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ABSTRACT

This guide is designed for use in helping junior and senior high school students explore the field of medical technology as a potential career area. Included in the manual are the following materials: definitions, a key to the organization and numbering code and symbols used in the lists of objectives, lists of general and program objectives with recommended instructional levels, a flow chart detailing the organizational pattern of the course of study to prepare students for careers in medical technology, descriptions of pertinent required and elective courses, suggested facilities layouts, guidelines for classroom safety and health, a discussion of strategies for mainstreaming disabled students through the development of individualized educational programs (IEPs), a competency profile for vocational teachers instructing sensory and physically impaired students, a self-assessment evaluation form for teachers, a sample certificate of completion, and a brief list of basic textbooks. (MN)

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Medical Technology

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career education

DS Manual 2830.1
April 1984

MEDICAL TECHNOLOGY

Department of Defense Dependents Schools

CAREER EDUCATION

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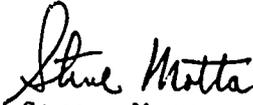
FOREWORD

The health industry is now one of the leading career opportunity fields in the nation and is continuing to grow. As the level of health service improves each year the demand for qualified professionals and technicians increases.

The Medical program is designed to provide the student with realistic training in theory and in practice within the DoDDS educational framework. In some cases the program will provide entry level skills for employment after graduation. In other cases, due to licensing restrictions, it provides a sound basis and motivation for post secondary education.

The Medical program provides an opportunity for the student to acquire elementary knowledge of terminology, sterilization, asepsis, instrumentation, and materials, as well as the clinical, office and laboratory procedures common to a wide variety of health occupations.

This manual has been prepared to assist the Medical instructor in presenting curriculum content based upon selected technologies with applications to the Medical professions.


Steve Motta
Deputy Director

ACKNOWLEDGEMENTS

The Medical Objectives Manual is a revised version of the 1977 document. We appreciate the efforts of the many DoDDS educators who helped prepare that original document.

During SY 1983-84, educators from five regions (Atlantic, Germany, Mediterranean, Pacific, and Panama) were tasked to review and revise the Medical Objectives. DoDDS is indebted to the many persons from throughout the system who contributed to this document and particularly to the following educators:

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PHILOSOPHY

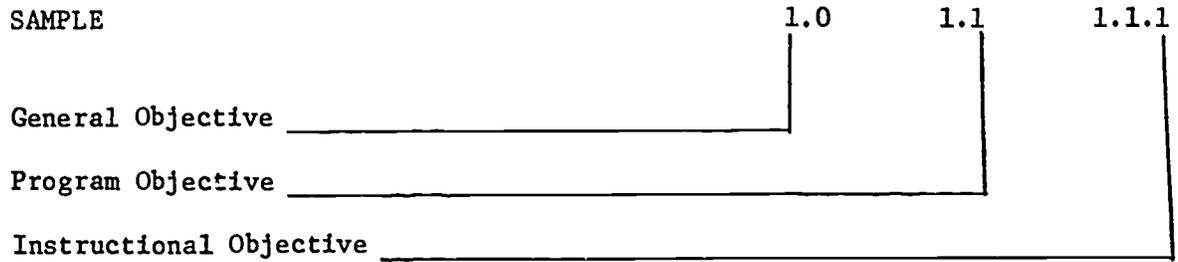
We believe the goal of education is to produce self-actualizing, self-supporting individuals capable of using their talents and skills to the utmost. This goal can be implemented by early orientation to a career.

The Medical field is well suited to this goal because, as the Department of Labor statistics indicate, in the coming decade there will be numerous new job openings in the health care field. It is also one in which cognitive and life skills are reinforced and embellished by their practical application within the program.

Our philosophy is to introduce students to the ideals, standards, and work attitudes of the health care occupations and to prepare them to accept entry-level positions in the health care industry.

ORGANIZATION AND NUMBERING CODE

The numbering code is used to indicate the levels of the objective.



The first digit of the number of each statement refers to the general objective.

The second digit refers to the program objective.

The third digit refers to the instructional objective.

Instructional objectives are not to be considered inclusive, but are only presented as examples.

The numbering code is used to facilitate:

- ° Identification of objectives.
- ° Correlation of objectives with textbook and instructional materials.
- ° Matching of test items to objectives.

USE OF SYMBOLS

Within the recommended instructional levels, the letter E represents the suggested entry point at which instruction begins.

The letter P indicates the level at which proficiency would normally be expected.

All General, Program, and Instructional Objectives should be read with the understanding that they are preceded by the phrase, "The learner should...."

Sample Objectives	Recommended Instructional Levels		
	K - 5	6 - 8	9 - 12
3.12.1 Name the bones of the body and their location.	E _____		P
3.16.2 Name and locate glands in the endocrine system.		E _____	P

GENERAL AND PROGRAM OBJECTIVES

	PAGE
1.0 APPRECIATE THE MEDICAL FIELD AS A POSSIBLE CAREER CHOICE.	
1.1 Incorporate useful aspects of medicine into a career plan.....	6
1.2 Differentiate the characteristics of various careers in medicine.....	7
1.3 Value the need to forecast a future place in the health occupations.....	8
2.0 VALUE PERSONAL SKILLS THAT PERMIT ONE TO BECOME A FUNCTIONING INDIVIDUAL IN THE MEDICAL FIELD.	
2.1 Demonstrate positive attitudes and values toward people and work.....	9
2.2 Value the need to increase self-awareness.....	10
2.3 Demonstrate proficiency in completing employment forms.....	11
3.0 INTEGRATE SKILLS, ATTITUDES, AND KNOWLEDGE NECESSARY FOR PLACEMENT AND SUCCESS IN A HEALTH CARE CAREER.	
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GENERAL OBJECTIVE: 1.0 APPRECIATE THE MEDICAL FIELD AS A POSSIBLE CAREER CHOICE.

PROGRAM OBJECTIVE: 1.1 Incorporate useful aspects of medicine into a career plan.

RECOMMENDED INSTRUCTIONAL LEVELS

K - 5 6 - 8 9 - 12

INSTRUCTIONAL OBJECTIVE

1.1.1	Identify positive attitudes and values toward work.	E _____ P		
1.1.2	Demonstrate good work habits.	E _____ P		
1.1.3	Demonstrate attitudes of respect and cooperation.	E _____ P		
1.1.4	Examine the career of a professional medical person.		E _____ P	
1.1.5	Identify the education requirements for various specialized medical programs.			E _____ P
1.1.6	Formulate a career plan which considers abilities, interests, and beliefs.			E _____ P

PROGRAM OBJECTIVE: 1.2 Differentiate among the characteristics of various careers in medicine.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
1.2.1 Develop a basic medical vocabulary.		<u> </u>	<u> </u>
1.2.2 Describe the major tasks that a person performs in specific medical careers.		<u> </u>	<u> </u>
1.2.3 Differentiate among the entry-level skills required in different medical careers.		<u> </u>	<u> </u>
1.2.4 Describe the social and physical working conditions of several specific medical careers.			<u> </u> <u> </u>
1.2.5 Compare the salary ranges of several jobs within the various medical clusters.			<u> </u> <u> </u>

PROGRAM OBJECTIVE: 1.3 Value the need to forecast a future place in the health occupations.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
1.3.1 Analyze the types of medical careers available now.		E _____	P
1.3.2 Predict the effects of technical and social changes on the medical field.			E ___ P
1.3.3 Synthesize from appropriate data the kind of medical careers that are likely to be in demand in the near future.			E ___ P

GENERAL OBJECTIVE: 2.0 VALUE PERSONAL SKILLS THAT PERMIT ONE TO BECOME A FUNCTIONING INDIVIDUAL IN THE MEDICAL FIELD.

PROGRAM OBJECTIVE: 2.1 Demonstrate positive attitudes and values toward people and work.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
2.1.1 Identify traits that promote good human relations.	E _____		P _____
2.1.2 Develop an awareness of processes involved in verbal interactions.	E _____		P _____
2.1.3 Display personality traits that increase job effectiveness.		E _____	P _____

PROGRAM OBJECTIVE: 2.2 Value the need to increase self-awareness.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
2.2.1 Define self-image.		<u>E</u>	<u>P</u>
2.2.2 Describe personal life values.		<u>E</u>	<u>P</u>
2.2.3 Demonstrate personal work values.		<u>E</u>	<u>P</u>

PROGRAM OBJECTIVE: 2.3 Demonstrate proficiency in completing employment forms.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
2.3.1 Complete a social security application form.			E <u> </u> P
2.3.2 Complete an application form for employment.			E <u> </u> P
2.3.3 Complete withholding exemption certificate (W-4 form).			E <u> </u> P
2.3.4 Complete job interview simulation.		E <u> </u>	P

GENERAL OBJECTIVE: 3.0 INTEGRATE SKILLS, ATTITUDES, AND KNOWLEDGE NECESSARY FOR PLACEMENT AND SUCCESS IN A HEALTH CARE CAREER.

PROGRAM OBJECTIVE: 3.1 Appreciate the evolution of the health care tradition.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.1.1 Identify the contributions to medicine made by important historical figures.		E _____ P	
3.1.2 Give a brief history of medical ethics.			E ___ P
3.1.3 Identify the major points in the present Code of Ethics of the American Medical Association.			E ___ P
3.1.4 Recognize the definitions of pertinent legal terms.			E ___ P
3.1.5 Chart the lines of authority in the health care hierarchy.			E ___ P
3.1.6 Appraise medicolegal situations.			E ___ P
3.1.7 Identify social forces in world and national health.		E _____ P	
3.1.8 Compare current status of health care in various cultures.		E _____ P	

PROGRAM OBJECTIVE: 3.2 Utilize safety practices.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.2.1 Recognize importance of safety practices.	E _____	P	
3.2.2 Display safety consciousness by wearing required protective devices.		E _____	P
3.2.3 Integrate safety procedures into daily routines.	E _____		P

PROGRAM OBJECTIVE: 3.3 Recognize diversity in medical sciences.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.3.1 Classify diseases.		<u>E</u> _____ <u>P</u>	
3.3.2 Explain causes, spread, and control of disease.	<u>E</u> _____ <u>P</u>		
3.3.3 Identify microscopic disease-causing organisms.		<u>E</u> _____ <u>P</u>	
3.3.4 Distinguish between medical and surgical patient care.			<u>E</u> _____ <u>P</u>
3.3.5 Differentiate among the medical specialities.			<u>E</u> _____ <u>P</u>

PROGRAM OBJECTIVE: 3.4 Demonstrate care of instruments and equipment.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.4.1 Perform daily maintenance of medical unit.		<u>E</u>	<u>P</u>
3.4.2 Perform concurrent and terminal cleaning procedures.	<u>E</u>		<u>P</u>
3.4.3 Practice use of autoclave including wrappers and controls.			<u>E</u> <u>P</u>

PROGRAM OBJECTIVE: 3.5 Assist patients to meet basic human needs.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.5.1 Prepare environment.			E ___ P
3.5.2 Practice measures for patient comfort and safety.			E ___ P
3.5.3 Differentiate among emotional, spiritual, and physical needs.			E ___ P

PROGRAM OBJECTIVE: 3.6 Introduce medical terminology into existing vocabulary skills.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.6.1 Write abbreviations commonly used in hospitals.		<u>E</u>	<u>P</u>
3.6.2 Know the spelling and meaning of the abbreviations.		<u>E</u>	<u>P</u>
3.6.3 Use the most common prefixes, suffixes, and combining forms found in medical terminology.		<u>E</u>	<u>P</u>
3.6.4 Acquire a vocabulary of approximately one hundred special terms.		<u>E</u>	<u>P</u>

PROGRAM OBJECTIVE: 3.7 Introduce medical reporting into existing oral and written communication skills.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.7.1 Give an oral report about a patient.			E <u> </u> P
3.7.2 Record the results of diagnostic tests on specific forms.			E <u> </u> P
3.7.3 Record observations and treatments using narrative forms.			E <u> </u> P
3.7.4 Chart the measurement of vital signs on a graph.		E _____	P
3.7.5 Use metric system of measurement.	E _____		P

PROGRAM OBJECTIVE: 3.8 Assist with specific health screenings.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.8.1 Test for visual acuity using Snellen charts.			E _____ P
3.8.2 Test for color blindness.			E ___ P
3.8.3 Use audiometer.			E ___ P
3.8.4 Record results of an audiogram.			E ___ P
3.8.5 Measure blood pressure, height, and weight.			E ___ P
3.8.6 Use skin calipers.			E ___ P
3.8.7 Set up area for other special tests.			E ___ P

PROGRAM OBJECTIVE: 3.9 Assist physician in office/hospital settings.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.9.1 Record diagnostic, prognostic, and therapeutic patient data.			E ___ P
3.9.2 Collect specimens.			E ___ P
3.9.3 Measure vital signs.			E ___ P
3.9.4 Set up equipment for various physical examinations.			E ___ P
3.9.5 Position and drape patient for various physical examinations.			EP
3.9.6 Assist with physical examinations.			EP
3.9.7 Assist with minor surgery in doctor's office.			E ___ P

PROGRAM OBJECTIVE: 3.10 Assist laboratory staff.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.10.1 Develop competence in performing various hematology diagnostic tests.			EP
3.10.2 Perform a routine urinalysis.			E__P
3.10.3 Use hematology instruments and equipment.			E__P
3.10.4 Collect specimens.			E__P
3.10.5 Identify appropriate containers, labels, and requisitions.			E__P

PROGRAM OBJECTIVE: 3.11 Assist pharmacy staff.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.11.1 Secure information relative to a poison and its antidote quickly.			E ___ P
3.11.2 Know main uses for commonly prescribed drugs.			E ___ P
3.11.3 Comprehend drug actions.		E _____	P
3.11.4 Comprehend rules concerning controlled substances.		E _____	P
3.11.5 Utilize "Physician's Desk Reference."			E _____ P

PROGRAM OBJECTIVE: 3.12 Demonstrate business office skills and procedures.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.12.1 Perform patient reception procedures.			E ___ P
3.12.2 Demonstrate effective telephone skills.		E _____	P
3.12.3 Initiate and maintain appointment book.			E ___ P
3.12.4 Maintain medical records.			E ___ P
3.12.5 Perform bookkeeping procedures.		E _____	P
3.12.6 Practice inventory and supply control.			E ___ P
3.12.7 Correctly label and store drug supplies.			E ___ P
3.12.8 Computerize office management.			E ___ P
3.12.9 Categorize incoming mail.			E ___ P
3.12.10 Perform editorial functions on correspondence.			E ___ P
3.12.11 Maintain the physician's library.			E ___ P
3.12.12 Discriminate among the forms used in a health care environment.			E ___ P

PROGRAM OBJECTIVE: 3.13 Identify structure, functions, and care of the musculoskeletal system.

RECOMMENDED INSTRUCTIONAL LEVELS

INSTRUCTIONAL OBJECTIVES

	K - 5	6 - 8	9 - 12
3.13.1 Name the bones of the body and their location.	E _____		P _____
3.13.2 Name the parts that make up the musculoskeletal system.	E _____		P _____
3.13.3 List the terms used to describe body movement.		E _____	P _____
3.13.4 Demonstrate techniques in caring for orthopedic patients.			E _____ P _____
3.13.5 Describe pathological conditions.			E _____ P _____

PROGRAM OBJECTIVE: 3.14 Identify structure, functions, and care of the integumentary system.

RECOMMENDED INSTRUCTIONAL LEVELS

INSTRUCTIONAL OBJECTIVES

	K - 5	6 - 8	9 - 12
3.14.1 List the functions of the skin.	E _____		P
3.14.2 Name and describe the most common skin lesions.			E _____ P
3.14.3 Demonstrate the special care procedures for skin conditions, including various decubitus ulcers.			EP

PROGRAM OBJECTIVE: 3.15 Identify structure, functions, and care of the respiratory system.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.15.1 Locate organs of the respiratory system.	E _____		P
3.15.2 Describe the structure and functions of the respiratory system.	E _____		P
3.15.3 Name the most common diseases of the respiratory system.		E _____	P
3.15.4 List five safety measures for use of oxygen therapy.			E _____ P
3.15.5 Demonstrate two positions for respiratory patients.			E _____ P

PROGRAM OBJECTIVE: 3.16 Identify structure, functions, and care of the circulatory system.

INSTRUCTIONAL OBJECTIVES	RECOMMENDED INSTRUCTIONAL LEVELS		
	K - 5	6 - 8	9 - 12
3.16.1 Describe functions of the circulatory system.	E _____		P _____
3.16.2 Locate organs of the circulatory system.	E _____		P _____
3.16.3 Name the most common diseases of the circulatory system.		E _____	P _____
3.16.4 Name the three kinds of blood cells.			E _____ P _____

PROGRAM OBJECTIVE: 3.17 Identify structure, functions, and care of the endocrine system.

RECOMMENDED INSTRUCTIONAL LEVELS

INSTRUCTIONAL OBJECTIVES	K - 5	6 - 8	9 - 12
3.17.1 Define the general function of endocrine glands.		<u>E</u>	<u>P</u>
3.17.2 Name and locate glands in the endocrine system.		<u>E</u>	<u>P</u>
3.17.3 Describe the function of each gland.			<u>E</u> <u>P</u>
3.17.4 Perform a urine test for sugar and acetone.			<u>E</u> <u>P</u>
3.17.5 Describe pathological conditions of the endocrine system.			<u>E</u> <u>P</u>

PROGRAM OBJECTIVE: 3.18 Identify structure, functions, and care of the nervous system.

RECOMMENDED INSTRUCTIONAL LEVELS

INSTRUCTIONAL OBJECTIVES	K - 5	6 - 8	9 - 12
3.18.1 Locate parts of the central nervous system.	E _____		P
3.18.2 Name the common pathological conditions of the central nervous system.			E _____ P
3.18.3 Describe the function of the autonomic nervous system.			E _____ P
3.18.4 Describe some of the functions in caring for patients with neurological conditions.			E _____ P

PROGRAM OBJECTIVE: 3.19 Identify structure, functions, and care of the gastrointestinal system.

RECOMMENDED INSTRUCTIONAL LEVELS

INSTRUCTIONAL OBJECTIVES	K - 5	6 - 8	9 - 12
3.19.1 Locate the organs of the gastrointestinal system.	E _____		P _____
3.19.2 Name the common disease conditions of the gastrointestinal system.		E _____	P _____
3.19.3 Name the various kinds of enemās.			E _____ P _____
3.19.4 Demonstrate procedures for preparing patients for diagnostic tests.			E _____ P _____

PROGRAM OBJECTIVE: 3.20 Identify structure, functions, and care of the urinary system.

RECOMMENDED INSTRUCTIONAL LEVELS

INSTRUCTIONAL OBJECTIVES	K - 5	6 - 8	9 - 12
3.20.1 Name the parts of the urinary system.	E _____		P _____
3.20.2 Describe the function of the urinary system.	E _____		P _____
3.20.3 List disease conditions of the urinary system.			E _____ P _____
3.20.4 Describe the special tests given for urinary conditions.			E _____ P _____
3.20.5 Perform three different routine urinalysis tests.			EP

PROGRAM OBJECTIVE: 3.21 Identify structure, functions, and care of the reproductive system.

RECOMMENDED INSTRUCTIONAL LEVELS

INSTRUCTIONAL OBJECTIVES

K - 5 6 - 8 9 - 12

3.21.1	Name the organs of the reproductive system in the male and female.	E _____ P
3.21.2	Describe the functions of the male and female reproductive systems.	E _____ P
3.21.3	Describe the common diseases of the reproductive system.	E _____ P

TIME ALLOTMENTS FOR MEDICAL TECHNOLOGY PROGRAMS

The determination of time allotments needed for the study of pre-nursing, paramedical and lab technology at various levels is an important consideration for the development of medical offerings within the total school program. The fact that these programs can contribute significantly to the development of each individual student would indicate that they be included in various curriculum areas.

1. ELEMENTARY SCHOOL

Medical career awareness should be regularly infused into the normal classroom activities at each grade level, based on the content areas of communications, health care, first aid, hygiene, heredity, body structure, and functions.

2. MIDDLE/JUNIOR HIGH SCHOOL

A minimum of 45 hours should be provided in the content areas of medical specialities.

3. SENIOR HIGH SCHOOL

High school experiences for students should include medical courses which provide and utilize continuing and in-depth experiences in the suggested areas of communications, industry, and medical technology.

ORGANIZATIONAL PATTERN FOR MEDICAL TECHNOLOGY

The unique functions and objectives noted for medical technology are best achieved by a course in middle school and one course consisting of four units of instruction in high school.

Organizational Pattern for Medical Technology

Elementary School (K-5)

MEDICAL AWARENESS
INFUSED WITHIN THE
ELEMENTARY CURRICULUM

Middle School (6-8)

SURVEY OF MEDICINE AND MEDICAL CAREERS
(Duration: 9 Weeks)

High School (9-12)

MEDICAL TECHNOLOGY

- INTRODUCTION TO HEALTH CARE CAREERS
- BEDSIDE PATIENT CARE
- MEDICAL LABORATORY
- MEDICAL OFFICE PRACTICE

(Duration: 18-36 Weeks)

COURSE DESCRIPTIONS

SURVEY OF MEDICINE AND MEDICAL CAREERS

This course provides the learner with a global and individual impression of the development of health concerns from prehistoric times to the present and the future times. The student learns that societies have always cared for their members by setting aside specialists for that purpose. Consciousness of shared humanity, interdependence of peoples, and universal considerations in achieving health for all, will be raised and increased.

(Recommended for grades 6-8.)

INTRODUCTION TO HEALTH CARE CAREERS

This course provides the learner with the background knowledge to make an informed choice about suitability to a health care career. Areas described in depth will include preventive medicine, emergency technology, nursing, laboratory technology, radiation technology, and many more of the over 400 job titles this field offers. The financial, educational, personality, and physical requirements will be delineated. The prestige, salary, and other rewards will be described. Career ladders, lifetime learning, and other sociological factors of each occupation will be reviewed.

(Recommended for grades 9-12.)

BEDSIDE PATIENT CARE

This course provides the student with an opportunity to work with equipment and practice procedures required to care for a bed-ridden patient.

(Recommended for grades 9-12.)

MEDICAL LABORATORY

This course, taught in a laboratory setting, is geared to the medical area in general and covers blood bank, hematology, urinalysis, microbiology, bacteriology, and disease. Both theory and experimentation are stressed as diagnostic tools. It is intended to be articulated with employment opportunities that are widespread and in line with demands of hospitals, clinics, pharmaceutical labs, and industries.

(Recommended for grades 9-12.)

MEDICAL OFFICE PRACTICE

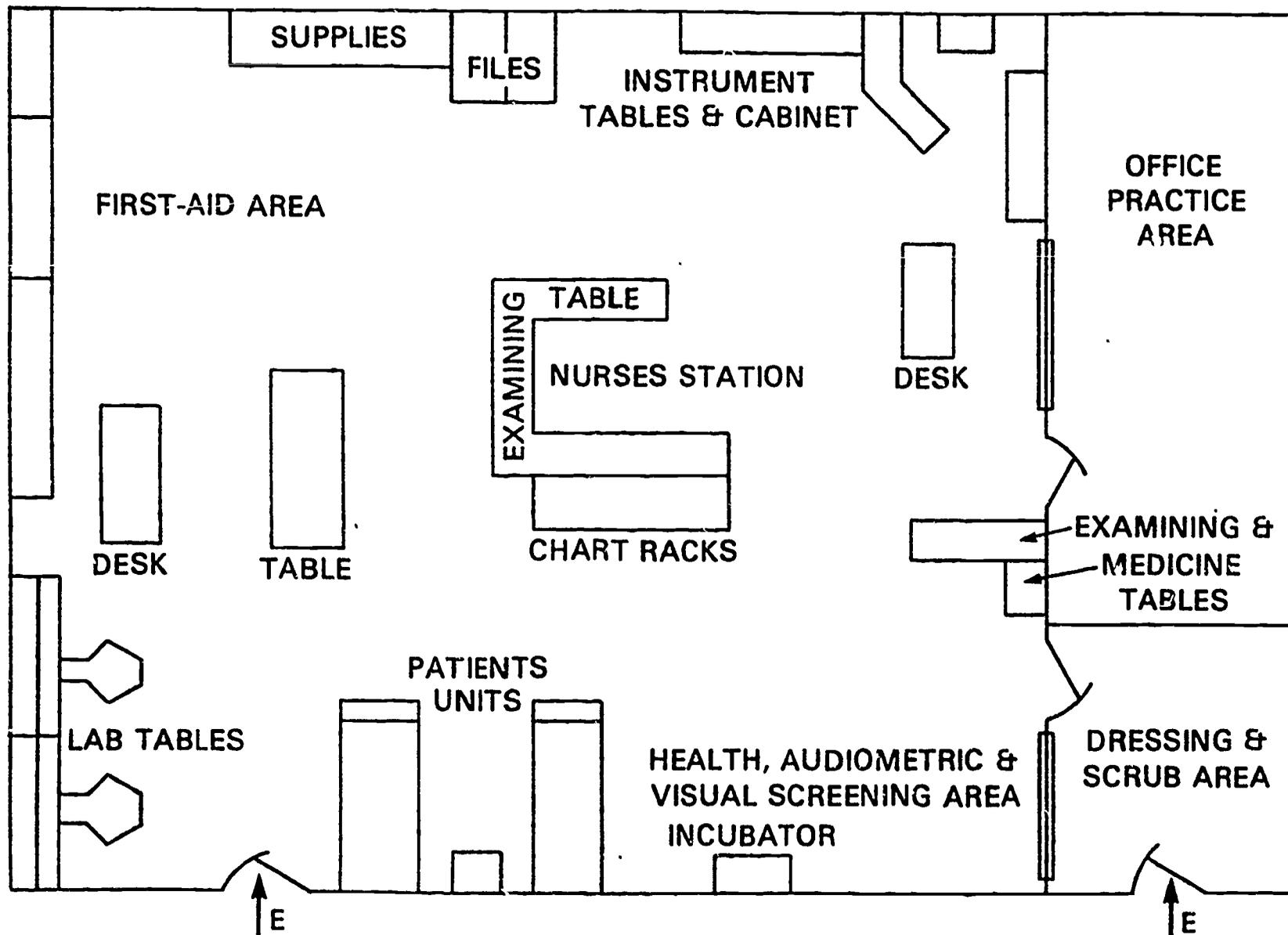
This course provides an introduction to the special skills required in a medical office environment. It is expected that the student will have already achieved mastery of the business techniques. Medical terminology, medical records technology, receptionist duties, first aid for office emergencies, and drug inventory and control procedures are the most important elements. Confidentiality is emphasized as well as medicolegal matters, especially professional liability.

(Recommended for grades 9-12.)

REQUIREMENTS FOR MEDICAL TECHNOLOGY FACILITIES

1. Dressing Room
Scrub Sinks
Lockers
2. Medical Office Practice Area
3. Nurse's Station
Examining Room
Utility Room
Supply Room
First Aid Area
4. Bedside Care Area
5. Audio/Visual Screening Area (including video monitor for individual use or small groups)
6. Laboratory Technology Area
7. Classroom for Lectures and Films

Suggested Medical Technology Lab Layout



38

45

46

SAFETY AND HEALTH*
RECOMMENDED PROCEDURES AND PRACTICES

A comprehensive safety and health program is essential to the success of a quality medical careers program. The program provides for a safe environment and promotes lifelong attitudes and practices regarding safety and health.

PROGRAM: Learning experiences and activities are designed for the development of knowledge, skills, and attitudes concerning the safe use of machines, equipment, instruments, materials, and processes.

1. Teachers should prepare a written plan for a comprehensive safety and health program.
2. Administrative personnel should provide input for and approval of the safety and health program.
3. Community resources should provide input to the safety and health program.
4. Safety and health information should be included in the instructions for all laboratory activities.
5. Teacher and student activities should reinforce safety and health instructions.
6. Safety and health instructions should be adapted to the individual student's needs.
7. Safety and health practices should be monitored continuously and reviewed annually by the teacher.
8. Local administrators should assess and make recommendations for the improvement of the safety and health program.
9. Proper authorities, external to the school, should inspect periodically and report on the safety and health program.
10. Teachers and administrators should review each recorded accident and all unsafe practices to correct deficiencies.

PHYSICAL ENVIRONMENT: The physical facilities and equipment are designed, constructed, and maintained to ensure a safe and healthful learning environment.

1. Laboratory facilities should meet appropriate safety and health laws and regulations.
2. Safety zones and aisles should be properly marked.
3. Proper exhaust systems equipment should be provided.
4. Proper equipment should be provided to heat, cool, ventilate, and light all instructional and ancillary zones.
5. Approved safe cabinets, containers, or rooms should be provided to store materials and equipment.
6. Special safety and health accommodations should be provided for students with special needs.
7. Floors and all other surfaces should be kept free of waste material and obstructions.

*Adapted from Standards for Industrial Arts Programs Project, Virginia Polytechnic Institute and State University, November 1981.

8. Floors should have non-skid surfaces.
9. Each laboratory with powered equipment will have the equivalent of one easily accessible emergency disconnect switch (panic button).
10. Fire extinguishers of the correct class will be provided in appropriate locations.
11. A first-aid kit and related emergency supplies will be provided in accordance with local regulations.
12. Equipment will be selected on the basis of the ability to meet program objectives safely.
13. Equipment will be placed, mounted if necessary, and arranged in a safe and functional manner.
14. Any machine or tool found to be unsafe will be removed from service until safety standards can be met.
15. Eye protection devices will be required of all persons exposed to conditions which may cause eye injury.
16. Respiratory protection devices will be required of all persons exposed to conditions which may cause respiratory problems.
17. Specially adapted personal protection devices will be available for and used by students with special needs.
18. Teachers and students will wear appropriate clothing when exposed to conditions which warrant such protection.
19. Personal protection devices requiring sanitation will be sanitized after each use.

RECORDS: Records are on file to document the existence of an effective safety and health program.

1. Lesson plans documenting provision for safety and health instructions should be on file.
2. Results of written and performance tests and observations documenting student safety and health knowledge, attitudes, and skills are on file.
3. Inspection, maintenance, repair, and replacement record will be current and on file.
4. Records of each accident and the follow-up procedures taken will be on file.
5. Emergency procedures for responding to accidents will be posted and on file.

BASIC EQUIPMENT

1 patient's unit for every six students to include

- 1 hospital bed
- 1 bedside table
- 1 over bed table
- 1 step stool
- 1 chair

1 scrub sink for every six students

1 utility sink

120V and 220V outlets

Special lab tables with seating for four students at a time.

Business office facilities similar/same as in business labs to accommodate four different student activities, i.e., filing, typing, calculating, computer.

CERTIFICATE OF PROFICIENCY

in
to

is awarded

This Day of _____ 19_____

Principal

School, Country

Instructor

LIST COMPETENCIES ON BACK OF CERTIFICATE AND INITIAL EACH ONE.

MAINSTREAMING IN MEDICAL TECHNOLOGY
INDIVIDUALIZED EDUCATIONAL PROGRAMS
(IEP)*

Included in Public Law 94-142 is the concept of individualized educational programs for handicapped students. Each student is to have an individually prescribed program of studies, containing short- and long-term goals, based on the diagnosis of the student's learning abilities. The law states:

"A written statement for each handicapped child developed in any meeting by a representative of the local educational agency or an intermediate educational unit who shall be qualified to provide, or supervise the provision of, specially designed instruction to meet the unique needs of handicapped children, the teacher, the parents or guardians of such child, and whenever appropriate, such child, which statement shall include (a) a statement of the present levels of educational performance of such child, (b) a statement of annual goals, including short-term instructional objectives, (c) a statement of the specific educational services to be provided to such child, and the extent to which such child will be able to participate in regular educational program, (d) the projected date for initiation and anticipated duration of such service, and (e) appropriate objective criteria and evaluation procedures and schedules for determining, on at least an annual basis, whether instructional objectives are being achieved."

Since the medical teacher will be involved in the planning and implementation of the instructional program for the particular medical technology course in which the handicapped students are enrolled, the instructor should make every effort to participate actively in the development of the IEPs. This active participation will help to ensure that unrealistic or unreachable goals are not established for those phases of the students' programs which include the medical teacher's area of expertise. Furthermore, planning appropriate instruction is crucial if handicapped students are to achieve their highest level of skill in the medical technology program. A side benefit of active participation in the writing of the IEP is the opportunity for working directly with the special education personnel, the students' parents, and the administration. Direct communication will help to prevent misunderstanding or confusion on the part of all parties involved.

One facet of the role of the medical technology teacher, or any other teacher, is to provide information to appropriate persons for the identification of students with special needs. The major parts of the teacher's role, however, are those traditionally associated with helping students to learn - instructing and evaluating students. However, assisting students with special needs will probably require that the teacher reexamine methods, materials, motivational devices, and evaluation techniques.

*Courtesy of South-Western Publishing Company, Cincinnati, Ohio, Mainstreaming in Business Education, Monograph 135, March 1981. (Revised to reflect Medical Technology)

DIAGNOSIS

Two vitally important elements essential to the development of the IEP are those of diagnosis and task analysis. The task analysis is based upon the interpretation of the diagnostic reports pertaining to the handicapped student.

The individual with special needs must first be identified, tested, and evaluated for learning according to the diagnosis of the special need. Once the diagnostic reports are adequately interpreted, the development of an appropriate program begins. Acting cooperatively, the medical teacher, special education resource persons, and other key professional staff members begin the process of planning the educational program for specific students. The basis for the planning is the development of the learner's profile which includes information about the student's learning strengths, weaknesses, and occupational interests.

TASK ANALYSIS

Inherent in the development of the IEP is the need for medical technology teachers to realistically assess methods, media, and content pertinent to any given course or occupational cluster. For the first time, coordinators and teachers may realize that not every student needs to complete every part of one course.

A study should be made of available resources and the competencies required for work in today's society. Each individual program for a special needs learner is planned, implemented, and evaluated by a team composed of representatives from the areas of expertise mentioned earlier. Periodic assessment of the learner's progress is used to provide information not only of educational gains, but of the status of the handicapping condition.

A career cluster analysis is similar to a job or task analysis. The planners are identifying skills, knowledges, and basic competencies to be incorporated into the individualized instructional plans for the learner. Thus, the team must identify tasks and the essential knowledges and skills necessary for the performance of the task within designated occupational clusters and/or courses. Additionally, the team must determine the competencies and the levels of competency that can realistically be achieved by the special needs student.

COMPETENCY PROFILE FOR VOCATIONAL TEACHERS
INSTRUCTING SENSORY AND PHYSICALLY
IMPAIRED STUDENTS*

A. Develop a positive attitude toward working with sensory and physically impaired in the regular program.

1. Assess own attitude toward working with handicapped students.
2. Participate in activities simulating handicapped conditions.
3. Identify myths, misconceptions, and stereotypes.
4. Identify handicapping characteristics of students.
5. Identify economic indicators supporting hiring of the handicapped.
6. Consult with persons working successfully with the handicapped to determine why they are committed.
7. Observe the handicapped in successful roles (e.g., on the job).
8. Interact with handicapped students.
9. Review legislation concerning handicapped.
10. Persist in the face of seeming failure.

B. Implement modifications in the physical setting.

11. Identify architectural barriers.
12. Recommend needed changes in facility design.
13. Determine the special safety conditions that may be required by the handicapped students.
14. Modify work stations as needed.
15. Secure/adapt appropriate equipment as needed by students.

C. Modify curriculum and instruction.

16. Identify and verify vocational skills needed by each student to meet career goals.
17. Identify and verify related skills (reading, math).
18. Identify jobs on career hierarchy/ladder.
19. Match/modify jobs on career hierarchy/ladder to students' abilities.
20. Determine if texts/materials are appropriate to students' reading levels.
21. Adapt materials to individual learning styles.
22. Develop materials to meet individual learning styles.
23. Teach job-seeking skills.
24. Teach job-survival skills.
25. Modify length of training period to meet students' needs.
26. Promote use of open-entry/open-exit programming.
27. Use a competency-based grading system to supplement 'grade' with competency profile.
28. Employ alternative teaching practices (e.g., peer tutoring, small-group discussions).
29. Individualize teaching practices.

*Courtesy of South-Western Publishing Company, Cincinnati, Ohio, Mainstreaming in Business Education, Monograph 135, March 1981.

30. Use specialized language instruction techniques (e.g., to teach vocabulary).
31. Use a multisensory approach to instruction.
32. Adapt/use media for individual needs (e.g., captions).
33. Simplify instruction of essential tasks.
34. Identify instructional resources, materials, and techniques available to the teacher.
35. Use supportive instructional services.
36. Provide frequent reinforcement and success experiences.
37. Review effectiveness of curriculum and instruction regularly, and update as required.
38. Modify instructional evaluation techniques as needed.

D. Participate in ongoing evaluation concerning sensory and physically impaired.

39. Develop skills in recognizing students with handicaps.
40. Review any existing student records.
41. Devise informal measures for assessing students' abilities.
42. Identify student learning styles.
43. Assess students' motor skills in relation to occupational skills required.
44. Determine if the disability is, in fact, a vocational handicap.
45. Participate in development of individualized student plans (e.g., IEPs).
46. Involve students/parents on an ongoing basis.
47. Monitor and update student goals based on student progress.
48. Provide student with realistic picture of job skills needed and time required to reach career goal.

E. Develop effective communications.

49. Establish rapport with students.
50. Facilitate the productive integration of the disabled with their peers.
51. Assist students in developing realistic goal-setting skills.
52. Involve students in developing their own individual programs.
53. Provide assertiveness training for students.
54. Teach appropriate situational responses/discrimination skills.
55. Secure feedback from individual students on how well the program is meeting their needs.
56. Use student contracts (performance contracting, behavior contracting).
57. Relate self-awareness activities to career goals.
58. Develop functional means (e.g., sign language) to communicate with students having communication deficits.
59. Observe nonverbal behaviors as indicators of feelings.
60. Ensure that your communication patterns (verbal, nonverbal) do not single out handicapped students as different.
61. Use active listening techniques.
62. Work cooperatively with other support/resource persons (e.g., interpreter, itinerant teachers) in the classroom.

63. Maintain liaison with special education personnel as needed or required.
64. Communicate with guardians, employers, agencies, and all others affecting handicapped students.
65. Facilitate the placement of handicapped students by working with employer.
66. Encourage administrators to support creative/alternative instructional approaches.

F. Identify and utilize supportive services (on campus and in the community).

67. Identify needs students have.
68. Obtain or develop a directory of support services.
69. Participate in activities designed to increase your knowledge of what services do and how to use them.
70. Inform students of relevant services available to them.
71. Match students' needs with available services.
72. Identify appropriate contact persons for teachers.
73. Initiate referral process as appropriate (inform service, refer student).

G. Provide aid in emergencies.

74. Be alert to the types of emergencies that might occur for individual students.
75. Identify legal implications involved in giving aid.
76. Identify emergency procedures to be followed.
77. Obtain training in types of aid for individual students.
78. Identify/contact emergency resources.

H. Continue professional growth.

79. Work toward improving the climate for acceptance in yourself, in colleagues, and in employers.
80. Review related literature.
81. Participate in orientations and workshops.
82. Observe/interact with colleagues who are doing a model job in teaching handicapped students.
83. Participate in experiences that promote creative development and exchange (e.g., problem sharing with colleagues).
84. Participate in/support professional groups dealing with handicapped.
85. Include in your own professional development plans steps to acquire additional skills for teaching the handicapped.

DOD DEPENDENTS SCHOOLS
 MEDICAL TECHNOLOGY PROGRAM
 SELF-ASSESSMENT EVALUATION

SCHOOL: _____ DATE: _____

INSTRUCTOR'S NAME: _____ TYPE OF LABORATORY: _____

INSTRUCTIONS: Below is a list of evaluative statements. The teacher should rate each item from 0 to 4. Four is the highest rating an item may receive, 0 is the lowest. Once the evaluation is completed, the ratings should be totaled. This instrument is intended for the teacher's use in program diagnosis. It is suggested that this instrument be used midway and at the end of the program.

PART I (Program):

Special concerns of the medical technology program are common learnings needed by all persons to function effectively in our society; attitudes: interests, abilities and skills, problem solving, and understanding the world of work.

<u>Ratings</u>	<u>Statements</u>
4 3 2 1 0	1. The program (includes all courses) is designed to serve male and female students providing hands-on activities interpreting the technology of our society as it relates to health care.
4 3 2 1 0	2. All levels of the program foster technological adaptability as an exit competency.
4 3 2 1 0	3. Opportunity is offered each student to discover and to develop personal talents in the realm of technology.
4 3 2 1 0	4. Courses enroll both male and female students of all ability levels.

PART II (Curriculum):

Implementing a medical technology program requires a division of services and responsibilities among the various levels, grades, facilities, and instructors.

4 3 2 1 0	5. Individual courses are designed to be a part of a total program of instruction and are reviewed yearly for possible improvement.
4 3 2 1 0	6. A written course of study is used to guide each class with activities designed to relate to the adaptability goal, the age, and the ability level of the students.

- | | | |
|-----------|-----|--|
| 4 3 2 1 0 | 7. | The course of study lists exit competencies, i.e., what the student will have when he/she leaves the course. |
| 4 3 2 1 0 | 8. | A student/personnel system is instituted for maintaining an orderly lab environment. |
| 4 3 2 1 0 | 9. | A daily log or teacher plan book is maintained as a class instructional record. |
| 4 3 2 1 0 | 10. | A record of pupil attendance in class is maintained. |
| 4 3 2 1 0 | 11. | A record of individual student progress and activities is kept. |
| 4 3 2 1 0 | 12. | A description of each course offered is included in a handbook of courses for use by students, parents, and guidance counselors. |

PART III (Instruction):

Effective class instruction combines cognitive information and tactile activities designed to enable students to perform with ideas, tools, equipment, and materials.

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|-----------|-----|---|
| 4 3 2 1 0 | 13. | A lesson schedule, which includes 50 group presentations, is used with all classes. |
| 4 3 2 1 0 | 14. | Teaching performance includes spontaneity, a relevant introduction, two-way communication, answerable questions, summation, and praise for participation. |
| 4 3 2 1 0 | 15. | Students work without constant direction and/or questions. |
| 4 3 2 1 0 | 16. | A variety of student project activities is evident. |
| 4 3 2 1 0 | 17. | Provision is made for the display of student work. |

PART IV (Facilities):

The presentation of instruction requires a laboratory environment with appropriate equipment/instruments and an adequate supply of materials for student activity.

- | | | |
|-----------|-----|---|
| 4 3 2 1 0 | 18. | Equipment represents a commitment to provide exploration in a wide variety of experiences rather than narrow, in-depth training. |
| 4 3 2 1 0 | 19. | Guests and visitors routinely are invited and escorted to the medical department as it represents a "showcase" environment for instruction. |
| 4 3 2 1 0 | 20. | Storage of instruments, materials, and projects is organized to provide full use of all stations and equipment and security for student work. |
| 4 3 2 1 0 | 21. | Student clean-up activities are an integral part of the medical technology course of study. |

PART V (Safety):

Provision for instruction in common safety practices, the development of student safety habits and the establishment of a safe work environment represent a necessary part of technological education.

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|-----------|-----|--|
| 4 3 2 1 0 | 22. | Safety considerations are an integral part of all class and individual instruction. |
| 4 3 2 1 0 | 23. | Equipment is fully guarded and procedures are implemented to assure compliance with good safety practices. |
| 4 3 2 1 0 | 24. | A record of all accidents is maintained. |

*BASIC TEXTBOOKS FOR

MEDICAL TECHNOLOGY

(Approved for Adoption April 6, 1984)

<u>TITLE</u>	<u>AUTHOR</u>	<u>PUBLISHER</u>	<u>COPYRIGHT DATE</u>
Diversified Health Occupations	Simmers	Delmar Publ., Inc.	1983
Human Body In Health And Disease	Memmler	Harper Row Co.	1983
Health Assistant	Caldwell	Delmar Publ., Inc.	1982

* For ordering these basic textbooks and other supplementary materials, refer to the DoDDS BOSS catalog.