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ABSTRACT

PLAN (A Program for Learning in Accordance with Needs) is the outgrowth of a followup study, Project TALENT, on the occupational aspirations of over 400,000 high school students. As the second of three major theoretical components in that comprehensive developmental individualized education program, this occupational guidance system is intended for integration into the regular academic program. To pursue relevance to student needs, to accommodate parental interests in their children, and to delimit the instructional resources available in PLAN, seven career education and guidance subcomponents were created, and computer-oriented individualized programs of study were generated. These seven programs are: (1) curriculum planning and coordination, (2) orientation and study skills, (3) career and vocational information, (4) student goal formulation, (5) individual planning, (6) student assessment and progress monitoring, and (7) military, college, and post-secondary counseling. A wide range of visual aids and resource materials are provided, including a glossary of key concepts in PLAN and sample program materials. (AG)

AIR - PLAN - 6-72

THE GUIDANCE PROGRAM IN THE PLAN SYSTEM OF INDIVIDUALIZED EDUCATION

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JUNE, 1972

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AIR

THE GUIDANCE PROGRAM IN THE PLAN SYSTEM OF INDIVIDUALIZED EDUCATION

James A. Dunn

June 1972

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The guidance component of the PLAN individualized educational system was developed in approximately two years with a great deal of dedicated effort. The AIR staff members who participated in the development of the PLAN guidance program are as follows:

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The Guidance Program
In the PLAN System of Individualized Education

PLAN: An Overview

PLAN represents one of the most comprehensive efforts yet taken toward the individualization of education. PLAN stands for A Program of Learning in Accordance with Needs and was the product of a cooperative effort between the American Institutes for Research, 14 public school systems, and the Westinghouse Learning Corporation.

In 1965 John C. Flanagan, President of AIR, initiated talks with the superintendents of a number of public school systems to explore the possibility of bringing as much power of psychology and educational technology as possible to bear on the task of making education more relevant to the needs of children. Fourteen school systems eventually entered into a cooperative relationship with AIR. The school systems and their respective superintendents are summarized in Figure 1.

In January of 1967 the group signed a contract with Westinghouse Learning Corporation for a 3 1/2 year developmental effort. The aggregate cost of the project, to be shared jointly by AIR, the school districts, and the Westinghouse Learning Corporation was eventually 10 million dollars.

Origin and goals of Project PLAN. PLAN had its origin in the findings of an undertaking called Project TALENT. Project TALENT was the largest national assessment of the abilities, interests, and aspirations of American youth ever undertaken. The TALENT sample tested in 1960 consisted of a nationally representative sample of over 400,000 high school youth. A follow-up testing of 12,722 was made in 1970.

TALENT dramatically confirmed the great variance in levels of ability that were manifested by students by the time they reached high school age. For example, approximately one out of every four 9th grade students was functioning

Figure 1

COOPERATING SCHOOL DISTRICTS AND ADMINISTRATORS

Archdiocese of San Francisco Rev. Pierre DuMaine San Francisco, California	Quincy Public Schools Robert E. Pruitt Quincy, Massachusetts
Bethel Park School District Theodore A. Siedle Bethel Park, Pennsylvania	San Carlos Elementary School District Albert R. Beardsley San Carlos, California
Fremont Unified School District William J. Bolt Fremont, California	San Jose City Unified School District George M. Downing San Jose, California
Hicksville Public School District Donald F. Abt Hicksville, New York	Santa Clara Unified School District Lawrence C. Curtis Santa Clara, California
Hughson Union High School* Robert Reeder Hughson, California	Sequoia Union High School District** George P. Chaffey Redwood City, California
Pittsburgh Public Schools Sidney P. Marland, Jr. Pittsburgh, Pennsylvania	Union Elementary School District Berkeley Matthews San Jose, California.
Penn-Trafford School District Harry B. Gorton Harrison City, Pennsylvania	Wood County Schools Daniel B. Taylor Parkersburg, West Virginia

*Participated for one year

**Participated for two years

at the 12th grade level in English and Social Studies. On the other hand, a comparable number of students were functioning at only the 6th grade level.

If one looks at the functional meaning of 12th grade reading ability, i.e., what one can read or comprehend, however, one's perspective changes. Just how good is the reading comprehension of the average 12th grade student? While seventy-two percent of the 12th grade students could read and pass tests on their comprehension of the writing of Robert Louis Stevenson, only 45% could pass comprehension tests on sample Reader's Digest articles, and only 4% could comprehend Saturday Review articles. Only 25% were able to answer correctly half or more of the test items on typical paragraphs from Time magazine. "These results suggested that today's high school graduates are ill equipped to evaluate the evidence and make wise decisions in choices with respect to important national issues." (J.C. Flanagan, Education, Vol. 90, 3, pp. 192-205, 1970.)

TALENT also documented the great fluidity of students' vocational goals. On the average, of every 12 male high school seniors, only 2 still held the same general vocational aspiration 5 years later.

Clearly, ways needed to be found not only to individualize instruction but also to revamp that instruction, to make it more relevant to the needs of youth in our contemporary society. If schools were to assist students to eventually become responsible for their own personal development, they needed to help the student acquire, in addition to formal academic content: knowledge of available choices of occupational roles, leisure-time activities, social and civic responsibilities; knowledge of individual differences, the principles of learning, behavior management, and prospects for the development and/or changeability of interests and values; skills in the recognition and assessment of his own personal abilities, interests, and values; skills in personal goal formation and the assessment of the implications of those goals; and skills in managing his own personal progress toward them.

These, then, formed the overall ambition of Project PLAN. Specifically, the goal of PLAN was to develop a practical educational system which could assist schools to move toward those goals.

Conceptually, PLAN may be considered in terms of three major theoretical components. The first encompasses all those elements which might loosely be called Instructional Resources; that is, the total instructional capability inherent in PLAN. In addition to the 6,000 instructional objectives embedded in 2,600 teaching/learning units, this capability also involves 1,500 criterion

referenced performance tests, 133 PLAN achievement tests, and a variety of special guidance tests, teacher guides, test manuals, instructional booklets, and the like.

The second main component of PLAN is the Guidance System which is responsible for: helping define and configure the instructional resources available in PLAN; the creation of student guidance and career education programs; and the development and operation of the procedures for the generation of individualized instructional programs. These latter entities were called Programs of Study or POS's.

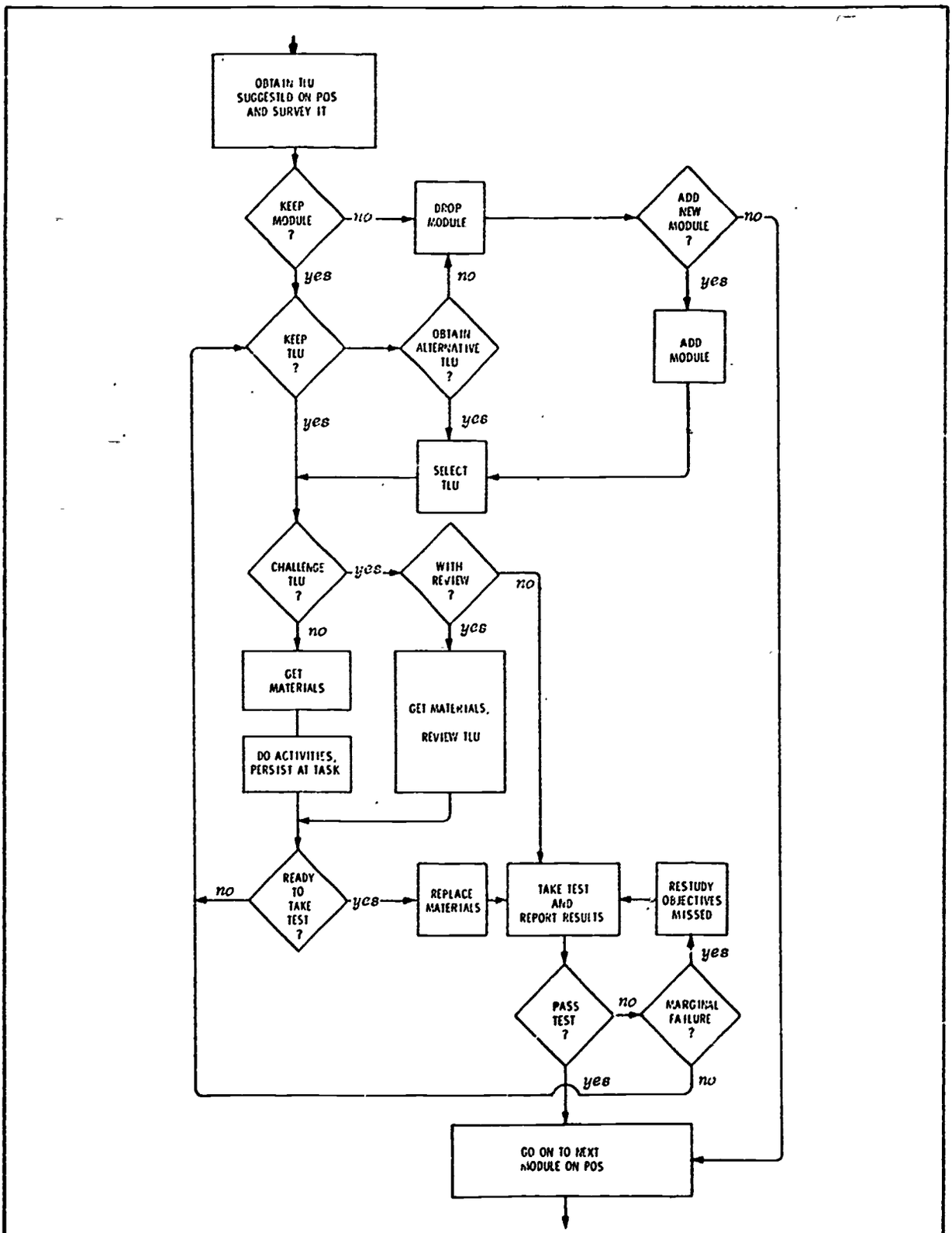
The third major component of PLAN comprises those Support Services essential for the implementation and continued operation of the program. These include information systems, computer services, teacher training, and materials procurement, production, and distribution.

Some of the basic terminology used in PLAN is summarized in Appendix A. In brief, the domain of instructional content in PLAN is defined by instructional objectives. There are three levels of objectives: (1) instructional objectives which generally take 2 to 3 hours of study time to master, (2) curricular objectives which subsume a number of instructional objectives and usually take 6 to 8 weeks to master, and (3) long-range objectives which may take a year or more to master. Examples of the three levels of this objectives hierarchy might be: (a) divide simple 2 digit numbers by 1 digit numbers (b) perform long division, and (c) master arithmetic operations with whole numbers.

Instructional objectives were grouped into units of study called modules. Materials were then developed to guide the student's study of these objectives. Three to four alternative units were developed for each module. These study units were called teaching/learning units. They provided for individualization of instructional method. End-of-module tests were developed to assess achievement of the module objectives. The same end-of-module test was used regardless of the particular TLU used because all TLU's for the same module were concerned with the same set of objectives. The student may take the module test whenever he and his teacher think he is ready. He need not complete all of the activities of the TLU if he thinks he can demonstrate mastery of the objectives. Figure 2 summarizes the module decision process.

Figure 2

THE STUDENT-MODULE INTERACTION LOOP



Modules were sometimes clustered [illegible] form larger instructional blocks. These were called module clusters. Survey tests were used to assess retention of mastery across these larger sets of module objectives. Finally, at the end of the year, assessment was made of the student's final level of performance preparatory to placement for the coming year.

Scope of PLAN. The PLAN instructional system encompasses the full spectrum of basic academic education for grades 1-12. It includes five different reading programs as well as literature, composition, public speaking, grammar, listening skills, and the like in the language arts area. Science begins in grade 1 and includes, at the upper grade levels, earth science, chemistry, physics, and biology. Social Studies also begins in grade 1 and includes history, geography, economics as well as basic elements of sociology, anthropology, psychology, and political science. Likewise, mathematics begins in grade 1 and runs through first year calculus.

By way of repetition, then, the instructional resources of PLAN involve 6,000 instructional objectives incorporated in 2,600 discrete teaching/learning units using 12,000 items of instructional material. There are 1,500 criterion referenced performance tests, 133 PLAN achievement tests, and special guidance tests based on the findings of Project TALENT.

This constitutes approximately 2 1/2 times as much material as would normally be studied by an average student during his 12 years of public school experience. Included in this content is the equivalent of 3 1/2 years of career education and guidance related study required of all students. (See Appendix B for a listing of the guidance and career education modules in PLAN).

Teachers are free to organize the classroom any way they choose; they are free to team teach, use differential staffing, and the like. The system does not require any personnel other than those the school would normally employ. Nor does it require any special organization or configuration of the classroom. Typically, however, teachers find it convenient to organize the classroom in an open classroom style with one area designated as a quiet area where students can study independently and take tests without fear of too much distraction.

The role of guidance in PLAN. It is the guidance component in PLAN that makes PLAN a system of truly individualized education rather than simply a program of individualized instruction. It is the guidance element of PLAN which attends

to the individualization of curriculum content as well as instructional method. PLAN guidance, however, goes much farther than that.

To the extent possible, guidance is treated as an integral component of the regular instructional programs. It is through the psychology strands of the social studies and science programs that the student learns about individual differences, his potential for development, study skills and test taking strategies, and the like. It is through the applied economics strand in social studies that he learns about the world of work, about life-styles associated with various careers, the educational requirements associated with various occupations, areas for potential social and civic contribution. It is in social studies that he also develops an awareness of his own personal interests, abilities, and values, and develops skills in personal planning and long-range goal formation.

He receives practice, in all academic areas, in assuming ever-increasing responsibility for self-direction. He begins this at the earliest stages by being responsible for obtaining and replacing instructional material he uses. Later he is involved in choice options with regard to what materials he will use, and still later, in regard to what modules he will study, when to challenge the modules, and when to reinforce skills he already possesses but may need improvement in vis-à-vis his long-range goal.

The balance of this paper will elaborate the PLAN Guidance System more fully.

Assumptions Underlying the PLAN Guidance System

Guidance has assumed several different emphases in schools over the years. The three major emphases have been: (1) the facilitation of normal growth and development in all or at least a majority of students; (2) the prevention of abnormal or atypical problem development in children (i.e., problem prevention); and (3) assuming problems have already developed, the differential diagnosis of those problems and the development of programs to ameliorate those problems.

All of these are, of course, necessary for a comprehensive guidance system. In its initial version PLAN Guidance was concerned primarily with the first of these. It was considered essential to assign first priority to the development of a guidance system which would accommodate all students in Project PLAN. Subsequent effort was to be directed to the development of new techniques to be applied differentially to selected children to either: (a) improve desirable behaviors, or (b) extinguish unwanted behavior.

To reiterate then, initial attention has been directed toward the creation of a component to serve the needs of all students rather than just a special few.

Several assumptions underlie the initial PLAN Guidance System.

a. Guidance should be, insofar as possible, an integral part of the regular academic program of a student and should contribute to his overall eudcational development;

b. schools should make a much more direct and concerted effort toward considering, and accommodating, parental wishes and aspirations for their children;

c. guidance, in an individualized education system, must be concerned not only with helping students to formulate and pursue long-range educational and vocational goals, but also with making the educational system responsive to the needs, interests, and abilities of students; and, finally,

d. a guidance program, to be effective, must be predicated on empirical evidence.

The guidance system that was developed to accommodate these assumptions was composed of a number of subcomponents, or programs. The balance of this paper will describe each of these elements in turn. It should be noted at this point, however, that the system I shall be describing is an articulated, interactive system, even though some rather artificial distinctions have had to be made in order to permit description ad seriatim.

Components of PLAN Career Education and Guidance

Curriculum Planning and Coordination

To the extent that PLAN was to be concerned with the individualization of content as well as instructional method, it was essential that guidance play a prominent role in the planning and coordination of the PLAN curriculum. After the general direction of PLAN's instructional program was defined by the teachers and AIR staff responsible for materials development, responsibility for smoothing the curriculum, adjusting it across grade levels, articulating it across subject matter areas, and indexing it for subsequent use in the development of individual programs of study, was transferred to the Guidance and Individual Planning group.

We were aided in this task by the services of panels of experts for each of the subject matter areas. The individuals serving on these panels are summarized in Figure 3.

Figure 3

NATIONAL CURRICULUM ADVISORY PANELS FOR PLAN

Mathematics:	
Dr. Howard Fehr	Columbia University Teachers College
Dr. Donovan Johnson	University of Minnesota
Dr. Burt Kaufman	Southern Illinois University
Dr. Hans Zassenhaus	Ohio State University
Science:	
Dr. Robert Gagné	Florida State University
Dr. Paul DeHart Hurd	Stanford University
Dr. Robert Karplus	University of California, Berkeley
Language Arts:	
Dr. Francis Christensen	University of Southern California
Dr. Julius Hook	University of Illinois
Dr. Walter Loban	University of California, Berkeley
Dr. Robert Ruddell	University of California, Berkeley
Dr. Ruth Strickland	University of Illinois
Social Studies:	
Dr. Richard Gross	Stanford University
Dr. John Haefner	University of Iowa
Dr. John Michaelis	University of California, Berkeley
Dr. Roy Price	Syracuse University

Furthermore, because PLAN was to incorporate guidance as an integral part of the academic program throughout grades 1-12, it was necessary for the guidance staff to work closely with the materials development staff in order that the vocational information program, the study skills program, and the other guidance programs could be appropriately integrated. See, for instance, row F on the Social Studies Curriculum Chart or row A on the Science Curriculum Charts, Appendix C.

The concept of guidance in PLAN is an entirely new approach to student guidance. As a consequence the AIR guidance group was also required to engage in curriculum development and the actual production of the instructional materials to be used. This was especially the case in the development of student long-range planning materials. In order to predicate these materials on the results possible from the TALENT five-year follow-up data, the guidance group was also involved in TALENT data analysis.

The Orientation and Study Skills Programs

With regard to student orientation, it was found from two years of field testing that extensive orientation efforts are quite unnecessary. Students very quickly learn the PLAN routine in situ. Thus, formal orientation efforts in PLAN are rather brief and focus on two efforts.

The first is an orientation of the student to what is expected of him in PLAN classrooms. PLAN classrooms are quite different. The new PLAN student needs to learn that in PLAN classrooms students rarely all do the same things at the same time; that each student works at his own speed; that tests are used differently in PLAN classes than in regular classes; that PLAN classes differ from traditional classes in the variety of books and instructional materials used; and that there is a high degree of personal responsibility expected of PLAN students, e.g., responsibility for obtaining and replacing instructional materials, for taking the initiative in a variety of learning activities, and the like. Indeed, the Employer-Based Career Education student will have to expect a great difference between career education and anything else like education they have ever experienced before.

Second, the student is oriented to the simple mechanics of PLAN Teaching/Learning Units (TLU's), how to challenge modules, how to read a Program of Study (POS), the persons responsible for the POS, when and how a POS should be changed, and the like.

With regard to study skills, modules deal with: (1) individual differences and their assessment; (2) strategies for test taking; (3) listening skills; and (4) study management skills. These materials are incorporated into students' individual programs as they become increasingly independent in those studies. This usually occurs during the middle of the elementary grades. These skills are then reinforced periodically throughout the balance of their school years. These modules are part of the Science and Language Arts offerings, and thus represent one aspect of the integration of guidance into the academic program indicated earlier. The basic psychology modules dealing with individual differences and their assessment, for example, are part of Science; listening and study skills are part of Language Arts. Figure 4 presents sample objectives of this program.

Figure 4

SAMPLE OBJECTIVES - STUDY SKILLS PROGRAM

You will be able to:

Classify individual traits into the following areas of human differences: physical appearance, physical ability, mental ability, interest, value, aspiration, and personal-social characteristics.

Choose which individual traits can be changed more easily than others and identify ways a given trait might be changed.

Define and identify different categories of tests.

Identify four important uses of test scores.

Apply the principles of prediction and probability as they are used in testing.

Identify factors influencing general test performance and ways of dealing with these factors.

Recognize effective strategies for dealing with subjective (essay) test questions.

Recognize and use effective strategies for dealing with objective test questions.

Identify 10 major principles of learning.

Identify (a) four study skills which help you to read with greater understanding and retention, and (b) at least five related principles of learning.

The Career and Vocational Information Program

Regarding the Career Information Program, it was clear that PLAN had to offer a significant alternative to Career Information Programs as they have been typically formulated in schools in the past. Although vocational information and vocational guidance were historically the earliest charges given school counselors, this function is one that has been more commonly honored in the breach than in the observance. For whatever reasons, there is typically only a small amount of time allotted to vocational guidance activities. The traditional practice has been to make occupation information "available to students" and to allow them to explore those occupations in which they think they might have a special interest. Unfortunately, however, youth know so little about occupations in general that their "explorations" are often little more than aimless browsing through vocational information materials. This is especially the case inasmuch as vocational aspirations typically had only the slightest bearing on what students did in school.

A much wider range of occupational opportunities are being opened to young people today. Indeed the Bureau of Labor Statistics estimates that individuals entering the labor force today can be expected to undergo an average of six to eight major job changes in their work life. Clearly students need far more information about occupation options than they receive via traditional channels. For maximum flexibility students need to develop a fair understanding of the entrance requirements, requisite skills, associated life styles, and opportunities for advancement associated with the major occupations which employ the bulk of this society's labor force.

A broad spectrum of career information is presented to the student in PLAN.

Information about educational and occupational opportunities, and about the world of work in general, is presented as an applied economics strand in PLAN Social Studies. This permits using occupational information in connection with such subjects as economic geography, ecology, urban problems, and industrial development. The program consists of 40 modules distributed across 12 grade levels. They are distributed in the following fashion:

Primary program. In the primary grades (1-4), most vocational information objectives are embedded in modules which give the young child a fairly simple, yet reasonable, introduction to the world of work. These objectives emphasize:

1. the nature and variety of work in some of the specific occupations that are usually visible to young students,
2. the patterns of interaction with other persons in job settings that differentiate work from other social roles,
3. work as a means of making a living and as a means of attaining personal satisfaction,
4. the roles that various occupations play in fulfilling social and economic needs, and
5. the general ways that people prepare for an occupation.

Samples of some of the primary level vocational information modules are presented in Appendix D.

Intermediate program. At the intermediate grades (5-8) approximately 15 learning units introduce the changing nature of trends in the American labor force, the concept of occupational families, and information about some 100 occupations grouped within major occupational families. In particular PLAN students study the groups that comprise the largest numbers of workers both male and female; those with the largest number of unemployed workers; the relationship between the occupations in greatest demand projected over the next ten years and the amount and kind of education required to enter them; and projected labor trends. The intent is to give the student an appreciation of the variety and complexity of occupations, the nature of the tasks assumed under these occupations, the type of training and preparation necessary, the style of life associated with each, and some concept of the contributions of these occupations to the fabric of American life.

Occupations are presented to PLAN students according to a system of broad occupational families. In the Five-Year Follow-Up of students tested in 1960, it was found that most of the career plans of the TALENT students five years after graduation from high school could be grouped empirically in twelve job-families. Six of these usually require college training and six do not.

The twelve occupational families used in Project PLAN were developed on the basis of educational requirements and the similarity of their interest and ability patterns as checked empirically using Project TALENT data. These twelve Long-Range Goal groups (LRG's) include approximately 100 occupations. The occupations in each of these sets were originally grouped on the basis of similar educational requirements and types of activities. The ability profile for each occupation was then compared both with those of the other occupations in the group to which it was tentatively assigned and also those in the eleven other groups.

The twelve career clusters and the occupations comprising them are summarized in Figure 5.

Figure 5

CAREER CLUSTERS AND THE OCCUPATIONS COMPRISING THEM

1. Engineering, Physical Science, Mathematics, and Architecture

Teacher, High School Mathematics
Teacher, High School Science
Teacher, College & University Science
Mathematician
Chemist
Engineer, Civil & Hydraulic
Engineer, Electrical & Electronic
Engineer, Chemical
Engineer
Architect
Physicist

2. Medical and Biological Sciences

Graduate Nurse (RN)
Physician
Dentist
Pharmacist
Biologist
Zoologist

3. Business Administration

Purchasing Agent
Personnel Administration
Finance Worker
Certified Public Accountant
Business Manager
Manufacturing Management
Marketing and Wholesale/Retail Trade Manager
Efficiency Expert, Industrial Engineer, Production Manager
Airplane Pilot
Military Officer
Teacher, High School Commercial Education
Retail Store Buyer
Advertising Worker
Accountant, Auditor, Comptroller
Other Workers in Industry, Business, and Commerce

4. General Teaching and Social Service

Teacher, Elementary School
Teacher, High School
Teacher, High School Physical Education
Teacher, High School Economics
Teacher for the Handicapped
Teacher (not elsewhere classified)
Social Worker
Clergyman

5. Humanities, Law, Social and Behavioral Sciences

Teacher, High School Social Studies
Teacher, High School English
Teacher, High School Foreign Language
Teacher, College & University Social Science
Teacher, College & University
Lawyer
Psychologist
Librarian

6. Fine Arts, Performing Arts

Teacher, Art (High School, Elementary School, Non-School)
Theater Worker
Teacher, Music (High School, Elementary School, Non-School)
Musician

7. Technical Jobs

Computer Programmer
Electronic Technician
Draftsman
Electronics Worker
Photographer
Laboratory Technicians & Research Assistants in Physical Science & Engineering
Medical Technologists
Laboratory Technicians in Medical & Biological Sciences

8. Business, Sales

Salesclerk, Checker, Cashier
Insurance Salesman
Salesman (not elsewhere classified)
Sales Manager
Supervisor in Business
Proprietor, Contractor (in business for self)

9. Mechanics, Industrial Trades

Airplane Mechanic
Auto Mechanic
Mechanic
Appliance Repairman
Machinist
Electrician
Printing Tradesman
Machine Tradesman

10. Construction Trades

Carpenter
Bricklayer, Mason
Roofer, Painter, Plasterer
Plumber, Pipefitter
Miscellaneous Building & Construction Tradesman

11. Business, Secretarial-Clerical

Keypunch Operator
Computer Operator
Secretary
Bookkeeper
Bank Clerk
Receptionist & Other Public Contact Workers
Miscellaneous Clerical Workers
Stenographer
Court Reporter
Typist
Clerk
Legal Secretary
Miscellaneous Computing & Account Recording Workers

12. General, Community Service, Public Service

Auto, Bus, & Truck Driver
Policeman
Fireman
Farming
Farm and Ranch Owner
Hairdresser, Manicurist, Cosmetologist
Military Serviceman
Practical Nurse
Clothing and Fashion Tradesman
Industry, Business, Commerce (not elsewhere classified)

There are several advantages to presenting clusters of related occupations in an occupational education curriculum. First, when a PLAN student learns about an occupation that is representative of a particular occupational family, he is learning generalizations that apply to a number of other related occupations within the family. For example, when a student learns about the educational and training requirements for a mechanical engineer, the information probably would apply to numerous other kinds of engineers. Second, when a student begins to plan toward a general occupational goal, he is meeting requirements for a number of related occupations as well, any one of which may eventually become a primary goal contingent upon a minor change in his plans. A student might, for example, set a goal to become a medical doctor. This goal would require certain educational decisions starting him off on many years of college and professional training. If along the way he decided to alter his goal of becoming a medical doctor, his chances would still be very good for finding a satisfying occupation in a related field, such as the life sciences. Learning about families of occupations permits flexible and alternate planning on the part of students.

Although the occupations that are sorted into each of the 12 families have some similar characteristics, the same occupations can differ in a variety of ways. PLAN students will learn how to compare occupations across families according to such variables as major tasks performed on the job, working conditions, educational requirements, the various training paths, pay and personal and social consequences.

Secondary program. The secondary level occupational education program continues on in this same vein with an additional 13 modules and also stresses exploratory activities leading to modification of individual long-range goals, if necessary, and to the formulation of specific individual plans following high school.

Activities include such techniques and means of information-seeking as: (1) observing occupational films, film-loops and film strips; (2) reading occupational texts, pamphlets, work simulation kits; (3) listening to audio tapes and visitors who describe occupations and their reactions to various jobs in those occupations; (4) talking to teachers, counselors and visiting speakers; and (5) writing letters to admissions offices at colleges and/or training schools.

Such exploration, however, is not limited to the classroom. Secondary level PLAN learning units encourage them to engage in exploratory activities outside their schools such as: (1) visiting places of employment to observe workers on their jobs and to question them about their reactions to the work; as well as (2) visiting college campuses and/or vocational training schools in order to investigate the capacity of each option to furnish results relevant to each individual's goals; (3) looking into work-study opportunities; (4) interviewing for part-time or summer jobs that relate to their occupational goals; and (5) investigating part-time non-paying work opportunities that would enable them to gain direct experience in occupational roles.

Optional learning units are also available on occupations that are just beginning to be visible in the world of work, that is, occupations so new that standard governmental, industrial, and commercial sources have not yet included them in their publications. Secondary level PLAN students have opportunities to learn how such developments as space explorations and the ever-expanding uses made of computers will create new occupations in the 1970's and 1980's.

Examples of some of the objectives on typical learning units of this program may be seen in Figure 6.

The Student Goal Formulation Program

The third component of the PLAN Guidance System is the student goal formulation program. The purpose of the student long-range goal (LRG) formulation strand is to improve a student's long-range goal formulation skills so that he can arrive at decisions on the basis of informed choice. The paradigm being followed is given in Figure 7.

The student-parent long-range goal formulation effort consists of a series of 11 modules which the student takes in cooperation with his parents (typically as an out-of-school activity). This series results in the student and his parents jointly arriving at, and specifying, the educational and general vocational aspirations and goals they hold. The information obtained is then used as input data for the generation of the student's individualized program of studies. The following is a description of this series of modules.

The first two modules deal with decision-making, the consequences of decision-making, the times when certain kinds of decisions typically ought to be made and the consequences should those decisions be arrived at too early or too late. The modules are entitled "Introduction to Decision-Making" and "Choices and Consequences."

Figure 6

SAMPLE OBJECTIVES OF THE CAREER AND VOCATIONAL INFORMATION PROGRAM

You will be able to:

Identify four trends in the world of work that are affecting workers and jobs.

Tell how industry (manufacturing, agriculture, and services) influences population distribution in your state.

List three services that an insurance salesman provides for his clients.

Describe what the employment prospects are for mathematical and physical science occupations.

Describe problems of particular concern to people who are directly involved in making a living in the developed and undeveloped grassland areas.

List two factors that a recent graduate of a college of dentistry would consider in setting up a dental office.

Describe the work activities of pharmacists employed in drugstores, in hospitals, and as drug salesmen.

Compare the length of training required and the average salary for a licensed practical nurse with the length of training required and the average salary for a professional nurse.

Describe the usual methods of obtaining training in the building trades and the employment opportunities in building trades.

Describe the main duties of carpenters, painters, plumbers, bricklayers, construction-machinery operators, and construction electricians.

Describe the commission and the salaried forms of income and compare the two.

Identify two financial benefits (other than pay) that workers usually recieve for doing their jobs.

Explain two non-monetary benefits that workers often receive for doing their jobs.

Identify five ways to describe jobs: (1) activities done on the job; (2) work setting; (3) pay and other benefits; (4) amount of education needed to get the job; and (5) chances of getting the job.

Describe several jobs that would probably be satisfying to a person based on a description of what that person wants in a job.

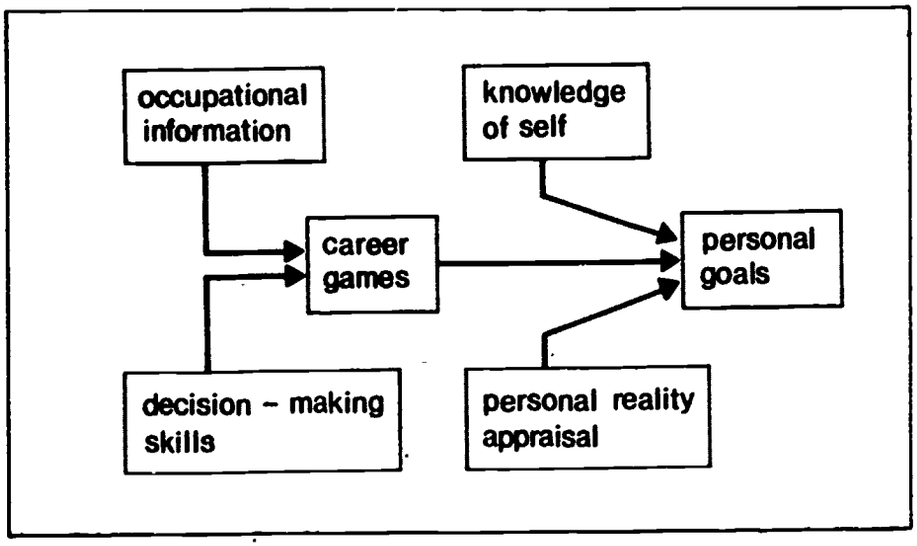
Identify five kinds of information used in comparing jobs: (1) duties of the job, (2) entry requirements, (3) working conditions, (4) amount and kind of benefits received, (5) opportunities for employment on the job.

Group jobs according to elements that the jobs have in common.

List five factors that people consider in choosing a job.

Figure 7

LRG FORMULATION



These two modules are then followed by a series of five modules dealing with a rather detailed analysis of the 12 LRG families suggested by the TALENT data, a description of the characteristics of prototype jobs comprising those LRG's, and a fairly detailed analysis of the skills and abilities characteristic of students going into the occupations representing those LRG's. These five modules utilize a series of four 30-page booklets that are based largely on the analysis of TALENT data, statistics from the Bureau of Labor Statistics, and such sources as the Occupational Outlook Handbook.

These modules are followed by two career planning modules in which the student gets practice in decision-making and planning for hypothetical individuals.

The career planning exercises are then followed by a module dealing with personal interests and values to be considered in making tentative LRG choices.

The personal assessment program has, to date, focused primarily on the development of interest and ability measures which form the foundation for student-parent long-range goal planning. Three instruments have been developed and are currently in use: an 18 scale Developed Abilities Performance Test, a 30 scale General Information Test, and a 12 scale PLAN Interest Inventory.

The data from these measures are used by the PLAN system, as well as by the individual student and his parents. In the former case, the data are used in the generation of data-suggested long-range goal categories. In the latter case the individual student uses data on his own personal abilities and interests in the formulation of his own long-range goals. Both the data-suggested goal category and the student-selected goal category are employed in individualizing the student's educational experiences.

In the final module the student and his parents apply what they have learned in the previous ten modules to arrive at the selection of tentative long-range goals.

This LRG information then becomes part of the input system for POS (Program of Studies) generation.

In addition to simply accepting student-parent long-range goal formulation indiscriminately it was recognized that, for a variety of reasons, student-parent long-range goal planning might not in fact protect the best interests of the student. For example, a student might be unduly influenced by the choice of significant members of his peer group at some point in time; similarly, he or his parents may be unduly biased by particular events in their own recent history. Some students may simply be derelict in conscientiously pursuing the student-parent long-range goal formulation materials and, of course, the materials themselves might not be effective in developing goal formulation and planning skills the first time they are used. Thus, as a backup procedure, a tentative long-range goal was assigned to the student as a reserve LRG, purely on the basis of the data, as they were available in the PLAN system. It was felt that by always attempting to accommodate the contemporary wishes of the student and his parents as well as the best prognostication we could make on a statistical basis, we provided the student with a certain measure of insurance for future flexibility. Indeed, we found that approximately 16% of the students appeared to opt for programs materially below their demonstrated level of ability. In these cases educational options were kept open for these students through the use of this auxiliary or data-suggested LRG.

Examples of objectives of the goal formulation program are found in Figure 8. Excerpts from sample learning units may be found in Appendix E.

Figure 8

SAMPLE OBJECTIVES - STUDENT GOAL FORMULATION PROGRAM

Describe how a person's life style may be affected by his job.

Identify the more important educational and occupational decisions to be made by students and the optimum times for making them.

Recognize that decisions are tentative and subject to change because:

a) your interests and abilities change,
b) the world changes, and
c) you might change your mind because you reassess the implications of your earlier decision.

Given descriptions of students making decisions, recognize examples of decisions which have been made carefully and identify four steps used in careful decision-making.

Given a description of a student and of a decision that he made, describe the most probable consequences of that decision for the student.

Given a description of a decision that a student has made relating to his educational and occupational future, identify additional factors that the student ought to have considered in making his decision.

Given certain undesirable consequences of a decision that a student has made, make a new decision for that student that will probably have more desirable consequences.

You will be able to identify several jobs that would probably be satisfying to a person based on a description of what that person wants in a job.

Given a decision that a student has made relating to his future, describe how this decision allows increased or decreased flexibility in planning and in the options it provides for the student.

Recognize that some decisions allow you more flexibility to modify your plans than others.

Given a "want-ad" description of a specific job, recognize whether that job belongs to LRG III: Business Administration, LRG VIII: Business, Sales, or LRG XI: Secretarial, Clerical.

Compare and contrast jobs in LRG IX: Mechanics, Industrial Trades, and in LRG X: Construction Trades, in terms of (a) nature of the work, (b) education and training requirements, and (c) DAP profiles.

Given a description of a decision made by a student and of the consequences of that decision, identify an alternative decision that could have been made and tell why you think it might also have been a good decision.

Given a description of a student, make a decision for that student which will allow him the most flexibility to do the things he wants to do.

Interpret your DAP scores and draw your DAP profile.

Relate your developed abilities to those of workers in various occupations and LRG's.

Evaluate the implication of your Long Range Goal selection in terms of your current educational plans.

The Individual Planning Program

The key component of PLAN Guidance is the Program of Studies. ndividualization has long been a goal of education. Many attempts have been made in this direction over the last 100 years. Perhaps Washburne's efforts in Winnetka, Illinois have been the best known. These have been reported again in a recent book by Washburne and Sidney Marland, who was superintendent of the Winnetka public schools some years after Washburne's retirement.

In spite of an almost perennial concern for individualization, education just doesn't seem to have moved very far in the direction of effectively individualizing education. Wilhelms in the 1962 NSSE yearbook, Individualizing Instruction, after an extensive review of the major educational programs laying claim to accommodating individual differences, concluded that "there has been far too much tendency to individualize with respect to little more than rate of progress . . . and one must have a meager conception of individualization to settle for students merely being able to do the same things at a different pace." More recently, as of 1970, the USOE ERIC Documentation Center System carried over 1,900 references from recent years dealing with curriculum. Only 36 have anything whatsoever to do with individualized curricula, individualized programs of study, individualized education, or the like. And of these 36, approximately half dealt only with some form of programmed instruction.

Alvin Toffler in Future Shock, however, suggests we may be much closer to great variation in education than we think.

It is through the program of studies (POS) that PLAN hopes to individualize more fully a student's education. The POS attempts to individualize content and instructional method as well as quota and length of exposure time.

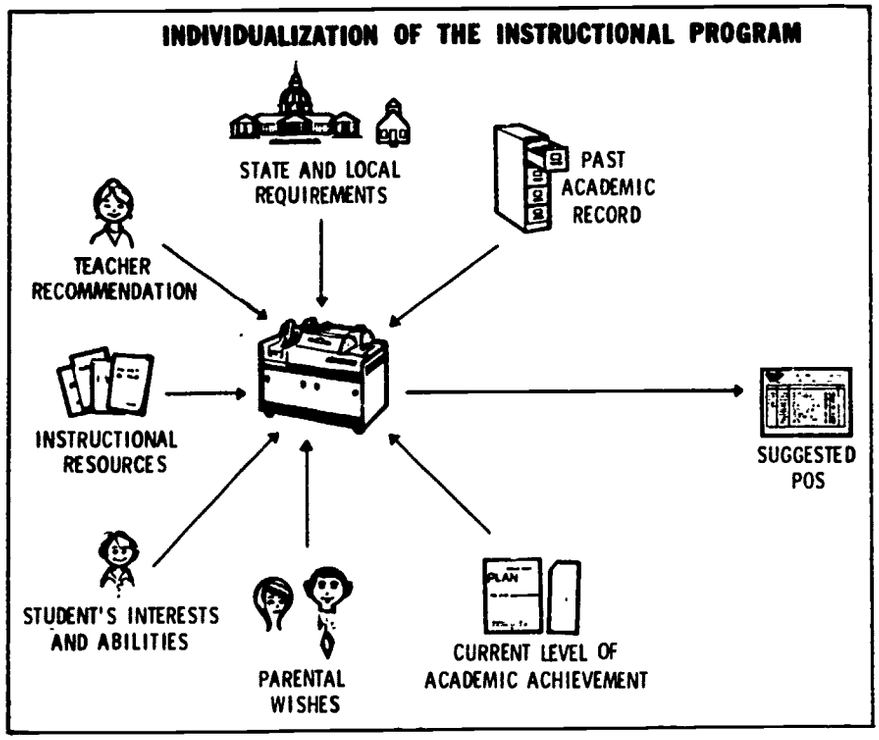
In particular, the POS considers:

1. What the student needs to know;
2. What the student already knows;
3. What the student would like to know;
4. The rate at which the selected content should be presented;
5. The sequence in which the content should be presented;
6. The mode of presentation of that content;
7. The difficulty level of the learning materials used to teach the content;
8. The nature of the physical and social context in which the teaching/learning takes place;

9. The amount of teacher supervision, media-richness, and technology involved;
10. Student-parent long-range goals and aspirations; and
11. The student's level of developed abilities.

Figure 9 summarizes the various sources of input to the PLAN POS.

Figure 9



A secondary school student's Recommended Program of Studies is produced as follows: first, information as to the student's long-range goal aspirations is retrieved. This information is the output of the Goal Formulation Program just described.

Next, data with regard to the student's interests, achievement levels, and developed abilities are obtained from the Expressed Interests Inventory, the PLAN Achievement and the Developed Abilities Performance Tests. From information about the student's developed abilities, a second long-range vocational goal was generated for the student, using TALENT based regression equations. This "data-suggested" LRG is used to supplement the parent-student planning so as to have an alternative option open for the student. The student's two long-range goal (LRG) categories plus his expressed interests then play the major role in determining what content will be recommended for him.

Next, information regarding any special state or local school system requirements is retrieved. At this point the computer is ready to search out those modules considered most important for the student to take. To do this the computer must search among 70,000 module descriptor codes in its decision-making process.

The individualization of content--module selection. Given information about a student's long range goals, his expressed interests, citizenship requirements, and state and local school requirements, the computer generates a list of recommended modules arranged in the following order: (1) state requirements; (2) local requirements; (3) essential citizenship requirements; (4) parent-student long-range goal requirements; (5) parent-student long-range goal highly desirable modules; (6) computer recommended LRG requirements; and (7) computer recommended LRG highly desired experiences. Depending on the student's LRG pattern, this list may represent from 3 to 5 years' worth of work.

The student's past history is then searched to see what he has already mastered and to see if he has the necessary academic foundations to pursue the work that will be expected of him in the coming year. Next, the student's achievement test results are considered to see if there is anything from last year's material that needs to be reviewed and what, if anything, from the coming year's work he may already know. These procedures define what might be described as the core content of the student's future POS.

These core requirements are then projected across the time remaining for the student to study that particular area. If the student's POS called for less than 3 years of mathematics, the length of time allotted to mathematics would depend on his past performance rate in mathematics, unless there was a scheduling limit placed on the planning by the student. If on the other hand, his POS called for more study than time permitted, if, say, it recommended 4 years of mathematics as desirable for the student, given his LRG pattern, and there were only 3 years remaining, the POS would design a "heavy load" program for the student, explain why it was so heavy, and advise him that if he wishes to pursue his LRG to his best advantage, he should either (a) revise upward the total number of years he expects to spend studying in that area; or if that is impossible, (b) increase the amount of time and effort he will devote to the study of that subject in the time he has left.

Figure 10 gives several examples of POS messages.

Figure 10

SAMPLE POS MESSAGES

Take Placement Test 91-052. On the basis of the results of this test you will be placed into either the Sullivan, Miami, or Chandler Reading Programs, or into Placement Test 91-053 with subsequent assignment into the Harper-Row Reading Program.

Take all the modules in any _____ of the following _____ groups. Once you begin work on a module in one group, complete all modules in that group before going on to another group.

After completing the following group of modules, take PLAN Achievement Test_____.

There are two approaches to the study of World History available in PLAN. You may study from selected themes of history or you may study from a chronological approach. Chose one of the following two sets of modules. Set 48-017 structures history thematically. Set 48-018 structures it chronologically.

When you complete this module you will have completed your basic mathematics program. If you wish to go further in mathematics, please consult your teacher about developing your abilities further in geometry. This may be done either by taking modules dealing with areas, similarity and circles (modules 23-649 through 23-654 in the sequence which you have been studying) or by taking modules 20-543 and 20-548 through 20-551 which deal with constructions, indirect measurement, and trigonometry. The latter set of modules does not require proofs of theorems.

If you find some advanced algebra modules listed after the basic trigonometry modules, please take them in that order. These advanced algebra modules are as important as the trigonometry modules for the achievement of your long-range goal.

Modules 26-870 and 26-884 do not deal with calculus. However, they cover topics that appear on the CEEB Advanced Placement Examination in Mathematics. Module 26-870 is particularly important as a prerequisite to the study of calculus.

Your test results suggest that you know some of the objectives of these modules in your program of studies. After reviewing each module carefully, consider challenging it.

Your test results show that you should review the objectives of these modules which you completed last year. Do not submit status or test cards for them.

You should have the equivalent of four years of high school science for the new LRG you have selected. You have already completed the equivalent of one year. Your science POS this year and next will suggest a heavier than normal load in order for you to complete your science requirement in the two years you still have left before graduation. You may wish to discuss this problem with your counselor and/or social studies teacher to see about a corresponding reduction in your social studies POS.

After the basic or core requirements are identified and distributed across the balance of the time expected to be devoted to the study of that content, attention is then turned to determining how much of the requisite material should be taken in the immediately ensuing year. If n is the number of years remaining to study in an area, then the student is assigned at least 1/n of the required modules. Typically the core requirements constitute much less than a year's worth of study, so attention must shift to the assignment of modules to augment these basic core modules. To do this, consideration must be given to determining what is a reasonable amount of work for the student to cover in a year.

This is determined by taking into consideration both the student's level of developed abilities, as determined by a battery of tests administered in the spring, and also the number of modules the student completed the preceding year.

In the event that a student's quota is not filled by the 1/n requirement (an almost guaranteed condition), the POS then begins to assign lessons that are considered highly desirable for the student to take. These are lessons not considered to be absolutely essential for further academic progress but which are nevertheless considered to be very important basic content for the student to learn.

If upon completion of assignment of these highly desirable lessons the student's quota for the year is still not filled, the remainder of the quota is divided evenly between lessons expected to appeal to the special interests of the student and required modules from the next higher level. Assignment of modules of this latter type permits some measure of student acceleration without sacrificing curriculum enrichment.

After module selection and quota determination, attention is then directed to module sequencing. Many modules are, of course, sequenced by the logical development of the content. Mathematics is a good case in point; but even in mathematics, there are units of material which need not follow a rigid sequence within the year. Indeed, in the areas of social studies and literature a great deal may be studied sequence free. All modules in the system are coded as to their sequence characteristics; and indeed, some modules are coded to be collaterally sequenced across subject matter areas. The correlation of the study of the metric system in mathematics and measurement in science is an example.

Individualization of method--TLU selection. At this point, specific TLU assignment takes place. Up to now the only consideration has been identification of the content to be studied, i.e., which lessons, how many lessons, and in what sequence the lessons should be taken. Now we are faced with the question of learning style, i.e., what particular TLU's the student should take to study the assigned lessons so as to maximize the likelihood of his mastering the content as quickly as possible. It is at this point that the computer matches the student with specific TLU's.

The results of these computer-generated decisions are then printed as a formal Program of Study for the student (see Figure 11). It is printed in two copies, one for school record keeping, and the other for teacher-student classroom use. Appendix F shows several additional samples of POS's in order that variations in POS's might be compared.

Each teaching-learning unit was coded as to its reading difficulty, the degree to which it required teacher supervision, its media richness characteristic, the degree to which it required social involvement and/or group learning activities, the amount of reading involved, and the variety of activities inherent in the unit. Related data regarding the student is obtained from data inputs from the teacher and student test results.

The POS module assignment and TLU matching rules are not best-fit rules, however, since one wants a student's program to stretch the student a little, to broaden his interests and strain his intellectual ability a little, and lead him a little further down the educational road than he might ordinarily go. Best fit is called for in only an arbitrary percentage of the time, e.g., ninety percent. One of the big unanswered questions is what this value should be. From need-achievement/fear-of-failure research, and other motivation research, it would seem this should be variable for different individuals. And in time, given experience with POS operation, I am sure this will be individualized as well as any of the other factors.

POS modifiability. The student can add or delete modules to the POS with considerable ease; and if he chooses, even totally revise the recommended Program of Studies. A formal change in the POS can be made by simply indicating the number of the module he would like to delete or add. Barring this, he can even effect a change in the POS by simply studying a module or TLU not on his POS. Then, when the student's test card is filed with the computer, the computer notes that the module or TLU is different from any on the student's recommended POS and asks the student to verify that a coding mistake on the

Figure 11

SAMPLE PROGRAM OF STUDIES

PLAN PROGRAM OF STUDIES 3288 EDWARDS ELEM.

305 IMMACULATE HEART LEVEL 8 LANGUAGE ARTS FALL 1970

COMPLETION CODE	MODULE NUMBER	MODULE NAME	NO OF TIMES STUDIED	DATE STARTED	DATE FINISHED
		THE FOLLOWING MODULES ARE SUGGESTED FOR YOUR PROGRAM OF STUDIES FOR THIS YEAR.			
	89-301	PLAN ORIENTATION			
	89-302	PLAN PROGRAM OF STUDIES			
	11-306-2	FABLES AND LEGENDS			
	19-306	INDEPENDENT READING--ANIMALS			
	11-307-3	FACTUAL INFORMATION, SUFFIXES			
	19-307	INDEPENDENT READING--ADVENTURE			
	11-308-2	UNCOMMON WORDS, CLASSIFICATION OF LITERATURE			
	19-308	INDEPENDENT READING--SPORTS			
	11-309-3	FACT OR FICTION, MAIN IDEAS			
	19-312	INDEPENDENT READING--HUMOR			
	11-311-3	FACT AND OPINION, SHORT NOVEL REPORT			
	19-313	INDEPENDENT READING--SCIENCE FICTON			
	11-312-3	SUMMARIZING, SYNONYMS AND ANTONYMS			
	19-314	INDEPENDENT READING--BIOGRAPHY			
	11-313-3	CHARACTERIZATION, WORD MEANING, ORAL READING			
	19-315	INDEPENDENT READING--HISTORICAL FICTION			
	11-314-2	SKIMMING, FACTUAL INFORMATION			
	13-281-2	QUESTION TRANSFORMATIONS			
	13-282-2	DERIVATIONAL SUFFIXES			
	13-283-2	ADVERBIALS--NEGATIVE TRANSFORMATION			
	11-315-3	MAIN IDEA AND SUPPORTING DETAILS, AUTHOR'S USE OF WORDS			
SET	17-047 REFERENCE				
		TAKE ANY 1 OF THE FOLLOWING 2 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 17-047.			
	13-351-1	THE WRITING OF POETRY			
	13-352-1	READING THE NEWSPAPER			
	11-316-2	SEQUENCING, DRAWING CONCLUSIONS AND CHARACTERIZATION			
	11-351-2	REFERENCE SKILLS			
	81-300	PLAN ACHIEVEMENT TEST			
	11-352-2	NOTE TAKING, OUTLINING AND REPORT WRITING			
SET	17-048 ANALYSIS				
		TAKE ANY 2 OF THE FOLLOWING 3 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 17-048.			
	11-353-2	MYSTERY STORIES 1--THE MYSTERIOUS SCHOOLMASTER			
	11-317-3	CRITICAL READING, ANALYZING A PLAY			
	11-318-2	POETRY--IMAGES, SOUND, AND MOOD			
SET	17-090 PLAYS				
		TAKE ANY 1 OF THE FOLLOWING 2 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 17-090.			
	10-382-2	PLAYS			
	10-383-1	STREETS AND STAGES			
	13-284-2	RELATIVE CLAUSE TRANSFORMATION			
	13-371-2	TRANSITIVE AND INTRANSITIVE--PASSIVE TRANSFORMATION			
	13-372-2	MORPHOLOGY--DERIVED SUFFIXES AND PREFIXES			
	81-252	PLAN ACHIEVEMENT TEST			
	10-373-3	ADVERTISING			
SET	17-049 IMAGE				
		TAKE ANY 3 OF THE FOLLOWING 3 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 17-049.			
	10-378-2	MOOD			
	10-380-2	PARAGRAPHS			
	10-393-2	COMMUNICATION HANGUPS			
	10-397-2	MAKING IT STRANGE			
	10-377-2	STRONG IMAGES			

test card has not been made, i.e., that the new selection is in fact a deliberate selection. Upon confirmation, the computer adds the new selection to the student's Program of Studies file automatically and from that point forward it is carried in his record.

As one would expect, PLAN POS's will vary considerably in type and amount of content covered, and in the rate and sequence in which that content is covered.

Finally, with regard to some simple operating characteristics, student programs of study are not easily generated by hand. They are run on an IBM 360 Model 50 computer. The specification of decision rules for POS generation required 200 pages of algorithms and flow charts plus 200 more pages of data tables and test score cut points. This is in addition to the 70,000 module descriptor codes necessary to organize, classify and sequence the instructional materials available in PLAN.

Over 140,000 units of core storage are required to store curriculum information about the modules in the PLAN system. The remaining 8,000 units of storage are required for processing. The processing time for each secondary student's POS (one in each of four subject matter areas: mathematics, science, language arts, and social studies) is approximately 40 seconds. While this seems like a very brief time, and indeed is very economical considering the size of the task, 40 seconds of continuous computer processing on a machine such as the IBM 360-50 represents an extremely large number of decisions for each student.

The generation of elementary school POS's is considerably simpler because of the absence of vocational goals to be considered. Running time for them is approximately 10 seconds for each of the four subject matter POS's.

In conclusion it should be indicated that, regardless of the nature and degree of planning that has gone on, the teacher is the final authority in the classroom. The teacher uses the recommended POS as he or she sees fit. He or she may implement the program of study in its entirety; may make minor revisions; may make major revisions; or may even ignore it completely and develop an alternative program of studies for the student. Whatever his or her final course of action, however, the teacher at least will have had the best counsel we could offer.

Student Assessment and Progress Monitoring

Student assessment and progress monitoring in PLAN was carried out at several levels. The most comprehensive is the annual testing program carried out near the end of the school year, usually late in May or early in June.

During this time the student takes an annual test battery consisting of an 18-scale Developed Abilities Performance battery assessing such variables as vocabulary development, reading comprehension, abstract reasoning ability, and the like. He also takes a 30-scale General Information Test to determine his pattern of functional interest; a 12-scale PLAN Interest Inventory to ascertain areas of potential or expressed interest; a Student Attitude Inventory; and a battery of PLAN Achievement Tests. (Note Figures 12, 13, and 14).

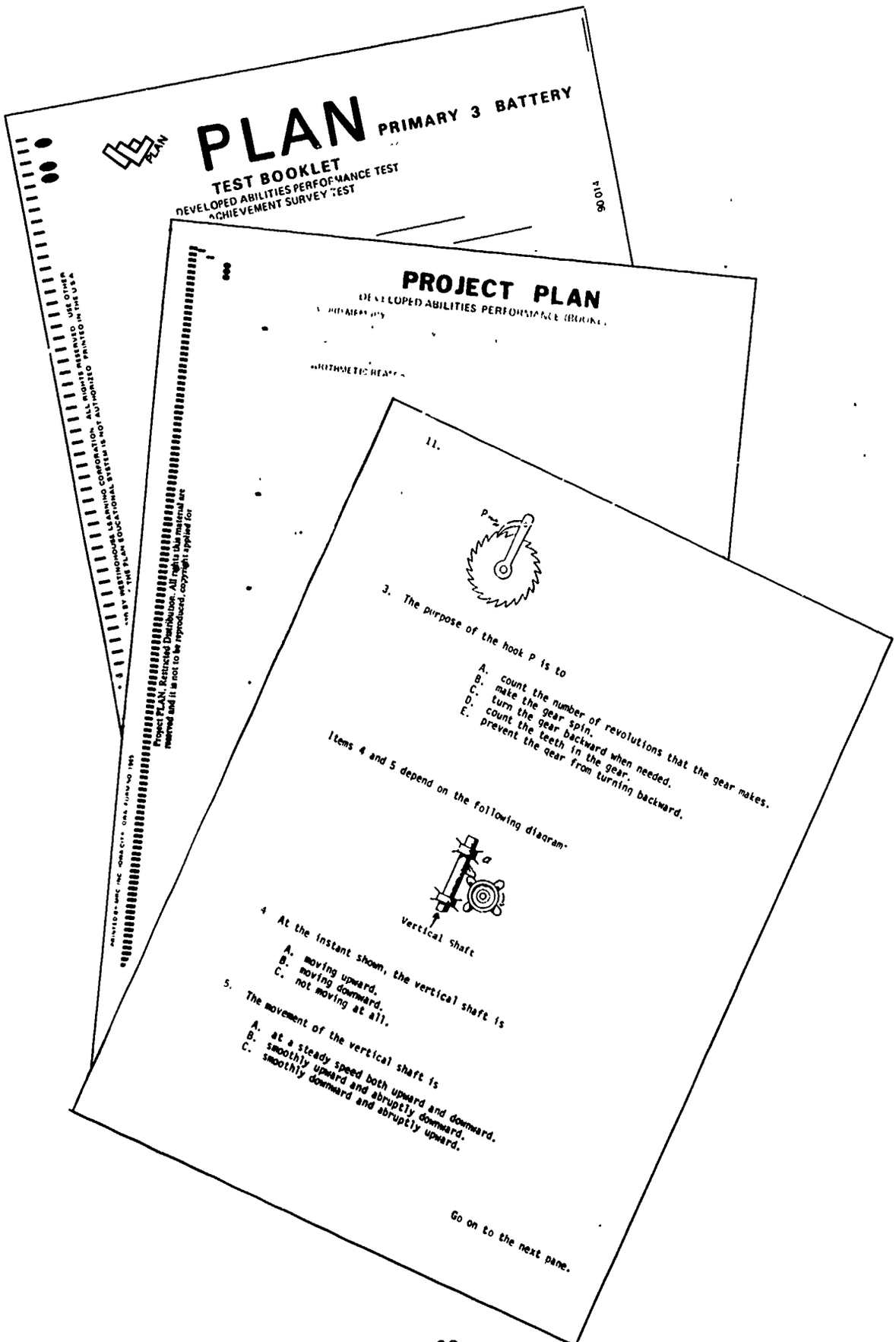
During this time data are also collected from the teacher with regard to such student classroom behavior dimensions as: his ability to work independently without frequent teacher supervision; the content presentation modes from which he seems to learn most readily; the degree of practice or drill he typically seems to require in order to master the materials; and the like. This latter type of information is used in recommending particular instructional methods for use with specific children.

A second level of student monitoring is represented by the bi-monthly Student Progress Report. (See Figure 15). Every two months, or more frequently if the teacher requests it, a Student Progress Report is produced. It is a cumulative report of the student's work from the beginning of the school year. It shows: the modules the student has taken; the day he started and completed them; his test performance on the module; whether modules have been added or dropped; the relevance of the various modules to his long-range goals; the modules he has successfully challenged; the modules currently active, i.e., the modules he has started but not yet completed; and the modules yet to do for the remaining portion of the year.

This student progress report, then, constitutes not only the student's academic history, but also yields information regarding his habitual pattern of thoroughness in studying modules, his conservativeness in challenging modules, his characteristic work rate, and the like. The report is produced in multiple copies so that the student, his parents, and his teacher each receive a copy. This report constitutes, if you will, a module test version of a report card. It communicates a great deal more information than a report card, however;

Figure 12

SAMPLE DAP MATERIALS



PLAN PRIMARY 3 BATTERY

TEST BOOKLET

DEVELOPED ABILITIES PERFORMANCE TEST

ACHIEVEMENT SURVEY TEST

90014

PROJECT PLAN

DEVELOPED ABILITIES PERFORMANCE (BOOKLET)

NUMERICAL

ARITHMETIC REASONING

Project PLAN. Restricted Distribution. All rights in this material are reserved and it is not to be reproduced, copyright applied for

11.

P

3. The purpose of the hook p is to

A. count the number of revolutions that the gear makes.
B. make the gear spin.
C. turn the gear backward when needed.
D. count the teeth in the gear.
E. prevent the gear from turning backward.

Items 4 and 5 depend on the following diagram.

a

Vertical shaft

4. At the instant shown, the vertical shaft is

A. moving upward.
B. moving downward.
C. not moving at all.

5. The movement of the vertical shaft is

A. at a steady speed both upward and downward.
B. smoothly upward and abruptly downward.
C. smoothly downward and abruptly upward.

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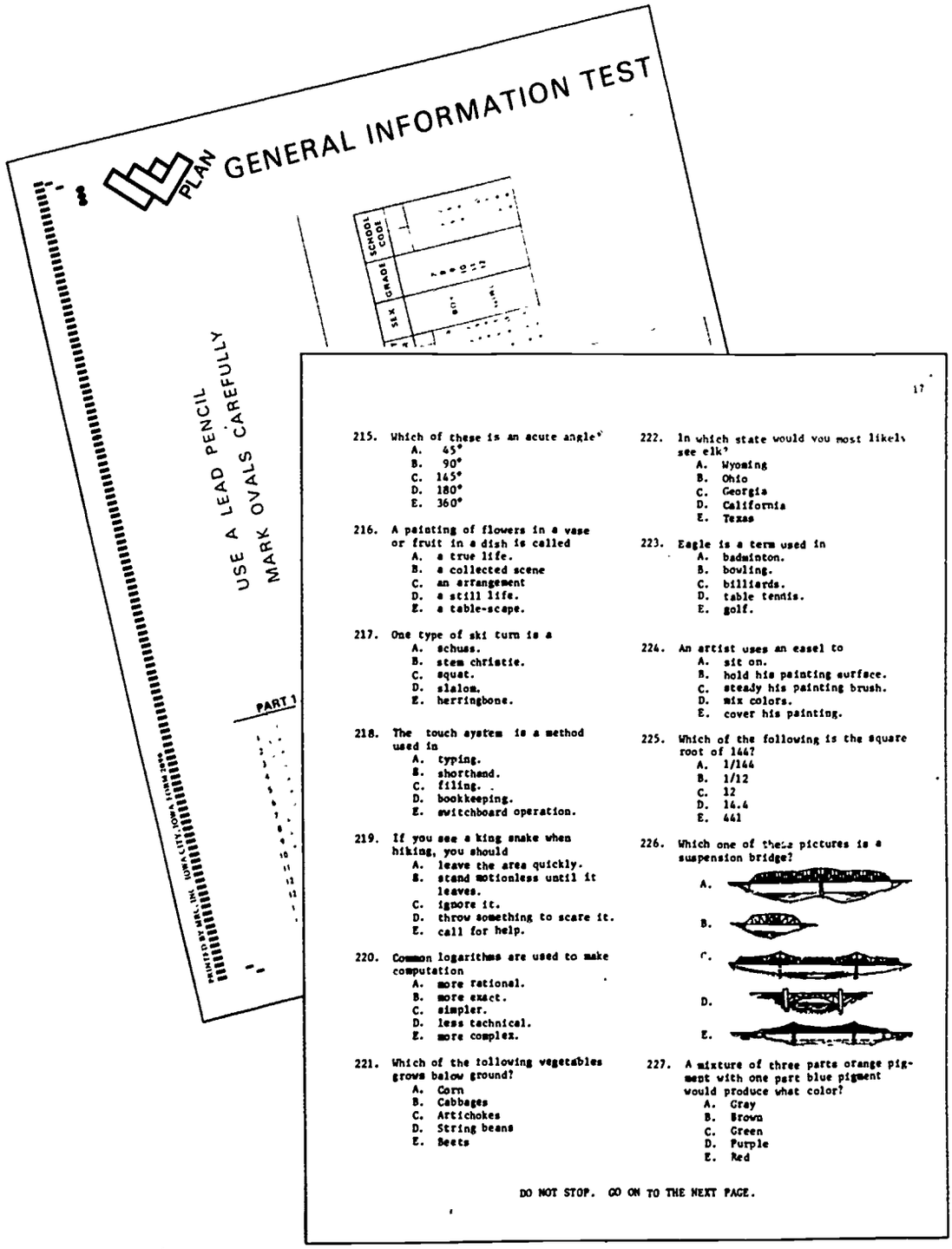
Figure 13

SAMPLE GIT MATERIALS



PLAN GENERAL INFORMATION TEST

USE A LEAD PENCIL
MARK OVALS CAREFULLY

SCHOOL CODE
GRADE
SEX

PART 1

17

215. Which of these is an acute angle?
A. 45°
B. 90°
C. 145°
D. 180°
E. 360°

216. A painting of flowers in a vase or fruit in a dish is called
A. a true life.
B. a collected scene
C. an arrangement
D. a still life.
E. a table-scape.

217. One type of ski turn is a
A. schuss.
B. stem christie.
C. squat.
D. slalom.
E. herringbone.

218. The touch system is a method used in
A. typing.
B. shorthand.
C. filing.
D. bookkeeping.
E. switchboard operation.

219. If you see a king snake when hiking, you should
A. leave the area quickly.
B. stand motionless until it leaves.
C. ignore it.
D. throw something to scare it.
E. call for help.

220. Common logarithms are used to make computation
A. more rational.
B. more exact.
C. simpler.
D. less technical.
E. more complex.

221. Which of the following vegetables grows below ground?
A. Corn
B. Cabbages
C. Artichokes
D. String beans
E. Beets

222. In which state would you most likely see elk?
A. Wyoming
B. Ohio
C. Georgia
D. California
E. Texas

223. Eagle is a term used in
A. badminton.
B. bowling.
C. billiards.
D. table tennis.
E. golf.

224. An artist uses an easel to
A. sit on.
B. hold his painting surface.
C. steady his painting brush.
D. mix colors.
E. cover his painting.

225. Which of the following is the square root of 144?
A. 1/144
B. 1/12
C. 12
D. 14.4
E. 441

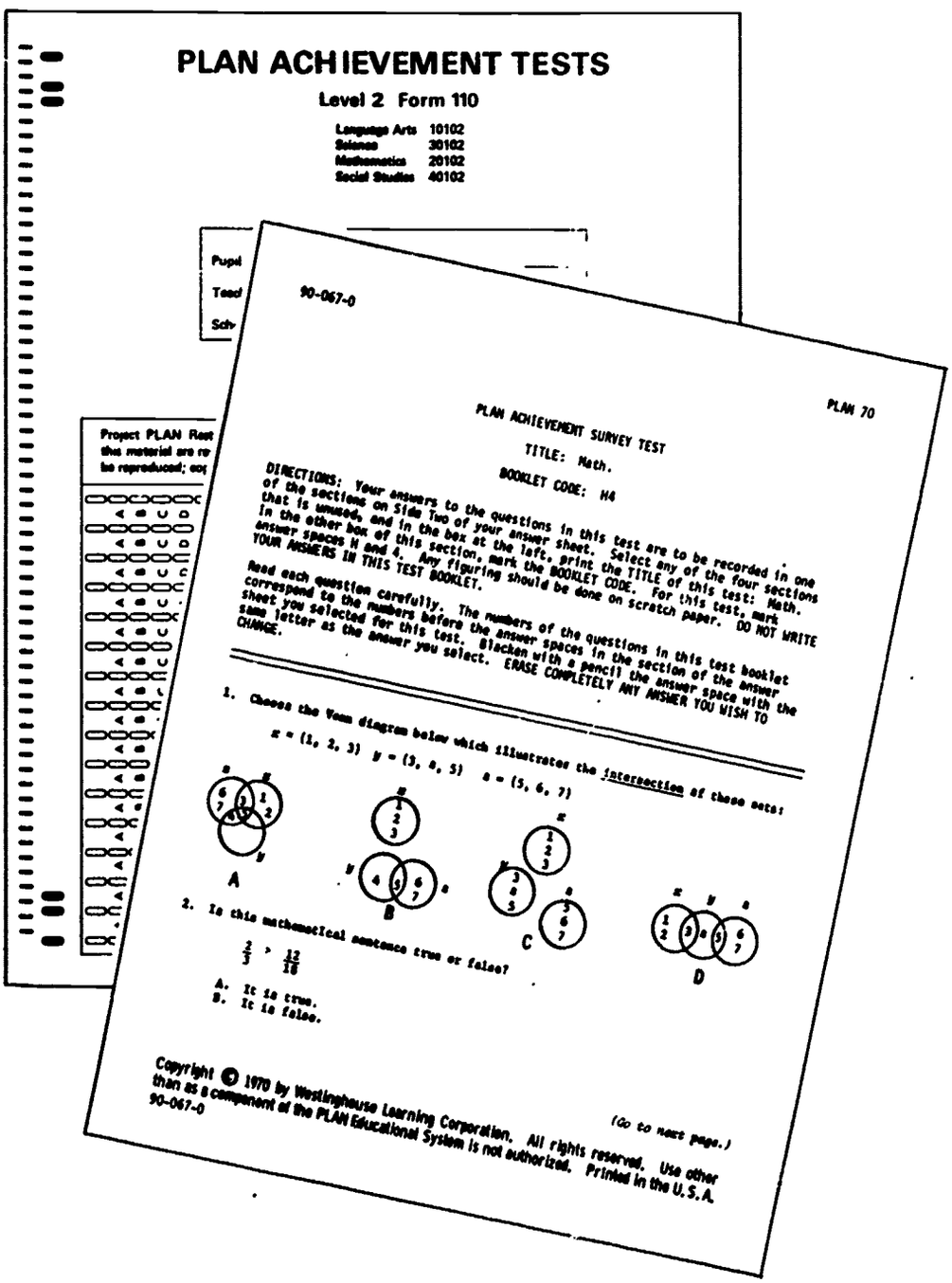
226. Which one of these pictures is a suspension bridge?
A.
B.
C.
D.
E.

227. A mixture of three parts orange pigment with one part blue pigment would produce what color?
A. Gray
B. Brown
C. Green
D. Purple
E. Red

DO NOT STOP. GO ON TO THE NEXT PAGE.

Figure 14

SAMPLE PAT MATERIALS



PLAN ACHIEVEMENT TESTS

Level 2 Form 110

Language Arts	10102
Science	30102
Mathematics	20102
Social Studies	40102

Pupil

Test

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Project PLAN Rest
the material are re
be reproduced; ex

90-067-0

PLAN 70

PLAN ACHIEVEMENT SURVEY TEST

TITLE: Math.

BOOKLET CODE: H4

DIRECTIONS: Your answers to the questions in this test are to be recorded in one of the sections on Side Two of your answer sheet. Select any of the four sections that is unused, and in the box at the left, print the TITLE of this test: Math. In the other box of this section, mark the BOOKLET CODE. For this test, mark answer spaces H and 4. Any figuring should be done on scratch paper. DO NOT WRITE YOUR ANSWERS IN THIS TEST BOOKLET.

Read each question carefully. The numbers of the questions in this test booklet correspond to the numbers before the answer spaces in the section of the answer sheet you selected for this test. Blacken with a pencil the answer space with the same letter as the answer you select. ERASE COMPLETELY ANY ANSWER YOU WISH TO CHANGE.

1. Choose the Venn diagram below which illustrates the intersection of these sets:

$x = (1, 2, 3)$ $y = (3, 4, 5)$ $z = (5, 6, 7)$

A B C D

2. Is this mathematical sentence true or false?

$\frac{2}{3} > \frac{12}{18}$

A. It is true.
B. It is false.

(Go to next page.)

90-067-0

Figure 15

PERIODIC STUDENT PROGRESS REPORT

PLAN

PROGRAM OF STUDIES AND STUDENT PROGRESS REPORT FOR MCDOWELL JOHN

0006 SCHOOL TIERRA LINDA SCHOOL TEACHER Mk, ROBERT STRODE SUBJECT AREA SCIENCE DATE 04/04

COMPLETION CODE	MODULE NUMBER	MODULE NAME	START	DATE FINISHED
T-CERTIFIED	30-310-1	MICROORGANISMS	(2) SEP 22	OCT 27
T-CERTIFIED	39-301-2	INDIVIDUAL DIFFERENCES AND THEIR MEASUREMENT	(2) OCT 27	NOV 3
STD REVIEW	30-3[illegible]-1	ELEMENTS AND CHANGE IN THE ECOSYSTEM	(1) NOV 5	NOV 5
STD REVIEW	30-305-2	BODY SYSTEMS	(1) NOV 17	DEC 19
STD REVIEW	30-312-1	INTRODUCTION TO SYSTEMS OF THE BODY- SKELETAL SYSTEM AND NERVOU	(1) NOV 3	NOV 3
STD REVIEW	30-311-2	INTRODUCTION TO DISEASE	(1) JAN 5	JAN 5
STD REVIEW	30-371-2	CONCEPT OF INTERACTION AND CHANGE	(1) JAN 13	JAN 13
MASTERED	30-304-1	CONSERVATION	(1) FEB 4	FEB 4
STD REVIEW	30-392-1	UNNATURAL CHANGES IN MAN	(1) JAN 19	JAN 19
STD REVIEW	30-378-1	DIVERSITY OF LIFE	(1) MAR 18	MAR 18
T-CERTIFIED	30-375-1	LIFE BEGETS LIFE II	(1) APR 1	APR 1
STD REVIEW	30-382-1	STRUCTURE ANALYSIS IN PLANTS	(1) APR 3	APR 3
UNTESTED	30-387-1	HELPFUL AND HARMFUL ORGANISMS	(0) MAR 4	
	G01C2			
	30-380-2	LIFE TO LIFE	(0)	
	30-383-3	DIVERSITY IN PLANTS	(0)	
	30-374-3	LIFE BEGETS LIFE I	(0)	
	30-381-3	OUR SENSES	(0)	
	30-391-4	THE MICROSCOPE	(0)	

and it serves as a periodic heuristic for teacher-student interaction, counseling, and program planning.

Finally, the third and most frequent level of progress monitoring is the teacher's daily processing report. (See Figure 16). This daily report, available for the teacher each morning before the start of school, notifies the teacher of, among other things, student progress on modules on which the student is currently active, that is, modules which he has started and not yet completed. The final section of that report also gives test results of all modules for which tests were taken in the previous day.

Military, College, and Post-High School Counseling

The final aspect of the basic Guidance Program is the counseling junior and senior students receive to prepare them for the transition from high school. A series of six modules is involved. Two modules acquaint the student with the nature of his military obligations, the advantages and disadvantages of enlistment as compared to the draft, etc. Two others acquaint him with colleges and universities, their organizational structure, and how to apply to them. Those students who think they might go to college decide to apply for college admission and actually do so. Those who do not plan to go on to college immediately take a set of two modules dealing with junior and community college opportunities, on-the-job training, and job search and application skills. Sample objectives of this program are included in Figure 17. Regardless of a student's choice, i.e., college, military, or other post-high school commitment, each of these modules results in the student making some active movement toward transition from high school.

Figure 16

RECORD OF CLASSROOM ACTIVITY: DAILY PRINTOUT

HICKSVILLE JUNIOR MR. LARRY DAUCH CLASS 8 SOC STDY 09/11/69

E X C E P T I O N S E C T I O N -

THE PROCESSING EXCEPTIONS THAT FOLLOW MAY REQUIRE ACTION ON YOUR PART.

THE FOLLOWING STUDENTS WILL NEED TO RE-TEST ON THE MODULES SHOWN UNLESS YOU TEACHER-CERTIFY THEIR COMPLETION OF THE MODULE OBJECTIVES.

0902	CONOVER REEVE	89-702
0863	GOLDMASSER ROBERT	89-701
0896	STUHLMULLER JOHN	89-702

A C K N O W L E D G M E N T S S E C T I O N - - - - - - - - - - - - - -

THE FOLLOWING STUDENTS HAVE BEEN REGISTERED FOR THIS CLASS IN SOC STUDIES

0841	ARGENTO DARLENE	BEGIN TO WORK ON 89-701-2
0842	ATTOLINO DONNA	BEGIN TO WORK ON 89-701-2
0844	BATCHLER CARL	BEGIN TO WORK ON 89-701-2
0846	BENTO GEORGE	BEGIN TO WORK ON 89-701-2
0850	BRUNO JOSEPH	BEGIN TO WORK ON 89-701-2
0854	CARLINO JOSEPH	BEGIN TO WORK ON 89-701-2
0856	CHAMPOVILLON WILLI	BEGIN TO WORK ON 89-701-2
0902	CONOVER REEVE	BEGIN TO WORK ON 89-701-2

YOUR REQUEST FOR SUPPLIES WAS RECEIVED.

P L A N N I N G S E C T I O N -

NO STATUS CARDS RECEIVED

T E S T R E S U L T S S E C T I O N - - - - - - - - - - - - - - - - -

CARLINO JOSEPH 89-701-2 CAREFULLY REVIEW 9512 03/04 9514 03/04
OBJECTIVES ALL CORRECT WERE 9511 9513 9515 9516
THEN BEGIN TO WORK ON 89-702-2

CONOVER REEVE 89-701-2 CAREFULLY REVIEW 9511 04/05 9512 03/04
9514 03/04 9517 02/03
OBJECTIVES ALL CORRECT WERE 9513 9515 9516
THEN BEGIN TO WORK ON 89-702-2

CONOVER REEVE 89-702-2 RETEST OR HAVE YOUR TEACHER CERTIFY AFTER YOU
RESTUDY 9521 00/01
OBJECTIVES ALL CORRECT WERE 9518 9519 9520
CONTINUE WORK ON THIS MODULE.

P O S A N D P R O G R E S S R E P O R T S S E C T I O N - - - - -

NO PROGRAM OF STUDIES OR PROGRESS REPORTS REQUESTED

Figure 17

SAMPLE OBJECTIVES - MILITARY, COLLEGE, AND POST-HIGH SCHOOL COUNSELING PROGRAM

You will be able to:

Describe the kinds of information you would expect to find from college handbooks, college catalogues, and a visit to a college campus.

List four main sources of funds which students use to meet the cost of a college education.

Write a one- to two-page report on three colleges, including information on the cost, entrance requirements, academic program, and college life, and on the advantages and disadvantages of each college for you.

Define the terms *draft*, *selective service*, and *conscription*.

Describe the responsibilities that every 18-year-old male has in connection with registering for the draft.

Identify examples of the five groups (Classes I-V) that local selective service boards use for classifying draft registrants, and the main steps a registrant can take if he chooses to appeal his classification.

Compare the major alternatives open to men regarding their military obligation: draft, enlistment, reserves, commission, and conscientious objection.

Complete a sample application form for (a) a job, (b) a college, or (c) a training program.

Prepare a résumé of your qualifications for a job, including the following kinds of information:

1. personal data,
2. educational background,
3. type of work desired or objective,
4. special skills or abilities,
5. work experiences, and
6. references.

Role-play a person who is being interviewed for (a) a job, (b) admission to college, or (c) a training program.

In preparation for leaving high school, apply for (a) a job, (b) admission to college, (c) a technical school or vocational training program, (d) an armed services program, or (e) other post-high school commitment.

APPENDICES

APPENDIX A

GLOSSARY OF KEY CONCEPTS IN PROJECT PLAN

DEVELOPED ABILITY PERFORMANCE TESTS (DAP): The Developed Ability Performance tests are tests which are intended to measure the "developed ability to perform" components of academic performance (as contrasted with the more readily influenced "achievement" components). The Project PLAN Developed Ability Performance tests are intended to measure many of the same types of aptitude and ability that are measured by the Project TALENT aptitude and ability tests. Examples of developed ability tests include reading comprehension, arithmetic reasoning, abstract reasoning, sentence structure, visualization in three dimensions, and mechanical reasoning.

INDIVIDUALIZED INSTRUCTION: Individualized instruction is a system for allowing and assisting a student to achieve those instructional objectives defined by his program of study. The teacher and student share the responsiblity for selecting the instructional procedures which are likely to be most effective in eliminating the gap between current and desired student performance.

Each student is encouraged to achieve the objectives of his program of study at as fast a rate as possible. The teacher and the computer provide information to the student so that he can assess his own progress so that he can better organize his own time and activities.

INDIVIDUALIZED SCHEDULE: A schedule for completion of modules in the student's program of studies. The computer recommends a schedule for the student based on the student's test scores and past performance in PLAN. Different students need different amounts of feedback from teacher, parents, and peers built into their schedules so that they can maintain their learning progress. The advantage of an individualized schedule is that it provides each student with an expectancy of the pace of his learning so that he can learn to schedule his time efficiently within the instructional program.

INSTRUCTIONAL GUIDE: An instructional guide is printed instructional material developed by the Project PLAN staff to accompany a TLU when commercially available instructional materials are either inadequate or inappropriate for the achievement of a specific instructional objective.

INSTRUCTIONAL MATERIAL: Instructional material is any book, workbook, film, etc. that may be used by the student in the systematic achievement of an instructional objective.

INSTRUCTIONAL OBJECTIVE: An instructional objective is a goal intended to be measurably achieved as a result of instruction. Properly stated, an instructional objective describes the behavior of the student which is intended to be developed or strengthened, the important conditions under which the behavior is to occur, and the criterion of acceptable performance. The instructional objective should be written in a language which the student can understand. The instructional objectives of a module are printed in each TLU at the intermediate and secondary levels and in the teacher's supplements at the primary levels.

MODULE: A module is a set of instructional objectives which are intended to be achieved by the average student in approximately two weeks. The main vehicle for the teaching of the instructional objectives of a module is the TLU. Each TLU of the module is designed to use different instructional activities to teach the objectives of the module.

MODULE TEST: A module test is a test given to the student when he completes a TLU. The purpose of a module test is to determine whether or not the student has achieved the objectives of a module.

Every item on the module test refers to a specific instructional objective. Two major types of items may be included in the module tests: (1) items which measure the achievement of objectives of that module, and (2) items which are intended to measure long-range objectives such as reading comprehension, vocabulary, writing ability, etc.

The module test is designed so that most of the items for each objective should be answered correctly by the student if he has completed the module (the "success principle"). The teacher and the student should confer jointly to decide if the student is ready to challenge the module test. Each module test is scored by the computer and the teacher and student are informed of the student's performance level in achieving each of the instructional objectives of the module. The computer also recommends to the student the instructional objectives which require further study or review.

Each module test can receive one of four overall scores: Complete, Student Review, Teacher Certify, or Not Passed. This overall score is a function of how well the student has achieved each of the objectives of the module. Scores are also reported on each objective of the module. In this way the teacher and the student know immediately those instructional objectives on which the student needs to improve his achievement. Since the steps in the TLU's are cross-referenced by the code number of the objectives, the teacher can easily assign parts of the TLU to be studied by the student if his module test results indicate that further study of an instructional objective is desirable.

NON-GRADED CURRICULUM: A non-graded curriculum is a curricular structure through which a student proceeds on the basis of his performance and ability rather than on the basis of either his chronological age or on the basis of the number of hours he has spent in school.

Project PLAN is a non-graded program of individualized instruction which focuses on the achievement level, the interests, and the abilities of the student.

PLAN: PLAN stands for a "Program for Learning in Accordance with Needs."

Project PLAN is a computer-supported individualized education system which is designed to incorporate the best judgments of subject-matter, specialists, educational psychologists, teachers, students and administrators to develop suitable educational programs within the limits of a practical instructional technology.

PROGRAM OF STUDIES (POS): A program of studies is a tentative selection of the sequential and non-sequential modules in a subject area for a student.

Each student's suggested program of studies is generated by a computer. This tentative program is amended by the computer through the use of the student's long-range goals, interests, academic record, standardized achievement test scores, past performance in Project PLAN, and performance on PLAN module tests.

TEACHING-LEARNING UNIT: A teaching-learning unit (TLU) is an instructional unit designed to assist students to achieve the instructional objectives of a module by using existing commercial instructional materials.

TLU's differ in mode of presentation of information, amount of practice, amount of review, pacing, level of reading difficulty, etc.

A TLU consists of a set of printed directions which inform the student of the instructional objectives of the module, the instructional materials he is to use and what he is to do with them, and the examples of the objective which tell him how he will know when he has achieved the instructional objectives of the module.

There are two major types of TLU's in Project PLAN: (1) "materials-specific" and (2) "materials-general." The materials-specific TLU contains references to specific instructional materials which are recommended to the student for the attainment of the instructional objectives of the module. The materials-general TLU does not recommend any specific instructional materials for the module, but instead allows the teacher to assign this type of TLU to a student as part of a research project intended to assist the student to discover materials which are relevant to the attainment of the instructional objectives of the module. The materials-general TLU contains a "key-words" column which contains suggested learning activities and gives hints to the student so that he can locate relevant content within the available instructional materials.

APPENDIX B

GUIDANCE AND CAREER EDUCATION MODULES IN PLAN

Career and Vocational Information Modules

40-058	Consumers and Producers
40-059	Wishing and Choosing
40-060	Neighborhood Helpers
40-061	Transportation
40-102	Small-Town Neighborhoods
40-110	Schools in the Neighborhood
40-113	TV Programs
40-119	People in the Neighborhood
40-151	What is a Community?
40-163	Mountain Communities 1
40-164	Mountain Communities 2
40-167	Grassland Communities 2
40-169	A Planned Community
40-208	Searching for Information
40-211	A Modern View of Your State
49-350	Introduction to the World of Work
49-351	The Variety of Jobs
49-353	Business Sales Occupations
49-354	Mathematical and Physical Science Occupations
49-355	Mechanic and Repairman Occupations
49-356	Health Service Occupations
49-357	Industrial Trades Occupations
49-358	Business Management Occupations 1
49-359	Business Management Occupations 2
49-360	Teaching Occupations
49-361	Public and Commercial Service Occupations 1
49-362	Public and Commercial Service Occupations 2
49-750	Introduction to the World of Work
49-751	The Variety of Jobs
49-752	Preparing for Career Decisions
49-753	Technical Occupations 1
49-754	Technical Occupations 2
49-755	Engineering and Architecture Occupations
49-756	Biological Science Occupations
49-757	Social Service Occupations
49-758	Business-Clerical Occupations 1
49-759	Business-Clerical Occupations 2
49-760	Building Trades Occupations
49-761	Social Science Occupations
49-762	Performing Arts Occupations

Student Goal Formulation Modules

89-703	Choices and Consequences
89-704	Introduction to Decision Making
89-705	Job Families and Jobs: Introduction
89-706	Job Families and Jobs: Part I
89-707	Job Families and Jobs: Part II
89-708	Job Families and Jobs: Part III
89-709	Job Families and Jobs: Part IV
89-710	Career Planning Practice I
89-711	Career Planning Practice II
89-712	Interests and Values in Career Decision Planning
89-714	Student-Parent Evaluation of Long Range Goals

Military, College and Post-High School Counseling Modules

19-704	After High School, What?
19-705	Information About Colleges
19-707	Draft and Military Information
19-556	Speech--Job Opportunities
19-708	Application Skills
15-402	Preparing for Leaving High School: Application Skills
85-003	Preparing to Leave High School: Interviewing Skills
85-004	Part-Time Job Application Skills
85-005	Leisure Time Activities I: School Related
85-006	Leisure Time Activities II: Non-School Related
85-007	Citizenship Activities I: Political Involvement
85-008	Citizenship Activities II: Community Involvement
85-009	Citizenship Activities III: Making Your Views Heard

Orientation and Study Skills Modules

89-301	PLAN: Orientation
89-302	PLAN Program of Studies
89-701	PLAN Orientation
89-702	PLAN Program of Studies
19-301	Strategies for Test-Taking
19-302	Study Skills
39-301	Individual Differences and Their Measurement
39-701	Individual Differences and Their Measurement
19-701	Strategies for Test-Taking
19-702	Study Skills
19-703	Listening Skills

Student Assessment Devices

Kindergarten Reading Readiness Form
Introductory Reading Placement Tests
End 4 Module Tests
PLAN Achievement Survey Tests
Developed Abilities Performance Tests
General Information Test
PLAN Interest Inventory
Student Learning Style Rating Scale
Student Attitude Inventory

APPENDIX C

SCIENCE AND SOCIAL STUDIES

CURRICULUM PLANNING CHARTS

SCIENCE

MAJOR CONTENT DEVELOPMENT	THINGS AND SENSES 1	INTERACTION OF THINGS 2	SYSTEMS & INTERACTION PATTERNS 3	THE RELATIVITY OF THINGS 4
A. LIFE SCIENCE TOPICS Health			*Food ① (SS); where we get food ② (SS)*	Human body growth Human body systems Foods & health *where we get our food & how we use food (SS)*
Biology	Living things: organisms plant characteristics & animal characteristics	Birth: male, female, live birth, & eggs Growth *Linear measurement; graphing (M)*	Patterns in living things Pre-historic animals, fossils Plants & animals interact Animal development Life cycles *Symmetry (M)*	Adaptations Classification of living things *Interrelation of sets (M)*
Ecology	Living things in their environments	Organisms interact with the environment Decay *Spoilage (SS)*	Habitats & communities: forests, etc. Conservation *Resources (SS)* Food chain	Habitats affect the survival of things
Psychology	Learning from the senses, etc. Individual learning differences & *Learning styles (G)*	Laws of learning		Human learning (laws of) Individual differences & psychological testing
B. PHYSICAL SCIENCE TOPICS Physics	Non-living objects	Magnets, electricity Rollers, wheels, gears, & pulleys	Motion & force Patterns in non-living things Simple machines Light & sound Systems	Mass, balance Relativity of position & motion
Chemistry	Properties of things: material composition, weight, temperature, & solid, liquid or gas	Interaction & evidence of interaction	Energy (to do work, cause interaction) Heat Solutions, filtering	Temperature changes - expand & contract
Computer Science	*Linear measure: counting; temperature, & time (M)*	*Measurement (M)* *Linear to 1/2 inch* *Liquid to gallon* *Shadow clock & sundial (M)*	*Measurement, histograms, & estimations (M)* *Time to minute (M)*	*Use of thermometer (M)*
C. EARTH SCIENCE TOPICS Geology	Rocks, air, & water (as examples of solids, liquids, & gases Metals & non-metals	Erosion of soil	Rock cycle Earth materials	Earth changes, volcanoes & earthquakes Classification of rocks: igneous, metamorphic, & sedimentary *Physical features (SS)* Earth layers
Meteorology			Climate & weather Water cycle	
Astronomy	Suns, moons & stars as objects around us		Energy from the Sun	Motion: revolve, rotate Suns, moons, stars Universe - solar system *Space-time lanes (M)*

Earth and Space Science INQUIRY PROCESS DEVELOPMENT*		Soil & plants interact Soil & animals interact	*Effect of natural environment on Man (ES)*	Gravity: affects position & motion
A. OBSERVING/PERCEIVING Properties, situations Measuring, estimating Function of observation Perceiving subtleties, details, relationships, relevance.	Describes properties of objects: size, >, <, = (M) weight temperature (hot, cold) Identifies senses used Gives evidence of identity	Observes before-after situations Uses rulers, magnifying glasses with senses Identifies evidence of interaction	Describes interaction using 1) senses only & 2) measurement Skills in seeing patterns of space/time relationships *Measures up to 1/4 inch (M)*	Describes plant & animal adaptations Describes properties of foods Uses English units to *1/8 inch accuracy (M)*
B. QUESTIONING/PROBLEM FORMULATION Basic curiosity Challenges: methods, results, & accuracy Relevance Researchability	Asks about what he reads, sees, or does	Asks about interaction in the environment	Asks questions relevant to his program of studies	Records questions from casual observations Forms questions "unanswered" after experiments
C. TAXONOMIC/CLASSIFYING Grouping-sorting, matches Classifying with or without instructions Inventing new systems of classification	Sorts, groups & classifies objects by property or by material Sets up simple groups of living things	Matches measuring devices with purpose & units Interaction vs. non-interaction situation	Identifies the components of systems Matches organisms to their habitat	Classifies organisms into major phyla & chordate classes Sorts/ classifies objects with up to 3 characteristics
D. FORMULATING HYPOTHESES Simple "guesses" "If-then" statements Research Probability Testing, evaluating hypotheses		Makes guesses or simple predittions	Makes guesses & simple "if-then" statements	Makes statements which are predictive prior to experimentation *Practice predicting academic & occupational outcomes for hypothetical individuals (using "if-then" approach) (G)*
E. EXPERIMENTING Basic manipulation Technical skills Controls vs. variables Defining operationally Designs & evaluates Communication	Extensive manipulation of objects Association of object manipulation with information getting Follows simple directions Begins to assess the quality of his work	Sets up, follows an instruction, & cleans up Keeps records *Reading a graph (M)*	Plans, sets up, & carries through an experiment Makes charts, tables, simple graphs (histograms)	Conducts tests of unknown foods Uses charts, tables, graphs & drawings Formulates a plan before experimenting
F. INFERRING & APPLYING Infers change, interaction Supportive data, research Interprets data Concludes, generalizes Laws, ies in nature & industry	Gives evidence to support inference (responds to the question: "How do you know?)	States when change has occured - i.e. interaction between things Supports interaction inference with appropriate evidence	Forms general ideas of patterns in nature - i.e. symmetry & cycles *Patterns of zeros & odds (M)*	Makes simple inferences & conclusions Forms generalizations about food, nutrition & body growth
G. HUMANIZING Technology & society Responsibilities of scientists Welfare of Man History/philosophy of science				

*Student proficiency to be monitored during PLAN I; results define need in PLAN II

SCIENCE

MAJOR CONTENT DEVELOPMENT	THE BEHAVIOR OF THINGS 5	VISIBLE AND INVISIBLE THINGS 6	ANALYSIS OF INTERACTIONS AMONG LIVING THINGS 7	ANALYSIS OF INTERACTIONS AMONG PHYSICAL THINGS 8
A. LIFE SCIENCE TOPICS Health	Exercise behavior & health Management of health	Disease *Health, disease in society (SS)* Health Disease fighters	Health & first aid *Health & society (SS)* Effects from smoking & drinking Human reproduction Human body systems	Technologic contributions to the welfare of man
Biology	Needs of plants & animals Behavior of things due to their needs or requirements	Microscopic things, protozoa, algae, fungi, & cells Cells	Analysis of plants: plant changes, plant diversity Analysis of animals: animal changes & animal diversity	Levers in Man Chemistry of Life
Ecology	Behavior of animals: migration, hibernation, food getting, estivation, competition - territory Behavior of plants: germination - dormancy, coloration, & movement *Behavior of animal societies (5) (SS)* *Migrations of people (SS)*	Introduction to the ecology of microscopic things; food getting, movement, etc.	Interdependence; symbiosis Societies *Animal societies (6) (SS)* Interaction & change of abiotic factors in the environment Helpful & harmful organisms	
Psychology	Behavior of Man (management of human learning) Man's reaction to space flight Test & measurement theory		Analysis of Men: varieties of Man, changes in Man, changes in Man as a result of learning, learning how to learn, & systems of Man *Minorities & races (4) (6) (SS)*	Perception (senses) Learning about learning & self-management of learning *Hypothesis testing (M)* Changability of individuals
B. PHYSICAL SCIENCE TOPICS Physics	Magnetism *Compass direction (SS)* Electricity	Forces & motion: acceleration, deceleration, velocity, & inertia Energy: kinetic & potential Wave theory: light & sound Machines: simple & compound		Classes of levers *Graphing (M)* Magnetic fields & domains Light & sound Electronics & microminiturization
Chemistry	Matter, materials, & atoms Solutions, temperature effects Molecules	Elements, mixtures, & compounds	Chemical factors in environments *Geographic factors (SS)*	Introduction to chemistry Kitchen chemistry Heat: radiation, conduction, & convection
Computer Science	Use of metric system *Linear, mass, & temperature, time measurements (M)* *Geometry measure-volume (M)* *Inventions & technology (2) SS*	*Problem solving (M)* *Technology (SS)*	*Scientific notation, applications (M)* *Scientific approach to solution (M)* Technology & life science	Introduction to the computer Computer science *Technology (SS)* *Introduction to probability & statistics (M)* *Statistical predictions (M)*
C. EARTH SCIENCE TOPICS Geology	Classification with a scale: (Moh's hardness scale)	Materials of the Earth *Resources (SS)*	Ecosystem & geographical features	
Meteorology	Air as a fluid: atmosphere, weather & maps, & climate *Map symbols (SS)*			Weather satellites
Astronomy	Behavior of suns, moons, & stars			Space communication

Earth and Space Science INQUIRY PROCESS DEVELOPMENTS	Rockets - missiles Space programs *Economic systems (SS)*	Wave phenomena	Life support systems for space travel The Sea as a frontier & laboratory *Continents & oceans* (5) *(SS)*	Application of technology to Space Science *Economics* *Technology & society (SS)*
A. OBSERVING/PERCEIVING Properties, situations Measuring, estimating Function of observation Perceiving subtleties, details, relationships, relevance.	Recognizes observation as a step in the scientific method Makes use of qualitative & quantitative observations Use metric system of measurement	Incorporates observations as a part of experiment reports Produces models of objects or systems of objects (e.g. atoms, molecules, etc.)	Uses observations in the analysis of interaction Observation as a means to document cause & effect in living things	Descriminates between relevant & irrelevant observations Documents cause & effect in physical systems
B. QUESTIONING/PROBLEM FORMULATION Basic curiosity Challenges: methods, results, & accuracy Relevance Researchability	Questions ways of experimenting Does not accept casual observations for substantial evidence	Questions precision & accuracy of observations Pursues questions or problems by designing an experiment	Begins to form specific scientific questions, for experimentation	Forms specific, researchable questions Forms questions about in interactions between technology & Man *Meaning of problem solving (M)*
C. TAXONOMIC/CLASSIFYING Grouping-sorting; matches Classifying with or without instructions Inventing new systems of classification	Classifies according to given scale; invents own classification scheme	Classifies microscopic things (simple) Classifies machines: simple, compound, & classes of levers	Uses classification systems in the analysis of plant & animal diversities	
D. FORMULATING HYPOTHESES Simple "guesses" "If-then" statements Research Probability Testing, evaluating hypotheses	Applies prediction & hypothesis techniques Descriminates between hypothesis & conclusions Identifies good sources (authoritarian) of information which are available for research from his environment	Delays statements until research is completed Applies: tests & hypotheses *Hypothesizes & predicts for "Talent individuals" (C)* *Possible outcomes of an event (M)*	Creates statements which explain cause-effect Creates statements which explain change & interaction	Creates hypotheses when conclusions or inferences are unfounded Hypothesizes following confrontation with discrepant events *Probability concepts (M)*
E. EXPERIMENTING Basic manipulation Technical skills Controls vs. variables Defining operationally Designs & evaluates Communication	Constructs graphs with some instruction Recognizes definitions & examples of variables Systematically records experimental procedures	Develops basic microscope skills Recognizes factors in controlled experiments Records & reviews experiment plans	Experimenting viewed as a step in inquiry Variables/controls considered in experimenting Experimenting viewed as a means to form inferences	Uses variety of scientific equipment: glassware, balances, meters, thermometer, etc. Identifies variables & controls in experiments Self-critiques his experimental methods Makes formal reports
F. INFERRING & APPLYING Infers change, interaction Supportive data, research Interprets data Concludes, generalizes Examples in nature & industry	Makes inferences & generalizations on the behavior of things	Draws inference on basis of data a) Inferences re human planning (Talent planning games) b) Inferences re natural world Supports inference with additional information about disease causing organisms Generalizes about wave phenomena	Interprets data to explain change & interaction Generalizes about interactions in the ecosystem	Extrapolates & interpolates data from graphs Relates principles to use by technology
G. HUMANISM Technology & society Responsibilities of scientists Welfare of Man History-philosophy of science			Applies needs of man to life support systems in space capsules & sea labs	Documents interactions between technology & Man

*Student proficiency to be monitored during PLAN I: results define need in PLAN II

SCIENCE

MAJOR CONTENT DEVELOPMENT	THINGS OF EARTH & THINGS OF SPACE 9	THE ECOLOGY OF THINGS 10	THE CHEMICAL BEHAVIOR OF THINGS 11	PHYSICAL BEHAVIOR OF THINGS 12
A. LIFE SCIENCE TOPICS Health		Disease: study & control Human reproduction.	Chemistry contributions to health & disease Medical chemistry	Nuclear energy & health
Biology	Paleontology (P) *(SS)* *Early civilization* Fossils in rocks Eras & geologic periods	Biology concepts Plant-animal structure & function Cell physiology Genetics - heredity Evolution *Social Darwinism (SS)*	Biochemistry: ATP, ADP, DNA, RNA, Krebs Cycle, Photosynthesis, & enzymes	Anatomical mechanics Biophysics
Ecology	Oceans & life forms	Ecology concepts: energy flow in abiotic environments; community relationships; ecosystems	Insecticides: development & use in the environment	Radioactivity & living tissue
Psychology	Measurement theory & how to take tests	*Minorities & races (SS)* *Social Darwinism (SS)* *Families & societies (P) (SS)* Innate vs. learned behavior Conditioning Social behavior	Operation of the nervous system Chemistry of learning	The role of learning & experience in the modification of man History of Science Philosophy of science
B. PHYSICAL SCIENCE TOPICS Physics	Application of matter & energy concepts -kinetic-potential energy, periodic motion, mass, weight, & density	Radioactivity & carbon dating	Kinetic-molecular theory *Group theory; isomorphism (M)* Nuclear chemistry & applications	Concepts of force & motion Machines & work Magnetism, light, & sound Nuclear physics *Particle (M)* Electricity: AC, DC, static
Chemistry	Application of: -atomic-molecular models -elements, mixtures & compounds	Chemistry & life Light & phototropism Matter/energy flow in the Ecosystem Molecular biology topics	Chemistry of solids, liquids, & gases Organic - inorganic Transformation of matter & energy Chemistry in the home	
Computer Science	Measurement *Motion & rotation (M)* Computers & space flight	*Probability (M)* Instrumentation in biology	Equilibrium in chemical systems	Measurement of matter & energy *Vector analysis (M)*
C. EARTH SCIENCE TOPICS Geology	Rocks & minerals; sediments & mountains Seismology: the changing earth Erosion; the land wears away Oceanography; waters in the sea	Environmental conditons in the ecosystem/biome: light, precipitation, heat, & elevation Geotropism	Chemistry of rocks & minerals Earth metals & mining the natural resources	Center of mass, gravity *Analysis (M)*
Meteorology	Meteorology; waters in the Air	Precipitation & biome needs		Man's control of weather
Astronomy	Astronomy: the earth in space	Life on other planets?	Chemistry of planets in the solar system - spectrographic analysis	Falling bodies Projectiles *Trigonometry & calculus (M)*

Earth and Space Science INQUIRY PROCESS DEVELOPMENT*	Manned space flights & achievements *Conservation* ⓓ *(SS)* *Planets-maps; space as a new frontier* ☺ *(SS)*	Gravity affects life Pollution of the environment Space biology-physiology in space	[illegible] Contributions chemistry makes to space technology	
A. OBSERVING/PERCEIVING Properties, situations Measuring, estimating Function of observation Perceiving subtleties, details, relationships, relevance.	Perceives subtleties & qualities in various natural situations Separates factual information from non-factual information	Uses skills of observation & perception as needed Perceives the function of observation in scientific procedures	Perceives the importance of observations to one's education	Relates how the "prepared mind" is a prerequisite to a(n) "discovery" or "invention"
B. QUESTIONING/PROBLEM FORMULATION Basic curiosity Challenges: methods, results, & accuracy Relevance Researchability	Continues to challenge & question	Questions the significance of variable factors important to equilibrium in ecological systems		
C. TAXONOMIC/CLASSIFYING Grouping-sorting: matches Classifying with or without instructions Inventing new systems of classification		Analyzes bases & purposes of various classification systems Invents an original dichotomous classification system	Descriminates between nomenclature & taxonomy	Locates & uses sophisticated classification systems which are standardized
D. FORMULATING HYPOTHESES Simple "guesses" "If-then" statements Research Probability Testing, evaluating hypotheses	Formulates hypotheses as needed Recognizes hypotheses as models	Traces the history of an idea or theory & identifies the factors which contribute to that development		
F. EXPERIMENTING Basic manipulation Technical skills Controls vs. variables Defining operationally Designs & evaluates Communication	Makes use of scientific notation Continues self-critique methods	Reports data using significant figures Uses multitude of inquiry techniques Redesigns experiments as needed	Experiments as needed Uses sophisticated techniques of experimentation with complex equipment	Continues to design & improve his sophisticated techniques of experimentation
F. INFERRING & APPLYING Infers change, interaction Supportive data, research Interprets data Concludes, generalizes Examples in nature & industry	Forms generalizations or major ideas following varied experiences	Infers, applies & generalizes as needed	Uses mathematical models to explain phase changes (deriving formulae from graphs)	Generates a philosophy of science
G. HUMANIZING Technology & society Responsibilities of scientists Welfare of Man History-philosophy of science	Relates significance of discoveries to welfare/ attitudes of Man	Poses solutions to problems of pollution, food supply, sanitation, & conservation Evaluates impact/desirability of technological advances in society Analyzes problems & unwise use of technology Relates scientific activity & progress to socio-economic support	Repeat →	Repeat →

*Student proficiency to be monitored during PLAN I: results define needs in PLAN II

SOCIAL STUDIES

GENERAL SOCIAL [illegible] TOPICS OF STUDY	THE IMMEDIATE ENVIRONMENT 1	NEIGHBORHOOD STUDIES 2	COMPARATIVE COMMUNITIES 3	REGIONAL STUDIES 4
A. **HISTORY** Time, chronology, sequence, change Growth of civilizations Historical interpretation	Concept of time *Calendar; time: hour, 1/2 hour (M)*	Elements of a pioneer neighborhood	Changes in communities over time *Time [illegible]* Changes in needs of people *Sequence of events (LA)*	Contributions of immigrants to regional life in America Growth & development of various regions
B. **SOCIOLOGY/ANTHROPOLOGY** Social relations Structure & function of society Education & socialization Demography Cultural differentiation Primitive societies	My family & friends Other families & friends Roles of family members My school Schools & use of leisure in other parts of the world Different family patterns in America today, & around the world	Social & ethnic groups in the neighborhood Types of neighborhoods - farm, suburban, etc. *Classification (S); sets (M)* Racial vs. cultural differences in man Elements & customs of neighborhoods in other parts of the United States & World Cultural patterns of subgroups in the United States	Community organizations *[illegible]* *[illegible]* Comparison of societies *Cultural differences (LA)* Community types - Mountain, Desert, Tropical Rain Forest, Artic, & Grassland are used as the vehicles of comparison Similarities & differences in communities in different parts of the world	Population distribution & customs of dress within regions of USA States of contrast - Alaska & Hawaii [illegible] *[illegible]* Cultural influences of various ethnic groups on regional life Identification of regions in world similar to those in USA
C. **PSYCHOLOGY/PHILOSOPHY** Emotions Importance of values Cooperation & conflict Interdependence	My identification with others *Sets, intersection (M)* Meaning of friendship & cooperation The child as a member of the family & the school	Dependence of people on others in neighborhood Agencies of Service in the Neighborhood	Interaction of people Interdependence of peoples in community & world *Interaction in natural communities (S)* The effect of religion on community life	Cooperation & interdependence in Interstate relations
D. **POLITICAL SCIENCE** Rules & laws Government - ty, services, etc. Obligations & responsibilities Elections, political parties, representatives Political ideologies	Rules at home & school for common good Authority in the school & at home	Rules in the neighborhood Responsibilities of citizens Government in the neighborhood	Laws as essential in communities (the need for government in Human society) Services provided by local governments Need for informed citizens *Clarity of ideas (LA)*	Reasons for organizing states Comparison of differnet types of state Governments

E. GEOGRAPHY Natural resources & conservation Topographical features Effects of climate, weather, etc. on man Location of places, regions, continents, etc.	The school: physical plant & grounds	Map location of places in neighborhood *Pictographs, bargraphs, & pie charts (M)* *Intersection-corner (M)* Shapes of the earth, land masses, & oceans	Globe, continents & oceans, land forms, directions Use of natural resources *Conservation (S)* Effects of natural environment on man *Climate & weather (S)* Identification of geographical features *Reading & using map scale (M)* *Charts & tables (S)*	Physical feature of regions & states of USA Topography Effects of natural environment on regional life Location of states & regions of USA *Earth oranges (G)* *Linear measure (M)* Exploitation of natural resources
F. ECONOMICS Workers & occupations Agriculture, industry stores Earning, spending, saving Transportation, communication	Workers in school, home & neighborhood *Vocational families (G)* Essential needs of families *Government community service, general labor - skilled labor (G)* Goods & services	Workers, occupations & volunteers Essential needs of people Earning & spending *Money (M)* Types of communication & transportation	Workers in communities *Business, professions, labor, skilled trades (G)* Production & processing Need for exchange - money, goods, services *Money (M)* Uses of communication & transportation *Simple machines (G)*	Major occupations of people within regions of USA Major products & services of regions Conservation of resources within regions

SOCIAL STUDIES

GENERAL SOCIAL SCIENCE TOPICS OF STUDY	AMERICAN STUDIES 5	THE WESTERN HEMISPHERE 6	THE ADOLESCENT & HIS WORLD 7	BIRTH OF THE UNITED STATES 8
A. HISTORY Time, chronology, sequence, change Growth of civilizations Historical interpretation	Simple chronology of American History : basic periods (U.S. & Canada) Analysis of some of the major events in American & Canadian History *Historical fiction (LA)* Motives & causes for the discovery, exploration, & colonization of North America	Simple chronology of Latin American History: basic periods Historical analysis of major themes in the discovery, colonization, & development of Latin America Historical analysis of selected Western Hemisphere nations: Mexico Argentina Brazil	History of the draft, laws, & civil liberties History of the American city	Analysis of important aspects of pre-Twentieth Century American History *American Literature* (...) *(LA)*
B. SOCIOLOGY/ANTHROPOLOGY Social relations Structure & function of society Education & socialization Demography Cultural differentiation Primitive societies	The evolution of American social order Education in the U.S. The use of leisure time in America *Leisure time considerations; educational requirements (G)* Influence of foreign cultures on American life The American Indian (Eastern Forests, Plains, Southwest, Northwest) *Folk tales (LA)* *Migration of animals (S)*	The evolution of society in Latin America Ecology of the Western Hemisphere Basis of the "class" system Similarities of human & non-human societies *Behavior of animals* (S) *(S)* Health & disease in underdeveloped areas of Western Hemisphere *Health & disease (S)* Influences of European & Indian cultures on Latin American life	Changing concepts of leisure time Teenage relationships & roles - within family & society Societal implications of drugs, cigarettes, alcohol *Harmful effects from Smoking & Drinking (S)* Problems of the cities Current & recurring social problems Changes in cultures as a constant occurrence through contact with one another Minority group culture	The role of minority groups in the development of the American Social Order The growth of public education Social trends & legislation
C. PSYCHOLOGY/PHILOSOPHY Emotions Importance of values Cooperation & conflict Interdependence	The role of religion in colonization The role of cooperation, competition & conflict in in the development of the U.S. & Canada Interrelationships between U. S. & Canada	Influence of religion on the development of Western society Cooperation & interdependence of Western peoples	Emotional problems Basis for one's emotions & motives *Interpret personality results (G)* Understanding decision making *Logic (M)* Internalizing conflict *Review of personal values* (...) *(G)*	Democracy, extremism, & moderation as aspects of the American character Need for compromise among men Types & reasons for propaganda *Logic* (...) *(M); Fact & opinion* (...) *(LA); Propaganda* (...) *(LA)*
D. POLITICAL SCIENCE Rules & laws Government - types, services, etc. Obligations & responsibilities Elections, political parties, representatives Political ideologies	Justification for Government Basic principles of the Declaration of Independence & the Constitution Importance of laws in U. S. history & present Standards by which to judge laws	Political review of selected Latin American & North American countries or states Political geography of Latin America	Teenagers & the law, draft, civil liberties Our responsibilities to ourselves & others Job acquisition skills *Interviews/business letters* (...) *(LA)* The city in American politics	Rise of nation states, a federal government & political parties The Constitution: a review -strict vs. loose interpretation -major interpretations & changes Tactics of the election process & 2 party system Separation & division of powers Foreign policy trends

E. GEOGRAPHY Natural resources & conservation Topographical features Effects of climate, weather, etc. on man Location of places, regions, continents, etc.	Effects of environment on discovery, exploration, & colonization *Adaptation* (4) *(S)* Use & preservation of resources yesterday & today Migration Grid, relief, scale, vegetation, precipitation & other special maps	INTENSIVE GLOBAL GEOGRAPHY - graphs, map projections, climate patterns, relationship of earth to other planets, etc. *Weather & climate* (4) *(S)*, *graphs, geometry (M)* Physical & cultural geography of the western hemisphere Location of population & production centers in the western hemisphere	Population vs. geographical factors *Population problems* (4) *(S)* Pollution of the water, air, & land *Pollution* (4) *(S)* The Urban Environment	Sectional differences in USA Environmental aspects of the nation that man faces
F. ECONOMICS Workers & occupations Agriculture, industry, stores Earning, spending, saving Transportation, communication	Earning a living: then & now Influence of inventions & job obsolescence Merits & limitations of technology (business oriented) *Technology & space program* (5) *(S)* Economic policy as it relates to American History (U.S. & Canada)	Economic review of Latin America, US, & Canada	Economic problems & achievements of the cities The role of advertising in 20th Century Society *Propaganda (LA)*	Industrialization in USA Gold vs silver currency issues Capitalism as basis of US economics The economy & government. need for controls The consumer dollar

SOCIAL STUDIES

CENTRAL SOCIAL SCIENCE TOPICS OF STUDY	CULTURES OF THE WORLD I 9	CULTURES OF THE WORLD II 10	20TH CENTURY AMERICAN STUDIES 11	COMPARATIVE GOVERNMENT & ECONOMIC SYSTEMS 12
A. HISTORY Time, chronology, sequence, change Growth of civilizations Historical interpretation	Purposes & methods of historical analysis *Reliability of statistics (M); Biography & autobiography; criticism; point of view (LA)* Significance of past civilization on present day nations of world *fossils, paleontology (9) (S)*	Historical analysis of selected areas of the world: 1) Australia 2) Soviet Union 3) China 4) S. E. Asia 5) Western Europe 6) Middle East & N. Africa 7) Sub-Saharan Africa 8) Japan	Importance of past events, people, & trends on the USA in the sixties Historical interpretations of major cause/effect relationships in 20th Century America BLACK HISTORY	Brief historical analysis of selected economic systems & governments (critical analysis) (SS) Changes as universal & inevitable
B. SOCIOLOGY/ANTHROPOLOGY Social relations Structure & function of society Education & socialization Demography Cultural differentiation Primitive societies	Characteristics of societies & groups in past & present Social Darwinism *Evolution of man; characteristics: individuals & populations (S)* Cultural distinctions between areas of world in past Comparison of Early Civilizations	Family & social structure of various societies of the world Interrelationships of sociology & geography Minorities, immigrants & individuals in societies *Varieties of man (7) (S)* Comparison of cultures in three of the above areas of the world Contributions of primitive societies to world & USA *Paleontology (9) (S)*	Prejudice, ghettos, & other problems of minorities Marriage & divorce codes Property vs. human rights Prohibition, capitol punishment, etc. Social changes in American female & black man Cultural contributions of immigrants to 20th Century America Influence of psychology & philosophy on voters & politicians *Philosophy of science (12) (S)*	An overview of sociology & its effects on governmental & economic theories & practices Primitive characteristics evidenced in governments & economics
C. PSYCHOLOGY/PHILOSOPHY Emotions Importance of values Cooperation & conflict Interdependence	Beliefs & values of Western & Eastern societies Psychological & religious bases of wars & conflicts	Interrelationship of geography & economics & the psychological & philosophical attitudes of nations	Causes & effects of wars, conflicts, & cooperative measures on American life in 20th century Prejudice & stereotyping Compromise & democratic solutions as "necessity of life" Property rights vs. human rights	Influence of human drives, psychology, religion & philosophy on political & economic systems of the world *Philosophy of science (S)*
D. POLITICAL SCIENCE Rules & laws Government - types, services, etc. Obligations & responsibilities Elections, political parties, representatives	Selected study of governments, revolutions & dictators Nationalism & imperialism Alliance systems & international organizations Limited vs. absolute monarchies Totalitarianism vs. democracy	Modes of government in 3 of the above areas World organizations' influence Influence of geography on politics	Analysis of important 20th century trends among 3 branches of US government Growth of the presidency & the policy making process Foreign Policy trends Organized groups & institutions	Overview of political theory The parliamentary & presidential systems The one-party state The oligarchy Military dictatorships

E. GEOGRAPHY Natural resources & conservation Topographical features Effects of climate, weather, etc. on man Location of places, regions, continents, etc.	Influence of geography on politics, government, economics, sociology, etc. Migrations & struggles of man for territory	*The Earth in space (S); Geometry: spheres (H)* Earth models *Graphs (H)* Physical, historical, cultural, economic & political geography of selected areas of the world	geography & ghetto development "Space" as a new frontier to develop *Space (S)*	improve his natural habitat *Man's control of weather (S)*
F. ECONOMICS Workers & occupations Agriculture, industry, stores Earning, spending, saving Transportation, communication	Industrial revolutions & advances Commercial revolutions	Influence of geography on economics & vice versa *Probability (H)* Subsistence economics *Survival of the fittest (S)* World organizations & economics	Growth of labor unions & big business Modified market economy Self help & welfare programs Gross national product & division of labor	The theory of economics *Statistics (H)* Modern market systems of selected nations Comparative economic systems in emerging nations: India & China

APPENDIX F

SAMPLE MODULES

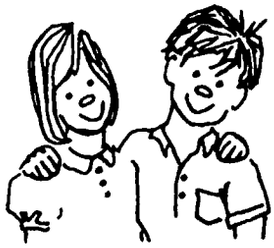
Name_____ Student Number_____

Step 1. (1431) Objective: Identify five jobs that must be done to produce a TV news program.

Example: Mark the people who are needed to produce a news program:

1. cameraman
2. mailman
3. newscaster
4. grocer
5. reporter
6. lawyer
7. film editor

Words to know: reporter, cameraman, editor, newscaster, studio, messenger, film, control room, mobile studio

USE	DO
a. 1  Communities and Their Needs  partners	Read pages 120 and 121. 1. What is a studio? 2. What does a newscaster do? 3. What does a news reporter do?

Name_____ Student Number_____

Step 1. Objective: Using pictures, tell how a newspaper is made. (1434)

Example: Number the pictures in order to show how a newspaper is made.

paper boy | linotype operator | reporter getting news | newspaper being printed

Words to know: layout department, reporter, teletype, linotype, composing room

USE	DO
a.  Your Neighborhood and the World  partners	Find out about the layout department of a newspaper. Read page 116. 1. What is a reporter's job? A teletype machine brings news to the office from all over the world. 2. Can you find teletype machines in the picture? 3. Why are pictures important in a newspaper?

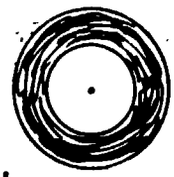
1

Name_____ Student Number _____

Step 1. Objective: Circle pictures of neighborhood volunteers at work. (1363)

Example: Circle the pictures that show the things volunteers do.

Words to know: volunteer

USE	DO
a. 1  friends Our Working World, "Neighbors at Work," record 9	1. Listen to the record. 2. Meet with some friends and talk about these things: -----What is a volunteer? -----What was the neighborhood like where Miss Wald worked? -----What are the rewards for being a volunteer?

Step 3. (1365) Objective: Look at pictures of workers. Tell what each worker is doing. Tell how his job helps the people in his neighborhood.

Example: Circle the correct answers:

This man is

1. sawing wood 2. cutting meat

This man helps give the neighborhood

1. food 2. clothes 3. houses

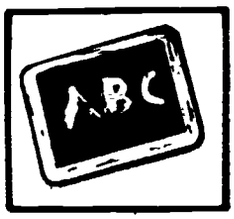
USE	DO
a. 2   pencil Communities and Their Needs	1. Read pages 12-15. 2. Answer these questions in your booklet. -----What are three things people depend on one another for? -----Why does a doctor need a farmer? -----Why does your neighborhood need a barber?

Name _____ Student Number _____

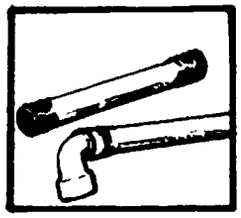
Step 1. (1371) Objective: Tell the things that are needed to build most buildings today.

Words to know: log, gravel, cement, concrete, pipes

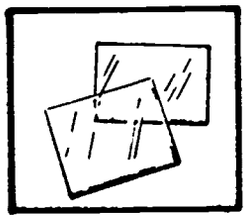
Example: Circle the pictures that show things needed to build most buildings today.



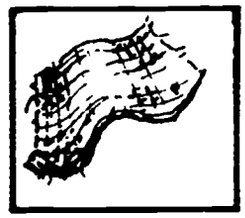
chalkboard



pipes



glass



cloth

USE	DO
a. 1  Science For Here and Now 2 teacher group	1. Read and talk about page 64. 2. Do you know of any buildings made of wood? Tell about them.

Step 2. (1372) Objective: Interviewing skill. Talk to a building worker to find out what his work is like. Tell a group what he said.

Words to know: tools, stone, brick, glass

USE	DO
a.  "The Homes We Live In"	Look at frames 19-31.
b. a building worker	1. Find someone who is a building worker. 2. Ask him to tell you what he does. 3. Ask him what tools he uses. 4. Ask him if he works with stone, brick, wood, glass, or other things. 5. Ask him what he likes about his work.
c. group	Tell a group what the building worker said. You may also tell what you like or don't like about his work.

APPENDIX E

SAMPLE TLU'S AND MODULE TESTS

89-703-2 CHOICES AND CONSEQUENCES (0,00)
69-70 Ed.

(Note: This TLU includes a group discussion. Check with your teacher and make sure there are at least three other students ready to take this module with you.)

STEP 1. OBJECTIVE:
9522 Given a description of a student,

a. describe the relationship between a student's current decisions and his future educational and occupational opportunities;

b. estimate the degree of control a student can reasonably be expected to have over the variety of opportunities open to him (no control, very little control, a great deal of control);

c. indicate how a specific decision a student might make in the near future affects his long-range educational opportunities (expands, limits, has no effect).

USE	DO
Instructional Guide	(a) Read Part 1 of the IG. (b) Find three to five other students ready to take this TLU and arrange to meet with them as soon as everyone has completed activities (c) and (d) below. (c) Take this TLU home and show it to your parents. Have them read Part 1 of the IG and look over the rest of the TLU. (d) Do parts 2 and 3 of the IG at home with your parents. Discuss with them what you think Ted's and Brian's futures will be. (If it is impossible to do Parts 2 and 3 with your parents within three days, then do the activities by yourself.)

89-703-2 CHOICES AND CONSEQUENCES (0,00)

USE	DO
Choices and Consequences: Outcomes for Ted, American Institutes for Research, 1969, tape Instructional Guide	(e) Meet with your group and have someone get the materials listed in the Use column. While one person is setting up the tape recorder, review Part 2 of the IG and your ideas about what Ted's future will be. (f) Discuss the ideas you and your parents had about Ted's future with the members of your group. Note on Part 2 of your IG the different ideas other members of the group have about Ted's future.
Choices and Consequences: Outcomes for Ted Instructional Guide	(g) Listen to the tape as you read along in Parts 4-7 of the IG. Follow the instructions on the tape.
Choices and Consequences, Outcomes for Brian, American Institutes for Research, 1969, tape Instructional Guide	(h) Meet with your group again and have someone get the needed materials. While the tape recorder is being set up, review Part 3 of the IG and your ideas about what Brian's future will be. (i) Discuss your ideas about Brian's future with the members of your group. Note in Part 3 of your IG the different ideas others in the group have about Brian's future.
Choices and Consequences, Outcomes for Brian Instructional Guide	(j) Listen to the tape as you read along in Parts 8-10 of the IG. Follow the instructions on the tape.

THE END

Step 1. OBJECTIVE:
9523 Identify the more important educational and occupational decisions to be made by students and the optimum times for making them.

Example: Which of the following is the optimum time for making decisions about what college you want to attend?

A. In the eighth year
B. In the tenth year
C. Early in the eleventh year
D. Late in the twelfth year

USE	DO
Instructional Guide	(a) Read Part 1 of the IG.

Step 2. OBJECTIVE:
9524 Recognize that decisions are tentative and subject to change because
a. your interests and abilities change,
b. the world changes, and
c. you might change your mind because you reassess the implications of your earlier decision.

Example: Jane had always wanted to be a nurse. However, in her freshman year in high school she became more interested in her social studies modules than in her biological science modules. As a result, she decided that she would plan to be a social studies teacher instead of a nurse. Jane changed her decision for which of the following reasons?

A. The world changed.
B. Her interests changed.
C. Her abilities changed.
D. She reassessed the implications of her earlier decision.

USE	DO
Instructional Guide	(b) Read Part 2 of the IG and follow the directions in Sections I and II.

Step 3. OBJECTIVE:
9525 Recognize that some decisions allow you more flexibility to modify your plans than others.

Example: Which of the following decisions made in your freshman year allows you the greatest flexibility to modify your plans?

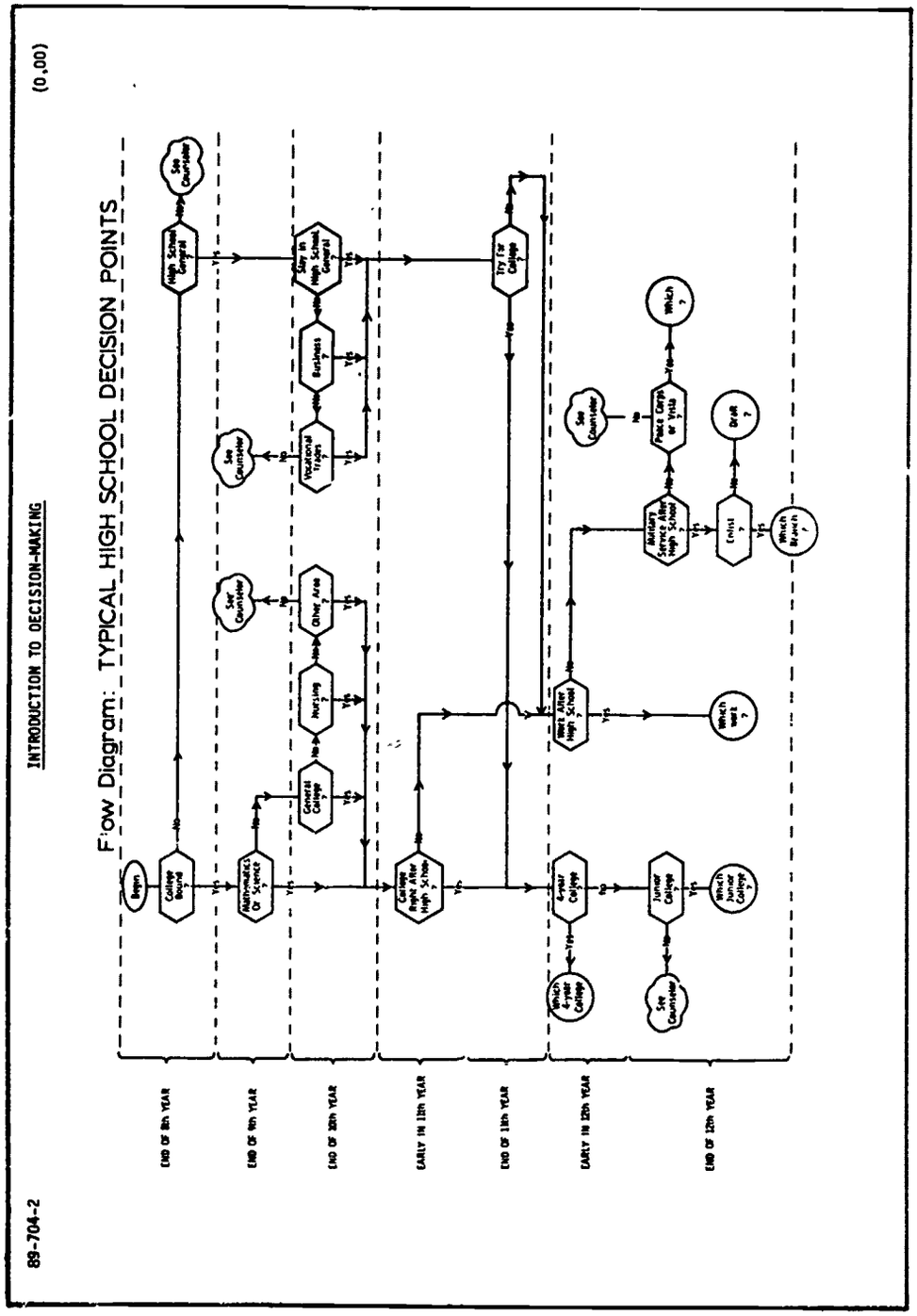
A. A decision to be a carpenter
B. A decision to go to college
C. A decision to go to work right after high school
D. A decision to go into the service right after high school

USE	DO
Instructional Guide	(a) Read Part 3 of the IG.

Step 4. OBJECTIVE:
9526 Given descriptions of students making decisions, recognize examples of decisions which have been made carefully, and identify four steps used in careful decision-making.

Example: Terry, a high school junior, is interested in working in advertising. This year she was Advertising Editor on the yearbook staff. However, she also enjoyed her science modules very much. This summer she plans to be a laboratory assistant for the summer school science classes, to find out what work in science laboratories is like. Terry is

A. defining the problem.
B. identifying the alternatives.
C. gathering information and evaluating the alternatives.
D. choosing the best alternative for her.


INTRODUCTION TO DECISION-MAKING
(0,00)
Flow Diagram: TYPICAL HIGH SCHOOL DECISION POINTS
89-704-2
Begin
College Bound
High School General
See Counselor
Mathematics Or Science
General College
Nursing
Other Area
Stay in High School General
Business
Vocational Trades
Try for College
College Right After High School
Work After High School
Which Work
4-year College
Which 4-year College
Junior College
Which Junior College
Military Service After High School
Which
Enlist
Which Branch
Draft
Place Corps or Unit
END OF 8th YEAR
END OF 9th YEAR
END OF 10th YEAR
EARLY IN 11th YEAR
END OF 11th YEAR
EARLY IN 12th YEAR
END OF 12th YEAR

89-703

MODULE TEST 69-70 Ed.

For this test you will need a PLAN First Test Card. Turn to your Student's Module Test Instructions and prepare the Test Card according to the directions you are given. The Module Number for this test is 89-703.

Your answers to all the questions in this test are to be recorded on your PLAN First Test Card.

The following questions all relate to the choices made by Brian #1, Brian #2, and Brian #3 and to the consequences of those choices. If you wish, you may refer to Part 3 and Parts 8-10 of the IG while you answer the questions.

1. Brian #1 delayed making a vocational decision because he didn't know what he wanted to do with his life. One consequence of his delayed decision was that Brian

   A. had time to figure out exactly what kind of work he liked best.
   B. found a job that suited his abilities and interests.
   C. didn't do very well in his college courses.
   D. got a job, but wasn't very enthusiastic about his work.

2. What might Brian #1 have done differently to exert more control over his future?

   A. Learned about occupations related to courses and activities that interested him.
   B. Majored in business instead of history.
   C. Refused the job in his neighbor's factory and waited for something else.
   D. Gone directly to work after high school instead of going to college.

3. Compared to Brian #3, Brian #1 exerted _____ control over his future opportunities.

   A. no
   B. very little
   C. a great deal of

(Go to next page.)

As you read the following story about Betty, think about the four steps of the decision-making process.

BETTY

At the beginning of high school, Betty decided to prepare herself for a secretarial career. In addition to taking for a non-college program of studies, she enrolled in typing, shorthand, and office practice courses. She did very well in these courses, but she also found out that she really enjoyed the biological science modules on her program of studies. Toward the end of eleventh grade, Betty wondered if there were any occupations open to her that required some basic knowledge of science in addition to secretarial skills.

After looking into non-college occupations requiring some knowledge of science, Betty thought she would especially like to find out more about a career as a lab assistant or as a medical secretary. She discussed her two alternatives with her parents, who suggested that she become a medical secretary since she seemed to enjoy the working conditions of a medical secretary, such as meeting new people and using her secretarial skills, more than those of a lab assistant, such as working in a laboratory and performing routine medical tests. Betty thought her parents' recommendation made sense and decided that she would prepare to be a medical secretary. But just to make sure, she interviewed for and was hired for a summer job as medical secretary in a nearby clinic.

9. What was the "problem" that started Betty thinking about changing her goals?

   A. She didn't enjoy her courses.
   B. She wanted a college-oriented program of studies?
   C. She wanted to combine her secretarial skills with her interest in the sciences.
   D. She needed to prepare for a summer job with a doctor.

10. How could Betty have best gathered information about the different alternatives open to her?

    A. By reading a book on technical careers in the sciences
    B. By talking to people in the occupational fields of interest to her
    C. By discussing her decision with adults such as her parents, her counselor, and her teachers
    D. All of the above

11. After finding out what jobs were open to her, Betty thought about them in terms of her interests and abilities. She was

    A. exploring the problem.
    B. identifying the alternatives.
    C. evaluating the alternatives.
    D. choosing the best alternative for her.

* * *

(Go to next page.)

Step 1. OBJECTIVE:
9543 For jobs in LRG VI: Fine Arts, Performing Arts, identify their most highly developed abilities and describe how these abilities might be related to the tasks of these occupations.

Example: Twelfth-grade girls who later became art teachers had well developed abilities in Visualization in Three Dimensions. These abilities might be useful to them in

A. drawing a live model.
B. arranging a field trip to an art gallery.
C. writing a test.
D. lecturing on art history.

USE	DO
Occupations in the Trades and Fine Arts, American Institutes for Research, booklet. (American Institutes for Research: 1970)	(a) Read the Introduction to the booklet. (b) Read the Introduction to LRG VI. (c) Read the job description for either the art teacher or the music teacher. (d) Read the job description for theater arts. (e) Read the profile interpretation for LRG VI and look at the profiles.
Instructional Guide	(f) Do Part 1.

Step 2. OBJECTIVE:
9544 Identify areas of similarity in (a) nature of the work, (b) education and training requirements, and (c) DAP profiles among the jobs in LRG IX: Mechanics, Industrial Trades.

Example: All students planning to enter LRG IX generally have to complete

A. on-the-job training.
B. junior college.
C. college.
D. military service.

Step 2. (continued)

USE	DO
Occupations in the Trades and Fine Arts	(a) Read the Introduction to LRG IX. (b) Read the job description for either the machinist or the mechanic. (c) Read the job description for either the electrician or the printing trades. (d) Read the profile interpretation for LRG IX and look at the profiles.
Introductional Guide	(e) Do Part 2.

Step 3. OBJECTIVE:
9545 Given a job in LRG X: Construction Trades that is not described in your instructional materials, describe that job in terms of (a) nature of the work, (b) education and training requirements, and (c) DAP profiles.

Example: As a member of LRG X, a plasterer's work may involve

A. building machines.
B. working with electrical systems.
C. helping to build houses.
D. drawing blueprints for buildings.

USE	DO
Occupations in the Trades and Fine Arts	(a) Read the Introduction to LRG X. (b) Read the job descriptions for the carpenter, plumber, and painter. (c) Read the profile interpretation for LRG X and look at the profiles.
Instructional Guide	(d) Do Part 3.

89-708

MODULE TEST 69-70 Ed.

For this test you will need a PLAN First Test Card. Turn to your Student's Module Test Instructions and prepare the Test Card according to the directions you are given. The Module Number for this test is 89-708.

Your answers to all the questions in this test are to be recorded on your PLAN First Test Card.

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1. Students planning to enter LRG IX: Mechanics, Industrial Trades, and LRG X: Construction Trades are alike in that they should probably complete
   A. high school.
   B. junior college.
   C. college.
   D. business school.

2. Profiles for workers in LRG IX are alike in that
   A. they all have the same shape.
   B. their average scores are above the average for twelfth grade students.
   C. their most highly developed ability is Introductory Mathematics.
   D. their least highly developed ability is Mechanical Reasoning.

3. Twelfth-grade girls who later became music teachers had highly developed abilities in Abstract Reasoning. These abilities might be useful to a high school music teacher in
   A. leading the marching band.
   B. making arrangements for a school assembly.
   C. conducting the school choir.
   D. understanding the theory of music composition.

4. Salaries for most workers in LRG IX are determined by
   A. the amount they sell.
   B. years of college completed.
   C. union contracts.
   D. sex.

(Go to next page.)

5. Whereas workers in LRG IX usually work in factories, workers in LRG X usually work
   A. on construction sites.
   B. at airports.
   C. in repair shops.
   D. in offices.

6. A well-developed ability for theater arts workers is Reading Comprehension. For which of the following work tasks might this ability be most useful?
   A. Raising money for a play
   B. Designing costumes
   C. Interpreting the lines of a play
   D. Painting the sets for a play

* * *

Hi! My name is Sam Snoo, and I am a roofer (LRG X). From your knowledge of jobs in LRG X, answer the following questions (Items 7-9) about me and my job.

7. On his job, Sam usually works
   A. in a factory.
   B. in an office.
   C. outdoors.
   D. in a store.

8. The most highly developed abilities on Sam's DAP profile were
   A. Visualization in Three Dimensions and Mechanical Reasoning.
   B. Word Functions and Disguised Words.
   C. Arithmetic Reasoning and Introductory Mathematics.
   D. English Total and Creativity.

9. Sam probably learned his trade in which of the following ways?
   A. High school courses
   B. College
   C. Business school
   D. On-the-job training

* * *

(Go to next page.)

89-711-2 CAREER PLANNING PRACTICE II (0,00) 69-70 Ed.

Step 1. OBJECTIVE:
9555 Given a description of a student and of a decision that he made, describe the most probable consequences of that decision for the student.

USE	DO
Instructional Guide	(a) Read Part 1 with your parents.
	(b) Read Part 2.
Sample Cases of Student Career Planning II, American Institutes for Research, Booklet (American Institutes for Research: 1970)	(c) Read the description of Mary.
Instructional Guide	(d) Do Part 3.

Step 2. OBJECTIVE:
9556 Given a description of a decision made by a student and of the consequences of that decision, identify an alternative decision that could have been made and tell why you think it might also have been a good decision.

USE	DO
Instructional Guide	(a) Read Part 4.
Job Families and Jobs: A Reference Manual for PLAN Student-Parent Long Range Goal Formulation, American Institutes for Research, Booklet (American Institutes for Research: 1970)	(b) Read Sections I, II, and III.
Instructional Guide	(c) Do Part 5.
	(d) Do Part 6.

89-713-2 PLAN STUDENT PARENT GOAL FORMULATION PLAN 70

Step 1. OBJECTIVE:
9565 Interpret your DAP scores and draw your DAP profile.

USE	DO
Instructional Guide	(a) Read Part 1.
Instructional Guide DAP Score Worksheet	(b) Do Part 2.
Handbook for DAP Score Interpretation	(c) Read the Introduction.
	(d) Read pp. 1-2.
Instructional Guide *Handbook for DAP Score Interpretation*	(e) Do Part 3.
Instructional Guide *Handbook for DAP Score Interpretation* DAP Score Worksheet	(f) Do Part 4.
Instructional Guide	(g) Do Part 5.

Step 2. OBJECTIVE:
9566 Relate your developed abilities to those of workers in various occupations and LRG's.

USE	DO
Instructional Guide	(a) Read Part 6.
	(b) Read Part 7.
Instructional Guide *Handbook for DAP Score Interpretation* DAP Score Worksheet	(c) Do Part 8 if you wish (optional).
Instructional Guide DAP Score Worksheet *Job Families and Jobs: A Reference Manual for PLAN Student-Parent Goal Formulation*	(d) Do Part 9 if you wish (optional).

APPENDIX F

SAMPLE PROGRAMS OF STUDY

POS #1

PLAN

PROGRAM OF STUDIES 0917 LADUCA CINA

005 IMMACULATE HEART LEVEL 4 MATHEMATICS FALL 1970

COMPLETION CODE	MODULE NUMBER	MODULE NAME	NO OF TIMES TESTED	DATE STARTED	DATE FINISHED
		YOUR TEST RESULTS SHOW THAT YOU SHOULD REVIEW THE OBJECTIVES OF THESE MODULES WHICH YOU COMPLETED LAST YEAR. DO NOT SUBMIT STATUS OR TEST CARDS FOR THEM.			
	20-183-S	PLACE VALUE TO FOUR DIGITS AND EXPANDED NOTATION			
		YOUR TEST RESULTS SUGGEST THAT YOU KNOW SOME OF THE OBJECTIVES OF THESE MODULES IN YOUR PROGRAM OF STUDIES. AFTER REVIEWING EACH MODULE CAREFULLY, CONSIDER CHALLENGING IT.			
	20-178-S	SUBTRACTION OF THREE-DIGIT NUMBERS			
	20-187-S	MULTIPLICATION WITH REGROUPING			
		THE FOLLOWING MODULES ARE SUGGESTED FOR YOUR PROGRAM OF STUDIES FOR THIS YEAR.			
	20-178-S	SUBTRACTION OF THREE-DIGIT NUMBERS			
	20-187-S	MULTIPLICATION WITH REGROUPING			
	20-189-S	INTRODUCTION TO DIVISION			
	20-190-S	DIVISION PROCESS			
	20-211-S	POINTS, LINES, AND ANGLES			
	20-212-S	PROPERTIES OF POLYGONS			
	20-212-S	CIRCLES			
	21-202	PLAN ACHIEVEMENT TEST			
	20-202-S	PLACE VALUE TO SEVEN DIGITS			
	20-203-S	PROPERTIES OF WHOLE NUMBERS--MULTIPLICATION			
	20-203-S	MULTIPLICATION ALGORITHM			
	20-204-S	DIVISION ALGORITHM			
	21-206	PLAN ACHIEVEMENT TEST			
	20-206-S	THE FRACTION SYMBOL			
	20-207-S	FRACTIONS ON A LINE SEGMENT			
	20-208-S	FRACTIONS ON THE NUMBER LINE			
	20-209-S	EQUIVALENT FRACTIONS			

COMPLETION CODE	MODULE NUMBER	MODULE NAME	NO OF TIMES TESTED	DATE STARTED	DATE FINISHED
	20-210-S	IMPROPER FRACTIONS			
	21-201	PLAN ACHIEVEMENT TEST			
	20-167-S	MEASUREMENT OF LENGTH AND MAP SCALES			
	20-169-S	TIME S			
	20-283-S	ADDITION AND SUBTRACTION OF FOUR-DIGIT NUMBERS			

POS #2

PLAN

PROGRAM OF STUDIES 0017 LADUCA CINA

005 IMMACULATE HEART LEVEL 4 SOCIAL STUDIES [illegible] 1972

COMPLETION DATE	MODULE NUMBER	MODULE NAME	NO OF [illegible]	DATE STARTED	DATE [illegible]
		THE FOLLOWING MODULES ARE SUGGESTED FOR YOUR PROGRAM OF STUDIES FOR THIS YEAR.			
	40-177-3	MAP STUDY--REGIONS OF THE WORLD			
	40-178-3	MAP STUDY--LAND AND WATER			
GROUP		COMMUNITY TYPES TAKE ANY 2 OF THE FOLLOWING 4 SETS.			
SET 1 47-011		ARCTIC COMMUNITIES TAKE ALL 2 OF THE FOLLOWING 2 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-011.			
	40-137-3	ARCTIC COMMUNITIES 1			
	40-138-3	ARCTIC COMMUNITIES 2			
SET 2 47-012		TROPICAL RAIN FOREST COMMUNITIES TAKE ALL 2 OF THE FOLLOWING 2 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-012.			
	40-180-3	TROPICAL RAIN FOREST COMMUNITIES 1			
	40-181-3	TROPICAL RAIN FOREST COMMUNITIES 2			
SET 3 47-013		MOUNTAIN COMMUNITIES TAKE ALL 2 OF THE FOLLOWING 2 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-013.			
	40-183-3	MOUNTAIN COMMUNITIES 1			
	40-184-3	MOUNTAIN COMMUNITIES 2			

COMPLETION DATE	MODULE NUMBER	MODULE NAME	NO OF [illegible]	DATE STARTED	DATE [illegible]
SET 4 47-010		DESERT COMMUNITIES TAKE ALL 2 OF THE FOLLOWING 2 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-010.			
	40-134-3	DESERT COMMUNITIES 1			
	40-183-3	DESERT COMMUNITIES 2			
	40-168-3	COMPARING COMMUNITIES			
	40-169-3	A PLANNED COMMUNITY			
	40-207-2	DEFINING HUMAN PROBLEMS			
	40-208-2	SEARCHING FOR INFORMATION			
	40-212-2	ATTACK A PROBLEM--NATURAL RESOURCES			
	40-209-2	YOUR STATE			
	40-206-2	USING MAPS			
	40-203-2	LEGENDS AND SYMBOLS			
	84-200	PLAN ACHIEVEMENT TEST			

POS #3

PLAN

PROGRAM OF STUDIES 1824 GONZALES MARIA

009 IMMACULATE HEART LEVEL 2 SOCIAL STUDIES FALL 1970

COMPLETION CODE	MODULE NUMBER	MODULE NAME	NO. OF TIMES TAKEN	DATE STARTED	DATE PASSED
		YOUR TEST RESULTS SUGGEST THAT YOU KNOW SOME OF THE OBJECTIVES OF THESE MODULES IN YOUR PROGRAM OF STUDIES. AFTER REVIEWING EACH MODULE CAREFULLY, CONSIDER CHALLENGING IT.			
	40-120-3	CONSTRUCTING BUILDINGS			
	40-116-3	WHERE WE GET OUR FOOD			
	40-117-3	HOW WE USE OUR FOOD			
	40-118-3	WHERE WE GET OUR CLOTH			
		THE FOLLOWING MODULES ARE SUGGESTED FOR YOUR PROGRAM OF STUDIES FOR THIS YEAR.			
SET	47-008	NEIGHBORHOOD BUILDINGS TAKE ANY 1 OF THE FOLLOWING 2 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-008.			
	40-120-3	CONSTRUCTING BUILDINGS			
	40-121-3	FACTORIES IN THE NEIGHBORHOOD			
SET	47-001	NEIGHBORHOOD TYPES TAKE ANY 2 OF THE FOLLOWING 4 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-003.			
	40-102-3	SMALL-TOWN NEIGHBORHOODS			
	40-103-3	BIG-CITY NEIGHBORHOODS			
	40-104-3	SUBURBAN NEIGHBORHOODS			
	40-109-3	FARM NEIGHBORHOODS			

COMPLETION CODE	MODULE NUMBER	MODULE NAME	NO. OF TIMES TAKEN	DATE STARTED	DATE PASSED
SET	47-004	NEIGHBORHOOD INSTITUTIONS TAKE ANY 2 OF THE FOLLOWING 3 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-004.			
	40-107-3	STORES IN THE NEIGHBORHOOD			
	40-108-3	GOVERNMENT IN THE NEIGHBORHOOD			
	40-110-3	SCHOOLS IN THE NEIGHBORHOOD			
	84-100	PLAN ACHIEVEMENT TEST			
SET	47-005	COMMUNICATION TAKE ANY 2 OF THE FOLLOWING 3 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-005.			
	40-111-3	COMMUNICATION			
	40-112-3	MASS MEDIA			
	40-113-3	TV PROGRAM			
SET	47-006	BASIC NEEDS TAKE ALL 3 OF THE FOLLOWING 3 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-006.			
	40-116-3	WHERE WE GET OUR FOOD			
	40-117-3	HOW WE USE OUR FOOD			
	40-118-3	WHERE WE GET OUR CLOTH			
	84-101	PLAN ACHIEVEMENT TEST			
	40-129-3	GETTING THERE FROM HERE			

COMPLETION CODE	MODULE NUMBER	MODULE NAME	NO. OF TIMES TAKEN	DATE STARTED	DATE PASSED
SET	47-007	NEIGHBORHOOD CHARACTERISTICS TAKE ANY 1 OF THE FOLLOWING 3 MODULES. WHEN YOU ARE READY TO BEGIN WORK ON THIS SET, ASK YOUR TEACHER TO START SET NUMBER 47-007.			
	40-109-3	HOW NEIGHBORHOODS CHANGE			
	40-119-3	PEOPLE IN THE NEIGHBORHOOD			
	40-124-3	HOW NEIGHBORHOODS SOLVE PROBLEMS			
	40-191-3	WHAT IS A COMMUNITY?			
	40-192-3	MY OWN COMMUNITY AND ITS RESOURCES			
	40-193-3	A LOOK AT OTHER COMMUNITIES			
	40-177-3	MAP STUDY--REGIONS OF THE WORLD			
	40-179-3	MAP STUDY--LAND AND WATER			