answering the inventory questions, they should turn the page to see the point values as shown in Figure 3-4 on page 30.

Students can then begin to add up their scores. They will add the circled numbers in each row (going across) and write the total in the highlighted box at the end of the row. They will need to follow the color bands and rewrite the total in the box directly to the right.

Students should add all of the numbers in each column (going down) and write the total in the highlighted box at the bottom of each column. These numbers are the students' raw scores.

Once students have determined their raw scores for each interest area, they should turn the page and determine their percentile scores, which indicate the percentage of students that scored at or below the raw score. Students do this by locating their raw scores and circling the corresponding percentile scores (see Figure 3-5).

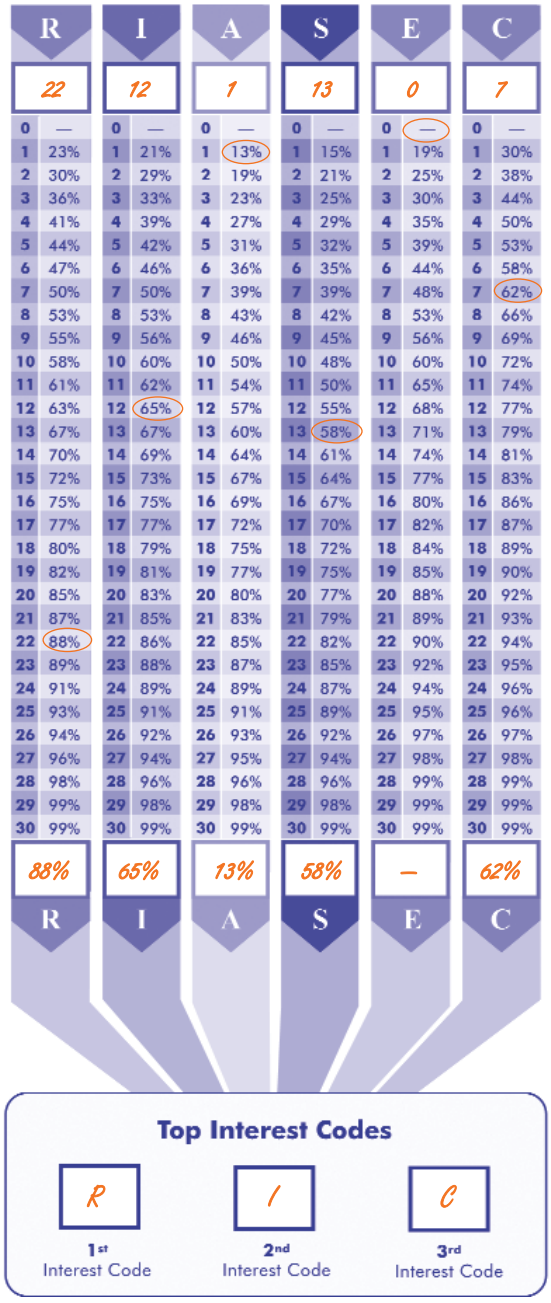


Figure 3-5. Determining the three Top Interest Codes

The last step in scoring the **FYI** is determining the three Top Interest Codes corresponding to the three highest percentile scores. These codes (R, I, A, S, E, C) are to be written in the appropriate spaces according to which code is associated with the highest score, the second highest, and the third highest. If there is a tie, and two (or three) codes have the same percentile score, students should enter both (or all three) codes in the same box. No more than three RIASEC codes are entered into any one box.

While great care was taken to create scales that would facilitate accurate self-scoring, some students will make scoring errors. Such errors can seriously affect the accuracy of the results. If students want to, they can exchange their **FYI** with a partner and have each partner check the other's scoring.

Considering Gender-Based Results

Before students use their top three Interest Codes from the **FYI** for career exploration, they should be encouraged to see how their scores compare to others in their gender group.

Exploring Careers: The ASVAB Career Exploration Guide provides students with *Gender-Descriptive Graphs* (pp. 12-13 of the *Guide*) that show the distribution of scores, for both males and females, for Realistic, Artistic, and Social interest areas. These graphs indicate scores for each gender that are considered High or Very High. Students are instructed to draw a line on each graph representing their raw scores for the three interest areas (see example below). If their scores are considered High or Very High for their gender for one or more of the Interest Codes, students are encouraged to consider exploring occupations in those areas.

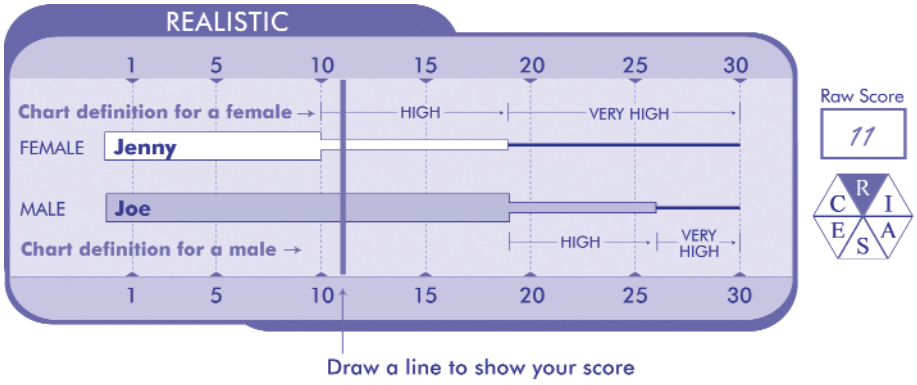


Figure 3-6. Gender-descriptive graph comparing Joe and Jenny.

In the online version of the **FYI**, students receive gender-based percentile scores for all six RIASEC types. They are encouraged to compare these with their combined percentiles to see the impact of gender on their scores.

Figure 3-6 shows an example of how gender can influence scores. In the example, both Joe and Jenny have a raw score of 11 on Realistic. Each of these students would place a line at 11 as shown on the graph to show their score. Joe's score is not exceptionally high when compared to other males, but Jenny's score falls in the High range when compared with females. Since Jenny's score falls in the High range, she may want to explore occupations that involve Realistic interests in addition to exploring her Top Interest Codes.

It is important that students complete this exercise because they may discover new ideas about their interests. You can provide students with information on gender role socialization that is easily understood and informative. For example, you want to remind them that when growing up, males and females get different messages from their parents, schools, and the media about what careers are appropriate for them.

CHALLENGE:

My students aren't interested in their gender-based FYI scores. Why should students learn about the influence of gender on their scores?

Students may decide not to use their gender-based FYI scores, but it is important for you to go over these scores with them so that they understand how cultural messages may have affected their interest profiles. Providing them with this information offers them additional avenues for career exploration and opens up career fields that they might not have considered before.

Teenagers sometimes develop different skills because they have different experiences, and these factors may influence their choices and interests. Girls tend to have fewer opportunities to participate in activities, such as using machines and working outdoors, that define the Realistic type. Similarly, men tend to have fewer opportunities to do activities that define the Social and Artistic types.

The *Gender-Descriptive Graphs* are also useful because they can indicate that a student has especially strong interests in one area. For example, a girl who scores 27 in Social on the FYI would have a corresponding Very High score in Social on the *Gender-Descriptive Graph*. Such a result would indicate that Social is a very strong Interest Code for her.

Encourage students to read descriptions of each Interest Code on pages 6-11 of the *Guide* to help them learn more about the six RIASEC types and see which types most closely match their interest area.

Helping Students Understand Their FYI Results

The FYI is well adapted to interpretation individually or in groups. Holland's RIASEC typology organizes occupations in the world of work so students can focus their attention on potentially satisfying occupations. In talking about their RIASEC types, students learn a new way of conceptualizing and talking about their interests. More complex and useful self-conceptualizations may emerge through a discussion of their results.

The overwhelming majority of students will have Top Interest Codes that are easily interpretable. Figure 3-7 provides an example of a typical profile for a male student, Mike.

By converting his raw scores to percentile scores, Mike can determine that his Top Interest Codes are RIS. Therefore, he should start exploring careers first in the Realistic arena.

It would also be important for Mike to look at his gender-based scores. When compared to other males, the order of his top three codes changes. His gender-based percentile scores are as follows: R is 82%, I is 66%, and S is 79%. [See Appendix D (p. 119) for a complete chart of gender-based percentile scores.] His Top Interest Codes become RSI. Mike is showing strong Social interests when compared to other males and should be encouraged to explore occupations in this area.

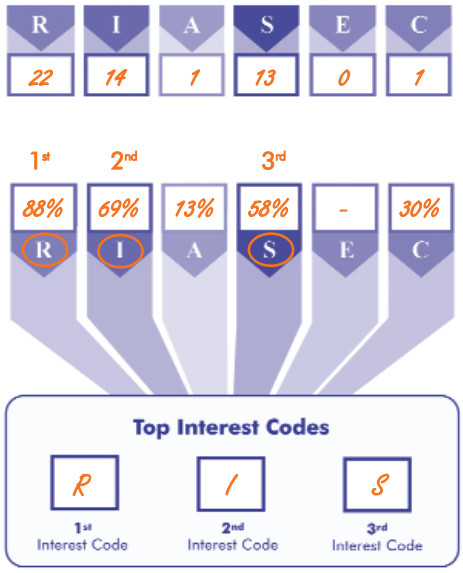


Figure 3-7. Determining Top Interest Codes for a typical male student (Mike).

Dealing with Ties

It is not uncommon to have ties for any of the Interest Codes. Figure 3-8 illustrates a 3-way tie for the primary Interest Code.

Juanita has three tied percentile scores. Her profile shows a spread in the remaining scores. For purposes of career exploration, Juanita should be encouraged to consider all components of the Interest Codes. Capitalizing on Juanita's Investigative type, you might suggest that she review occupations listed in the *Guide* for each of these primary types (I, A, and S) and identify one or two occupations to explore for each type with secondary codes consistent with the other two types. As she researches the types of tasks performed and the environments where the work is typically performed, Juanita may identify differences that are important to her. Some students may not have three distinct Interest Codes that are higher than the remaining Codes (e.g., a tie between the third and fourth highest score). In these cases, students should be instructed to review code descriptions and select the ones that seem most interesting. The online version of the **FYI** automatically directs students to choose between these tied scores. Figure 3-9 displays one of the screens that might appear in this instance.

Helping Students with Undifferentiated Profiles

The ability of an interest inventory such as the **FYI** to identify a person's interest type is predicated on a response pattern of *Like*, *Indifferent*, or *Dislike* responses to the items. An undifferentiated or flat profile based on their percentile scores can occur at any level on the scale. This occurs when the person answers the items in each scale with a pattern of *Like*, *Indifferent*, or *Dislike* responses that yield relatively equal scores.

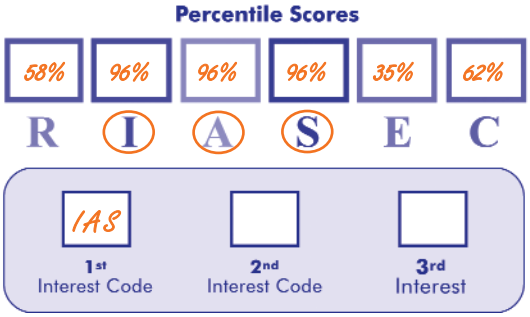


Figure 3-8. Tied percentile scores for a female (Juanita).

Figure 3-9. Online example of tied **FYI** scores.

With a flat, undifferentiated profile, the differences among the raw scores are considered minor fluctuations or measurement error. In such a case it is not appropriate to draw any conclusions from such minor differences.

Flat, high profiles or flat profiles that are neither low nor high can occur for several reasons, including:

- a consistent tendency to say "Yes" to questions, regardless of the questions
- a belief that one should be interested in everything
- a lack of understanding of the cognitive task
- not engaging in the task
- a reflection of the person's interests in all or most of the interest types.

If a student has an extremely undifferentiated profile he or she has an invalid score and must re-take the **FYI**. The online version of the **FYI** defines an invalid score as one where 90% (81) of his/her responses are all of one type (e.g. all *Like, Indifferent*, or *Dislike*). If you are working with students who have such a profile, you could explain that their responses did not show a sufficient pattern of likes and dislikes for determining their top three Interest Codes.

You should encourage students to vary their responses and remind them that they are not choosing an occupation when they take the **FYI.** Rather, they are selecting activities that they either like, dislike, or are indifferent to doing. Thinking about hobbies that they enjoy might help them relate better to the items in the **FYI**, too. The online version automatically provides this guidance to students who have invalid scores (see Figure 3-10).

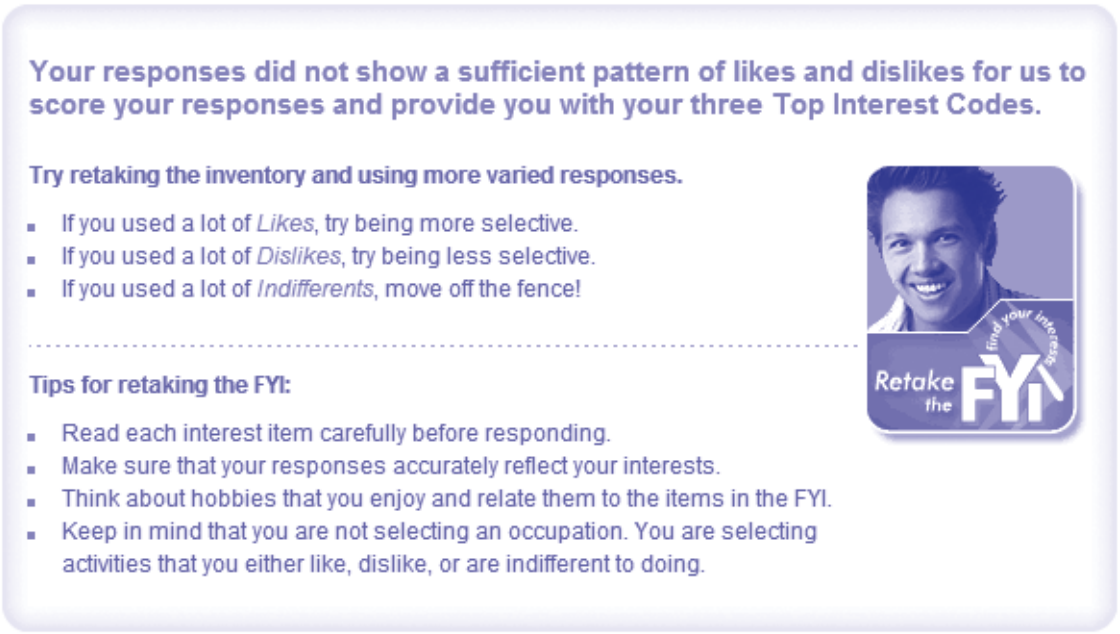


Figure 3-10. Online undifferentiated score example.

In some cases, students may still have an undifferentiated profile after retaking the **FYI**. These students can still explore occupations, but will likely need extra guidance. You might suggest that they review the six scale definitions and the list of occupations in the *Guide* to identify one or two occupations for each type. For those occupations, have them read the Nature of the Work and Working Conditions sections in the *Occupational Outlook Handbook* (U.S. Department of Labor, 2002) or the What They Do and Work Environment sections in the occupational descriptions found at **www.careersinthemilitary.com**. This information may provide insights about the differences in the RIASEC types represented by the selected occupations. In turn, this information may help the students focus on two or three preferred interest types.

One way to assist students with undifferentiated profiles is to direct them to consider their interests in relation to others of the same gender. When looking at the gender-based percentiles, the number of undifferentiated interest types may decrease.

Helping Students with Undifferentiated Low Profiles

Assisting students with flat or undifferentiated, low profiles is somewhat more difficult since the students have indicated they dislike the overwhelming majority of items. In some cases, such an undifferentiated, low profile can occur for the following reasons:

- a consistent tendency to answer with a "No" response, regardless of the questions
- not having thought about such things
- exercising a very high degree of discrimination and wanting to select only the most desirable
- a lack of work-related experience

- an underlying mood state
- not engaging in the task or understanding the activities

As with the high, flat, or undifferentiated profiles, you might begin by asking the student why he or she thinks the particular pattern emerged. Is the low profile really reflective of the student's interests? If the flat profile was the result of a lack of prior thinking about or experience with the world of work, you might suggest that the student gain some experience via hobbies, paid and non-paid work, classes, or other activities.

Low, Undifferentiated Profiles and Mood States

A flat, undifferentiated profile may, in some cases, be indicative of an underlying mood state. Your knowledge of the student is important in determining whether the **FYI** results are a result of such a mood state.

DISCUSSING WORK VALUES WITH CAREER EXPLORATION

The purpose of this section is to introduce students to various work-related values and to discuss the central role work values play in job satisfaction and informed career planning. In the discussion, we make the following points:

- A person is likely to be happier working in an occupation that supports his or her values.
- In exploring various occupations and planning, it is important for a person to understand what he or she values.
- Research has shown that values are predictive of job satisfaction. Two components of job satisfaction are intrinsic satisfaction (satisfaction with the work itself) and extrinsic satisfaction (satisfaction with the conditions at work, such as physical setting and earning potential).
- When values are not taken into consideration in career planning, there is a greater chance that a person may find work less satisfying and therefore not succeed in it.
- An individual's work values may change during different stages in his or her life. For example, the desire for work involving lots of travel might change after marriage and having a family.

Table 3-4. Work-Related Values

Value	Description
Challenge	Learning new skills or information; self-development
Creativity	Doing things in a new way, inventing things, or developing different approaches or methods
Making or Fixing Things	Using your hands and/or tools to make or fix objects; working with things that you can see and touch
Helping Others	Doing things for others; building a better world
Income	Making a high salary
Independence	Being able to determine the nature of work without significant direction or instructions from others; deciding how and when to do your work
Public Contact	Providing information to the public; talking to people outside your organization
Security	Having stable employment, steady income; not worrying about being laid off
Variety	Doing many different activities; not doing the same things all the time
Working in a Group	Working with others, being cooperative; getting to know co-workers
Physical Activity	Doing work that requires physical activity, such as walking, lifting, and carrying or moving heavy objects
Prestige	Doing work that is seen as important, and for which people admire and respect you

- A change in life circumstances can precipitate a shift in the importance of different values, such as having a flexible work schedule.
- Some values are associated with a specific job and are determined by the employer or the location of the job.

You might want to undertake two tasks as you discuss work values: (a) establishing that work values play a role in job satisfaction, and (b) helping students begin to identify values that may be important to them. For the latter, you might start by asking students if they have ever quit a job and follow that question up with why they quit. Often, the reasons for quitting a job are related to work values. (For example, "I had to work by myself all the time." or, "My boss was too controlling in how I did my work.")

To facilitate students' understanding of work values, consider a discussion of the listed work values in Table 3-4 and any that might not appear on the list. Have students think of specific jobs that illustrate these values. You could list other work-related values that might be location-specific (e.g., commute time, rotating shifts). Encourage students to read the section on work values in *Exploring Careers: The ASVAB Career Exploration Guide*.

It is important for students to consider the role that work values play in the career exploration process and in their career development. However, the concept of work values and the important role they play will more than likely be a new concept for most students. Developmentally, it is appropriate for students to begin thinking about important work values even though a formal assessment may not be useful at this stage of their lives.

USING THE OCCU-FIND

In talking to students about career exploration and planning, consider using the metaphor of embarking on a lifelong journey into unknown lands. Students' results from the **FYI** and the ASVAB test represent a source of direction for the journey. How can students use their Interest Codes and Career Exploration Scores to find their way? We believe the answer is in developing skills in exploration and planning. Students begin the journey by using the OCCU-Find, but they need to know that this is not a narrowing-down process that will result in finding the right match. Rather, their scores should empower them to explore

OCCU-Find Enterprising Occupations

Direction: In the Explore Further column on the left, check the occupation(s) that interest you.

Key: **Importance of Skills:** ✓✓✓ – Highly Important ✓✓ – Moderately Important ✓ – Less Important

Explore Further	Occupational Titles	2nd Interest Code	Skill Importance Ratings		
			Verbal	Math	Science/ Tech.
[ ]	Administrative Services Managers	C	✓✓✓	✓✓	✓
[ ]	Advertising Sales Agents	C/S	✓✓✓	✓✓	✓
[ ]	Agricultural Crop Farm Managers	R	✓✓✓	✓✓✓	✓✓
[ ]	Aircraft Launch and Recovery Officers	C	✓✓✓	✓✓✓	✓✓

Figure 3-11. Sample of the OCCU-Find.

and try things out in more depth. Exposure and experience are priceless. We want students to fully explore their options to find the best directions for their life journeys.

We selected close to 500 occupations from the Occupational Information Network (O*NET) database for the OCCU-Find. These occupations are organized according to RIASEC types. For five of the six RIASEC types, approximately 60 occupations were selected to provide students with a representative yet manageable set of occupations to explore. However, in the world of work, there are proportionately more Realistic occupations; of the 1,018 occupations in the O*NET database, over 500 are Realistic occupations. To adequately represent Realistic occupations, we included a higher proportion of Realistic occupations in the OCCU-Find. Figure 3-11 shows a graphic of the organization of the OCCU-Find.

The OCCU-Find also provides students with the occupation's second RIASEC type (and types tied for second). Having information about the second interest code allows students to identify occupations with environments that are potentially more satisfying to them. In the next three columns, Skill Importance Ratings are shown for Verbal Skills, Math Skills, and Science and Technical Skills. The Skill Importance Ratings show if the skill set is less important, moderately important, or very important to the job in question. The Skill Importance Ratings, derived from the O*NET database[3], are based on analyst ratings of the importance of these knowledge, skills, and abilities (KSAs) to the successful performance of the job tasks. It is important to note that the ratings refer to the *importance* of the skill set, not the *level* of a given skill that is required. For example, Math Skills are rated very important for the occupation Market Research Analysts; however, this does not mean that an individual must have an advanced degree in mathematics to qualify for the occupation.

Explaining Skill Importance Ratings

What is the relationship between the Skill Importance Ratings in the OCCU-Find and students' Career Exploration Scores?

As stated before, students' scores on the three Career Exploration Scores should be viewed as *current snapshots* of their KSAs. The three Skill Importance Ratings provide a *current snapshot* of the KSAs required to successfully perform the tasks for the given occupation. The phrase *current snapshot* is applied to both because both are subject to change.

[3] *Skill Importance Ratings for military-specific occupations are not available in the O*NET database and were generated by occupational experts.*

Further education and experience may have a positive effect on students' KSAs. The world of work is also changing. Of course, some jobs will not change all that much, but with the rapid influx of technology coupled with huge shifts in the nature of work, it is nearly impossible to predict how occupations will evolve. So we use the terms *current snapshots* to describe these scores and ratings.

The three ASVAB Career Exploration Scores and the O*NET-based Skill Importance Ratings are comparable; however they are not numerically similar. For the majority of the occupations in the OCCU-Find, it is not appropriate to make a one-to-one comparison between the two. Consider the substantial amount of training or education required before a person, particularly a 10^{th} or 11^{th} grade student, would be qualified to apply for most of the occupations in the OCCU-Find. Additional high school courses and courses in a training program or postsecondary education program would take years—several years in some cases—and further education and training would likely result in an increase in the person's

Verbal Skills, Math Skills, and Science and Technical Skills. Prediction of performance in the distant future is not likely to be fruitful because of the many ways the students and occupations will change over time.

So what value do the Career Exploration Scores have for high school students? Skill Importance Ratings provide students with a general idea of how important these skills are for a given occupation, which is useful information for students to have. Students should be encouraged to compare their Career Exploration Scores to the Skill Importance Ratings for occupations they are interested in exploring. This *snapshot* of the skills needed gives them valuable information to make judgments and decisions. As they ponder their current skill levels and the importance of these same skills for job incumbents in the occupations they are interested in, they should research the actual requirements for the occupation. For example, if Verbal Skills are very important for an occupation of interest, the student should research what specific skills and/or training are required. Students should also be encouraged to ask themselves such questions as:

- What sort of education or training will I need to be able to work in this occupation?
- Will my current skills and abilities allow me to get into the relevant training or education program?
- Does my past performance in classes and my current level of skills (as evidenced by my ASVAB results, grades, and other test results) suggest that I will be successful in the training and education required for this occupation?
- Is my interest and motivation for working in this occupation sufficient to carry me through the training and education I will need to prepare for this occupation?
- Should I be taking more classes or engaging

in some other activities (while in high school) to increase my skills in one or more areas?

Ultimately, when a student evaluates his or her Career Exploration Scores and **FYI** results along with the information provided in the OCCU-Find, the student should question "Am I heading in the right direction?" After he or she has explored and investigated different occupations, it is appropriate to make a more in-depth assessment to determine what must be done to develop the skills necessary to take the next step. For 10th and 11th grade students, this involves making sure they are in the appropriate programs of study and selecting the most relevant courses to enhance their skills while still in high school.

One important message that we hope students will come to understand is that they can potentially make changes in their KSAs. We tell students this in the *Guide* and we use the phrase *current snapshot* when referring to their Career Exploration Scores to emphasize this point. These scores should not be used to rule out any occupation at this time. In our view, the best way of learning about the extent to which students will match well with a given occupation is through exploration. We want to help empower students to overcome obstacles and obtain the education necessary for their career choices.

Note: *In field-testing draft versions of the OCCU-Find with groups of students and counselors, we were able to identify and clarify misunderstandings regarding terminology. It is important to note that the term Verbal Skills, as used with both the ASVAB Career Exploration Score and the OCCU-Find Importance Ratings, refers to reading and vocabulary skills and not to verbal communication skills.*

An important message to students is that they can potentially improve their KSAs. The Career Exploration Scores provide only a current snapshot of their verbal, math, and science/technical skills.

Explaining Education Requirements

The OCCU-Find does not have information about educational requirements associated with the occupations. This was done intentionally for several reasons, but primarily because education is a lifelong process. Today, there are more educational opportunities and alternatives available. Not all students will or should go on to a four-year university. Two-year degree programs and certificate programs enable students to enter some of the fastest growing occupations. The proliferation of technical occupations coupled with the different career and educational choices have dramatically altered this landscape. By not providing the education requirements "up front" we hope to expand students' exploration and planning. We also hope they will make informed choices about their educational and career paths.

Another reason is that high school students' goals and plans are almost constantly subject to review and revision. For close to forty years, longitudinal studies conducted by the U.S. Department of Education [e.g., the National Educational Longitudinal Study (NELS), High School and Beyond (HSB)] have shown that many students do not carry out their high school plans. These studies, for example, suggest that more than one out of every three high school students who

say they will go to college do not attend college. Of those who do attend college, only about half complete a four-year degree program. Limiting career exploration primarily or exclusively on students' current postsecondary plans could do these students a disservice. Students should be encouraged to explore all occupations that interest them no matter what their current postsecondary plans are.

Highlighting Career Resource Information

Once students have identified occupations to explore, they are given information about two career information resources, the *Occupational Outlook Handbook* (U.S. Department of Labor, 2002) and *Military Careers*, where they can find information about occupations. Web addresses for these online resources and the O*NET Occupational Information Network are also provided, and are linked to the program website **www.asvabprogram.com**. We encourage you to make these resources available to students. You can obtain copies of *Military Careers* by contacting your local Education Services Specialist at the following address: HQ US MEPCOM, 2834 Green Bay Road, North Chicago, IL 60064-3094 (1-800-323-0513).

We encourage students to learn as much as possible about their potential career choices and to talk with parents and other family members, teachers, and you about taking the next steps. To familiarize parents and teachers with the ASVAB Program and suggest how they might provide assistance and encouragement to students in this process, we have prepared Fact Sheets and posted them on our website, **www.asvabprogram.com**.

In addition to the OCCU-Find in the *Guide*, students can explore occupations electronically at **www.asvabprogram.com**. The online version of the OCCU-Find includes close to half of the occupations in O*NET. Students can explore occupations in RIASEC order or in alphabetical order. In the electronic version of the OCCU-Find, we have also included links to the occupational descriptions from O*NET Online, the *Occupational Outlook Handbook* (U.S. Department of Labor, 2002), and **www.careersinthemilitary.com.**

Maximizing Students' Exploration

Exploration is a way of life, a way of being open to the world. Encourage your students to engage in as much exploration as possible to learn more about themselves and about the world of work. To help them learn more about themselves, consider giving students the following tips on exploration:

- **Search for information that challenges as well as supports your current goals.** We all want to have our plans affirmed by life experience and others; however, sometimes this is not always in our best interest. It is useful for students to examine aspects of an occupation or training option that may not be particularly attractive to ensure that they will be comfortable with the entire set of circumstances of a given career.
- **Seek out multiple sources of information.** Most decisions are best made with multiple sources of information. Having students engage in exploration, such as reading materials about occupations, shadowing people in specific jobs, and taking courses in new areas, can provide

them with a great deal of information from various sources. When the students begin to notice consistent patterns of feedback, they will be in a better position to make informed decisions about their futures.

- **Develop some tentative plans while also keeping your eyes and ears open to new opportunities, changes in a given field, and changes within yourselves.** Being in a state of open-ended exploration without making final decisions can be very stressful and uncomfortable. You are well aware of the tendency for students to make decisions in high school so that they do not have to deal with the uncertainty of not knowing their future path. Exploration can yield a number of interrelated options for training and work that may help to give students a sense of planning and being open to new experiences.
- **Connect self-exploration with exploration of educational and career options.** When students learn new information about an occupation, help them to connect it to their own sense of who they are and where they want to go. The sense of evaluating information in light of one's sense of self is very important in maximizing the outcomes of exploration.

Student Scenarios: Juan and Jennifer

At this point, it may be helpful to review two cases of high school students, found on the following two pages, to consider how they used their scores and how the process of understanding their results helped to generate their own exploration process.

Juan

Juan is a 16-year-old student at a metropolitan high school on the West Coast in a medium-sized city. He took the ASVAB test toward the end of 10th grade along with the rest of his school, without giving it much thought. He was rather bored by the tests and was glad to get them over with. His scores, which placed him between the 30th and 60th percentiles, were actually a bit of a disappointment to him. He always felt that he was smart, but attributed his low grades to lack of effort. Juan was mostly concerned about his friends, dating, and sports. He did not think much about what he would do with his life after school; college, work, or military life did not appeal to him. He just thought that he would figure something out as he went along in life.

Although Juan was upset with his ASVAB test scores, he found his **FYI** results intriguing. The results indicated that he enjoyed working in technological areas and that he was rather "enterprising" in his nature. This made sense to Juan because he loved to work with the computer at school and he had recently saved up some money to buy a computer for his home as well. In addition, he was typically the leader in various sports teams and his friends looked up to him for advice. Then Juan compared his scores with the various fields that he thought he would like to consider further. He became upset because, initially, he found that his ASVAB scores suggested that he would not necessarily excel in these areas. The matches that he had hoped for were not very encouraging. Looking at the OCCU-Find and his ASVAB scores did not convey a particularly promising future. However, his counselor reminded him that the ASVAB scores were relevant only for short-term decisions and that as a sophomore there were many ways he could "improve" in those areas that bothered him. His counselor further explained to him that he should not consider these scores as a sort of crystal ball that could see into his future. He actually could change how he fared in tests like these by putting forth more effort in school and by exploring his options further. The ASVAB process also allowed Juan to consider his work values in a more systematic way. After reviewing Exploring Careers: the ASVAB Career Exploration Guide and reading the section on values, Juan was able to articulate that he valued challenge, income, prestige, public contact, independence, and security in his work life.

Juan decided to enter a career path in his school that focused on technology and business. He started to take courses that seemed more relevant to him and was also involved in job shadowing, spending time with a computer analyst at a local company in his community. In addition, he started to receive some tutoring in his weakest subject—math. By the time he reached his senior year, he was interested in college and was performing quite well in school. He was able to improve his grades enough to obtain admission to the state university, where he enrolled as a student in Business Administration with a minor in Computer Science.

Jennifer

Jennifer took the ASVAB test in the first part of the 11th grade when she had just turned 16. Jennifer did not have much interest in school at that point in her life. In fact, she was basically turned off by the entire high school experience. Her parents had recently separated and she was feeling that she could not afford to go to college. In addition, she did not have a lot of confidence in herself in most areas of her life, except in the area of writing, where she was privately working on song lyrics and poems. Jennifer did not like to think about the future as she did not think that she could really do anything well enough. Moreover, she did not have any specific interests in school or in extracurricular activities. Like Juan, Jennifer valued challenge, creativity, income, prestige, and variety.

Jennifer took the **FYI**, but her results were not all that informative. Her guidance counselor called them a "flat profile," which meant that the results did not necessarily point to a particular pattern of interests. However, Jennifer's ASVAB scores were much higher than she had expected. Her counselor was a bit surprised by the fact that her scores ranged across the 80th and 90th percentiles, even in math, which had been her least favorite subject. While this part of the testing process was certainly encouraging, her "flat profile" was distressing. What did it mean to have a flat profile? Did that mean that she would never become interested in anything?

Her school counselor was very helpful at this point. Together with a number of other students who also had "flat profiles," Jennifer joined a career exploration group in the Guidance Office. The purpose of this group was to explore oneself and one's options in depth, with the support of one of the guidance staff. Jennifer enjoyed this a great deal as she was able to talk more openly about her writing. She learned how to explore colleges and occupations on the Internet, and she also received some useful ideas from the rest of the group. Most of all, talking with other students helped her think about her own interests more. Consequently, she became more involved in those classes that aligned with her creative interests.

One of the most interesting aspects of the ASVAB Program for Jennifer was learning more about military careers. Jennifer never really considered the military before taking the ASVAB. However, with the events following the September 11, 2001, terrorist attacks fresh on her mind, coupled with her self-exploration and growing knowledge about herself, she was now able to put some pieces together. Her ASVAB scores suggested that she might do well in officer candidate training at some point in her life. In addition, she learned that she could receive some funding from the military to attend college after she completed her service. Furthermore, she was beginning to sketch out a life plan that included creative writing along with writing in other contexts. She learned that she could apply her verbal ability in a variety of areas and still maintain some time for her creative pursuits. Once she finished high school, Jennifer enlisted in the U.S. Navy where she received training in public relations.

What are the key ingredients in these cases that seemed to make a difference?

- **Exploration:** For both Juan and Jennifer, the ASVAB process resulted in exploration that had both short-term and long-term aspects. They embarked on a process of self-discovery that helped them re-examine and challenge some of their existing beliefs and also helped them chart some new directions in their lives.
- **Trying things out further:** Another important aspect of Juan's and Jennifer's stories was their determination to try out experiences further, which actually represents a form of exploration. Rather than viewing the matching process in the OCCU-Find as a onetime event that determines the rest of their lives, Juan and Jennifer learned that the purpose of the ASVAB program is to promote exploration and not to determine final career choices. Once they got this message, they started to test out some of the assumptions and conclusions of the **FYI** and ASVAB with real-life experience. As we have witnessed in these stories, both Juan and Jennifer were able to chart new pathways based on their exploration.

INCORPORATING IN-CLASS ACTIVITIES

We have developed supplemental student materials—*My Educational and Career Plans, Coursework Planner*, and Idea Sheets—to help students organize career-related information and plan the next steps for realizing their career choices. These tools will also help students make the connection between their current academic classes and preparation for their future careers. Establishing this connection will encourage them to take responsibility for not only planning their careers, but also for planning the rest of their high school classes. Understanding this connection may increase their desire to learn or acquire the KSAs offered in their current classes.

If necessary, students can complete these materials on their own; however, when integrated into an academic class or a series of career education classes, more students will reap the benefits.

Both the *Coursework Planner* and *My Educational and Career Plans* are provided in two formats, one for students and the other for counselors. Students will find a version of these documents for use on our website—**www.asvabprogram.com**—to download and complete. We have also made modifiable versions of these documents available to you. You can download these, make changes to suit your local needs, and either make them available to students electronically or in printed copies. These materials are also available in Appendix A of this manual.

My Educational and Career Plans

My Educational and Career Plans consists of four activities designed to encourage students to think about and describe career exploration efforts. Students are asked to think closely about their work interests. They jot down types of jobs they've liked or disliked in the past, which work values they have, and what activities they like most. They're also

asked to list occupations that they're considering as well as post-high school plans. Taken together, these activities give students a broad view of their personal and work interests.

Coursework Planner

To complete the *Coursework Planner*, students will need to have a list of graduation requirements for their current programs of study. As part of these exercises, they are asked to identify one or two post-high school goals. These can be immediate civilian or military employment, a 2-year or 4-year program of study, or a vocational training program. As they engage in exploration of these post-high school goals, they are asked to identify high school courses that are considered necessary for admission to a program of study or entry into a civilian or military occupation. In the final step, students are asked to evaluate their current academic preparation in terms of their tentative goals and to develop an educational plan (i.e., selection of high school courses) that facilitates goal accomplishment.

Your review (or a teacher's review) of these plans would help to identify potential problems (e.g., when the students' plans are not realistic or when their interests and abilities do not complement one another).

Encourage students to work together with partners or in small groups to complete the exercises. The sharing and support this provides for the students can be very beneficial. Extend an invitation to review and discuss their results on either a one-to-one basis or in small groups.

Idea Sheets

The Idea Sheets can be incorporated into curriculum in such classes as English, computer science, communication, etc. These Idea Sheets encourage students to research occupations, interview job incumbents, and complete *My Educational and Career Plans*. For example, the sheet entitled *Linking Core Subjects to Career Exploration* directs students to explore the connection between the skills that are learned in core classes (English, science, and math) and the world of work.

CHALLENGE:

I would like to get faculty more involved in the ASVAB Program, but don't know where to start?

Show teachers My Educational and Career Plans, Coursework Planner, and the Idea Sheets in Appendix A of this manual. These activities let students see how their studies (in English, math, and computer science, for example) can relate to career fields. They are also useful research exercises that encourage data gathering and analysis.

USING *MILITARY CAREERS*

As students begin to explore detailed information about potential careers of interest, they should be encouraged to review the information provided in *Military Careers*, a publication that provides a broad overview of career opportunities in the Military. *Military Careers* provides information about career fields that students will find useful even if they are not planning on joining the Military. To obtain a copy of *Military Careers* for your school, contact your local MEPS at 1-800-323-0513.

In addition, students interested in exploring military careers in more detail should be directed to **www.careersinthemilitary.com**, the online version of *Military Careers*. The website contains more detailed information about the type of work performed and employment in the Army, Navy, Air Force, Marine Corps, and Coast Guard.

4

Technical Information

This chapter focuses on the technical and psychometric characteristics of the three major assessment devices used in the ASVAB Career Exploration Program: the ASVAB, **FYI (Find Your Interests)**, and OCCU-Find. Detailed information about these tools will be made available in the forthcoming *Technical Manual*.

THE ASVAB TECHNICAL CHARACTERISTICS

The ASVAB is one of the most well respected and researched tests in modern history. Literally hundreds of studies have assessed its psychometric and statistical characteristics. Virtually all published reviews of the ASVAB (e.g., Elmore & Bradley, 1994; Jensen, 1988; Rogers, 2002) agree that the ASVAB represents the state-of-the-art for aptitude and achievement testing.

ASVAB National Norms

Students receive their ASVAB results expressed as both standard scores and percentile scores. These scores indicate how students performed in relation to an age-appropriate, nationally representative sample. These norms enable students to know how their scores compare with a nationally representative sample of youth in their particular grades.

The norming samples were obtained from aptitude test data collected as part of the Profile of American Youth (PAY97) project. This large-scale research project was sponsored by the U.S. Department of Defense (DoD) with the cooperation of the U.S. Department of Labor (DoL). PAY97 was intended to update current national norms for the ASVAB.

The norming samples were drawn to be representative nationally of two groups of American youth in order to support two programs of interest to DoD.

The two programs of interest are:

1. The Enlistment Testing Program (ETP), which included an assessment of about 6,000 American youth age 18-23 as of June 1, 1997, with oversampling for Hispanic and Non-Hispanic Black youth.
2. The Career Exploration Program (CEP), which included an assessment of approximately 4,700 youth who expected to be enrolled in grades 10, 11, and 12 as of fall 1997.

The ASVAB norms for grades 10, 11, and 12 were derived from CEP data. Norms for students in postsecondary schools (2-year colleges) were derived from the ETP data.

The testing was done using a Computerized Adaptive Testing (CAT) version of the ASVAB. All testing was conducted under standardized conditions at Sylvan Learning Centers. Serious efforts were expended to encourage participation in the testing. Respondents who agreed to participate in the approximately 1.5 hours of testing were paid $75 as an incentive.

Table 4-1 shows the number of youth targeted for the CEP sample, the number of eligible youth found, and test completion rates by grade (Moore, Pedlow, & Wolter, 1999). The overall completion rate was about 75 percent of eligible youth, and completion rates were similar for the various grades. The postsecondary sample was part of the larger ETP sample. The test completion rate for this larger sample was 77 percent of eligible youth.

The bulk of the sample screening and testing was done in the summer and fall of 1997, but some testing was done through April 1998.

Complete information on the sex and racial/ethnic group composition of the reference sample and subsamples, and norm tables for each, will be included in the forthcoming *Technical Manual* that will be made available on the ASVAB website—**www.asvabprogram.com**—once completed. Additional information on the collection of the norming data can be found in *ASVAB Norms for the Career Exploration Program* (U.S. Department of Defense, 2004), currently available on the website.

Equivalent Forms

Forms 23 and 24 of the ASVAB were equated with ASVAB Form 8(a), the reference form, as are all subsequent forms that the military has administered to service applicants since 1980 (Ree, Mathews,

Table 4-1. Target Numbers and Completion Rates by Grade for the CEP Sample

Group	Target	Eligible	Complete ASVAB	Completion rate (%)
10th grade males	1,151	1,179	901	76.42
10th grade females	1,065	1,085	827	76.22
11th grade males	1,089	1,032	730	70.74
11th grade females	1,018	1,017	789	77.58
12th grade males	967	941	684	72.69
12th grade females	874	935	724	77.43
Total	**6,164**	**6,189**	**4,655**	**75.21**

Note. CEP = Career Exploration Program.

Mullins, & Massey, 1982; Ree, Mullins, Mathews, & Massey, 1982). The equivalence of different versions of the ASVAB is important to DoD to ensure that percentile scores on all test forms can be interpreted in the same way. Equivalence is also important to users of ASVAB 23/24 because it permits them to draw on the sizable existing body of research using earlier ASVAB forms.

ASVAB Reading Level

Reading level estimates were computed separately for test questions and test directions. For test questions, the percentages of words typically encountered in materials used in various grades were calculated. The grade levels were based on the information in *The Word Frequency Book* (Carroll, Davies, & Richman, 1971). With one exception, by the sixth grade, between 95% and 100% of words on the ASVAB verbal and math subtests typically have been encountered. The estimate for Word Knowledge questions was 83%. Similarly, between 98% and 100% of the test words have been encountered by the 8th grade, with 93% for Word Knowledge.

The reading level of ASVAB test directions was estimated using the Dale-Chall formula (Chall, 1958). This procedure yielded a reading level of less than 6th grade. These estimates indicate that examinees in grades 10 and above should have very little difficulty in understanding the verbal content of the ASVAB.

More recently, various computer programs have calculated various readability indices. In every instance, the results indicate that the vocabulary and comprehension levels of the ASVAB are well within the range of the target audience for the test.

ASVAB Reliability

One of the critical technical qualities of a test is its reliability. Reliability is the psychometric property concerned with the accuracy, precision, and consistency of test scores. This consistency can be across time (test-retest reliability), across different forms of the same measure (parallel forms reliability), across items within a single measure (internal consistency), across repeated testing of the same individual (standard error of measure), or across response patterns (IRT-based reliability estimates). Each of these approaches leads to estimates of the reliability of the measure.

The reliability estimates of the ASVAB are based on item response theory (IRT). IRT is a theory that relates observable examinee performance on a test to an unobservable latent trait (i.e., ability) that is assumed to underlie the test. IRT scoring is increasingly being used in many testing programs as an alternative to the computation of raw scores because of its perceived advantages (e.g. increased accuracy in evaluating both examinee ability and quality of test items).

Table 4-2. IRT-Based Reliability Estimates for ASVAB Composites and Tests

	Males			Females		
Composites	10th Grade	11th Grade	12th Grade	10th Grade	11th Grade	12th Grade
Verbal Skills	.89	.89	.88	.89	.89	.89
Math Skills	.90	.91	.90	.90	.91	.90
Science and Technical Skills	.89	.90	.90	.88	.89	.88
Subtests						
General Science	.79	.79	.79	.78	.79	.78
Arithmetic Reasoning	.82	.84	.83	.81	.83	.82
Word Knowledge	.87	.88	.87	.88	.88	.88
Paragraph Comprehension	.73	.73	.73	.74	.73	.74
Mathematics Knowledge	.83	.84	.83	.84	.85	.84
Electronics Information	.71	.72	.72	.69	.70	.70
Auto and Shop Information	.76	.79	.79	.69	.71	.71
Mechanical Comprehension	.77	.77	.77	.75	.76	.76
Minimum N	34,317	241,799	77,574	31,251	234,147	64,700

Note. IRT = Item Response Theory

Table 4-2 presents IRT-based reliability estimates for ASVAB composite scores (see p. 23 for a description of these) and test scores computed using responses from students taking the ASVAB during the 2003 school year (July 2003-June 2004). The minimum sample sizes used to compute the reliability estimates across tests and composite scores are also provided. The reliability estimates for the ASVAB composites range from .88 to .91, while the estimates for the individual tests range from .69 to .88. The computation of the IRT reliabilities is discussed in more detail in *Computing IRT Reliabilities for the ASVAB Student Testing Program* (U.S. Department of Defense, 1999). Additional information on reliability of the ASVAB composite and individual tests will also be reported in the *Technical Manual*.

ASVAB Validity

One of the central concerns of counselors about testing is whether the tests they use are valid. Validity is considered the single most important test characteristic by the joint standards on testing developed by the American Educational Research Association, American Psychological Association and National Council for Measurement in Education (American Psychological Association, 1999); it refers to the appropriateness, meaningfulness, and usefulness of the inferences made from test scores. Even so, most validity studies seem to be conducted to accumulate evidence to assess "the degree to which it [the test] measures what it is supposed to measure" (Rosenthal & Rosnow, 1991, p. 60).

Traditionally, the focus on test validation has been on examining validity from three different perspectives: content validity, construct validity, and criterion validity. For a test to be considered a valid measure, there should be evidence to support all three types of validity. For the ASVAB, validity is a primarily a matter of whether the test accurately forecasts success in future educational programs and predicts entry-level performance in various civilian and military occupations.

ASVAB Content Validity

Content-related evidence of validity demonstrates the degree to which the test items represent the appropriately defined domain. The content domains for the ASVAB tests and composites are described in Figure 4-1. The ASVAB test and composite content was selected to facilitate prediction of success in training and entry-level performance across a wide array of military occupations. The ASVAB was not intended to provide a measure of the degree to which an individual has mastered the entire domain related to each ASVAB test. Rather, the test items represent the aspects of the domain that are important to success in occupations. For example, Mathematics Knowledge assesses the math knowledge needed to be successful in a number of different occupations, but it does not sample or reflect the entire mathematics domain.

ASVAB Criterion Validity

Criterion-related evidence of validity demonstrates the degree to which the scores on a measure are systematically related to one or more appropriate criteria. Since the introduction of forms parallel to the ASVAB reference form in 1980, the military Services have collected criterion data for individuals entering hundreds of military occupations. Extensive research demonstrates that the ASVAB is a valid predictor of success in military training and entry-level job performance (Booth-Kewley, 1983; Carretta & Siem, 1999; Maier & Truss, 1983; Ree & Carretta, 1999; Ree, Carretta, & Doub, 1998/1999; Rossmeissl, Martin, & Wing, 1983; Welsh, Kucinkas, & Curran, 1990; Wilbourn, Valentine, & Ree, 1984). A review of validity data for military Service occupations is found in the *Armed Services Vocational Aptitude Battery* (ASVAB): *Integrative Review of Validity Studies* (Welsh, Kucinkas, & Curran, 1990).

The ASVAB also has demonstrated criterion-related evidence for validity in predicting success in civilian occupations as well. Holmgren and Dalldorf (1993) examined the criterion-related validity of the ASVAB for eleven popular civilian occupations (e.g., firefighter, cosmetologist, electronics technician, operating engineer). For eight of these occupations, there were statistically significant correlations between the measures of occupational success and appropriate ASVAB scales and composites.

Career Exploration Scores

Verbal Skills is a general measure of vocabulary and reading skills covered in the Word Knowledge and Paragraph Comprehension tests. People with high scores tend to do well in tasks that require good vocabulary or reading skills, while people with low scores have more difficulty with such tasks.

Math Skills is a general measure of mathematics skills covered in the Mathematics Knowledge and Arithmetic Reasoning tests. People with high scores tend to do well in tasks that require a knowledge of mathematics, while people with low scores have more difficulty with these kinds of tasks.

Science and Technical Skills is a general measure of science and technical skills which are covered in the General Science, Electronics Information, and Mechanical Comprehension tests. People with high scores tend to do well in tasks that require scientific thinking or technical skills, while people with low scores have more difficulty with such tasks.

Individual ASVAB Tests

General Science tests the ability to answer questions on a variety of science topics drawn from courses taught in most high schools. The life science items cover botany, zoology, anatomy and physiology, and ecology. The earth and space science items are based on astronomy, geology, meteorology, and oceanography. The physical science items measure force and motion mechanics, energy, fluids, atomic structure, and chemistry.

Arithmetic Reasoning tests the ability to solve basic arithmetic problems one encounters in everyday life. One-step and multi-step word problems require addition, subtraction, multiplication, and division, and choosing the correct order of operations when more than one step is necessary. The items include operations with whole numbers, operations with rational numbers, ratio and proportion, interest and percentage, and measurement. Arithmetic reasoning is one factor that helps characterize mathematics comprehension and logical thinking.

Word Knowledge tests the ability to understand the meaning of words through synonyms—words having the same or nearly the same meaning as other words. The test is a measure of one component of reading comprehension since vocabulary is one of many factors that characterize reading comprehension.

Paragraph Comprehension tests the ability to obtain information from written material. Students read different types of passages of varying lengths and respond to questions based on information presented in each passage. Concepts include identifying stated and reworded facts, determining a sequence of events, drawing conclusions, identifying main ideas, determining the author's purpose and tone, and identifying style and technique.

Mathematics Knowledge tests the ability to solve problems by applying knowledge of mathematical concepts and applications. The problems focus on concepts and algorithms and involve number theory, numeration, algebraic operations and equations, geometry and measurement, and probability. Mathematics knowledge is one factor that characterizes mathematics comprehension and assesses logical thinking.

Electronics Information tests understanding of electrical current, circuits, devices, and systems. Electronics information topics include electrical circuits, electrical and electronic systems, electrical currents, electrical tools, symbols, devices, and materials.

Auto and Shop Information tests aptitude for automotive maintenance and repair, and wood and metal shop practices. The test covers several areas commonly included in most high school auto and shop courses such as automotive components, automotive systems, automotive tools, troubleshooting and repair, shop tools, building materials, and building and construction procedures.

Mechanical Comprehension tests understanding of the principles of mechanical devices, structural support, and properties of materials. Mechanical comprehension topics include simple machines, compound machines, mechanical motion, and fluid dynamics.

Military Composite

Military Entrance Score (AFQT) is a composite score based on results from the following four tests: Arithmetic Reasoning, Mathematics Knowledge, Paragraph Comprehension, and Word Knowledge. It is the score used if an individual decides to enter any of the military Services.

Figure 4-1. ASVAB Tests and composites.

Additional evidence of validity comes from two sources: (a) the similarity between the ASVAB and other tests that predict occupational performance, and (b) the established linkage between military occupational specialties and their civilian occupational counterparts. The *General Aptitude Test Battery* (GATB) which was used by the U.S. Employment Service for over 30 years, has a database of more than 400 validation studies of 12,000 jobs contained in the *Dictionary of Occupational Titles* (U.S. Department of Labor, 1983a, 1983b). The GATB has long been accepted as a valid predictor of job performance in the civilian sector. Based on the psychometric equivalence of the ASVAB and the GATB, Hunter (1983) concluded that the ASVAB also predicts performance in civilian occupations. Because psychometrically equivalent tests have similar validity coefficients with external criteria, Hunter, Crosson, and Freedman (1985) determined that the ASVAB was a valid predictor of both civilian and military job performance.

Job analysis techniques were used to study the correspondence between military and civilian occupations (U.S. Department of Defense, 1986). The study found that approximately 80% of the enlisted occupations and 60% of the officer occupations had close civilian counterparts. This study demonstrates the close ties between occupations in both the military and civilian worlds of work, lending further support of the validity of the ASVAB as a predictor of entry-level military and civilian job performance.

ASVAB Construct Validity

A test is considered to have construct validity when it measures the appropriate construct, or concept. Construct-related evidence often includes findings that show a strong relationship between the test of interest and other highly regarded measures of the same construct. As an aptitude test, one would expect the ASVAB to have much in common with other achievement and ability tests. The ASVAB-AFQT (Military Entrance Score) is a measure of general intelligence and can be considered a measure of general academic ability. As such, one would expect it to be correlated with other measures that assess academic achievement or ability, such as the *ACT Assessment*. Research confirms this suspicion. For example, a recent study reported a correlation of .79 between the *ACT Assessment* and the ASVAB-AFQT score used for enlistment purposes by all U.S. Armed Forces (Nicewander, 2000). This finding, based on a sample of over one million Service applicants who completed both the ASVAB and ACT, leaves little doubt that the ASVAB-AFQT measures the same type of knowledge, skills, and abilities measured by the *ACT Assessment*. Other studies have also reported strong relationships between the ASVAB-AFQT and other achievement and ability tests. For example, the ASVAB-AFQT tests correlate quite highly with the corresponding scales of the *California Achievement* Test (Streicher & Friedman, 1983). Based on a sample of over 1,600 high school sophomores, the corresponding scale correlations ranged from .70 to .86. Streicher and Friedman reported similar high correlations between the ASVAB-AFQT and corresponding tests of the *Differential Aptitude Test* based on their sample of over 1,300 high school sophomores and juniors. These correlations ranged in magnitude from .65 to .82. These and other studies will be fully detailed in the *Technical Manual* and provide firm evidence for the construct validity of the ASVAB-AFQT.

The relationship between some of the ASVAB tests and school grades also provides construct validity evidence. Fairbank, Welsh, and Sawin (1990) reported strong relationships between high school course grades and ASVAB scores. They obtained course grades for about 8,400 high school students in a

number of English, math, science, foreign language, vocational, and social studies courses. The correlations between the grades and the relevant ASVAB tests and composites were about as expected, ranging in value from .30 to .59.

Test Bias and Differential Prediction

As noted by those who study achievement testing and minority issues (e.g., McLoyd & Steinberg, 1998; Valencia & Suzuki, 2001), there tends to be large performance differences between Caucasian students and students from other racial and ethnic descents. Because this difference appears to exist on almost all major standardized achievement and aptitude tests, it should come as no surprise that it also exists on the ASVAB.

The important issue, as noted by ASVAB critics such as Prediger (1999) and Rogers (2002), is how the test scores are used in predicting future educational and career outcomes. Such issues have been thoroughly investigated and reviewed both by DoD research personnel and civilian review panels to ensure that the ASVAB is as free of bias as possible. In this regard, the conclusions of the most recent wide-scale investigation of this issue was that the ASVAB tests and composites are "highly sensitive predictors of training and job performance for all applicant groups" (Wise, Welsh, Grafton, Foley, Earles, Sawin, & Divgi, 1992, p. 25). This conclusion echoes that of the Defense Advisory Committee on Military Personnel Testing, a panel of civilian psychometricians and testing professionals who studied ASVAB gender and race/ethnic differences in the early 1980s.

The Army and Air Force have reported separate validation data for African Americans and Caucasians, and for women and men who took ASVAB Form 8, 9, or 10. For those occupations for which adequate samples were available, no major sex or race differences were found in predictions based upon ASVAB scores (Fast & Martin, 1984). Similarly, in reviewing data relating scores on an earlier ASVAB form to performance in 43 Air Force technical training schools, Bock and Moore (1984) concluded that there was no evidence that the use of the ASVAB resulted in biased selection favoring Whites to Blacks or men to women. More recent research (Linn, Hastings, Hu, & Ryan, 1988; Welsh, Androlewicz, & Curran, 1990) supports the fairness of the ASVAB. A more detailed discussion of the equity of the ASVAB for personnel selection and job placement can be found in Eitelberg, Laurence, Waters, and Perelman (1984), and in Bock and Mislevy (1981). Additional race, gender, and ethnicity information is available in Welsh, Kucinkas, & Curran (1990).

ASVAB Career Exploration Composites

Rather than use individual ASVAB tests for career exploration purposes, the ASVAB Program relies on the use of specially derived Career Exploration Scores, or composites. These composites—Verbal Skills, Math Skills and Science and Technical Skills—were derived through factor analyses of the ASVAB. Virtually all reported factor analyses of the ASVAB report the presence of a math, verbal, science/technical, and a speeded factor. The two tests—Numerical Operations and Coding Speed—that previously defined the speeded factor have been dropped from the ASVAB, leaving the other three factors.

To verify the presence of the math, verbal, and science and technical factors, both exploratory and confirmatory factor analyses were conducted using the nationally representative data from PAY97 (Baker, 2005). Both methods yielded similar results and conclusions. The Math Skills factor combined Arithmetic Reasoning and Mathematics Knowledge; the Verbal Skills factor combined Word Knowledge and Paragraph Comprehension; the Science and

Technical Skills factor combined General Science, Mechanical Comprehension, and Electronics Information. Several goodness-of-fit indices were greater than .90, indicating that the three factors are both reliable and robust. Other factor analytic studies of the ASVAB will be detailed more fully in the *Technical Manual*.

Summary of ASVAB Validity

The ASVAB is a valid predictor of successful performance in educational programs and in various civilian and military occupations. Scores from the ASVAB predict success in high school and postsecondary school courses, as well as military occupational training programs. The usefulness of ASVAB scores for predicting entry-level performance in civilian occupations is supported by (a) the abundance of data linking ASVAB scores to military and civilian occupations; (b) analyses linking civilian and military occupations; and (c) the strong relationship between scores on the ASVAB and those on the GATB, a test battery with extensive validity data for civilian workers. In addition, scores from the ASVAB do not systematically underestimate the performance of minority group members or women.

FYI TECHNICAL CHARACTERISTICS

Newly developed specifically for the ASVAB Program, the FYI **(Find Your Interests)** inventory is designed to help students learn about their career-related interests. Based on John Holland's well-accepted theory of career choice, the **FYI** assesses an individual's resemblance to each of the six RIASEC (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional; see Table 4-3, pp. 60-61) types described by Holland (1997).

Over 1,000 items were written based on these descriptions. These items focused on the types of activities associated with the RIASEC domains listed above and written to (a) be understandable to students, (b) be equally valid for all students, and (c) provide content coverage of each RIASEC domain. These tryout items were administered to over 5,000 high school students in 48 randomly selected schools. Based on psychometric and statistical analysis of students' responses on these tryout items, the best performing 120 items were selected for further review and scrutiny in a second large national sample of high school students. This second study was conducted to identify the best 90 items that would comprise the final form of the **FYI**. In both studies, students completed the 1994 version of the Strong Interest Inventory (SII; Harmon, Hansen, Borgen, & Hammer, 1994) and an experimental version of the Career Exploration Program Interest Inventory (CEPII). In the second study, schools were randomly assigned to administer either the SII or the CEPII first. This counterbalanced design was used to ensure that the order of administration of the two instruments was not a factor in students' responses.

Both classical and item response theory (IRT) methods (Hambleton, Swaminathan, & Rogers, 1991) were employed to evaluate the performance of items and

Table 4-3. Description of Each RIASEC Domain

RIASEC Domain	RIASEC Description
Realistic	Realistic individuals prefer work activities that include practical, hands-on problems and solutions, such as designing, building, and repairing machinery. They tend to enjoy working outside, with tools and machinery, or with plants and animals. Realistic types generally prefer to work with things rather than people. Realistic occupations generally require workers to have physical and mechanical abilities. Example Realistic occupations include: Broadcast Technician, Construction and Maintenance, Cooks, Dental Laboratory Technician, Desktop Publisher, Electrical/Civil/Mechanical Engineer, Engineering Technician, Farmer, Firefighter, Forest and Conservation Worker, Fish and Game Warden, Mechanic, Pilot, Veterinary Assistant, and Woodworker.
Investigative	Investigative individuals prefer analytical or intellectual activities such as reading, studying, investigating, evaluating, and problem solving. Investigative types generally prefer to work with ideas rather than with people or things. Investigative occupations generally require workers to have mathematical and scientific abilities. Example Investigative occupations include: Anthropologist, Dentist, Dietitian/Nutritionist, Chemical, Electronics, and Agricultural Engineer/Technician, Computer Software Engineer/Programmer/Support Specialist, Forensic Science Technician, Meteorologist, Physician/Surgeon, Respiratory Therapist, Surveyor, Systems Analyst, Veterinarian, and Zoologist and Wildlife Biologist.
Artistic	Artistic individuals prefer work that involves expressing oneself in original activities like writing, dancing, singing, sculpting, and painting. They tend to enjoy working in a setting where the work can be done without following a clear set of rules. Artistic types generally prefer to work with ideas rather than things. Artistic occupations generally require workers to have artistic abilities and good imagination. Example Artistic occupations include: Actor, Architect, Film and Video Editors, Choreographer, Composer, Graphic Designer, Musician, Photographer, Radio and Television Announcer, Reporter/Correspondent, and Writer/Author.
Social	Social individuals generally like activities that involve personal interaction with people such as teaching, counseling, or otherwise to be of service to others. They prefer work that involves informing, helping, or serving others in either individual or group settings. Social types prefer to work with people rather than to work with objects, machines or data. Social occupations generally require personal interaction and communication skills and abilities. Social occupations generally require personal interaction and communication skills and abilities. Example Social occupations include: Childcare Worker, Dental Assistant, EMT/Paramedic, Fitness Trainer, Licensed Practical Nurse, Occupational Therapist/Assistant, Park Naturalist, Personal Financial Advisor, Physical Therapist/Assistant, Police/Security Officer, Recreation Worker, Social Worker, Teacher, and Tour Guide.

continued

Table 4-3. Description of Each RIASEC Domain (continued)

RIASEC Domain	RIASEC Description
Enterprising	Enterprising individuals prefer work that involves persuading, influencing, and directing others and are often interested in economics and politics. They enjoy work activities such as sales, supervision, and project or business management. They like work that is fast-paced, requires a lot of responsibility and decision-making, and requires taking risks for profit. Enterprising types prefer to work with people and ideas rather than things. Enterprising occupations generally require workers to have leadership, sales, and speaking abilities. Example Enterprising occupations include: Athletes and Sports Competitor, Chef, Chief Executive, Coach, Construction Manager, Financial Manager, Judge, Lawyer, Marketing Manager, Meeting and Convention Planner, Paralegal/Legal Assistant, Police Detective, Private Detective/Investigator, Real Estate Agent, Retail Buyer, Sales Representative, and Travel Agent/Guide.
Conventional	Conventional individuals tend to prefer work activities that involve establishing or maintaining orderly and accurate records, procedures, and routines. They like working with data, or machines and applying precise standards in a setting where there is a clear line of authority. Conventional types prefer working with data and details more than with ideas. Conventional occupations generally require workers to have clerical, organizational, and arithmetic abilities. Example Conventional occupations include: Accountant, Air Traffic Controller, Bank Teller, Budget Analyst, Construction and Building Inspector, Court Reporter, Fire Investigator/Inspector, Freight/Cargo Inspector, Human Resource Assistant, Immigration and Customs Inspector, Payroll Clerk, Pharmacy Technician, Legal/Medical Secretary, Tax Preparer, Title Examiner and Abstractor, and Travel Clerk.

scales. IRT is a testing theory that operates on observed response patterns and accounts for both item and respondent characteristics. IRT was used to evaluate the magnitude of information provided by the items and to make comparisons of the item and scale performances within the experimental inventory and the SII.

Employing both classical and IRT methods to select the items resulted in a new interest inventory that provides students with a highly accurate RIASEC profile that they will find useful for career exploration purposes. This process follows Messick's (1989, p. 39) two-step rationale for test construction and validation: derive the appropriate domains from both empirical and theoretical sources, and utilize items that are construct-valid measures of the appropriate domains.

FYI Description

The **FYI** contains 90 items and provides students with reliable and valid results. Students can take the **FYI** electronically at the CEP website—**www.asvabprogram.com**—or by using a paper-and-pencil, self-scoring version. Because of its relative brevity, most students will find they can complete and self-score the paper-and-pencil version of the **FYI** in about 15 minutes. The electronic version is scored automatically and students are able to see their results immediately. To help ensure that the **FYI** assesses interest rather than competence or aptitude, students are told: "Don't be concerned with how well you would do any activity or whether you have the experience or training to do it. Just think about how much you would like or dislike doing the activity."

The **FYI** employs a three-point scale of *Like* ("I would like to do this activity."), *Indifferent* ("I don't care one way or the other."), and *Dislike* ("I would not like to do this activity."). In scoring the **FYI**, a *Like* receives a score of 2, an *Indifferent* is scored as 1, and a *Dislike* is scored as 0. Raw scores can range from 0 to 30, with higher scores reflecting higher degrees of interest in that domain. The **FYI** percentile equivalence scores appear in Appendix D (p. 119).

In the second study previously described (p. 59), the **FYI** was administered to a sample of 1,958 students in 19 randomly selected schools nationwide. The sample of schools included both public and private high schools; schools located in rural, urban, and suburban settings; and schools in every region of the country. As reported in Table 4-4, the sample was roughly equal in the number of males and females and exhibited considerable ethnic diversity. The ages

Table 4-4. Sample Demographic Characteristics

Demographic Characteristic[a]	Number	Percent
Sex		
Male	945	48%
Female	1013	52%
Age at Testing[b]		
14	9	1%
15	584	30%
16	670	34%
17	302	15%
18	66	3%
19	9	1%
20	4	< 1%
Racial or Ethnic Background[c]		
African American	112	6%
American Indian/Alaskan Native	76	4%
Asian American	43	2%
Caucasian	1,682	86%
Hispanic	206	11%
Native Hawaiian/Pacific Islander	18	1%
Other/Declined to State	13	1%

Demographic Characteristic	Number	Percent
Grade Level		
Sophomore	849	43%
Junior	825	42%
Senior	277	14%
Type of School Attended		
Public	1,746	89%
Private	212	11%
Geographic Setting		
Rural	889	45%
Urban	858	44%
Suburban	211	11%
Region of the Country		
New England	264	14%
Mid-Atlantic	275	14%
Southeastern	329	17%
North Central	528	27%
South Central	245	13%
Northwest Central	19	1%
Western	298	15%

Note. N = 1,958. [a] Numbers may not add to the total sample size due to missing values for some respondents. Consequently, the percentages may not sum to 100% due to missing values or due to rounding. [b] Mean = 15.9 years, SD = 0.9 years. [c] Respondents were asked to select all categories that applied. As such, the total will not sum to 1,958, and the percentages will not sum to 100% because 156 (8.0%) respondents selected more than one category.

Table 4-5. FYI Raw Score Scale Means, Standard Deviations, and Reliability Coefficients

	FYI Scale				FYI Scale Correlations[a]					
FYI Scale	Mean	SD[b]	SEM[c]	α[d]	R	I	A	S	E	C
Realistic (R)	9.82	8.92	2.14	.94	.92	.31	.13	-.01	.09	.17
Investigative (I)	10.07	9.10	2.19	.94		.92	.40	.21	.26	.18
Artistic (A)	11.73	8.76	2.49	.92			.93	.44	.38	.12
Social (S)	12.11	9.20	2.30	.94				.91	.43	.32
Enterprising (E)	9.55	8.06	2.26	.92					.89	.57
Conventional (C)	7.33	7.72	1.94	.94						.90

Note. N = 1,958 weighted analysis. [a]Two-week test-retest correlations based on subsample of N=259. [b]SD = standard deviation. [c]SEM = standard error of measure. [d]Coefficient alpha. Corresponding RIASEC scales underlined for ease of interpretation.

were as expected, ranging from 14 to 20, with most students being between 15 and 17 years of age. All students were sophomores, juniors, or seniors.

The titles for the regions of the country are roughly descriptive. For clarification, the states included in each of the regions are provided. The New England region includes Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, and Vermont. The Mid-Atlantic region includes Washington DC, Delaware, Maryland, New Jersey, New York, Pennsylvania, Virginia, and West Virginia. The Southeastern region includes Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. The North Central region includes Iowa, Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin. The South Central region includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The Northwest Central region includes Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming. The Western region includes Alaska, Arizona, California, Hawaii, Idaho, Nevada, Oregon, and Washington.

This large and diverse sample was weighted to be nationally representative. Weights were calculated for each respondent based on three key demographic characteristics: type of school attended, geographic setting of the school, and geographic region of the school. Psychometric and statistical analyses of these weighted data provide descriptive characteristics of the **FYI** scales, the reliability of the scores produced by the **FYI**, and evidence for the validity of the **FYI** as a measure of the RIASEC constructs described by Holland's theory. Table 4-5 reports key descriptive information about the six **FYI** scales.

FYI Reliability

As shown in Table 4-5, the internal consistency of the scales, as assessed by coefficient alpha α, ranged from .92 to .94. It appears that the **FYI** produces highly reliable scores for high school students. Additional evidence for the stability of the scores was obtained from 259 students who completed the **FYI** on two occasions over a two to two-and-a-half week interval. For this subsample of students, the unweighted test-retest correlations were quite substantial, ranging from a low of .89 (Enterprising) to a high of .93 (Artistic). The test-retest correlations were .92, .92, .93, .91, .89, .90 for the Realistic, Investigative, Artistic, Social, Enterprising and Conventional scales, respectively. These test-retest correlations rival the coefficients alpha in magnitude. Additional evidence for the stability of scores was obtained by calculating

the standard error of measurement (SEM), which assesses the amount of change one might expect over repeated applications of a measure. **FYI** SEMs ranged from a low of 1.94 (Conventional) to a high of 2.49 (Artistic). These standard errors indicate that if an individual were to take the **FYI** again, there is a 68% chance that the new score would be within about two points of the original score. This suggests that the **FYI** scores are stable over time.

FYI Gender and Diversity Concerns

Great care was taken to help ensure that the **FYI** was equally useful for all students, regardless of their gender or racial/ethnic heritage. In the item selection process, a number of statistical decision rules were employed to help select items that would tend to produce scales that minimized gender differences. For example, items with a very low item-to-scale correlation (i.e., .40 and below) were eliminated. This rule was applied to the combined group data and to the data for each gender, racial and ethnic group. While we endeavored to create scales that were more sensitive to respondents' interest patterns than to respondents' gender, the world of work has consistent gender differences. As a result, we provide students with results based upon combined group norms and gender-specific norms.

Similarly, considerable effort was expended to ensure that the scales functioned equally well for all racial and ethnic groups. Item-level means, item-to-scale correlations, hexagonal pattern correlations, and reliability indices were calculated and used to eliminate items that would tend to favor one group of students over another group of students. These statistical procedures, used in concert with expert judgment, created an item selection process that gave preference to items that assessed the RIASEC constructs equally well across the racial/ethnic groups represented in the sample.

FYI Validity

As noted earlier, validity refers to the appropriateness, meaningfulness, and usefulness of the inferences made from test scores. Because validity emphasizes the inferences based on the test scores rather than the scores themselves, it is not appropriate to talk about validity as if it were a property of the test. Most of the validity information presented here stems from two types of analyses: (a) **FYI** item and scale internal relationships, and (b) relationships between **FYI** item/scales and the various scales in the 1994 version of the *Strong Interest Inventory* (SII; Harmon, Hansen, Borgen & Hammer, 1994). The SII has three types of scales germane to **FYI** validity: General Occupational Theme scales, The Basic Interest Scales, and the 211 Occupational Scales. At the most general level are the six General Occupational Theme (GOT) scales which correspond to the six RIASEC areas defined by Holland's theory. The Basic Interest Scales (BIS) are subdivisions of the GOT scales. Each BIS covers a specific content area within a RIASEC domain. The BIS were designed to flesh out each GOT scale by providing a more detailed look at each content area within that RIASEC area. At the most specific levels are the 211 Occupational Scales. These assess the degree to which a respondent's interests mirror the interests of men and women working in particular occupations. With all three of these scales, the SII provides normative scores useful for drawing gender-specific comparisons with both males and females. This allows for greater career exploration and understanding of how satisfied respondents might be were they to enter the occupations and career fields assessed by the SII. Because study participants completed both the SII and the experimental FYI inventory, validity analyses were conducted using all three of the scale types from the SII.

FYI Construct Validity

One useful way to assess the construct validity of the **FYI** at the item level would be to assess the relationships (correlations) between the **FYI** items and the SII GOT scales. In fact, all 90 of the **FYI** items correlated more strongly with the appropriate SII scale than with the other SII GOT scales. These correlations provide an impressive amount of evidence in support of the **FYI's** construct validity at the item level. Further construct-related evidence for the validity of the **FYI** items can be found by examining the degree to which the **FYI** item-to-scale correlations match those specified by Holland's hexagon theory. Theoretically, each item should correlate most strongly with its **FYI** target scale, followed in magnitude by the correlations with the two adjacent **FYI** scales, the two alternate **FYI** scales, and lowest with the opposite **FYI** scale. The degree to which an item's correlations with the **FYI** scales match these expectations is the degree to which the item exhibits the pattern of correlations expected by Holland's theory. Many measures expect their RIASEC scales to exhibit this property, but no other RIASEC measure reports the degree to which each of the items exhibit this property. Based on the pattern correlation between the observed and expected item-to-**FYI** scale correlations, it appears that all 90 of the **FYI** items exhibit a high degree of "hexagonality."

Table 4-6. FYI and SII GOT Scale Intercorrelations

	FYI Scales						SII GOT Scales					
Scale	**R**	**I**	**A**	**S**	**E**	**C**	**R**	**I**	**A**	**S**	**E**	**C**
FYI R	1.00	.31	.13	-.01	.09	.17	.78	.24	.00	.00	.16	.15
FYI I		1.00	.40	.21	.26	.18	.36	.74	.34	.19	.21	.25
FYI A			1.00	.44	.38	.12	.08	.33	.85	.39	.31	.21
FYI S				1.00	.43	.32	-.18	.26	.43	.79	.36	.36
FYI E					1.00	.57	.08	.32	.30	.38	.68	.53
FYI C						1.00	.10	.27	.07	.31	.54	.75
GOT R							1.00	.37	.02	-.06	.23	.20
GOT I								1.00	.35	.33	.33	.46
GOT A									1.00	.49	.37	.29
GOT S										1.00	.47	.49
GOT E											1.00	.70
GOT C												1.00

Note. N = 1,958 weighted analysis. ***FYI*** *= Find Your Interests. R = Realistic. I = Investigative. A = Artistic. S = Social. E = Enterprising. C = Conventional. SII GOT = Strong Interest Inventory* General Occupational *Theme. Corresponding RIASEC scales underlined for ease of interpretation.*

At the scale level, the correlations for the corresponding **FYI** and SII scales are very high, ranging from .68 (Enterprising) to .85 (Artistic) in magnitude. Each **FYI** scale also correlates more highly with its respective SII scale than with any of the other SII scales (see Table 4-6). This provides further evidence of the **FYI's** validity as a measure of the RIASEC constructs and domains proposed in Holland's theory.

At the scale level, the **FYI** items were submitted to an item-level maximum likelihood factor analysis. Not surprisingly, six factors accounting for 51% of the variance emerged from the analysis based on both the Scree test and the residualized correlation matrix. As such, either adding or deleting factors would reduce the adequacy of the factor solution. The six factors were rotated to a simple structure via the Promax criterion. The items with loadings of absolute value of .40 or higher were used to define the content of each of the six factors. Using this criterion, all 90 of the **FYI** items exhibited the expected loadings on the appropriate factors. This analysis is summarized in

Table 4-7. This factor analysis was repeated, adding in the SII GOT scales as "marker variables" to mark the content domain of the factors that emerge. This factor analysis yielded near-identical results, with all 90 of the **FYI** items loading on the factor "marked" by the appropriate SII GOT scale. The results of these factor analyses provide substantial evidence for the construct validity of the **FYI** at the item level.

Multidimensional scaling techniques (MDS) were used to assess the degree to which the **FYI** scales fit the hexagonal pattern hypothesized by Holland (1997). This was accomplished by using MDS to determine the number of independent stimulus dimensions that explain how the RIASEC types differ from each other. Holland's model, because it is in two-dimensional space, specifies two stimulus dimensions that underlie the similarities and dissimilarities among the six RIASEC types. Holland's model further postulates that when mapped onto these two stimulus dimensions, the RIASEC types form a hexagon. The MDS analysis of the **FYI** scales yielded a two-dimensional solution. Based on the Euclidean distance matrix, the two-dimensional model provided an almost perfect fit to the data. Tucker's coefficient of congruence, a measure of the goodness of fit between the data and the MDS solution, was .99, close to its maximum possible value of 1.0 which indicates a perfect fit between the data and the MDS solution. This high degree of fit also was demonstrated by the low value of the stress index (.013). The stress value indicates how much the process has to distort the data to come up with the solution. High stress values mean that the analysis is an inadequate representation of the original data because data fit

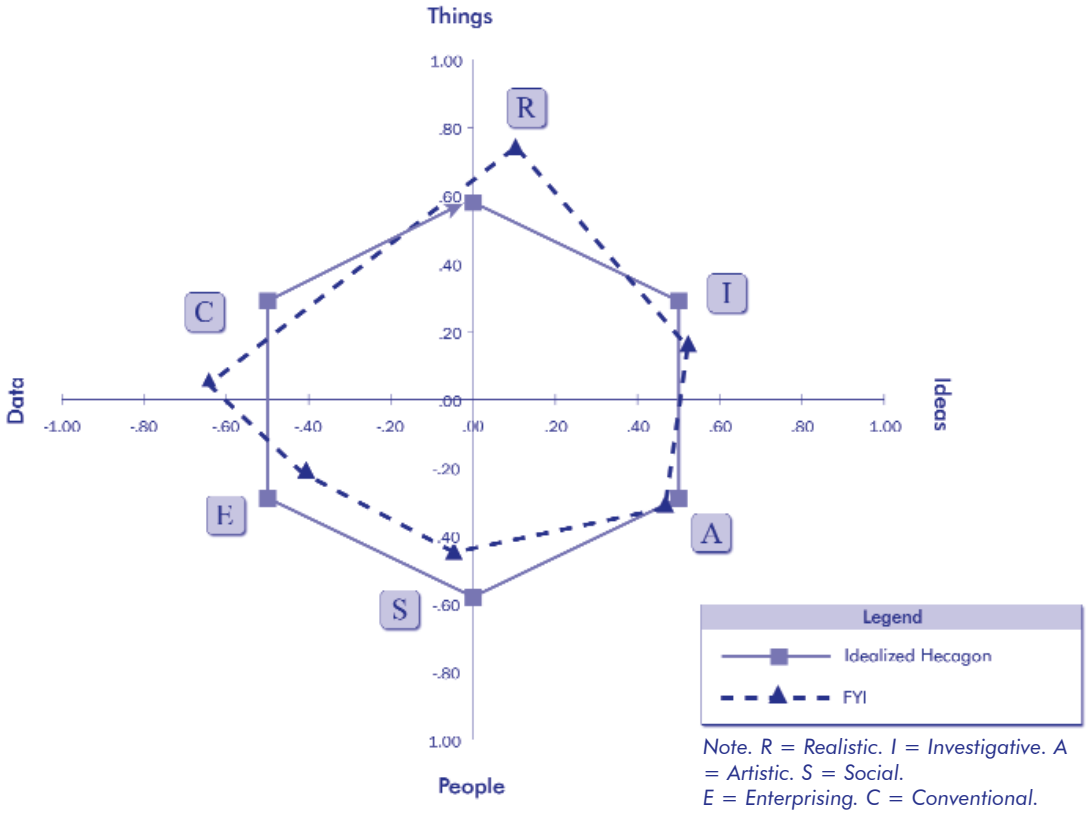
Table 4-7. Summary of Item-Level Factor Analyses of the **FYI** Scales

	Median Factor Pattern Coefficients					
FYI Scale	**R**	**I**	**A**	**S**	**E**	**C**
Realistic (R)	.63	.01	-.02	.01	.01	.06
Investigative (I)	.00	.73	-.01	.00	.01	.01
Artistic (A)	.02	.01	.74	.01	.01	-.02
Social (S)	.02	.00	.01	.72	.01	.04
Enterprising (E)	.00	.00	.01	.02	.63	.00
Conventional (C)	.15	.02	-.02	.01	.01	.61

Note. N = 1,958 weighted analysis. ***FYI*** *= Find Your Interests. Factors placed in RIASEC order for ease of interpretation. Corresponding RIASEC scales underlined for ease of interpretation.*

only when strained to do so. Based on Kruskal and Wish's (1978) recommendation that solutions with stress values less than .10 are adequate solutions, these two stimulus dimensions were retained. Together, they accounted for 98.7% of the variance. These dimensions correspond substantially to the generally-accepted view that the hexagon can be described by two bi-polar axes: (a) data vs. ideas, and (b) things vs. people (Prediger, 1982). As shown in Figure 4-2, this correspondence is seen in the extremely high correlations between the **FYI** dimensions and what would be expected from a "perfect" hexagon (r = .98 and r = .94 for the two dimensions, respectively). The MDS results also were quite consistent with the empirical findings reported by Rounds and Tracey (1993) based on their meta analysis of RIASEC instruments. The **FYI** dimensions also correlated quite highly with those reported by Rounds and Tracey (r = .99 and r = .97 for the two dimensions, respectively). Therefore, like virtually all RIASEC inventories (Rounds & Tracey, 1993), the **FYI** can best be described as a misshapened hexagon (see Figure 4-3). Fortunately, the theory does not require it to be a "perfect" hexagon (Holland, 1997; Holland & Gottfredson, 1992).

Additionally, Myors'(1996) test of hexagonal structure yielded a significant value (r = .67, p < .007), indicating the pattern of **FYI** scale correlations are



Note. R = Realistic. I = Investigative. A = Artistic. S = Social. E = Enterprising. C = Conventional.

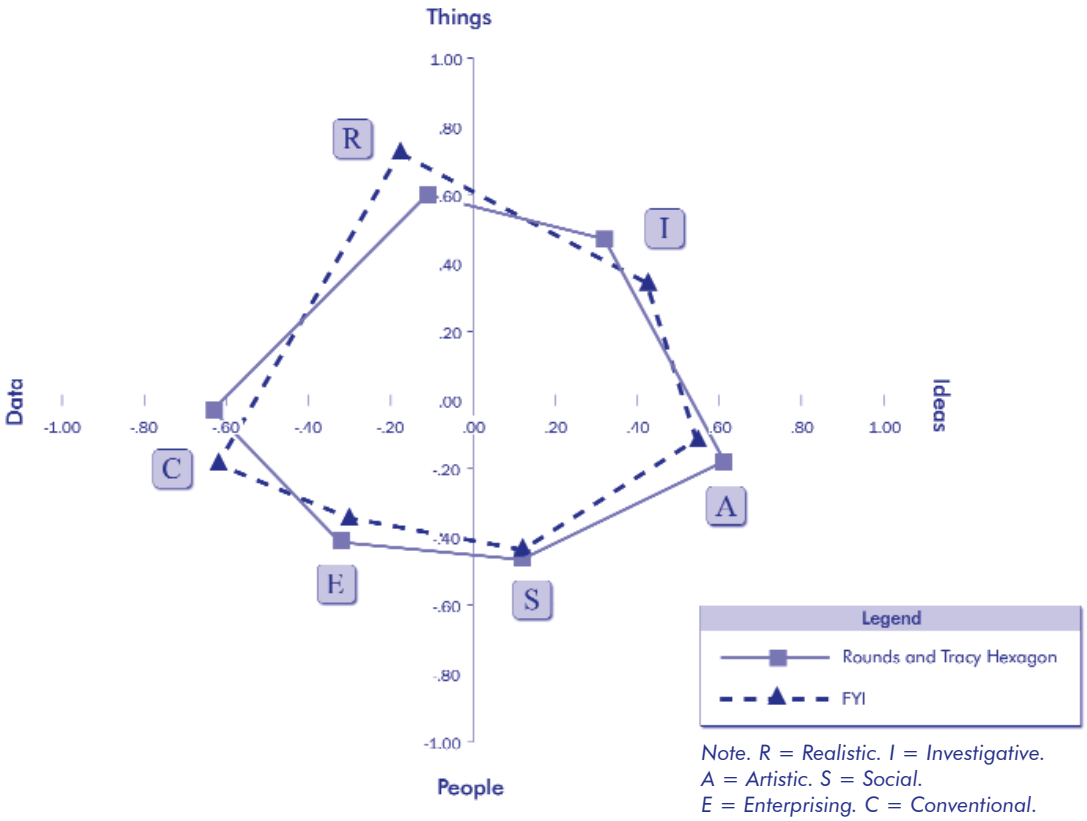
Figure 4-2. FYI fit to the ideal hexagon.

consistent with the pattern one would expect based on Holland's hexagonal model. In this model, adjacent scales have higher correlations than do alternate scales, which in turn, have higher correlations than do opposite scales on the hexagon.

The MDS results provide support for two conclusions. First, the **FYI** exhibited the same type of hexagonal shape exhibited by other RIASEC-based inventories. This is based on the high degree of correspondence between the **FYI** and the meta-analytic findings reported by Rounds and Tracey (1993). Second, the shape of the **FYI** is consistent with expectations based on RIASEC theory as proposed by Prediger (1982). Consequently, it seems reasonable to conclude that the shape of the **FYI** is also hexagonal in nature, providing further construct-related evidence supporting the validity of the **FYI** as a measure of the RIASEC constructs.

FYI Content Validity

According to the joint testing standards described earlier (p. 55), content-related evidence of validity demonstrates the degree to which the items represent the appropriately defined domain. After an extensive review of the RIASEC-based literature and other RIASEC-based assessments, definitions for the six scales were written to be descriptive and comprehensive. Six domain blueprints were developed and used in the process of evaluating the coverage



Note. R = Realistic. I = Investigative. A = Artistic. S = Social. E = Enterprising. C = Conventional.

Figure 4-3. FYI fit to the Rounds and Tracy hexagon.

of items for each scale. Expert judgment, along with psychometric and statistical methods were employed to help ensure the items provided both balanced and comprehensive coverage of the RIASEC domains. The **FYI** RIASEC scales were correlated with each of the 3 to 5 scales within each SII BIS scale.

Because the SII BIS provides a detailed look at each content area within each RIASEC area, the relationships between the **FYI** and the BIS scales can be viewed as content-related evidence for the validity of the **FYI** as a measure of Holland's RIASEC domains. As shown in Table 4-8, each RIASEC domain in the SII BIS has multiple scales (i.e., 3 to 5). The **FYI** RIASEC scales were correlated with each of these 3 to 5 scales within each SII BIS scale. To summarize these findings, the median correlations were calculated between each **FYI** scale and the SII BIS, grouped by RIASEC theme. The median correlations between the corresponding SII BIS and **FYI** scales were higher than were the median correlations for the non-corresponding scales. These results provide important content-related validity evidence, suggesting that the **FYI** scales assess important content areas within each of the RIASEC areas.

FYI Criterion Validity

Criterion-related evidence of validity refers to the degree to which the scores on a measure are systematically related to one or more appropriate outcome criteria. Criterion-related evidence for the validity of new instruments is often more difficult to obtain than either content- or construct-related evidence of validity. Certainly, if the **FYI** could be shown to predict accurately what jobs people entered, it would constitute evidence for criterion-related validity. As a new instrument, such data are not available.

However, an examination of the relationship between **FYI** scores and the SII Occupational Scales provides considerable criterion-related evidence for the validity of the **FYI** as a measure of the RIASEC domains. These SII gender-specific Occupational Scales were designed to assess the degree to which individuals match interests with professionals in the field. Because these occupations are classified according to Holland interest codes, they may serve as criteria to be predicted by **FYI** scale scores through correlational techniques. As shown in Table 4-9, each RIASEC domain in the SII Occupational Scales

Table 4-8. Median Correlations Between Scores on the **FYI** and SII Basic Interest Scales (BIS)

SII BIS		Median Correlation with FYI Scales					
RIASEC Domain	Scales[a]	R	I	A	S	E	C
Realistic (R)	5	.44	.24	.05	-.01	.13	.12
Investigative (I)	3	.25	.59	.29	.13	.31	.24
Artistic (A)	5	.06	.31	.72	.35	.24	.04
Social (S)	4	-.01	.22	.34	.62	.30	.24
Enterprising (E)	4	.10	.22	.33	.34	.67	.43
Conventional (C)	4	.13	.21	.17	.27	.52	.64

Note. N = 1,958 weighted analysis. ***FYI*** *= Find Your Interests. SII = Strong Interest Inventory. [a]Number of SII BIS in the RIASEC domain. Corresponding RIASEC scales underlined for ease of interpretation.*

has multiple scales (i.e., 27 to 44). The **FYI** RIASEC scales were correlated with each of these 27 to 44 scales within each SII Occupational Scale. To summarize these findings, the median correlations were calculated between each **FYI** scale and the SII Occupational Scales, grouped by RIASEC theme (Table 4-9). For both males and females, the median correlations between the corresponding SII Occupation and **FYI** scales were higher than were the median correlations for the non-corresponding scales. These results not only provide substantial criterion-related validity evidence, they also suggest the possibility that **FYI** scales may be able to predict satisfaction and persistence in certain occupations. This is because the SII Occupational Scales originally were designed to be predictive of persistence and job satisfaction in these particular career fields and occupations. Since they are also correlated with **FYI** scales in reliable and substantial ways, it seems reasonable to believe that the **FYI** scales might be able to predict satisfaction and persistence in the same fashion.

Summary of FYI Validity

Based on a large national sample of high school students, analyses were conducted to assess **FYI** content, criterion, and construct-related evidence of validity. Results showed that the **FYI** (a) is composed of six factors with each factor representing one RIASEC domain, (b) has a hexagonal shape, and (c) has substantial relationships with the 1994 *Strong Interest Inventory*. Throughout the analyses, consistent content, criterion, and construct-related evidence for the validity of the **FYI** have been presented.

FYI Norms

The **FYI** provides both gender-based and gender combined percentile scores for interpretation. The norms for the **FYI** are based on the results of the large national sample of 1,958 high school students from 19 high schools. The schools were randomly selected and the resulting sample was weighted to be nationally representative. Because the paper-and-pencil version of the **FYI** is self-administered and self-scored, students determine their raw scores that

Table 4-9. Median Correlations Between Scores on the **FYI** and SII Occupational Scales

SII Occupation Scales		Median Correlation with FYI Scales					
RIASEC Domain	Scales[a]	R	I	A	S	E	C
Realistic (R)	29	.54	.27	.01	.01	.02	.13
Investigative (I)	44	.28	.61	.23	.22	.16	.17
Artistic (A)	38	.02	.29	.61	.23	.18	-.04
Social (S)	36	.16	.24	.34	.51	.34	.20
Enterprising (E)	37	.19	.18	.25	.30	.55	.42
Conventional (C)	27	.11	.03	.05	.24	.38	.55

*Note. N = 1,958 weighted analysis. **FYI** = Find Your Interests. SII = Strong Interest Inventory. [a] Number of gendered SII Occupational Scales in the RIASEC domain. Corresponding RIASEC scales underlined for ease of interpretation.*

they then convert to combined group percentile equivalent scores. Next, they plot their raw scores on gender-sensitive graphs. When students take the **FYI** online, they are provided with both their combined group and gender-based percentile equivalent scores. Providing gender-based results (a) acknowledges the gender differences on the **FYI** scales and (b) facilitates a greater opportunities for occupational and career exploration by providing students with scores that allow comparisons with their same sex peers. For example, a raw score of 7 on the Realistic scale is at the 33rd percentile for males, while the same raw score would be at the 66th percentile for females and at the 50th percentile for the combined norms. A raw score of 7 on Realistic, then, places the student in the upper third of the distribution among females, in the middle of the distribution when considering both males and females, and in the lowest third when considering only males. As such, the score could be considered high for females, low for males, and average in a combined sense. In a similar fashion, a raw score of 7 on the Social scale is at the 59th percentile for males, the 19th percentile for females, and the 39th percentile for the combined norms. Again, the meaning of the raw score of 7 depends on the gender of the scorer. If it is a male, this score suggests considerable interest in the social domain. A female with this score, however, would be exhibiting a substantially low level of interest in the social domain. These factors would need to be considered in exploring potentially satisfying occupations and careers. As can be seen, the use of gender-based percentile scores provides a normative interpretation designed to help students consider a wider range of occupations than they may consider based on gender-combined norms. Both the gender-specific and gender-combined norms are reported in Appendix D.

THE OCCU-FIND TECHNICAL CHARACTERISTICS

The OCCU-Find presents students with close to 500 occupational titles from the O*NET database. These titles, listed by primary RIASEC code, were selected to represent both the current and emergent worlds of work. The OCCU-Find provides the vehicle by which the ASVAB Program links individuals to occupations. It relies on a career development perspective best exemplified by Bloch (1997). Bloch suggested that "the essential tasks of career development are centered on 'self, search, and synthesis'; that is, on identifying the needs, interests, values, and other critical variables of the individual; on understanding the nature of work, occupations, and industries; and on bringing these together" (Bloch, 1989, p. 189). In this perspective, "individuals develop information about themselves, gather information about the world of work appropriate to their current career development needs, and use this information within [their current] framework or to change the framework itself" (Bloch, 1989, p. 122). Accordingly, information is seen as feedback that helps individuals focus on the construction of career choices rather than on the acceptance of career choices. It provides a powerful way to link together important individual and occupational characteristics.

In developing the OCCU-Find, we were mindful that students with few potentially satisfying and desirable career choices are often those most at risk in their transition from high school to adult status. A career can provide "a sense of satisfaction and productivity that stems from completing meaningful tasks, a feeling of belonging to a valued reference group, a basis for

self-esteem and personal identity, and a way to earn one's economic place in society" (Moos, 1986, p. 9). Further, as Savickas (1997) so compellingly reminds us:

> Work provides a major context in which individuals can meet their needs for agency and union. Through work as a productive activity, people can be active agents who advance themselves and improve the world. Through work as a social contribution, individuals can share the fruits of their labor with family, friends, and neighbors. Through working with people, individuals can gratify their needs for cooperation and companionship. Thus, work provides a forum for both individual identity and social significance. Accordingly, individuals can and do use work to develop into the self they want to become as well as manifest that self in social situations. (p. 6)

Hence, we wanted to ensure that every student who participates in the ASVAB Program can identify and investigate potentially satisfying and rewarding occupations. In this process, they can choose whether or not to turn these potential occupations into tentative career choices. If they do, the OCCU-Find offers more sources of information and some concrete next steps in the career development process.

The OCCU-Find was developed in three broad steps. First, we identified a sound linkage between the Verbal Skills, Math Skills, and Science and Technical Skills composites and the knowledge, skills, and abilities (KSAs) ratings contained in the O*NET database. Second, we examined the results of the linkage to ensure adequate coverage of current and emergent world of work. Finally, we selected the specific occupations for inclusion in the OCCU-Find.

Development of the OCCU-Find - Phase I

The goal of the first phase was to create three O*NET database scales that would mirror the content of the Verbal Skills, Math Skills, and Science and Technical Skills scores that students receive from the ASVAB. Two career development experts scrutinized the 110 KSAs contained in the O*NET database.
The goal was to determine the degree to which these KSAs were related to the Verbal Skills, Math Skills, and Science and Technical Skills composites. To do so, they assessed how well the O*NET KSAs "matched" the content of each of the ASVAB scales

used in the three skills composites. Through a combination of independent ratings and a consensus rating procedure, they identified 26 KSAs that they believed were substantially related to the content of one or more ASVAB scales.

Questionnaires were developed and administered to expert judges to see how well ASVAB scale content could be used to assess the degree to which individuals met these 26 KSAs. One questionnaire was completed by 14 expert judges to see how the 26 KSAs matched the content of the three ASVAB tests (General Science, Mechanical Comprehension, and Electronics Information) used to calculate the Science and Technical Skills score. The 14 judges were well qualified to render such a decision. They all had graduate degrees in psychology or a related field (MA and/or Ph.D.), were employed in an appropriate field (5 Industrial/Organizational Psychologists, 3 Counseling Psychologists, 2 "Other" Psychologist, 4 Psychometricians), and averaged 13.5 years of experience. A second questionnaire was completed by expert judges to see how the 26 KSAs matched the content of the four ASVAB tests (Arithmetic Reasoning, Mathematics Knowledge, Word Knowledge, and Paragraph Comprehension) used to calculate the Verbal Skills and Math Skills scores. The 9 judges were well qualified to render this decision. They all had graduate degrees in psychology or a related field (MA and/or Ph.D.), were employed in an appropriate field (2 Industrial/Organizational Psychologists, 4 "Other" Psychologist, 3 Psychometricians), and averaged 9.0 years of experience.

The two groups of judges agreed about which KSAs were related to the various ASVAB scales as evidenced by the high reliability coefficients for the Verbal Skills composite (.94), Math Skills composite (.87), and Science and Technical Skills composite (.97). These estimates are conservative in nature; that is, the actual reliability is likely higher than these figures would indicate. The high level of reliability indicates that the judges agreed substantially about how each KSA related to the various ASVAB scales.

The KSAs judged to be highly related, moderately highly related, or moderately related to ASVAB scale content were retained for further analysis. This led to 5, 9, and 16 KSAs for the Verbal Skills, Math Skills, and Science and Technical Skills composites, respectively. As would be expected, some KSAs (four) were judged to be related to two or more of the composites. Table 4-10 displays the KSAs retained for each of the three composites. It seems apparent from the KSAs that they are substantially related to the ASVAB skill composites.

Next, scales corresponding to each composite were constructed by combining together the importance scores for the retained KSAs. Adequate scale reliabilities were found for the three scales (.91, .90, and .82 for the Verbal, Math, and Science and Technical Scales, respectively). A score on each of these scales was calculated for each occupation in the O*NET database.

This process resulted in the creation of three importance scales from the O*NET database. These Verbal, Math, and Science and Technical importance scales mirror the ASVAB Career Exploration Scores in content.

Table 4-10. Competency Knowledge, Skills, and Abilities (KSAs)

O*NET Scale name	KSA	KSA Text
Verbal Competency KSAs		
Inductive Reasoning	Ability	The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
Written Comprehension	Ability	The ability to read and understand information and ideas presented in writing.
Oral Comprehension	Ability	The ability to listen and understand information and ideas presented through spoken words and sentences.
English Language	Knowledge	Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.
Reading Comprehension	Skill	Understanding written sentences and paragraphs in work-related documents.
Math Competency KSAs		
Deductive Reasoning	Ability	The ability to apply general rules to specific problems to produce answers that make sense.
Inductive Reasoning	Ability	The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
Written Comprehension	Ability	The ability to read and understand information and ideas presented in writing.
Number Facility	Ability	The ability to add, subtract, multiply, or divide quickly and correctly.
Mathematical Reasoning	Ability	The ability to choose the right mathematical methods or formulas to solve a problem.
Information Ordering	Ability	The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
Mathematics	Knowledge	Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
Science	Skill	Using scientific rules and methods to solve problems.
Mathematics	Skill	Using mathematics to solve problems.

continued

Table 4-10. Competency KSAs (continued)

O*NET Scale name	KSA	KSA Text
Science/Technical Competency KSAs		
Deductive Reasoning	Ability	The ability to apply general rules to specific problems to produce answers that make sense.
Inductive Reasoning	Ability	The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
Written Comprehension	Ability	The ability to read and understand information and ideas presented in writing.
Mechanical	Knowledge	Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
Biology	Knowledge	Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
Computers & Electronics	Knowledge	Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
Engineering Technology	Knowledge	Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
Chemistry	Knowledge	Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
Physics	Knowledge	Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub atomic structures and processes.
Building & Construction	Knowledge	Knowledge of materials, methods, and the tools involved in the construction or repair of houses, buildings, or other structures such as highways and roads.
Technology Design	Skill	Generating or adapting equipment and technology to serve user needs.
Science	Skill	Using scientific rules and methods to solve problems.
Installation	Skill	Installing equipment, machines, wiring, or programs to meet specifications.
Trouble Shooting	Skill	Determining causes of operating errors and deciding what to do about it.
Equipment Selection	Skill	Determining the kind of tools and equipment needed to do a job.
Operation & Control	Skill	Controlling operations of equipment or systems.

Development of the OCCU-Find - Phase II

In the second phase, the goal was to determine how well the three scales covered the O*NET database. To facilitate career exploration, we did a cluster analysis that placed each O*NET occupation into one of three groups (high, moderate, low) on each of the three scales. From this schema, students could grasp quickly and intuitively the importance of Verbal Skills, Math Skills, and Science and Technical Skills for all of the occupations in the O*NET database. Every occupation was coded as high, moderate, or low on the three importance scales, as reported in Table 4-11.

One consequence of this grouping is that it would be possible for students who prefer to explore occupations for which Math Skills are relatively unimportant to find 267 such occupations. Similarly, students who wanted to find occupations that place high importance on Verbal Skills would be able to identify 293 such occupations in the O*NET database.

Development of the OCCU-Find - Phase III

Finally, specific occupations were selected for inclusion in the OCCU-Find. In selecting occupations, we adhered to a representative sampling approach that was designed to select occupations such that the final list would be similar in nature and content to the entire list of occupations in the O*NET database. In doing so, we selected occupations with an eye toward including both civilian and military occupations, occupations with large numbers of employees, occupations with a high expected growth rate over the next ten years, and occupations with relatively good status. Of paramount importance was selecting a mix of high-, moderate-, and low-importance occupations for each of the three composites in each of the RIASEC domains. Additional information about the development of the OCCU-Find can be found elsewhere (Baker, 2005).

Table 4-11. Number of O*NET 3.1 Database Occupations Ranked by Importance of Verbal Skills, Math Skills, and Science and Technical Skills

O*NET Importance Composite	Low	Moderate	High
Verbal Skills	407	318	293
Math Skills	267	494	257
Science and Technical Skills	223	492	303

Updates to the OCCU-Find

In order to provide the most current career information for students, DoD is continually striving to update the information in the OCCU-Find, including the Skill Importance Ratings derived from O*NET. Since its initial release, O*NET has been conducting comprehensive updates of its occupational data in phases, including the KSA data. To date, only 280, or approximately one-fourth, of O*NET occupations have been updated.

Original O*NET ratings were provided by a single analyst for each occupation, whereas updated ratings are based on data collected from multiple incumbents for each occupation. As such, the new ratings are not comparable to the original ones because they are based on different data. In addition, updated Skill Importance Ratings are only available for less than half of the OCCU-Find jobs. Finally, the new ratings appear to be significantly higher than the original ones. In order to provide consistent information to students using the ASVAB CEP, the OCCU-Find ratings will only be updated once they have all been updated in O*NET.

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Appendices

ASVAB CAREER EXPLORATION PROGRAM

Name: _____ Grade Level: _____

Counselor: _____ Date Completed: _____

Reviewed/Updated: _____

My Educational and Career Plans Summary Sheet

This summary sheet gives you a place to think about and describe your career exploration and planning efforts. The four activities listed below are described in more detail on the following pages. After completing the activities, you can summarize the information below. Start by reading **More About Me...** below and go to the next page. As you complete each activity, summarize your results on this sheet.

1ST Activity: More About Me

So far in this program, the focus has been on understanding what formal tests can tell you about your skills and interests. While these are important, they are not the only things you should consider while exploring careers. By working through the 1st Activity, you will be able to consider some of these other things in the process of learning more about yourself. Take a look at the Activity on the next page and then consider this:

What have I learned that I should take into consideration in career planning?

_____

_____

_____

_____

2nd Activity: Occupations I'm Considering...

This activity will help you identify and explore occupations.

_____

_____

_____

_____

3rd Activity: My Current After-High School Plans are...

This is where you plan the Next Steps to realize your career goals.

_____

_____

_____

_____

4th Activity: Getting There from Here...

This final activity helps you identify what to do **while you're still in high school** to prepare for entering your career of choice.

_____

_____

_____

More About Me...

1ST Activity

Describe your work experiences, starting with your current or most recent experience (for example, after-school or summer job, helping in the family business, volunteering in a local park program, etc.).

What did you do?	I learned I am good at___.	I learned I like_____.	I learned I dislike_____.

Describe your achievements in school and within your community (for example, basketball team, sophomore class VP, chess champion, community chorus, community theater production).

What did you do?	I learned I am good at___.	I learned I like_____.	I learned I dislike_____.

Describe things you enjoy or are good at that are not described above (for example, playing a musical instrument, identifying birds, writing stories, playing computer games, building or repairing things). Be sure to include both your school-related and non-school-related activities.

More About Me (cont.)…

1ST Activity

Self-Insights. From the experiences and activities you've listed, **what were the most satisfying or appealing qualities for you?** Are there any similarities among the things you like and found the most satisfying? For example, are they mostly artistic, working with or helping others, etc?

Just as importantly, what were the **least satisfying or unappealing qualities** for you?

In considering these questions, you may find yourself identifying **important values about work** (such as job security, working independently, working outside). Describe these too.

So, what did you learn about yourself? (Everyone learns something in this exercise!)

Return to the **Summary Sheet** and jot down your insights. Then, move onto the next activity, **Occupations I'm Considering…**

Occupations I'm Considering...

2nd Activity

You can think about exploring occupations like going out and shopping for a new car or for new clothes—you select a few to sit in or try on to see how well they look, feel, and fit. The following questions will help you to see how the occupations look, feel and fit.

At first, your interests should drive your career exploration

Using either the paper or online versions of the OCCU-Find, identify two or more occupations to explore.
(See your counselor for copies of the resource books or go the website at **www.asvabprogram.com**)

What aspects of occupations are most important to consider? As you research an occupation, it is very important to think about what is actually done on the job, the working conditions, the education and training requirements, and the employment opportunities/job outlook. This information is provided in the *Occupational Outlook Handbook* and **www.careersinthemilitary.com**, two of the career resources described in *Exploring Careers: The ASVAB Career Exploration Guide*. As you gain more understanding about a specific occupation, ask yourself the next question.

Could you see yourself as a(n) _____(occupation title)_____? Try to foresee yourself in this occupation by imagining yourself getting up to go to work in this occupation. Take yourself through an imaginary day in this job. What does it feel like? Go further and imagine that it is five or ten years in the future.

If this is an occupation you can see yourself working in, it might be fruitful for you to explore some of the related occupations. You never know what you might find! And, many people find it helpful to have a number of back-up plans in developing their careers. Using some of the Career Information Resources provided with this program, list some related occupations below.

What about the occupation(s) appeals to you the most? Are there any negatives to consider? For example, do you like the nature of the work but not the working conditions?

Occupations I'm Considering (cont.)...

2nd Activity

Have you thought about different career paths in relation to the amount of education and training needed? Many similar occupations require different levels of education (e.g., Electronics Engineering Technician vs. Electronics Engineer). Explore them to see which one best fits you in terms of your learning style, career goals, economic circumstances, and values. Jot down your thoughts below.

So far, you have identified and explored a couple of occupations. Now, it is time to see how they fit. Start by reviewing the general education or training requirements necessary for the occupation(s), and **ask yourself, "Can I do it?"** This is really a two-part question.

- Will my current skills and abilities allow me to get into the appropriate training or education program?
- How strong is my interest and motivation for working in this occupation? Is it enough to carry me through the training and education I will need for this occupation?

In thinking about these questions, consider your past performance in classes and your current ASVAB skill levels. If you have questions or concerns, you may want to talk with your counselor, parents, or other adults.

Meanwhile, keep gathering information about your tentative career choice(s). Consider the following options.

- Job shadowing is one of the most valuable and informative things you can do. Spend some time with a person in the occupation to see firsthand what the person does and to ask questions. Talk with your counselor, a teacher, or family members about doing this.
- Talk to a military recruiter about various training and employment opportunities. The Military Services offer free training for many occupations.
- Request additional occupational information from a professional group or trade association. See if they have websites and explore them.
- Try to find a part-time or summer job that will allow you to learn more about the occupations that interest you.
- Take elective courses in high school or in continuing education programs to explore different options.

IMPORTANT POINT! Make sure that you don't make a major decision solely on the advice or experiences of one person. It is best to make decisions considering a number of factors, including job shadowing, ideally with more than one person, as well as reading occupational and educational information.

[Return to the **Summary Sheet** to jot down your insights. Then move onto the next activity, **My Current After-High School Plans**]

My Current After-High School Plans are…

3rd Activity

This exercise will help you to consider and plan your next steps. You've explored a couple of tentative career choices. Now, it is time to state your choices and list the corresponding requirements (i.e., the qualifications or skills necessary for immediate employment in a job or the entrance requirements for an educational program of study or training program).

Based on your exploration and discoveries, **identify one or two occupations as tentative career choices.**

Look at the two tables below and complete the one that applies to your choices. Use the appropriate table to list the requirements for immediate employment in the occupation(s) or entry into the necessary training or education program(s). Your counselor can assist you in determining entrance requirements for various training or educational programs. Other resources you can use to identify job/training requirements are:

- The Internet
- **www.careersinthemilitary.com**
- *Occupational Outlook Handbook*
- Human Resources offices
- Vocational, college, or university catalogs

Requirements for Immediate Entry into the Occupation

If you are going to apply for immediate employment in an occupation after graduation, find out what is required (e.g., specific high school courses, experience, qualifications, specific skills) by talking to someone in the job or picking up an application.

Entry Requirements for Educational or Training Program(s)

For occupations that require further education and training, list the entry requirements for entry into the educational or training programs. These requirements can include high school courses, experiences, extracurricular activities, or specific skills.

[Return to the Summary Sheet to jot down your overall plans. Then, proceed to the next activity, Getting There from Here]

Getting There from Here...

4th Activity

This is where you consider your current direction. By now, you've evaluated your skills and abilities to meet the various training and educational program requirements. Now, consider what high school classes will help prepare you for immediate employment into entry-level jobs or the required education and training. Your counselor can help you determine if there are any other classes you should be taking. A Coursework Planner is available from the website www.asvabprogram.com or from your counselor to help you complete this activity.

Am I headed in the right direction? Is my current high school program of study consistent with the education or training required for my tentative career choice(s)? Use the space below to write down your thoughts.

While I am in high school, are there classes that I should take to prepare me for the next step (a specific job, training or educational program)? List these below.

Is there an adult education or college course offered that I might take to help me explore my tentative career choice(s)? What else can I do to enhance my skills and competencies?

Are there changes in my commitment to school and in my study habits that I would need to make in order to help me move from this point in my life to my career goals? Use the space below to write your thoughts.

[Return to the Summary Sheet to jot down your overall plans.]

ASVAB CAREER EXPLORATION PROGRAM

Name: _____ Date: _____

Coursework Planner

As you identify possible career goals, you can use this planner to help you find the courses to take now to prepare for the job or program of study that interests you. If you have completed My Educational and Career Plans, you have already identified potential career choices and their education and training requirements. You can use the information you gathered during that activity to help you organize your coursework plans.

Instructions

STEP 1 - List the courses you need to graduate.

Step 1: Courses Required to Graduate, on the next page, provides a list of typical high school courses organized under the headings of basic, general, and specialized courses. Use the information in Step 1 to help you organize the requirements for graduation at your school. Listing these courses may help you focus your studies in order to graduate on time. Ask your counselor to provide you with a list of courses required for graduation for the program you are currently pursuing. Write these requirements in the spaces provided in Step 1 and use a highlighter to identify courses you still need to complete to graduate.

STEP 2 - Identify your 1st occupational career goal and the courses you need to take.

Write the title of your 1st occupational career choice (Career Goal 1) in the appropriate space at the top of the Step 2: Career Goal 1 page. Then, write in the courses you still need to take (those you highlighted in Step 1) in the column labeled Courses Still Needed to Graduate by Subject Area. List additional courses or activities that will help prepare you for your 1st occupational choice in the column labeled Other Helpful Courses/Extracurricular Activities. These courses should help you improve skills needed for the occupation, help you prepare for career-related education programs in this area, and allow you to further explore your current career goals. If you have completed My Educational and Career Plans, use the information from the activity entitled "My Current After-High School Plans" to fill in this column. What if your high school does not offer some of the courses or activities you have listed? In this case, you may want to explore other places that offer them (e.g., adult education programs, community colleges, vocational/technical schools, on-line courses, business schools, apprenticeship programs).

STEP 3 - Identify your 2nd occupational career goal and the courses you need to take.

Write the title of your 2nd occupational career choice (Career Goal 2) in the appropriate space at the top of the Step 3: Career Goal 2 page. Then, complete Step 3 in the same way in which you completed Step 2, focusing on your 2nd career choice.

STEP 4 - Talk to your counselor and your family.

Once you have listed the courses you still need to graduate and the courses related to your career choices, consider making an appointment with your counselor to discuss your educational plans. Remember, taking appropriate courses is important, but it is not the only way to help prepare for your future in the world of work. Family and community activities can also help you ready yourself for the world of work. So, be sure to talk with family members who will want to help you as you make these important decisions about your future.

Developed by the U.S. Department of Defense, Washington, DC.

Name: _____

Step 1: Courses Required to Graduate	
Basic Courses	Language Arts (e.g., English, Writing, Literature, Journalism)
	Mathematics (e.g., Algebra, Geometry, Trigonometry, Calculus, Statistics, Business Math)
	Social Sciences (e.g., History, Government, Psychology, Economics, Geography)
	Physical Sciences (e.g., Chemistry, Physics, Geology)
	Life Sciences (e.g., Anatomy, Biology, Ecology, Physiology)
General Courses	Communications (e.g., Speech, Drama)
	Art (e.g., Drawing, Painting, Commercial Art, Photography, Interior Design)
	Music (e.g., Band, Chorus, Orchestra)
	Foreign Languages (e.g., Spanish, French, Japanese)
	Health, Fitness & Recreation (e.g., Health, Physical Education)
Specialized Courses	Computer Sciences (e.g., General, Computer Programming, Web Design, Computer Networks)
	Agriculture (e.g., Agribusiness, Animal & Soil Sciences, Horticulture, Agricultural Production)
	Family & Consumer Studies (e.g., Child Care, Food Services, Clothing Design)
	Trades & Industrial Technology (e.g., Auto Mechanics, Cosmetology, Carpentry, Drafting)
Other	Other:

Name: _____ Career Goal 1: _____

Step 2: Career Goal 1

	Courses Still Needed to Graduate by Subject Area	Other Helpful Courses/Extracurricular Activities
Basic Courses	Language Arts	
	Mathematics	
	Social Sciences	
	Physical Sciences	
	Life Sciences	
General Courses	Communications	
	Art	
	Music	
	Foreign Languages	
	Health, Fitness & Recreation	
Specialized Courses	Computer Sciences	
	Agriculture	
	Family & Consumer Studies	
	Trades & Industrial Technology	
Other	Other:	

Name: _____ Career Goal 2: _____

Step 3: Career Goal 2

	Courses Still Needed to Graduate by Subject Area	Other Helpful Courses/Extracurricular Activities
Basic Courses	Language Arts	
	Mathematics	
	Social Sciences	
	Physical Sciences	
	Life Sciences	
General Courses	Communications	
	Art	
	Music	
	Foreign Languages	
	Health, Fitness & Recreation	
Specialized Courses	Computer Sciences	
	Agriculture	
	Family & Consumer Studies	
	Trades & Industrial Technology	
Other	Other:	

General Ideas for Integrating the ASVAB Program into the Classroom

Grade: 10th, 11th, and 12th

Time Frame: After students have taken the ASVAB, but prior to receiving the test results.

Depending upon the class or classes involved, the activity can be focused on simply completing some of the ASVAB Career Exploration Program's career planning tools and activities. One or more aspects of the career exploration process can be assigned as homework or extra credit. Results of any assignments can be placed in the student's counseling folder/record. Suggested steps for completing the activity are presented below.

1. Distribute *Exploring Careers: The ASVAB Career Exploration Guide* to students after they have taken the ASVAB and before they receive their results of the test. Have students complete and self-score the Interest-Finder and read through page 30 in the Guide. At this point you can provide them with their specific assignment and explain how the students' work will be graded.
   Possible assignments for specific courses include:
   - **English Class** – Have students complete *My Educational and Career Plans* and write a paper describing how they discovered and applied their interests and work values to career exploration.
   - **Computer Science** – Ask students to research careers in their two highest Interest Code areas, using some of the online resources discussed in the Guide, maintaining a log of the search process. A follow-on assignment might be to develop a database of occupations that interest them.
   - **Business/Social Studies Class** – Have students complete *My Educational and Career Plans*. Using the insight gained in this exercise, direct students to research different employers to learn about which ones would provide a good match with their interests and work values. A supplemental assignment might be for students to compare the employment outlook of different career choices.
   - **Math Class** – Have students identify three occupations in the OCCU-Find where math skills are of high or moderate importance. Have them research the educational and entry requirements for these occupations.
2. Students attend the post-test interpretation session where they obtain their ASVAB test results and learn about how to use the results in identifying and exploring potentially satisfying occupational fields.
3. Either while students are working on their assignments or after they have completed them, consider devoting a class period to discussing the relevance of their current coursework to their career choices. You may have them read the article "Core Subjects and Your Career" (Summer, 1999) from the *Occupational Outlook Quarterly*, downloadable from this website, to facilitate this discussion. For a structured activity based on this article, go to the Linking Core Subjects to Careers idea sheet for educators and counselors within this website.

Idea Sheet:
General Curriculum

Linking Core Subjects to Careers

Grade: 10th, 11th, and 12th

Overview: This activity is based on the article, "Core Subjects and Your Career." Students will read this article to acquire a basic understanding of the importance of English, math, and science skills to an array of careers. They will select several careers they may find interesting and conduct research on them. Then, they will generate a list of their top career choices and analyze the skill levels needed to perform well in those careers.

There are three accompanying worksheets—English and Your Career, Math and Your Career, and Science and Your Career—which were designed to be completed separately or in conjunction with each other. Each worksheet will take approximately two class periods to complete. The equivalent of one class period can be assigned for homework if class time is limited. The activity can be administered in one of the following ways:

- English, math, and science teachers administer their corresponding subject area activity in class and/or for homework
- Guidance counselors administer activities

Outcome(s): Students learn how to explore the connection between the skills that are learned in core classes (English, science, and math) and the world of work. Students also develop skills in career exploration and planning. Students are expected to achieve the following outcomes from this activity:

- Read an article and identify the main points
- Identify daily activities that require English, math, and science skills
- Recognize that different careers require different skill levels of English, math, and science
- Determine what courses can be taken to improve core subject skills
- Generate lists of desirable career areas
- Research different careers using career information resources, such as the *Occupational Outlook Handbook*
- Refine lists of desirable careers based on research
- Relate different skill levels to occupations
- Identify minimum skill level requirements for desired careers

Materials: Students will need access to the following materials to perform this activity:

- Copy of "Core Subjects and Your Career," downloadable from www.asvabprogram.com
- Pen or pencil
- Copy of attached worksheets, English and Your Career, Math and Your Career, and Science and Your Career
- Computer with Internet connection and printer*

  * Note: If students do not have access to the Internet, they can still complete this activity. However, you will need to provide bound copies of the *Occupational Outlook Handbook* or printouts of the occupational descriptions for each of the occupations that the students identify as potential careers (15 for English, 20 for math, and 15 for science).

Idea Sheet:

Linking Core Subjects to Careers

Linking Core Subjects to Careers

Procedure: Refer to the following steps to complete this activity:

1. Distribute a copy of the article "Core Subjects and Your Career" and one of the three accompanying worksheets (English and Your Career, Math and Your Career, or Science and Your Career) to each student. Review the instructions aloud. Encourage students to read the questions first so they have an idea of the information they should be seeking in the article. (5 minutes)

2. Have the students read the corresponding section of the article (English and Your Career, Math and Your Career, or Science and Your Career) and answer the questions leading up to researching the occupations on the Internet individually. (30 minutes)

3. Refer students to the online version of the *Occupational Outlook Handbook* and provide assistance, if needed. Students should use the occupational descriptions to complete the worksheet. (45 minutes) If computer time is limited, have them print out their selected occupational descriptions to read at a later time. However, note that this will require printing a minimum of 50 pages per student for all three worksheets.

4. Review and discuss the answers to the worksheet aloud. (15 minutes)

5. Repeat this procedure for the remaining two worksheets.

Name: _____ Career Goal 1: _____

English and Your Career

Directions: Read ***English and Your Career*** on pages 27-30 of the article "Core Subjects and Your Career" and answer the following questions.

1. English classes are important because they help you improve your _____ skills.

2. What is communication?

   _____

   _____

   _____

   _____

3. Identify three activities from the article that people do everyday that require strong communication skills.

   1) _____ 2) _____

   3) _____

   Identify two additional activities that people typically do that you think require strong communication skills.

   1) _____ 2) _____

4. What are the four basic skills that English classes help you develop?

   1) _____ 2) _____

   3) _____ 4) _____

5. What are some courses you could take in college to strengthen your communication skills?

   1) _____ 2) _____

   3) _____

6. What is a complaint that many employers have about some of their employees?

   _____

   _____

   _____

   _____

7. Identify three activities from the article that people do everyday that require strong communication skills.

   1) _____ 2) _____

   3) _____

8. List five occupations that may interest you for each level of communication (Advanced, Intermediate, and Basic) required to perform well.

✓	Advanced College-level English courses are strongly recommended	✓	Intermediate College-level English courses are helpful	✓	Basic High school English classes are helpful

9. Use the Internet to access the ***Occupational Outlook Handbook*** at **www.bls.gov/oco/**. Search each of the 15 occupational titles that you listed in question 8 and read their corresponding descriptions. After you read each occupational description, place a ✓ in the box to the left of the occupational title if you are still interested in that occupation.

10. When you finish reading about all 15 occupations, make a list of all the occupations that still interest you (those occupations you marked with a ✓).

Occupations that Interest Me

11. What is the minimum level of English skills you think you need for the occupations that most interest you?

_____

Name: _____ Career Goal 1: _____

Math and Your Career

Directions: Read ***Math and Your Career*** on pages 31-35 of the article "Core Subjects and Your Career" and answer the following questions.

1. Math skills are necessary to do everyday tasks, such as:

   1) _____ 2) _____

   3) _____ 4) _____

2. Which of the following occupations do not require math skills?

   a. Loan officer

   b. Carpenter

   c. Economist

   d. Machinist

   e. None of the above

3. Occupations that have higher salaries (pay more) usually require math knowledge.

   Circle your answer. true false

4. Most occupations that use practical or general mathematics require a college degree.

   Circle your answer. true false

5. Occupations that use _____ math skills may require algebra and geometry, as well as general math skills.

6. Occupations that use _____ math skills require workers to understand and apply mathematical concepts.

7. Occupations that use _____ math skills require a working knowledge of addition, subtraction, multiplication, and division.

8. Occupations that use _____ math skills require an understanding of complex math concepts such as calculus and linear algebra.

Review the four lists of occupations for the advanced or theoretical, applied, practical, and general mathematics categories.

9. Are you surprised that all of these occupations require math knowledge and skills? _____
   If yes, what are some of the occupations you thought did not require math skills?

   _____ _____
   _____ _____
   _____ _____
   _____ _____

10. What are some classes offered in your school that could help improve your math skills?

    _____ _____
    _____ _____
    _____ _____
    _____ _____

11. List five occupations that may interest you for each math skills category (Advanced or Theoretical, Applied, Practical, and General).

✓	**Advanced or Theoretical** Require an understanding of complex math concepts such as calculus and linear algebra	✓	**Applied** Need to understand and apply math concepts, such as statistics and trigonometry
✓	**Practical** May require algebra and geometry in addition to general math skills	✓	**General** Require basic arithmetic such as addition, subtraction, multiplication, and division

12. Use the Internet to access the ***Occupational Outlook Handbook*** at **www.bls.gov/oco.** Search each of the 20 occupational titles that you listed in question 11 and read their corresponding descriptions. After you read each occupational description, place a ✓ in the box to the left of the occupational title if you are still interested in that occupation.

13. When you finish reading about all 20 occupations, make a list of all the occupations that still interest you (those occupations you marked with a ✓).

Occupations that Interest Me

14. What is the minimum level of math skills you think you need for the occupations that most interest you?

_____

Name: _____ Career Goal 1: _____

Science and Your Career

Directions: Read **Science and Your Career** on pages 36-40 of the article "Core Subjects and Your Career" and answer the following questions.

1. What important skills do we learn to perform by studying science?

   1) _____ 2) _____
   3) _____ 4) _____
   5) _____ 6) _____
   7) _____ 8) _____

2. Many colleges prefer to admit students who have taken science classes.

   Circle your answer. true false

3. You should have a minimum of 3 years of high school science classes to get into college.

   Circle your answer. true false

4. Science is important only if you want to be a scientist or engineer.

   Circle your answer. true false

5. If you are interested in scientific and technical careers, what basic science courses should you take in school?

   1) _____ 2) _____
   3) _____ 4) _____

6. In addition to science, what other background is important if you want to pursue a scientific, engineering, and technology-related career? _____

7. _____science occupations require workers to understand scientific principles and apply them to their work.

8. _____occupations require familiarity with the basic principles of biology, chemistry, or physics.

9. _____science occupations require a thorough knowledge of scientific principles.

10. List five occupations that may interest you for each level of scientific skill (Advanced, Intermediate, and Basic) required to perform well.

✓	Advanced A bachelor's degree with several college science courses is usually the minimum requirement; many positions require a master's or doctoral degree	✓	Intermediate Some post-high school science training is needed	✓	Basic High school courses in these areas should be sufficient

11. Use the Internet to access the ***Occupational Outlook Handbook*** at **www.bls.gov/oco/.** Search each of the 15 occupational titles that you listed in question 10 and read their corresponding descriptions. After you read each occupational description, place a ✓ in the box to the left of the occupational title if you are still interested in that occupation.
12. When you finish reading about all 15 occupations, make a list of all the occupations that still interest you (those occupations you marked with a ✓).

Occupations that Interest Me

13. What is the minimum level of science skills you think you need for the occupations that most interest you?

_____

English and Your Career

Answer Key

Directions: Read ***English and Your Career*** on pages 27-30 of the article "Core Subjects and Your Career" and answer the following questions.

1. English classes are important because they help you improve your communication skills.

2. What is communication?

   The ability to understand information other people give us and to have other people understand what we tell them.

3. Identify three activities from the article that people do everyday that require strong communications skills.

   1) Write a letter
   2) Make a phone call
   3) Give someone instructions

   Identify two additional activities that people typically do that you think require strong communication skills.

   1) _____ 2) _____

4. What are the four basic skills that English classes help you develop?

   1) Reading 2) Speaking
   3) Writing 4) Listening

5. What are some courses you could take in college to strengthen your communication skills?

   1) Literature 2) Writing
   3) Grammar

6. What is a complaint that many employers have about some of their employees?

   Some technically competent workers are unable to explain what they are doing, to understand or explain what their part of a project is, or to relate their task to what others are doing.

7. Identify three activities from the article that people do everyday that require strong communication skills?

   1) _____ 2) _____
   3) _____

Answers for questions 8 through 11 are arbitrary.

Math and Your Career

Answer Key

Directions: Read ***Math and Your Career*** on pages 31-35 of the article "Core Subjects and Your Career" and answer the following questions.

1. Math skills are necessary to do everyday tasks, such as:

   1) Balance a checkbook
   2) Cook
   3) Shop for groceries
   4) Create a personal budget

2. Which of the following occupations do not require math skills?

   a. Loan officer
   b. Carpenter
   c. Economist
   d. Machinist
   e. None of the above

3. Occupations that have higher salaries (pay more) usually require math knowledge.

   Circle your answer. true false

4. Most occupations that use practical or general mathematics require a college degree.

   Circle your answer. true false

5. Occupations that use practical math skills may require algebra and geometry, as well as general math skills.

6. Occupations that use applied math skills require workers to understand and apply mathematical concepts.

7. Occupations that use general math skills require a working knowledge of addition, subtraction, multiplication, and division.

8. Occupations that use advanced or theoretical math skills require an understanding of complex math concepts such as calculus and linear algebra.

Answers for questions 9 through 14 are arbitrary.

Science and Your Career

Answer Key

Directions: Read ***Science and Your Career*** on pages 36-40 of the article "Core Subjects and Your Career" and answer the following questions.

1. What important skills do we learn to perform by studying science?

   1) Observe data
   2) Interpret data
   3) Classify data
   4) Communicate data
   5) Measure data
   6) Think logically
   7) Predict data
   8) Solve problems

2. Many colleges prefer to admit students who have taken science classes.

   Circle your answer. true false

3. You should have a minimum of 3 years of high school science classes to get into college.

   Circle your answer. true false

4. Science is important only if you want to be a scientist or engineer.

   Circle your answer. true false

5. If you are interested in scientific and technical careers, what basic science courses should you take in school?

   1) Earth science
   2) Chemistry
   3) Biology
   4) Physics

6. In addition to science, what other background is important if you want to pursue a scientific, engineering, and technology-related career? Mathematics

7. Applied science occupations require workers to understand scientific principles and apply them to their work.

8. Practical Application occupations require familiarity with the basic principles of biology, chemistry, or physics.

9. Advanced science occupations require a thorough knowledge of scientific principles.

Answers for questions 10 through 13 are arbitrary.

NATIONAL CAREER DEVELOPMENT STANDARDS AND COMPETENCIES

National Standards established by the American School Counselor Association

The National Standards for School Counseling Programs facilitate student development in three broad areas: academic development, career development, and personal/social development. The ASVAB Career Exploration Program may contribute to meeting the following standards.

ASCA Guidelines

Academic Development

Standard A	Students will acquire the attitudes, knowledge, and skills that contribute to effective learning in school and across the life span.
Standard B	Students will complete school with the academic preparation essential to choose from a wide range of substantial postsecondary options, including college.
Standard C	Students will understand the relationship of academics to the world of work and to life at home and in the community.

Career Development

Standard A	Students will acquire the skills to investigate the world of work in relation to knowledge of self and to make informed career decisions.
Standard B	Students will employ strategies to achieve future career success and satisfaction.
Standard C	Students will understand the relationship between personal qualities, education and train ing, and the world of work.

Personal/Social Development

Standard A	Students will acquire the attitudes, knowledge, and interpersonal skills to help them understand and respect self and others.
Standard B	Students will make decisions, set goals, and take necessary action to achieve goals.
Standard C	Students will understand safety and survival skills.

Dahir, C. A., & Campbell, C. A. (1977). Sharing the vision: The national standards for school counseling programs. The American School Counselor Association.

National Career Development Association's Competencies for Career Development

Career Development Competencies by Area and Level

	Elementary	Middle/Junior High School	High School	Adult
Self-Knowledge	Knowledge of the importance of a positive self-concept. Skills to interact positively with others. Awareness of the importance of growth and change.	Knowledge of the influence of a positive self-concept. Skills to interact positively with others. Knowledge of the importance of growth and change.	Understanding the influence of a positive self-concept. Skills to interact positively with others. Understanding the impact of growth and development	Skills to maintain a positive self-concept. Skills to maintain effective behaviors. Understanding developmental changes and transitions.
Educational and Occupational Experience	Awareness of the benefits of educational achievement. Awareness of the relationship between work and learning. Skills to understand and use career information. Awareness of the importance of personal responsibility and good work habits. Awareness of how work relates to the needs and functions of society.	Knowledge of the benefits of educational achievement to career opportunities. Understanding the relationship between work and learning. Skills to locate, understand and use career information. Knowledge of skills necessary to seek and obtain jobs. Understanding how work relates to the needs and functions of the economy and society.	Understanding the relationship between educational achievement and career planning. Understanding the need for positive attitudes toward work and learning. Skills to locate, evaluate and interpret career information. Skills to prepare to seek, obtain, maintain and change jobs. Understanding how the needs and functions of society influence the nature and structure of work.	Skills to enter and participate in education and training. Skills to participate in work and lifelong learning. Skills to locate, evaluate and interpret career information. Skills to prepare to seek, obtain, maintain and change jobs. Understanding how the needs and functions of society influence the nature and structure of work.
Career Planning	Understanding how to make decisions. Awareness of the interrelationship of life roles. Awareness of different occupations and changing male/female roles. Awareness of the career planning process.	Skills to make decisions. Knowledge of the interrelationship of life roles. Knowledge of different occupations and changing male/female roles. Understanding the process of career planning.	Skills to make decisions. Understanding the interrelationship of life roles. Understanding the continuous changes in male/female roles. Skills in career planning.	Skills to make decisions. Understanding the impact of work on individual and family life. Understanding the continuing changes in male/female roles. Skills to make career transitions.

HOLLAND'S THEORY OF CAREER CHOICE

According to Holland (1973, 1985a, 1997), there are basically six different personality types, and most people tend to fall into at least one of these six RIASEC (pronounced REE-uh-sek) types:

R Realistic - Mechanical and Outdoor

I Investigative - Science and Mathematics

A Artistic - Art, Music, and Literature

S Social - Social Service

E Enterprising - Business Contact

C Conventional - Business Detail

For convenience, we refer to a person with strong mechanical and outdoor interests as a Realistic person. Work environments can be thought of in a similar fashion. Each work environment can be categorized according to its RIASEC type. These types are simply ways of describing and categorizing people and work environments based on certain characteristics.

While people and environments possess at least some characteristics from all six of the RIASEC types, most people and work environments can be categorized according to their highest one, two, or three RIASEC types. There tends to be a strong relationship between the personality and the work environment types. According to Holland, work environments are typically populated by people with the corresponding personality type. For example, Realistic work environments tend to be populated by Realistic people.

The Hexagon

Holland has arranged the six RIASEC types in a specific order according to the hexagonal model shown in below. In this hexagon, adjacent types (e.g., Realistic and Investigative) are more similar to each other than are intermediate types (e.g., Realistic and Artistic).

Realistic people are often interested in mechanical activities. They frequently prefer activities that allow them to use their hands, let them see the results of their work, allow them to work alone rather than with others, and use machines, tools and equipment. Some examples of Realistic occupations include Aircraft Pilot, Automotive Mechanic, Broadcast Technician, Woodworker, Firefighter, and Radar Operator.

Investigative people are often interested in mathematical or scientific activities. They typically prefer activities that involve learning about new subjects or allow them to use their knowledge to solve problems or create new things and ideas. Some examples of Investigative occupations include Detective, Dietitian, Nutritionist, Meteorologist, Reporter, Payroll Clerk, Physical Therapist, Psychologist, and Veterinarian.

Artistic people like activities that allow them to express themselves through some type of artistic medium. They typically like activities that allow them to be creative, to use their imagination to do something original, and to work according to their own rules. Some examples of Artistic occupations include Actor or Actress, Graphic Designer, Jeweler, Musician, Photographer, and Writer.

Social people often prefer activities that allow them to interact with others. They frequently like activities that involve working with and helping others, and that involve teaching. Some examples of typical Social occupations include Counselor, Licensed Practical Nurse, Physical Therapy Assistant, Flight Attendant, Recreation Worker, and Teacher.

Enterprising people tend to prefer activities that allow them to influence others. They frequently like activities that are fast-paced and require them to take on a lot of responsibility or leadership roles. Some typical Enterprising occupations include Executive, Judge, Real Estate Agent, Retail Buyer, Sales Representative, and Travel Agent.

Conventional people often prefer activities that allow them to use organizational, clerical, and arithmetic skills. They often prefer activities that require attention to detail and accuracy. Some typical Conventional occupations include Accountant, Bank Teller, Budget Analyst, Computer Operator, Court Reporter, Human Resource Assistant, Immigration and Customs Inspector, and Pharmacy Technician.

Three Important Aspects of Holland's Theory

Several important aspects of Holland's theory stem from the hexagonal model of the RIASEC types. Three such aspects - congruence, consistency, and differentiation - all describe the relationships between the individual and the work environment in terms of the RIASEC types.

Congruence

Congruence is a measure of the goodness of fit - or matches - between a personality type and a work environment. Congruence is highest when the personality and work environment types are the same and lowest when the personality and work environments are opposite types. Congruence is important because it is related both to job satisfaction and job stability. All things being equal, the greater the congruence, the greater the job satisfaction. This is because work environments provide a place for people to use their skills and abilities and to express their attitudes and values. When congruence is high, there is a good match between the individual and the work environment. This is because, for example, Realistic environments need people with "realistic" skills and preferences, and Realistic people would find that they are needed in Realistic environments. This increases the likelihood that the individual will be appreciated and valued, which in turn leads to higher levels of job satisfaction. The same reasoning explains why high congruence is associated with greater job stability, and low congruence is associated with lower job stability.

Consistency

Sometimes individuals or work environments possess similar, and mostly compatible, characteristics; when they do, they are consistent. Sometimes, however, individuals or work environments contain mostly incompatible characteristics; when they do, they are inconsistent. Using RIASEC codes, such consistency is easy to assess. One way to accomplish this is to assess the relationship between an individual's (or work environment's) primary and secondary types. People or environments with adjacent primary and secondary types (e.g., Realistic - Investigative) are the most consistent because they emphasize similar, and mostly compatible, characteristics. The least amount of consistency exists when the primary and secondary types are opposite each other (e.g., Realistic - Social) because each type contains aspects that are incompatible with the other type.

Differentiation

Individuals and work environments differ in the degree to which they resemble an ideal type. Holland calls this differentiation, and it is directly related to the RIASEC pattern that best describes an individual or work environment. The more a person's or environment's RIASEC pattern resembles just one type, the greater the differentiation. One way to assess the degree of differentiation is to look at the primary and secondary types. For example, all Realistic-Investigative (RI) work environments contain elements of both types, but they may differ in their proportions. One particular RI environment may consist mostly of Realistic characteristics, with only a small or moderate number of Investigative characteristics. Another may consist of roughly equal proportions of Realistic and Investigative characteristics. In this example, the first work environment would be considered more differentiated than the second because it is more purely Realistic than the second environment, which could be just as easily labeled either Realistic or Investigative. Individuals who exhibit greater differentiation are more likely to know what their career interests might be and are likely to require less assistance in career exploration.

FYI (FIND YOUR INTERESTS) PERCENTILE EQUIVALENCE SCORES

Percentile Equivalence Scores of Combined Group, Males, and Females for Realistic, Investigative, and Artistic Codes

Raw Scores	Realistic			Investigative			Artistic		
	Combined	Males	Females	Combined	Males	Females	Combined	Males	Female
30	99%	99%	99%	99%	99%	99%	99%	99%	99%
29	99%	98%	99%	98%	97%	98%	98%	99%	97%
28	98%	96%	99%	96%	95%	97%	96%	98%	95%
27	96%	94%	99%	94%	93%	95%	95%	97%	93%
26	94%	91%	98%	92%	91%	94%	93%	96%	91%
25	93%	88%	97%	91%	89%	92%	91%	95%	88%
24	91%	85%	96%	89%	87%	91%	89%	94%	84%
23	89%	83%	95%	88%	86%	90%	87%	92%	82%
22	88%	82%	94%	86%	84%	89%	85%	91%	79%
21	87%	80%	93%	85%	82%	87%	83%	89%	76%
20	85%	77%	92%	83%	80%	86%	80%	87%	73%
19	82%	73%	90%	81%	78%	84%	77%	85%	70%
18	80%	70%	89%	79%	76%	82%	75%	82%	68%
17	77%	68%	87%	77%	74%	80%	72%	80%	64%
16	75%	64%	85%	75%	71%	79%	69%	77%	62%
15	72%	60%	83%	73%	69%	76%	67%	75%	59%
14	70%	57%	82%	69%	66%	73%	64%	72%	56%
13	67%	53%	80%	67%	63%	71%	60%	69%	52%
12	63%	48%	78%	65%	61%	69%	57%	66%	49%
11	61%	45%	76%	62%	58%	66%	54%	63%	44%
10	58%	42%	74%	60%	55%	64%	50%	59%	40%
9	55%	39%	71%	56%	53%	60%	46%	55%	37%
8	53%	36%	68%	53%	49%	58%	43%	52%	33%
7	50%	33%	66%	50%	46%	53%	39%	48%	30%
6	47%	30%	63%	46%	42%	50%	36%	44%	27%
5	44%	28%	60%	42%	39%	45%	31%	40%	23%
4	41%	25%	57%	39%	36%	42%	27%	35%	19%
3	36%	20%	51%	33%	31%	35%	23%	30%	16%
2	30%	16%	44%	29%	29%	29%	19%	25%	13%
1	23%	12%	34%	21%	22%	20%	13%	19%	8%
0	—	—	—	—	—	—	—	—	—

Percentile Equivalence Scores of Combined Group, Males, and Females for Social, Enterprising, and Conventional Codes

Raw Scores	Social			Enterprising			Conventional		
	Combined	Males	Females	Combined	Males	Females	Combined	Males	Female
30	99%	99%	99%	99%	99%	99%	99%	99%	99%
29	98%	99%	96%	99%	99%	99%	99%	99%	98%
28	96%	99%	93%	99%	98%	99%	99%	99%	98%
27	94%	99%	89%	98%	97%	98%	98%	99%	97%
26	92%	99%	85%	97%	97%	97%	97%	98%	96%
25	89%	98%	81%	95%	95%	95%	96%	98%	95%
24	87%	97%	77%	94%	94%	93%	96%	98%	94%
23	85%	97%	73%	92%	92%	91%	95%	97%	93%
22	82%	96%	68%	90%	92%	89%	94%	96%	92%
21	79%	95%	65%	89%	90%	88%	93%	95%	91%
20	77%	93%	62%	88%	89%	87%	92%	94%	90%
19	75%	91%	59%	85%	87%	84%	90%	92%	88%
18	72%	90%	55%	84%	85%	82%	89%	91%	87%
17	70%	88%	52%	82%	83%	80%	87%	90%	84%
16	67%	86%	49%	80%	81%	78%	86%	89%	83%
15	64%	84%	44%	77%	79%	75%	83%	87%	80%
14	61%	82%	40%	74%	77%	72%	81%	85%	77%
13	58%	79%	37%	71%	73%	68%	79%	83%	75%
12	55%	76%	34%	68%	70%	65%	77%	81%	73%
11	50%	72%	30%	65%	67%	63%	74%	78%	69%
10	48%	70%	27%	60%	63%	57%	72%	76%	67%
9	45%	66%	24%	56%	58%	54%	69%	73%	64%
8	42%	63%	22%	53%	55%	50%	66%	70%	62%
7	39%	59%	19%	48%	50%	46%	62%	66%	59%
6	35%	55%	16%	44%	47%	42%	58%	62%	54%
5	32%	52%	13%	39%	43%	36%	53%	58%	49%
4	29%	47%	11%	35%	39%	31%	50%	55%	45%
3	25%	42%	8%	30%	34%	26%	44%	49%	39%
2	21%	36%	6%	25%	30%	21%	38%	44%	32%
1	15%	27%	4%	19%	23%	15%	30%	36%	24%
0	—	—	—	—	—	—	—	—	—

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