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ABSTRACT

This volume consists of three units of a basic core curriculum that is intended for all health workers. Covered in the units are the following topics: (1) the body's need for food, the effect of food on the body, the five food groups, the six nutrients, and therapeutic diets; (2) general principles of asepsis, specific methods of maintaining medical and surgical asepsis, the infectious process, and transmission of disease; and (3) words and phrases used in making nursing observations; roots, suffixes, and prefixes; commonly used abbreviations and symbols; and surgical and diagnostic terms. The units contain a series of learning modules, each of which contains a rationale, performance objectives, learning activities, terminology, and one or more posttests. (MN)

HEALTH OCCUPATIONS CURRICULUM

SKILLS AND THEORY FOR HEALTH ASSISTANT

VOLUME 2 UNITS 5-7

ARIZONA DEPARTMENT OF EDUCATION

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DEDICATION

To Shirley Mannion and Dorothy Lawrence: Shirley believed that given the proper support systems almost anyone could succeed and that everyone should be able to go from one occupation to another without repeating learning abilities (career ladder/mobility). Dorothy wrote the original objectives and organized an open entry/open exit program with a Core Curricula for health workers.

To those two pioneers, we owe much. Thanks for being creative and willing to take risks.

DESCRIPTION OF UNITS

Units 1 through 7 comprise the core curriculum which is the basic curriculum for all health workers.

Those students who wish to enter the health field as nursing assistants must also complete Unit 8.

Students who wish to obtain their Practical Nurse Certificate must complete Units 1-8 and Units 14-20.

Units 9 through 13 are currently in the planning stages of development.

The following is a brief description of each unit in the HOP program.

Unit 1 introduces the health care facility, the long-term care setting, and the members of the health care teams.

Unit 2 introduces different ways to communicate feelings and ideas, and how to understand what other people try to express. In addition, human behavior and ethical and legal behavior are discussed.

Unit 3 introduces the hospital and the patient environment. It provides the information for emergency and first aid skills necessary to maintain patient safety and comfort.

Unit 4 presents anatomy and physiology as they apply to the health care workers. The organization of the human body, its systems, structures and functions are emphasized.

Unit 5 examines the body's need for food, the food's affect on the body, the five food groups, the six nutrients, and some therapeutic diets.

Unit 6 emphasizes the importance of cleanliness. Specific methods are studied to preserve medical and surgical asepsis. Bacterial names, diseases they cause, and the means by which bacteria are transmitted are examined.

Unit 7 stresses the origin, development, and use of medical terminology. Included are professional words, phrases, abbreviations, symbols, and surgical and diagnostic terms.

Unit 8 offers the opportunity to apply the basic knowledge, skills, and responsibilities needed for patient care and comfort. Skills such as bathing the patient, observations of vital signs, and the use and care of the various medical equipment and supplies are demonstrated. Performance is observed and evaluated in the lab and the clinical area.

Units 9-13 are in planning stages of development.

Unit 14 provides the practical nurse with a foundation in pediatric nursing. The growth and developmental levels of children are covered as well as diseases and conditions specific to children. Principals from previous health care units are reviewed and correlated with theory in this unit.

Unit 15 emphasizes communication skills and observations through the use of group discussion, role-playing, and audiovisual aids. Concepts of mental health as related to the practical nurse are presented.

Unit 16 studies legal responsibilities of the practical nurse. Also community resources are visited and studied and the needs of the elderly are included with clinical experience in a long term care facility.

Unit 17 studies the common medical and surgical conditions and the clinical practice of nursing care for these patients. The principles of adapting basic nursing care and related procedures to the individual patient are practiced.

Unit 18 stresses the prevention, promotion, and maintenance of health during the prenatal, anti-partal, and the neonatal period, including the complications that are related to obstetrical nursing.

Unit 19 covers the elementary principles involved in the administration of medications and in weights and measures. The medications commonly used in the treatment of disease are discussed in terms of actions, side effects, and dosages.

Unit 20 emphasizes proficiency in the application of knowledge and skills learned throughout the training program while in the role of a practical nurse in a clinical setting. Nursing history and organizations are also explored.

REFERENCES AND REQUIRED TEXTS

The following is a list of required textbooks and reference materials.

REFERENCE BOOKS

1. Hospital Research and Educational Trust (HRET), Being a Nursing Aide, Robert J. Brady Company, Bowie, Maryland, 1978.

2. Anthony, Catherine Parker, Structure and Function of the Body, C.V. Mosby Company, St. Louis, Missouri, 1980.

3. Velma L. Kerschner, R.N., B.S., Nutrition and Diet Therapy for Practical Nurses, F.A. Davis Co., Philadelphia, Pennsylvania, 1977.

4. Thomas, Clayton L., Taber's Cyclopedic Medical Dictionary, F.A. Davis Company, Philadelphia, Pennsylvania, 1979.

5. Staton, Thomas F., How To Study, Montgomery, Alabama, 1968.

6. Mosby's Review of Practical Nursing, C.V. Mosby Company, St. Louis, MO., 1970.

7. Tucson Community Council, The United Way Directory of Social Resources, Tucson, Arizona, 1978.

REQUIRED BOOKS

1. Marlow, Dorothy, RN Ed. D., Textbook of Pediatric Nursing, W.B. Saunders Co. 1977.

2. Caldwell, Esther, and Barbara R. Hegner, Geriatric Nursing, A Study of Maturity, Delmar Publishers, Albany, New York, 1976.

3. Johnston, Dorothy F., Total Patient Care, The C.V. Mosby Company, St. Louis, Missouri, 1979.

4. Bethea, Doris C., Introductory Maternity Nursing, J.B. Lippincott Co., Philadelphia, Pennsylvania, 1976.

5. Falconer, Patterson, Gustafson, Sheridan, Current Drug Handbook, 1980-1982, W.B. Saunders Co., Philadelphia, Pennsylvania.

6. Morgan Arthur James, M.D. and Mabye K. Johnston, R.N., Mental Health and Mental Illness, J.B. Lippincott Co., Philadephia, Pennsylvania, 1976.

DEFINITIONS AND EXPLANATION OF CURRICULUM COMPONENTS

To assist you in understanding how to use these units, we have written the following definitions and explanation for the terms which will be encountered.

Unit: One whole book or topic. Each unit has a number and a title. This first unit is Unit 1; its title is: The Health Care Facility and the Health Team.

Module: Each module has a letter and a title and is like a chapter in a book. The first module in Unit 1 is: Module A, The Health Care Facility.

Suggested References: These are included in the front of each unit only to be utilized if the student is interested in learning more about a subject or trying to understand something more thoroughly.

Rationale: A statement which tells why it is important that the student learn the material contained in each unit.

Performance Objective: Found at the beginning of each module, this tells the student specifically what he/she needs to identify, describe, or demonstrate after completing each module. The student will show the instructor through either written evaluation or by demonstration that he/she has learned what is stated in each objective.

Learning Activities: Found at the beginning of each module, this section gives the student general information and directions on what will be needed to complete the module. Many modules are self-contained or do not require any outside resources, while others will refer the student to textbooks and/or audiovisual materials.

Activities: Information the student must learn in order to satisfactorily complete the performance objectives. Each new subject area is a different activity. Within each activity specific instructions will be given on what to read or which audiovisual should be viewed. There are also written exercises to help the student learn the material. Some of the written exercises will refer the student to the answers on the following page or the answers will be found upside down on the same page. In other exercises, the student will be asked to find the answers in the information already read.

Terminology Section: Common terms found in each unit. This section is a terminology resource for the student.

Post Test: Found at the end of each unit, this is either a written evaluation or a demonstration for your instructor which will measure your knowledge of the skill(s) covered. Your instructor will tell you when it is time to take a Post Test.

Answers to Post Test: These are the answer keys to the Post Tests.

NOTE:

Challenging: A statement on the first page that states, "if you wish to challenge a test, see your instructor". Some students will have had previous nursing experience or possibly had college courses covering parts of the curriculum. If the student feels he/she knows the material and can successfully complete the objectives stated in a module without completing all the learning activities, the student should ask the instructor about challenging. If he/she is successful and passes this evaluation to the instructor's satisfaction, the student may progress to the next module.

PREFACE

To Instructors:

While preparing this curriculum for publication, the staff revised and updated previous materials. The evaluation questions have now been field tested for validity and reliability and we have established 70% as a minimum passing grade; however, we did not attach this percentage to each objective. Instead, we have introduced each objective with the phrase "To The Instructor's Satisfaction" since we believe our program is based on the individual's abilities and needs, and each instructor should assess and evaluate each student individually. We suggest that each nursing program determine the type of the evaluation and/or the minimum level for passing for their own program. Please keep in mind that our experience has shown that 70% is the minimum necessary to function safely at the bedside.

The units and the tests have been prepared by individual instructors in their own area of expertise. You will find various writing styles throughout the curriculum; however, the format for all the units is the same. The staff attempted to make each unit self-contained, but in many units this was impossible. The required texts for the program are listed in the introduction. The audiovisual materials which are required are listed within the content of each unit. If it is impossible to have these specific audiovisual materials or other required materials available in your training facility, the units can be adapted to similar audiovisuals or to instructor demonstration. The worksheets covering material on the audiovisuals can be used as study guides since the answers are included.

The tests for each unit have been written to test as many important points as possible as stated in the objectives. Although we would hope the students would learn as much as possible of the information presented, due to the overwhelming number of questions which would need to be asked, we only test over what we felt were the most important. As an instructor, you may choose to add or delete information important for your program.

In most cases, the order of presentation of the units can be determined by each program; however, Unit 4 (Anatomy and Physiology) and Unit 8 (Nursing Skills) were written to be presented together. The staff felt that the knowledge of basic anatomy and physiology applied to procedures and to skills gave a greater understanding of why the student needed to learn the material.

It should also be noted that Units 9 through 13 are not included in this published curriculum. At this writing, we have only revised and updated the materials which apply to nurse assistant and practical nurse.

ACKNOWLEDGEMENTS

The staff of the Pima Community College Skill Center who participated in preparing the curriculum for publication includes:

Carol Orin, Director
Louise Adams
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Jerry Lewis
Dorothy Moore
Sandy Smith
Evelyn Long
Catherine Kelly

Typists included: Virginia Wortman
Roseann Rodriguez

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Carol Erickson, director of the Health Occupations Program at the Maricopa County Skill Center should also receive a special thanks for providing excellent technical assistance in editing and updating the current curriculum. Carol wrote the module on Long-Term Care Facilities, which is an addition to the curriculum.

LEARNING ACTIVITIES - continued

Let us discuss in depth the functions of food in the body.

1. Metabolism - is the word that describes all the processes of the body cells. There are two steps in metabolism; namely CATABOLISM and ANABOLISM.

2. Catabolism - is the phase in which the food is broken down into simpler and usable chemicals and wastes eliminated. The good part is used or metabolized. The rebuilding of the new form is the anabolism phase.

CATABOLISM - Means to break down to a usable form.

ANABOLISM - Means to rebuild into a new usable form.

Directions: Complete these statements. Check your answers by referring to the previous material in this activity.

The three functions of food are:

1. To build and repair tissue and to make _____

by process of _____.

2. To make energy and heat by process of _____.

3. To keep the body processes working properly by providing them with necessary carbohydrates, proteins, fats, _____

_____ and _____.

ACTIVITY #3. Terms Related to Nutrition

Directions: Read the following.

1. Absorption - Process whereby the usable (absorbable) form of food having completed the chemical phase, enters the bloodstream.

2. Dietetics - Science of applying principles of nutrition to feeding of individuals or of groups. A dietitian's function is to plan diets.

3. Diet Therapy - Treatment prescribed by a physician or dietitian of a specific diet for the patient.

4. Digestion - Process which converts food into an absorbable form. It has a mechanical and a chemical phase.

5. Element - The smallest amount of any substance which has its own unique qualities. For example, oxygen is a colorless, odorless, tasteless gas which combines easily with other elements.

LEARNING ACTIVITIES - continued

6. Enzyme - A catalytic substance which retains its original qualities while promoting a chemical change in food.

7. Excretion - The process whereby the body rids itself of such wastes as perspiration, urine, and feces.

8. Food Habits - Characteristic attitudes toward food, influenced by its availability, eater's ethnic origin, religion, special environment and perhaps most frequently by individual taste, likes and dislikes.

9. Food Fad - Eating habits followed for a time with exaggerated effort and precision.

10. Food Superstitions - Irrational ideas and beliefs lacking scientific basis. For example, one might believe eating strawberries during pregnancy will cause birth marks on the baby when it is born.

11. Malnutrition - Faulty or inadequate nutrition, due to dietary deficiencies or an excess of some nutrients (including junk food) which leads to an unbalanced, inadequate intake of nourishing food.

12. Nutrients - These are divided into six main types: carbohydrates, proteins, fats, vitamins, minerals, and water. The body receives these from the food intake, and they are vitally important to the body's development, growth, health, and to maintenance of life itself.

13. Nutritional Deficiency - Inadequate amounts in proper balance of the nutrients listed in Item 12 above result in nutritional deficiency with resulting damage to the body. This is primary when it is the basic cause of ill health and secondary when it is a complication of another disease or condition.

14. Photosynthesis - Process in which chlorophyll, the green coloring of plants, uses water, carbon dioxide, and the sun's energy to make carbohydrates. Oxygen is given off in this process.

15. Protoplasm - The basic material which forms all cells.

16. Secretion - The process in which the body manufactures useful substances such as hormones and enzymes.

LEARNING ACTIVITIES - concluded

Directions: Complete this exercise by matching the correct term in the right-hand column with its meaning in the left-hand column. Check your answers with those given on the last page of this module.

Part 1

_____ 1.	Substances needed by the body	a.	digestion
_____ 2.	Process by which food is changed into a usable form	b.	nutrients
_____ 3.	Process in which a usable form of food enters the bloodstream	c.	secretion
_____ 4.	Process by which useful substances are manufactured by the body	d.	absorption

Part 2

_____ 1.	Process by which the body rids itself of waste	a.	protoplasm
_____ 2.	Catalytic substance with a specific job	b.	excretion
_____ 3.	Basic material which forms all cells	c.	element
_____ 4.	Smallest substance with unique qualities	d.	enzyme

Part 3

_____ 1.	Body is not supplied with necessary amounts of nutrients	a.	food superstitions
_____ 2.	Faulty or inadequate nutrition due to dietary lack, an unbalanced diet	b.	diet therapy
_____ 3.	The science of applying principles of nutrition to feeding an individual	c.	malnutrition
_____ 4.	Treatment through prescription of a specific diet needed by a patient	d.	nutritional deficiency
_____ 5.	Attitudes and actions concerning food	e.	food fad
_____ 6.	Food customs followed for a short time	f.	dietetics
_____ 7.	Irrational ideas and beliefs without any scientific basis	g.	food habits

ANSWERS

ACTIVITY #3

Part 1

b
a
d
c

Part 2

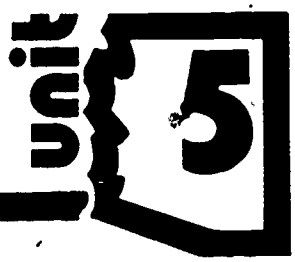
b
d
a
c

Part 3

d
c
f
b
g
e
a

NUTRITION

Module B - The Five Food Groups



RATIONALE

Do you like to eat? What special nutrients do you get from the foods you eat? How can you be certain to get a balanced diet? When you complete this module, you will know the answers to these questions.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction, you will:

1. Identify the "Basic Five Food Groups" and their nutrients.
2. Identify two foods found in each group of the "Basic Five Food Groups".
3. Identify the number of suggested daily servings for adults.

LEARNING ACTIVITIES

Directions: All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

ACTIVITY #1. Nutrients

Directions: Read the following.

The United States Department of Agriculture (USDA) suggests planning the daily diet around the "Basic Five Food Groups." These are a grouping of foods that allow us to choose foods which together supply nutrients in the amounts needed. Each day our food should supply us with protein for growth and repair of the body, minerals and vitamins for growth and to keep the body functioning properly, and fat and carbohydrates for energy. The basic five food groups are one way to choose foods wisely. With them, you can get the nutrients needed from a variety of everyday foods.

The definition can now be more clearly stated as: The food groups are a grouping of foods which together provide the essential nutrients. These basic food groups are based on studies done by the Institute of Home Economics, United States Department of Agriculture. These five food groups are: "milk-cheese" group, "meat-poultry-fish-beans" group, "vegetable and fruits" group, "bread and cereals" group and the "fats-sweets-alcohol" group.

LEARNING ACTIVITIES - continued

The fifth group (fats-sweets-alcohol) was recently added because many people felt the basic four groups omitted salad dressings, margarine or butter, jellies, jams, soft drinks, wine, beer, etc. This group contains the largest number of calories.

The USDA considers the basic five a foundation upon which to build daily food choices. Additional servings should be eaten if necessary to maintain desirable weight. Reduction of food portions to attain weight loss is consistently recommended by the USDA. Overweight can be controlled by reducing portions from the fifth group. Do not eliminate any food group except possibly group number five.

Directions: Complete the following exercises. Check your answers with the information given on basic food groups in this activity. If you have questions, see your instructor.

The basic five food groups form the foundation for an adequate diet.

The basic five food groups are:

1. _____
2. _____
3. _____
4. _____
5. _____

List the nutrients contained in each of the five groups.

1. _____
2. _____
3. _____
4. _____
5. _____

LEARNING ACTIVITIES - continued

ACTIVITY #2. Foods Found in Each Group

Directions: Read the following information.

A GUIDE TO GOOD EATING

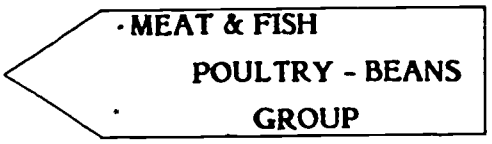
Use Daily

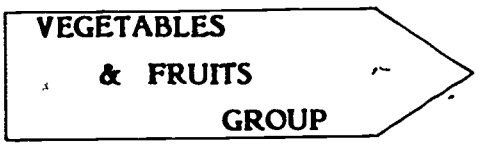
Group 1
Two servings for an adult

Cheese, ice cream, buttermilk, yogurt, cottage cheese.

Group 2
Two Basic Servings

Meats, fish, eggs, poultry, with dried beans, peas, nuts, as alternates.



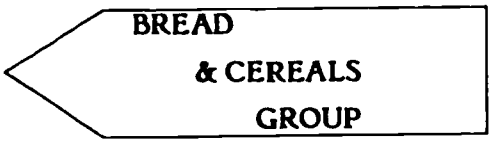


Group 3
Four Basic Servings

Include dark green or yellow vegetables, citrus fruits or tomatoes.

Group 4
Four Basic Servings

Enriched or whole grain. The addition of milk improves nutritional value. Also included are grits, macaroni, noodles, rice or spaghetti.



Group 5
No number of servings

To help you watch the calories.

LEARNING ACTIVITIES - continued

Directions: Complete this exercise. Check your answers by referring to the previous material.

Identify two foods included in each of the food groups.

Group 1. 1. _____ 2. _____

Group 2. 1. _____ 2. _____

Group 3. 1. _____ 2. _____

Group 4. 1. _____ 2. _____

Group 5. 1. _____ 2. _____

ACTIVITY #3. Suggested Daily Servings

Directions: Complete the following. Check your answers with the information you have studied in this activity or ask your instructor for help.

The number of suggested daily servings for adults in each of the following food groups is:

1. Milk-cheese _____
2. Meat-poultry-fish-beans _____
3. Fruits and vegetables _____
4. Bread and cereal _____
5. Fats-sweets-alcohol _____

Directions: Use the form, "My Diet for One Day" to list the foods you had for each meal yesterday.

MY DIET FOR ONE DAY

In the last 24 hours I ate:

FOR BREAKFAST: Breakfast literally means "to break the fast".

1. _____
2. _____
3. _____
4. _____
5. _____

LEARNING ACTIVITIES - concluded

FOR LUNCH:

1. _____
2. _____
3. _____
4. _____
5. _____

FOR SUPPER:

1. _____
2. _____
3. _____
4. _____
5. _____

FOR SNACK:

1. _____
2. _____
3. _____

The basic five food groups assure a person has an adequate diet when properly used. Check your diet with the five food groups. Discuss it with your instructor. How did your diet measure up? Did it compare?

(Circle one) YES NO

NUTRITION

Module C1 - Carbohydrates, Proteins, Fats

Unit 5

RATIONALE

Food provides nourishing substances concerned in the growth, maintenance and repair of the living body as a whole, or of its constituent parts. These substances are known as NUTRIENTS and are grouped into six categories. This module deals with three of them, namely, CARBOHYDRATES, PROTEINS, FATS.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction, you will:

1. Identify the definition of the word "nutrient" and identify the six nutrients.
2. Identify the best food sources of carbohydrates, their chemical makeup, their classes, and a condition related to the deficiency of carbohydrates in food intake.
3. Describe two functions of carbohydrates in the body.
4. Identify the best food sources of proteins, their chemical makeup, their classes, and a disease related to the deficiency of proteins in food intake.
5. Describe two functions of proteins in the body.
6. Identify the best food sources of fats, their chemical makeup, their classes, and a disease related to the deficiency of fats in food intake.
7. Describe two functions of fats in the body.

LEARNING ACTIVITIES

Directions: All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

LEARNING ACTIVITIES - continued

ACTIVITY #1. Nutrients

Directions: Read the following information.

Nutrients are substances needed by the body for nourishment. They are contained in food and are needed by the body to help it grow, develop, maintain, reproduce, resist disease, recover from injury, and function normally.

There are six nutrients. Their names and functions are as follows:

1. CARBOHYDRATES - give quick energy
2. PROTEINS - build and repair body tissue (no other nutrient can do this)
3. FATS - provide concentrated energy
4. MINERALS - regulate many vital body processes
5. WATER - comprises 60 to 75 percent of the body's weight
6. VITAMINS - regulate metabolism

Learn the names of the nutrients and their functions in the body. They will be presented in more detail as you proceed with Module C.

Directions: Complete this exercise by filling in the blanks with the correct terms. You will find the answers in the material you have studied in this activity.

Nutrients are the _____ needed by the body for _____. They come from the _____ we eat.

ACTIVITY #2. Carbohydrates

Directions: Read the following information.

The first of the nutrients is CARBOHYDRATES. Carbohydrates are the major source of food for all people. They are the cheapest, the most easily obtained, and the most readily digested.

Food Sources of Carbohydrates

1. Cereal
2. Vegetables
3. Fruits
4. Syrups
5. Sugars

LEARNING ACTIVITIES - continued

Chemical Makeup of Carbohydrates

Formed from the chemical elements of:

1. Carbon
2. Hydrogen
3. Oxygen

Classes of Carbohydrates

1. Monosaccharides (mono means single), (saccharide means sugar)
   Therefore, monosaccharides mean simple sugars.
   a. Glucose
      (1) is found in fruits and vegetables
      (2) is the form in which the body uses carbohydrates
      (3) can be converted to glycogen and stored in the muscles and liver
   b. Fructose
      (1) is found in fruit and honey
      (2) is found in vegetables
   c. Galactose
      (1) produced by the digestion of lactose (milk sugar)
      (2) is never found free in nature
2. Disaccharides (di means double), (saccharide means sugar)
   Thus, disaccharides mean double sugars.
   a. Sucrose
      (1) found in sugar cane, sugar beets and maple sap
      (2) known in everyday language as "table sugar"
   b. Maltose
      (1) found in malt and malt products produced from grain
      (2) known as "malt sugar"

LEARNING ACTIVITIES - continued

c. Lactose

(1) is found in mammal milk

(2) is an expensive form of sugar

(3) is less soluble and sweeter than the other forms of sugar

(4) has a laxative action which can cause diarrhea if eaten in large amounts

3. Polysaccharides (poly means many), (saccharide means sugar)
Thus, polysaccharides mean many sugars.

a. Starches

(1) are found in the cellulose walls of grains and vegetables (cellulose broken down by grinding or cooking to make starches available for digestion)

(2) are abundant over all the earth

(3) are the cheapest form of body fuel

(4) make up the largest portion of a menu many times

b. Cellulose

(1) is found in framework of plants (plant fiber, roughage, and bulk)

(2) stimulates peristalsis (movement) of intestine

(3) is complex

(4) is insoluble in hot or cold water

(5) resists digestion

c. Glycogen

(1) contains carbohydrates that are stored in muscles and liver

(2) is a quick source of energy in an emergency

Conditions Related to Carbohydrates

1. Underweight - too few carbohydrates in the diet
2. Overweight - too many carbohydrates in the diet

LEARNING ACTIVITIES - continued

Directions: Read and learn the following terms related to carbohydrates.

1. Catalyst - a chemical substance that brings about a chemical change without being changed itself. Enzymes in the human digestive process are catalysts.

2. Photosynthesis - the process by which green plants change air, water, and sunlight into carbohydrates or sugars by using chlorophyll, the green coloring on plant leaves, as a catalyst.

Directions: Complete the following exercise. Check your answers with those given on page 17 of this module.

1. Give two examples of monosaccharides.

   a. _____

   b. _____

2. Give two examples of disaccharides or double sugars.

   a. _____

   b. _____

3. Give two examples of polysaccharides or complex sugars.

   a. _____

   b. _____

4. Glucose is the form of _____ in the blood.

5. Glycogen is the form in which _____ is _____ in the liver and muscles.

6. Name the function of cellulose in the diet.

   _____

   _____

7. _____ is the condition due to too many carbohydrates in the diet.

8. _____ is the condition due to too few carbohydrates in the diet.

LEARNING ACTIVITIES - continued

ACTIVITY #3. Functions of Carbohydrates

Directions: Read the following information on the functions of carbohydrates.

1. Carbohydrates provide heat and quick energy for the body.
2. Carbohydrates supply four calories* of energy for each gram** burned.
3. Carbohydrates provide heat and stored energy after it is changed into body fat.
4. Carbohydrates help fats in final steps of digestion.
5. Carbohydrates stimulate the Islands of Langerhans of the pancreas to make insulin.
6. Insulin breaks down sugar, reducing the amount of sugar in the blood.

* Calorie is a unit measure of heat or energy.
** Gram is a unit measure of weight.

Directions: Complete the following exercise. Check your answers with those given on page 17 of this module.

1. Carbohydrates provide heat and quick _____ to the body.
2. Carbohydrates stimulate the pancreas to make _____.
3. Carbohydrates help _____ in final steps of digestion.
4. Carbohydrates give off _____ calories of energy for each gram burned.
5. How many calories will "300 Grams" of carbohydrates give? _____

ACTIVITY #4. Proteins

Directions: Read the following information.

The second of the nutrients is PROTEINS. It is a nutrient made up of amino acids (building blocks of cells).

Food Sources of Proteins

1. Best Source
   a. Meat
   b. Fish
   c. Poultry

LEARNING ACTIVITIES - continued

d. Eggs

e. Milk

f. Cheese

2. Other Good Sources

a. Peanuts

b. Soybeans

c. Combinations of grains and vegetables

Chemical Makeup of Proteins

Consists of:

a. Carbon

b. Hydrogen

c. Oxygen

d. Nitrogen

e. Phosphorus

f. Sulfur

Classes of Proteins

1. Amount (of protein)

a. High protein foods include:

(1) eggs

(2) milk

(3) meat

(4) fish

(5) nuts

(6) legumes

LEARNING ACTIVITIES - continued

b. Low protein foods include:

(1) fruits

(2) vegetables

2. Source (of protein)

a. Animal proteins include:

(1) milk

(2) meat

(3) fish

(4) eggs

b. Plant protein foods include:

(1) peas

(2) beans

(3) nuts

(4) fruits

(5) vegetables

3. Complete proteins

a. Contain all the essential amino acids

Twenty-three amino acids are known to be needed by humans for protein building. Most of these are made in the body from carbohydrates plus nitrogen.

b. Are necessary for growth and to keep body weight

c. Examples:

(1) eggs

(2) milk

(3) meat

(4) cheese

(5) fish

LEARNING ACTIVITIES - continued

4. Incomplete proteins

   a. Do not contain all eight (8) essential amino acids in sufficient amounts to support life or growth

   b. Can be combined with complete proteins or with certain other incomplete proteins to make a good or complete protein.

   c. When incomplete proteins are combined with complete or incomplete proteins to make a complete protein, all eight (8) essential amino acids are present in sufficient quantity to support life and growth.

   d. Examples:

      (1) gelatin

      (2) nuts

      (3) legumes

      (4) cereals

Disease Related to Proteins

Kwashiorkor - a protein deficiency disease, occurs in children when they do not eat enough complete protein.

Directions: Complete this exercise by filling in the blanks. Check your answers with those given on page 17 of this module.

1. Meat is one good source of _____.
2. Protein is a basic "building block" of every _____.
3. Protein is built of smaller units called _____.
4. A complete protein _____ all the essential _____
5. _____ lack all eight essential _____ in sufficient amounts to support life and growth.
6. The condition in children due to lack of protein is called _____
7. Define a "complete protein". _____

   _____

8. Define an "incomplete protein". _____

   _____

LEARNING ACTIVITIES - continued

ACTIVITY #5. Functions of Proteins

Directions: Read the following information on the functions of proteins.

1. Proteins build and repair body tissue.
2. Proteins help the body resist disease.
3. Proteins provide a secondary source of heat and energy. (One gram of protein yields four calories.)

Directions: Complete this exercise. Check your answers with those given on page 18 of this module.

1. Protein builds and _____ tissue.
2. One gram of protein eaten gives _____ calories of energy.

NOTE: Malnutrition is a real problem in our world!!!

The World Health Organization tells us that about 300 millon of 700 millon pre-school age children in developing countries and in our own country are malnourished.

Protein-calorie Malnutrition (PCM) is the new term used to describe a syndrome affecting young children. These children lack enough protein in their starchy food diet.

ACTIVITY #6. Fats

Directions: Read the following information.

The third nutrient is FAT. Fats are the most concentrated source of heat and energy. Each gram of fat yields nine (9) calories. Fats belong to a group of chemicals called lipids.

Food Sources of Fats

1. Butter
2. Margarine
3. Oils
4. Cream

Chemical Makeup of Fats

1. True fats known as fatty acids.
2. True fats composed of chemical elements: carbon, hydrogen, oxygen (in different chemical arrangement from carbohydrates).

LEARNING ACTIVITIES - continued

Classes of Fats

1. Source (of fats)
   a. Animal fats found in:
      (1) cream
      (2) milk
      (3) meat
      (4) eggs
      (5) fish
   b. Vegetable fats found in:
      (1) corn
      (2) nuts
      (3) olives
      (4) avocados
      (5) cotton seed
2. Visibility in food
   a. Fat content of butter (obvious)
   b. Fat content of an egg (invisible)
3. Chemical composition
   a. Saturated fats
      (1) are fatty acids which contain all the hydrogen possible
      (2) are solid at room temperature
      (3) are found in:
         (a) lard
         (b) animal fats
         (c) butter
         (d) hydrogenated shortening

LEARNING ACTIVITIES - continued

b. Unsaturated fats

(1) are fatty acids which can take on more hydrogen under certain conditions

(2) are soft or liquid at room temperature

(3) are found in oils from:

(a) animal

(b) fish

(c) corn

(d) cotton seed

(e) olives

(f) peanuts

(g) safflower

c. Polyunsaturated fats

(1) are highly unsaturated fatty acids

(2) help to lower blood cholesterol levels

d. Hydrogenated fats

hydrogen is added to the unsaturated fatty acid

NOTE: Did you know that margarine fortified with Vitamins A and D is the same as butter in food value?

4. Essential fatty acids

a. Cannot be constructed in the body

b. Are necessary for growth and metabolism

c. Have as their sources:

(1) butter

(2) egg yolk

(3) meat

LEARNING ACTIVITIES - continued

d. Cholesterol

(1) is associated with fats, but chemically it is a sterol (chemical substance)

(2) is found in all body cells and fluids produced by the liver and stored in the liver

(3) is the starting chemical in production of sex hormones, adrenal hormones, bile and chemical in the skin that becomes Vitamin D when exposed to sunlight

(4) prevents water evaporation and makes skin resistant to chemicals

(5) is necessary part of brain and nerve tissue

e. Foods high in cholesterol

(1) egg yolk

(2) liver

(3) kidney

(4) sweetbreads

(5) brains

(6) fish

(7) fat of meats

(8) milk

f. Foods low in cholesterol

(1) fruits

(2) vegetables

(3) cereals

(4) syrups

(5) egg white

(6) lean meat

(7) low fat fish

(8) skim milk

LEARNING ACTIVITIES - continued

g. Blood levels

(1) Normal blood cholesterol level is 100-150 milligrams cholesterol in 100 cubic centimeters of whole blood.

(2) High level of blood cholesterol results in deposits-clumps on blood vessel walls or in the liver or in gallstones.

Diseases Related to Fats

Cholesterol is also associated with these diseases:

1. Hypertension
2. Nephrosis
3. Diabetes
4. Artheriosclerosis

Directions: Read and learn the following terms related to fats and related chemistry.

1. Hydrogenation - to add hydrogen to an unsaturated fat. This usually results in a more solid fat. Margarine is an example. Fluid vegetable oils are "Hydrogenated" to form margarine, which is solid.
2. Essential Fatty Acid - acid that the body cannot make. Must be supplied by the diet.
3. Non-Essential Fatty Acid - the body can make it, or does not need fatty acids in this form.
4. Adipose Cells - fat storage cells. Body fat is oxidized or burned up if the caloric intake is less than the amount of calories spent. This is the reason why we lose weight.
5. Lipoprotein - form in which the liver releases fat into the blood. It is made up of proteins plus fat molecules. Fat from lipoproteins in the blood is stored in FAT CELLS and other BODY CELLS in the form of triglycerides.
6. Hyperlipoproteinemia - (sometimes just called hyperlipidemia) a disease caused by high amounts of lipids, such as cholesterol or triglycerides or both, in the blood. These lipids are attached to lipoproteins. Obesity, alcoholism, pancreatic disease and diabetes mellitus lead to hyperlipoproteinemia.

Directions: Complete the following exercise. Check your answers with those given on page 18 of this module.

1. A visible fat is _____ . An example is _____ .
2. Two sources of animal fats are _____ and _____ .

LEARNING ACTIVITIES - continued

3. Two sources of vegetable fats are _____ and _____.

4. How can you tell by looking that a fat is saturated? _____

_____. Give an example. _____

5. How can you tell by looking that a fat is unsaturated? _____

_____

6. Give three examples of "essential fatty acids". _____

7. Name three functions of cholesterol.

   a. _____

   b. _____

   c. _____

8. Cholesterol is produced in the body by the _____

9. Low cholesterol foods include: _____

_____

10. High cholesterol foods include: _____

_____

ACTIVITY #7. Functions of Fats

Directions: Read the following information on the functions of fats.

1. Fats serve as a concentrated source of heat and energy.
2. Fats carry fat-soluble vitamins - A, D, E, K.
3. Fats add taste to foods.
4. Stored fats help to maintain body temperature by acting as insulation.
5. Stored fats can be used as a reserve supply of body fuel.
6. Stored fats help to hold organs in place and to protect them from injury.

LEARNING ACTIVITIES - concluded

Directions: Complete this exercise. Check your answers with those given on page 18 of this module.

Six functions of fats in the body are:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

ANSWERS

ACTIVITY #2

1a. glucose
b. fructose

2a. sucrose
b. maltose

3a. glycogen
b. cellulose

4. sugar

5. carbohydrates, stored

6. Cellulose adds bulk and also forms and aids in the elimination of body waste.

7. Overweight

8. Underweight

ACTIVITY #3

1. energy

2. insulin

3. fats

4. four

5. 300 x 4 = 1200 calories

ACTIVITY #4

1. protein

2. cell

3. amino acids

4. contains or has amino acids (i.e., meat, milk, cheese, fish)

5. Incomplete proteins, amino acids (i.e., cereals, gelatin, legumes, nuts)

6. Kwashiorkor

7. Check your answer by referring to the previous material on complete proteins.

8. Check your answer by referring to the previous material on incomplete proteins.

ANSWERS - concluded

ACTIVITY #5

1. repairs
2. four

ACTIVITY #6

1. seen, butter
2. cream/milk and meat/fish
3. corn/nuts and olives/cottonseed
4. solid at room temperature, lard/shortening
5. soft or liquid at room temperature (i.e., oils - safflower, olive)
6. linolenic, linoleic, arachidomic acid
7. a. Cholesterol is necessary part of brain and nerve tissue.
   b. Cholesterol is the starting chemical in production of many hormones.
   c. Cholesterol prevents water evaporation in the skin.
8. liver
9. lean meat, fruits, vegetables, cereals, syrups, egg white
10. egg yolk, organ meats, fats of meat, milk

ACTIVITY #7

1. Serves as concentrated source of energy.
2. Carries fat soluble vitamins A, D, E, and K.
3. Adds taste to foods.
4. Stored fat helps to maintain body temperature by acting as insulation.
5. Stored fat can be used as reserve supply of body fuel.
6. Stored fat helps to hold organs in place, protects them.

NUTRITION

Module C2 - Water, Minerals, Vitamins

RATIONALE

Nutrients are the substances given to the body by the food we eat. Water, minerals and vitamins regulate body functions. We will discuss these three nutrients in this module.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Identify the characteristics, the functions, and conditions related to water.
2. Identify at least four minerals and their functions.
3. Identify properties of fat-soluble and water-soluble vitamins.
4. Identify the function, the best food source, and a deficiency disease or condition due or related to vitamin deficiency for each vitamin.

LEARNING ACTIVITIES

Directions: All the information you need to complete this module successfully is included in the learning activities. Read the information on the following pages and complete all the exercises. If you have questions or problems, ask your instructor to help you.

ACTIVITY #1. Water or H_2O

Directions: Read the following information.

Characteristics of Water

1. Is the main nutrient of the body
2. Makes up 60-75% of the total body weight
3. Is found within tissue cells and between the cells
4. Is a part of all body fluids
5. Is found inside cells (about 50%), in fluid around cells (15%), in the blood (5%), and the remainder is in other body fluids

LEARNING ACTIVITIES - continued

Functions of Water

1. Solvent
   a. Most of the chemicals in the body are in solution.
   b. Water aids digestion by softening food.
2. Regulator of Body Temperature
   a. As water moves in and out of cells, it equalizes temperature.
   b. Water lost through the skin in perspiration and from the urinary tract acts to cool the body.
3. Transportation

   Nutrients and body secretions are moved throughout the body as the water moves in and out of cells (i.e., carries water soluble Vitamins B, C).
4. Excretory Agent
   a. Waste products are removed from the body and dissolved in urine, perspiration and feces.
   b. Water adds bulk in the intestinal tract.
5. Lubricant

   The moving parts of the body are surrounded with water to prevent friction and wear.

Chemical Makeup of Water

1. Hydrogen (H_2)
2. Oxygen (O)
3. $H_2 + O = H_2O$ = water

Human Body Needs Water

1. The body receives water:
   a. by drinking it
   b. by eating foods with a high fluid content, such as watermelon and other fruits
   c. through metabolism and chemical changes of food

LEARNING ACTIVITIES - continued

2. The body loses water:
   a. through the kidneys as urine
   b. through the bowel as part of the bulk of feces
   c. through the skin in perspiration
   d. through the lungs as moisture in the air
3. Abnormal losses of water happen in:
   a. vomiting
   b. hemorrhaging
   c. seepage of tissue fluids from burns
   d. draining wounds
   e. localized edema which draws fluid away from other parts of the body
4. Intake of water must equal the output of water each day
   a. 3000 cc intake per day recommended
      (1) 1500-2000 cc or 6-8 glasses of water daily
      (2) 1000 cc from milk, tea, coffee, broth and other foods
   b. Conditions caused by imbalance of intake and output of water
      (1) Dehydration - lack of water
      (2) Edema - retention of water

Directions: Complete this exercise on water. Check your answers with those given on page 14 of this module.

1. Water makes up _____% of the total body weight.
2. Water is found _____ cells, _____ cells, and is a part of all body fluids.
3. About _____% of the water is found inside cells, _____% is found in fluid around cells and _____% in the blood. The remainder is in other body fluids.
4. Water makes up part of the blood. TRUE FALSE
5. Water acts as a lubricant. TRUE FALSE

LEARNING ACTIVITIES - continued

6.	Water seldom regulates temperature.	TRUE	FALSE
7.	Water carries nutrients via cell membrane.	TRUE	FALSE
8.	Intake should equal output (of water daily).	TRUE	FALSE
9.	Lack of sufficient water is called "dehydration".	TRUE	FALSE
10.	Fluid retention is called "edema".	TRUE	FALSE

11. The recommended total daily water intake is _____ cc's.

ACTIVITY #2. Minerals

Directions: Read the following information relating to minerals (including the chart).

Characteristics of Minerals

1. Minerals are simple chemical agents.
2. There are about 19 minerals used by the body; 17 are essential.
3. Four percent of the body is mineral, with calcium and phosphorous in the bones the major portion.

Functions of Minerals

1. Compose a part of all cells and body fluids
2. Form the structural framework of body as part of bones and teeth
3. Assist in regulating vital life processes by maintaining an acid-base balance
4. Regulate metabolism of enzymes
5. Aid in transmission of nerve impulses

MINERAL CHART FOR ACTIVITY #2

MINERALS	FUNCTIONS	FOOD SOURCES	DEFICIENCIES	FACTORS IN ABSORPTION
Calcium	1. Needed for skeletal formation 2. Needed for blood clotting 3. Needed for formation of teeth 4. Assists normal activities of muscles, including heart muscle 5. Assists in nervous system functions	Milk - milk products Cheese Sardines Dark green leafy vegetables Fish	Rickets - retarded growth abnormal development of bones Poorly formed bones, maybe brittle or porous Poorly formed teeth Slow blood clotting	
Phosphorus (works closely with Calcium)	1. Helps in formation of bones and teeth 2. Assists in absorption and transportation of nutrients 3. Is necessary for the metabolism of protein, carbohydrate and fat for the release of energy from these nutrients	Milk Milk products Cereals Legumes Eggs Fish Meat	Rickets Poor bone formation	Vitamin D assists in absorption
Iron	1. Helps form hemoglobin (red substance of blood cells) 2. Carries oxygen to tissues	Liver Oysters Dried Beans Peas, Lentils Lean beef Dark green leafy vegetables Whole grain cereal Egg yolk	Iron deficiency anemia listlessness weakness gastric disturbance pale-dry skin shortness of breath dizziness	Retarded by lack of Vitamin C lack of hydrochloric acid
Iodine	1. Assists in formation of thyroid gland hormone, Thyroxine	Sea foods Iodized Salt	Causes simple thyroid goiter In young, Cretinism, physical and mental retardation	

MINERALS	FUNCTIONS	FOOD SOURCES	DEFICIENCIES	FACTORS IN ABSORPTION
Potassium (form "salts") (electrolyte)	1. Helps maintain normal water balance 2. Helps maintain normal acid-base balance 3. Acts on enzymes in protein and carbohydrate metabolism 4. Needed before glycogen can be produced	Cereals Fruits (bananas - apricots) Vegetables	Causes muscle weakness Causes cardiac symptoms	Diarrhea, vomiting Diuretic medications Postoperative conditions Diabetic coma Chronic lung disease
Sodium (form "salts") (electrolyte)	1. Helps maintain normal water balance 2. Helps maintain acid-base balance 3. Helps in absorption of glucose 4. Needed for normal nerve activity	Plant sources Preservatives in canned foods Processed foods Table salt	Dehydration - shock	Vomiting, diarrhea Profuse sweating Adrenal insufficiency
Chloride (form "salts") (works with Sodium, also an electrolyte)	1. Helps maintain water balance 2. Helps maintain acid-base balance 3. Needed as part of hydrochloric acid in stomach	Table salt		Vomiting, diarrhea Profuse sweating Adrenal insufficiency
Sulfur	1. Needed for formation of blood clots	Protein sources		
Magnesium	1. Assists many enzymes 2. Assists in conduction of nerve impulses 3. Preserves tooth enamel	Soybeans Whole grains Nuts Cocoa	Tremors - convulsions	Alcoholism -- severe protein deficiency Prolonged intravenous therapy of deficient magnesium fluids

Trace elements - needed in minute quantities - provided in balanced diet

Selenium
Manganese
Copper
Cobalt
Fluorine
Zinc

LEARNING ACTIVITIES - continued

Directions: Match the following terms with their functions. Check your answers with those given on page 14 of this module.

_____	1.	An essential component of hemoglobin and in the formation of red blood cells	a. Phosphorus
_____	2.	Needed for blood clotting and bone and teeth development	b. Small quantities
_____	3.	Needed to prevent rickets	c. Calcium
_____	4.	Helps thyroid gland to function normally	d. Iodine
_____	5.	"Salts" of the body	e. Sodium, Potassium, Chlorides
_____	6.	Some "trace elements"	f. Iron

ACTIVITY #3. Vitamins (Fat Soluble and Water Soluble)

Directions: Read the following information on vitamins.

Vitamins are organic compounds whose presence in the diet regulates metabolism and makes possible a more efficient utilization of carbohydrates, protein, and fat within the body.

Characteristics of Vitamins

1. Vitamins lack calories.
2. Each vitamin has a specific job to do.
3. Deficiency diseases are usually the result from the lack of more than one vitamin. The word "deficiency" is used to indicate degrees of shortages.

Classes of Vitamins

1. Fat-soluble vitamins
   a. Vitamin A
   b. Vitamin D
   c. Vitamin E
   d. Vitamin K

LEARNING ACTIVITIES - continued

2. Water-soluble vitamins
   a. Vitamin C
   b. Vitamin "B" complex
      (1) Vitamin B_1, Thiamin
      (2) Vitamin B_2, Riboflavin
      (3) Vitamin B, Niacin
      (4) Vitamin B_6, Pyridoxine
      (5) Vitamin B_{12}, Cyanocobalamin
      (6) Vitamin B_3, Pantothenic Acid
      (7) Folic Acid, Folacin

General Properties of Fat-Soluble and Water-Soluble Vitamins

FAT-SOLUBLE VITAMINS	WATER-SOLUBLE VITAMINS
1. Soluble in fat and fat solvents.	1. Soluble in water.
2. Intake in excess of daily need stored.	2. Minimal storage of dietary excess.
3. Excess not excreted in urine.	3. Excess excreted in urine.
4. Deficiency symptoms slow to develop.	4. Deficiency symptoms often develop rapidly.
5. Not absolutely necessary in diet every day.	5. Must be supplied in diet every day.
6. Contain only the elements carbon, hydrogen, and oxygen.	6. Contain the elements C, H, O, and nitrogen, and in some cases others such as cobalt or sulfur.

Terms Related to Vitamins

1. Avitaminosis
   a. Without vitamins or vitamin deficiency
   b. May be due to dietary lack or a problem in absorption

LEARNING ACTIVITIES - continued

2. Hypervitaminosis

   a. An excessive amount of vitamins taken in may cause toxic symptoms.

   b. Vitamins should be taken under a physician's supervision.

3. Antivitamins

   Substances that prevent normal use of a vitamin

Directions: Complete the exercise on fat-soluble and water-soluble vitamins. Check your answers by referring to the previous material in this activity.

A. Name the four FAT-SOLUBLE VITAMINS:

1. _____ 2. _____

3. _____ 4. _____

B. Name six WATER-SOLUBLE VITAMINS:

1. _____ 2. _____

3. _____ 4. _____

5. _____ 6. _____

C. Define "WATER-SOLUBLE VITAMINS": _____

_____

_____

D. Define "FAT-SOLUBLE VITAMINS": _____

_____

_____

ACTIVITY #4. Vitamin Chart

Directions: Read and study the information on the following chart. For each vitamin you will need to know the function, food source, and related vitamin deficiency disease or condition.

VITAMIN CHART FOR ACTIVITY #4

VITAMINS	KEYPOINTS	FUNCTIONS	FOOD SOURCES	DEFICIENCIES	FACTORS IN ABSORPTION
Vitamin A	Fat soluble	1. Promotes growth and repair of body tissues 2. Helps resist infections 3. Assists in good vision especially "night vision" 4. Helps form tooth enamel 5. Helps adrenal glands in production of corticosterone	Liver Yellow vegetables Dark green leafy vegetables	Night blindness Retarded growth Weakened respiratory system Increases susceptibility to infection Poor tooth enamel formation Hypervitaminosis Bone fragility Spleen enlargement Pruritis Nausea Menstrual disorders Loss of hair	
Vitamin D "Sunshine Vitamin"	Fat soluble	1. Needed for calcium and phosphorus metabolism 2. Assists normal tooth formation	Sunshine Cod liver oil Butter Cream Egg yolk Liver	Rickets in children Poor bone and tooth formation Hypervitaminosis Nausea, loss of appetite Headache Changes in bone structure Renal calculus (stone) formation	
Vitamin E	Fat soluble	1. Act as "Antioxidant" - removes oxygen or prevents oxygen from combining with a substance - in this way prevents destruction of Vitamin A, Vitamin C and fatty acids 2. Prevents destruction of red blood cells, muscles, and other tissues	Seed germ oils Green vegetables Egg yolk		(stored in fatty tissue, pituitary, adrenal glands)

VITAMINS	KEYPOINTS	FUNCTIONS	FOOD SOURCES	DEFICIENCIES	FACTORS IN ABSORPTION
Vitamin K	Fat Soluble	1. Needed for normal clotting of blood 2. Needed for liver function	Liver Milk Eggs Soybean oil Green leafy vegetables Fruits	Slow blood clotting time Hemorrhages	Deficiency caused by lack of absorption - happens in liver disease, large dosages of salicylates
Vitamin B_1 Thiamin	Water soluble	1. Helps convert carbohydrates to energy 2. Helps digestion 3. Helps heart, nerves, muscles function properly	Pork Fish Poultry Eggs Soybeans Peanuts Wholegrain cereals	Retarded growth Loss of appetite Nerve disorders Poor digestion Fatigue Beri-Beri condition	
Vitamin B_2 Riboflavin	Water soluble	1. Helps normal function of eyes 2. Helps keep skin and mucosa healthy 3. Helps use carbohydrates 4. Promotes well-being and vitality	Milk-milk products Heart, kidney, liver Green leafy vegetables Eggs Poultry Fish	Reddened eyes, Cataract-like symptoms in eyes Cracks in corners of mouth Inflammation of tongue Dry, scaly skin-aging	
Vitamin B Niacin	Water soluble	1. Helps keep skin and tongue healthy 2. Helps in the function of the stomach, intestines, nervous system	Meat Liver Poultry Peanuts Fish Beans Whole Grains	Pellagra - lesions in corner of mouth diarrhea muscle weakness soreness of tongue skin lesions	
Vitamin B_6 Pyridoxine	Water soluble	1. Needed for protein, carbohydrate, protein metabolism 2. Used in treatment of nausea in pregnancy and deep X-ray treatment 3. Helps in production of antibodies	Liver Yeast Wheat germ Pork Milk Potatoes Legumes	Skin problems Anemia Weakness	

VITAMINS	KEY POINTS	FUNCTIONS	FOOD SOURCES	DEFICIENCIES	FACTORS IN ABSORPTION
Vitamin B_{12} Cyanocobalamin	Water soluble	1. Needed for nervous tissue 2. Helps in metabolism of iron 3. Necessary for prevention of pernicious anemia (extrinsic factor)	Liver Kidney Milk Fish Eggs Cheese Lean meat	Pernicious anemia	
Vitamin B_3 Pantothenic Acid	Water soluble	1. Needed for fat, carbohydrate, protein metabolism 2. Needed for production of cholesterol, adrenal steroids and hemoglobin	All foods Egg yolk Liver, kidneys Yeast Potatoes Whole grains	Fatigue, muscle cramps Burning feet Susceptibility to upper respiratory conditions	
Folic Acid Folacin	Water soluble	1. Needed for protein metabolism 2. Needed for growth and production of red blood cells	Liver Kidney Nuts Legumes Green leafy vegetables Whole grain cereals	(Can change the blood picture of pernicious anemia - regulations by law limit amount of Folic acid)	
Vitamin C Ascorbic acid	Water soluble	1. Needed for growth 2. Helps keep blood vessel walls strong 3. Helps resist upper respiratory infections 4. Helps heal wounds and burns 5. Helps in absorption of iron	Citrus fruits Tomatoes Raw cabbage Green leafy vegetables Berries Melons	Bruise easily Fractures heal slowly Scurvy condition sore gums loose teeth bleeding in mouth	

LEARNING ACTIVITIES - continued

Directions: Complete the chart below. Check your answers with the Vitamin Chart on the previous pages.

Vitamin	Function	Best Food Source	Deficiency Diseases Or Condition
Vitamin A			
Vitamin K			
Vitamin D			
Vitamin C			
Vitamin E			
Vitamin B_1			
Vitamin B_2			
Niacin			
Vitamin B_6			
Vitamin B_{12}			

ANSWERS

ACTIVITY #1

1. 60-75%
2. within the tissue, between
3. 50%, 15%, 5%
4. true
5. true
6. false
7. true
8. true
9. true
10. true
11. 3000 cc's

ACTIVITY #2

1. f
2. c
3. a
4. d
5. e
6. b

NUTRITION

Module D - Diet Therapy

Unit 5

RATIONALE

Foods that patients eat are ordered or prescribed by doctors, planned by dietitians, and served by nurses. This module will help you to understand why patients must have different diets.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Identify the different diets, the foods included in each specific diet, and the conditions for prescribing special diets.
2. Identify the factors in planning and using a diabetic diet.
3. Describe a characteristic which identifies each specific diet.

LEARNING ACTIVITIES

Directions: Read all the information given and complete the exercises in this module. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. If you need help, ask your instructor to assist you.

ACTIVITY #1. Diets

Directions: Read the following information.

Illness may change the ability of a person to eat, to digest, or to use foods. The health team must provide a diet of foods that is as normal as possible.

The dietitian will plan a diet that is based on the doctor's prescription that includes the needs and the likes of the patient. This activity will discuss therapeutic modifications of the general or regular diet.

Diets will be modified or changed in one of five ways.

1. Number of meals each day
2. Consistency of the food (liquid or solid)
3. Nutrients increased
4. Nutrients decreased
5. Elimination of certain foods

LEARNING ACTIVITIES - continued

Regular Diet

1. Is the most common diet
2. Is also known as a full, house, general diet, or diet as tolerated
3. Has no restrictions in food choices
4. Allows the patient to eat or to drink anything
5. Provides the patient with 2000 to 2500 calories counting all of the protective foods (meat, eggs, milk, citrus fruits, vegetables, whole grain or enriched bread, and butter)

Exercise 1.

Directions: Complete this exercise on regular diets. Check your answers with the previous information given.

1. List four names which may be used to identify the most common diet.
   a. _____
   b. _____
   c. _____
   d. _____
2. What foods are restricted in a regular diet? _____

Liquid Diets

Full Liquid Diet

1. Should be used for limited time
2. Produces 1300 to 1500 calories
3. Consists of all foods that are liquid at room and body temperature:
   a. milk beverages
   b. fruit juices
   c. ice cream
   d. gelatins
   e. tea

LEARNING ACTIVITIES - continued

f. carbonated drinks

g. coffee

4. Could be used under these conditions:

a. acute infections

b. fever

c. patient too ill to chew

d. progression from clear to regular diet after surgery

e. gastrointestinal upset

Clear Liquid Diet

1. May be called surgical liquid diet
2. Furnishes about 500 calories
3. Includes all liquids you can see through:

a. tea

b. coffee

c. fat-free broth

d. apple juice

e. water

f. 7-Up

4. Is given to patients for 24-48 hours
5. Could be used under these conditions:

a. dehydration

b. acute vomiting

c. diarrhea

d. very ill patients who have had surgery of the digestive system

LEARNING ACTIVITIES - continued

6. Has as its purpose:

   a. to relieve thirst and dehydration

   b. to start peristalsis in recent postoperative patients

Exercise 2.

Directions: Complete this exercise on liquid diets. Check your answers with those given on page 34 of this module.

1. List six foods included in a clear liquid diet.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

   f. _____

2. State two purposes of the clear liquid diet.

   a. _____

   b. _____

3. The patients who receive a clear liquid diet may have what conditions?

   a. _____

   b. _____

   c. _____

   d. _____

4. How is the full liquid diet different from the clear liquid diet?

   _____

   _____

   _____

LEARNING ACTIVITIES - continued

5. Patients receiving the full liquid diet may have what conditions?

   a. _____

   b. _____

   c. _____

   d. _____

Tube Feeding Diet

1. Is ordered individually by physician
2. Includes 2500 calories per day
3. Consists of regular solid foods that have been put through a blender (blenderized with milk)
4. Causes less diarrhea than when formula is used
5. Is given to the patient through a nasal gastric tube - inserted into the stomach
6. May be used for patients with these conditions:
   a. after gastrectomy
   b. anal surgery
   c. severe burns
   d. unconsciousness
   e. disease involving the esophagus or patients unable to swallow or chew

To tube feed a patient:

1. Allow the feeding to warm to room temperature (Cold liquids directly into the stomach may result in constriction of the blood vessels in the stomach and cramping pains.)
2. Check the nasal gastric tube to be sure it is still in the stomach before starting the feeding.
   a. Withdraw a small amount of stomach contents with a syringe; or
   b. place open end of gastric tube in water; if bubbles appear, tube is in the lungs; or
   c. inject a small amount of air into the tube while someone listens with a stethescope at the apex of the stomach; a gurgling sound will be heard if the tube is in place.

LEARNING ACTIVITIES - continued

3. Allow the tube feeding to enter the stomach by gravity.

4. Allow a small amount of water to run into the tubing after the tube feeding has run in to wash it out. That way, the feeding will not have a chance to crumble and clog the tube.

Exercise 3

Directions: Complete the exercise on tube feeding diets. Check your answers with the previous information. If you have any questions, ask your instructor to help you.

1. Define a tube feeding diet.

_____

_____

_____

2. List two foods used in a tube feeding diet.

a. _____

b. _____

3. State six conditions for which this diet would be used.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

Soft Diet

1. Is modified in consistency so that "roughage" is removed
2. Requires little chewing
3. Includes these foods:
   a. very tender meats
   b. vegetables
   c. fruits

LEARNING ACTIVITIES - continued

4. Does not include any of the following foods that are irritating to the gastrointestinal system:
   a. nuts
   b. fibers
   c. cellulose
   d. salads
   e. spices
   f. fried foods
   g. tough meats
   h. very rich pastries
5. Has as its purpose:
   a. to progress a patient from a liquid to a regular diet
   b. to be used following gastrointestinal upset or GI surgery

Mechanical Soft Diet

1. Contains any food which is soft or ground
2. Does not have to be chewed
3. Does not include the following foods:
   a. nuts
   b. fibers
   c. cellulose
   d. salads
   e. spices
   f. fried foods
   g. tough meats
   h. pastries

LEARNING ACTIVITIES - continued

4. Is given to the patient who:
   a. cannot chew well
   b. does not have teeth

Exercise 4.

Directions: Complete this exercise on soft and mechanical soft diets. Check your answers with the previous information.

1. Explain the difference between a soft diet and a mechanical soft diet.

   Soft: _____

   Mechanical soft: _____

2. Patients who have _____ will have a mechanical soft diet.
3. A progression diet between liquids and a regular diet is a _____ diet.

Bland Diet

1. Is moderately low in roughage
2. Is very soft
3. Is not spicy as in "hot chili"
4. Is not hot in terms of temperature
5. Is not irritating to the gastrointestinal system
6. Includes these foods:
   a. milk
   b. tender meats
   c. tender, young, or canned fruits and/or vegetables
7. Is given to patients with these conditions:
   a. colitis
   b. gastric ulcers

LEARNING ACTIVITIES - continued

Low Residue (Low fiber) Diet

1. Should be used for a limited time only
2. Must be completely absorbed
3. Rests the gastrointestinal tract, but lacks minerals and vitamins
4. Includes these foods:
   a. tender meats
   b. clear fat-free soup
   c. eggs
   d. refined cereals
   e. fruit juice
   f. gelatins
   g. white toast or crackers
5. Does not include these foods:
   a. whole grain cereals
   b. milk
   c. cheese
   d. fruits
   e. vegetables
   f. excessive seasonings
6. May be ordered for patients with these conditions:
   a. severe diarrhea
   b. ulcerative colitis
   c. before and after surgery of intestinal tract

High Residue (High fiber) Diet

1. Is a normal diet with increased fiber content
2. Adds bulk
3. Is used in the treatment of constipation

LEARNING ACTIVITIES - continued

4. Includes these foods:
   a. raw fruits
   b. vegetables (use skin when possible)
   c. whole grain cereals
   d. leafy green vegetables
5. Does not include these foods:
   a. excessive seasonings
   b. refined cereal

Exercise 5.

Directions: Complete the following exercise. Check your answers with the information previously given. If you have questions, ask your instructor to help you.

1. List the foods included in a bland diet.
   a. _____
   b. _____
   c. _____
2. A bland diet is prescribed for patients with what conditions?
   a. _____
   b. _____
3. What foods are permitted in a low residue diet?
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____
   f. _____

LEARNING ACTIVITIES - continued

4. A low residue diet would be ordered for patients with what conditions?

   a. _____

   b. _____

   c. _____

5. What foods are allowed in a high residue diet?

   a. _____

   b. _____

   c. _____

High Caloric Diet

1. Is a diet with increased caloric intake (3000 to 5000 calories per day)
2. Has a gradual increase of food intake
3. Consists of three full meals plus two snacks during the day
4. Includes all foods plus extra portions of the following:
   a. sugar
   b. butter
   c. cream
   d. sauces
5. Avoids these low calorie foods:
   a. lettuce
   b. too many fats as they affect appetite (gives feeling of satisfaction since they are digested more slowly)
6. Is given to patients with these conditions:
   a. underweight
   b. hyperthyroidism
   c. pneumonia
   d. fevers

LEARNING ACTIVITIES - continued

Low Caloric Diet

1. Is a normal diet with reduced caloric intake
2. Reduces calories by eliminating some carbohydrates and fats
3. May be deficient in minerals and vitamins if diet is less than 1000 calories
4. Includes these foods:
   a. bulky low calorie fruits
   b. vegetables
   c. adequate fluids
   d. lean meats
   e. eggs
   f. skim milk
5. Does not include these foods:
   a. fats
   b. pastries
   c. creams
   d. sauces
   e. gravies
6. May be ordered for patients with these conditions:
   a. obesity
   b. cardiovascular diseases
   c. hypertension

Exercise 6.

Directions: Complete this exercise on high caloric and low caloric diets. Answers can be found on page 34 and 35 of this module.

1. What is the difference between a high caloric and a low caloric diet?

LEARNING ACTIVITIES - continued

2. What is the purpose of a high caloric diet? _____

_____

3. List the foods included in a high caloric diet.

a. _____

b. _____

c. _____

d. _____

e. _____

4. A high caloric diet is prescribed for patients with these conditions. Name them.

a. _____

b. _____

c. _____

5. What is the purpose of a low caloric diet? _____

_____

6. List two foods that are omitted in a low caloric diet.

a. _____

b. _____

7. List three foods that are included in a low caloric diet.

a. _____

b. _____

c. _____

8. A low caloric diet is prescribed for patients with these conditions. List them.

a. _____

b. _____

c. _____

LEARNING ACTIVITIES - continued

Low Fat Diet

1. Is a normal diet with limited amounts of fats
2. Contains only most easily digested fats
3. Lacks vitamin A which must be given as a supplement
4. Includes these foods:
   a. lean meat
   b. egg whites
   c. cottage cheese
   d. skim milk
   e. fruits
   f. vegetables low in fat
5. Does not include these foods:
   a. egg yolk
   b. fatty meats
   c. sauces
   d. gravies
   e. whole milk
   f. butter
6. May be ordered for patients with these conditions:
   a. obesity
   b. liver and gallbladder conditions
   c. digestive disturbances

Low Cholesterol Diet

1. Contains less cholesterol than a regular diet
2. Cholesterol is normally found in all body cells and fluids, but is stored in the liver

LEARNING ACTIVITIES - continued

3. Abnormally high cholesterol levels may result in deposits on blood vessel walls or in the liver or in the gallbladder

4. Includes these foods:

   a. skim milk

   b. lean meats

   c. fish

   d. margarine

   e. vegetable oil

5. Does not include these foods:

   a. butter

   b. whole milk

   c. egg yolks

   d. pork

6. Is prescribed for patients with these conditions:

   a. Atherosclerotic heart disease

   b. Hyperlipidemia

   c. Hyperlipoproteinemia

Exercise 7.

Directions: Complete the following exercise on low fat and low cholesterol diets. Answers can be found on page 35 of this module.

1. Define a low fat diet. _____

   _____

2. List three foods included in a low fat diet.

   a. _____

   b. _____

   c. _____

LEARNING ACTIVITIES - continued

3. List two foods that must be omitted from a low fat diet.

_____

4. State three conditions for which a low fat diet may be used.

a. _____

b. _____

c. _____

5. Cholesterol is found in _____ and _____.

6. List four foods included in a low cholesterol diet.

a. _____

b. _____

c. _____

d. _____

7. List two foods that must be omitted from a low cholesterol diet.

a. _____

b. _____

8. State three conditions in which a low cholesterol type diet may be used.

a. _____

b. _____

c. _____

High Protein Diet

1. Is a normal diet with increased amounts of protein
2. Is low in fats
3. Is used for the repair of tissues and body growth
4. Includes these foods:
   a. extra portion of milk
   b. eggs
   c. lean meat

LEARNING ACTIVITIES - continued

d. cheese

e. fish

5. Does not include foods high in fat:

a. cream

b. gravy

c. avocado

6. Is given to patients with these conditions:

a. burns

b. anemia

c. kidney disease (nephritis and nephrosis)

d. liver diseases (hepatitis and cirrhosis)

e. celiac disease

Low Protein Diet

1. Decreases the amount of protein consumed in the body

2. Is used when the kidneys cannot remove nitrogen waste (the end product of protein metabolism)

3. Is restricted in proteins to the amount the body can handle

4. Includes most foods on the regular diet

5. Does not include these foods:

a. meat

b. milk

c. cheese

d. eggs

e. fish

LEARNING ACTIVITIES - continued

6. Is prescribed for patients with these conditions:

   a. kidney failure

   b. nephritis

Exercise 8.

Directions: Complete the following exercise on high protein and low protein diets. Answers can be found on page 36 of this module.

1. List five foods included in a high protein diet.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

2. State three conditions for which a high protein diet may be used.

   a. _____

   b. _____

   c. _____

3. When would protein be restricted in the normal diet?

   _____

   _____

4. State one condition for which a low protein diet may be used.

   _____

Low Sodium Diet

1. Limits or eliminates all sources of salt (sodium chloride)
2. Restricts the most common mineral, sodium

LEARNING ACTIVITIES - continued

3. Limits or does not include these foods:

   a. pork

   b. salt (no salt allowed on the meal tray)

   c. carbonated beverages (soda pop)

4. Is prescribed for patients with these conditions:

   a. cardiac (heart patients)

   b. toxemia of pregnancy

   c. cardiovascular disease

   d. any patient taking cortisone medication

   e. kidney disease

Exercise 9.

Directions: Complete this exercise on low sodium diets. Answers can be found on page 36 of this module.

1. List three items that are omitted or limited in the low sodium diet.

   a. _____

   b. _____

   c. _____

2. State five conditions that restrict sodium.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

LEARNING ACTIVITIES - continued

Activity #2. Diet Therapy for Diabetics

Directions: Read the following information.

Planning the Diabetic Diet

Proper diet planning is an important TREATMENT for a diabetic. Each diabetic's diet is specially and carefully prescribed just for him/her. In some mild cases of the disease, especially among elderly people, a proper diet alone may control the disease where all concentrated sweets and all rich foods are eliminated.

Since obesity (overweight) is one of the things which can help a person to develop Diabetes, often an important part of the diet therapy is to get rid of excess weight. This is done by following a diet which contains fewer calories than the body actually needs. The body is then forced to burn its own fat for energy, and thus a patient loses weight. When normal weight is reached, the calorie allowance is increased to maintain a normal, healthy body weight. Keeping a normal body weight is one of the most important things a diabetic can do to keep the blood sugar in control.

However, even when the body weight is normal, the diabetic must observe certain dietary rules. The physician will prescribe the proper diet including the number of calories needed by the diabetic patient. These calories are then divided between the three major nutrients - carbohydrates (sugars and starches), proteins, and fats.

In a normal diet, 50-60% of the calories come from carbohydrates. In the diabetic diet, only 45% of the total calories come from carbohydrates. The reason for this is simple. REMEMBER, the diabetic cannot secrete insulin to transport glucose from the bloodstream to body cells. Therefore, if the intake of carbohydrates is the same as that of a normal person, the diabetic will go into hyperglycemia. The protein part of the diabetic diet is usually a high percentage of the total calorie allowance, because the diabetic needs this protein to build and to repair body tissues. The remaining calories allowed are used as a fat allowance.

The physician decides the specific number of calories needed by each diabetic. In order to make that decision, the following information is needed:

1. The patient's present weight (Patient may need to reduce.)
2. The severity of the patient's disease
3. The amount of the patient's physical activity
4. The patient's age and sex
5. The amount and kind of medication taken by the patient

LEARNING ACTIVITIES - continued

Generally, the diabetic can eat the same foods as other members of the family. The foods will be very nutritious and will come from the BASIC FIVE FOOD GROUPS you have already studied. They are:

1. Milk Group
2. Meat Group
3. Bread and Cereal Group
4. Fruit and Vegetable Group
5. Fats, Sweets, Alcohol Group

The physician has worked hard to plan an individual diet for each diabetic patient. However, it is the patient's responsibility to adhere to this prescribed diet. Some general dietary rules the diabetic patient must follow include:

1. Foods must be measured accurately: Foods are generally measured after cooking.
2. Foods must be prepared properly: Meats should be baked, boiled or broiled. Foods may not be fried unless the meal allows for a "fat exchange".

   Vegetables may be prepared with the family meals, but the diabetic's portion must be removed before extra fat or flour is added.
3. Special foods: Fruits must be fresh or canned in water. Most canned fruits are packed in a sugary syrup, which the diabetic patient cannot eat.
4. Foods to avoid: All of these foods are concentrated carbohydrates.

   a. sugar
   b. candy
   c. honey
   d. jam & jelly
   e. marmalade
   f. syrups
   g. pie
   h. cakes
   i. candy coated gum
   j. fried, scalloped or creamed foods

LEARNING ACTIVITIES - continued

k. beer

l. wine or other alcoholic beverages

NOTE: Alcohol is immediately converted to sugar in the body.

5. Eat only those foods on the diet.

6. Never skip a meal.

7. Never eat between meals, unless the diet calls for a bedtime snack.

Using the Diabetic Diets and the Exchange Lists

When the physician has decided on the number of calories the diabetic should have each day, which could range from 1000 to 3000 calories, the patient is given a specific diet to follow based on the number of calories allowed. The diabetic can have varied and satisfying meals as long as the dietary rules already mentioned are followed.

The foods allowed in the diet are selected from EXCHANGE LISTS. There are seven exchange lists and they can be found on pages 25-29 of this module. Within each exchange list, the foods are interchangeable; because, in the amounts shown, each food in a specific list provides approximately the same amount of carbohydrates, fats, and proteins. For example, when the menu calls for one bread exchange, any item in List 4 may be eaten in the amount allowed. Look at the Bread List "List 4" on page 27. If two bread exchanges are allowed, the diabetic could choose two different items from List 4 or two of the same foods.

The SPECIFIC PURPOSE of the EXCHANGE SYSTEM is to give the diabetic patient some VARIETY in the diet, while "sticking to" the allowed calorie intake. The physician will give the patient a menu which tells how many food exchanges can be eaten from each list for each meal throughout the day. The patient can then look to the lists allowed and pick the desired foods.

LEARNING ACTIVITIES - continued

EXAMPLES OF LIQUID DIETS FOR DIABETICS

CALORIES - 1200

LIQUID DIETS (may be used to replace any one of the meals).

FULL LIQUID

Eggnog	milk	1/2 cup	120 gm.
	egg	1	50 gm.
Orange juice		1 cup	200 gm.
Milk		3/4 cup	180 gm.

CLEAR LIQUID

Clear bouillon	1 cup	
Orange juice	1 cup	200 gm.
Grapefruit juice	1/2 cup	100 gm.
Gelatin dessert	1/2 cup	100 gm.

BEDTIME FEEDING (Only when directed by physician)

1/2 milk exchange (1/2 cup milk)	will add approximately
1/2 bread exchange (2 crackers)	120 calories to daily diet

Carbohydrates	125 gm.
Protein	60 gm.
Fat	50 gm.

CALORIES - 1800

LIQUID DIETS (may be used to replace any one of the meals).

FULL LIQUID

Eggnog	milk	2/3 cup	160 gm.
	egg	1	50 gm.
Custard	milk	1/2 cup	200 gm.
	egg	1	50 gm.
Grape juice		3/4 cup	180 gm.

CLEAR LIQUID

Orange juice with sugar	1 cup 2 tsp	200 gm. 10 gm.
Grapefruit juice with sugar	1/2 cup 2 tsp	100 gm. 10 gm.
Gelatin dessert	1/2 cup	100 gm.

BEDTIME FEEDING (Only when directed by physician)

1/2 milk exchange (1/2 cup milk)	will add approximately
1/2 bread exchange (2 crackers)	120 calories to daily diet

Carbohydrates	125 gm.
Protein	60 gm.
Fat	50 gm.

LEARNING ACTIVITIES - continued

ON THE FOLLOWING PAGES, YOU WILL FIND "THE SEVEN FOOD EXCHANGE LISTS".

DIRECTIONS: CHOOSE ONE DIET AND MAKE OUT A MENU FOR YOURSELF USING THE EXCHANGE LISTS. SHOW THE COMPLETED DIABETIC'S DIET TO YOUR INSTRUCTOR.

REMEMBER!!!!!!!

YOU CANNOT EXCHANGE A FOOD FROM ONE LIST, FOR A FOOD FROM ANOTHER LIST! FOR EXAMPLE, YOU CANNOT EXCHANGE ONE FRUIT EXCHANGE FOR ANOTHER BREAD EXCHANGE. THAT'S CHEATING!!!!!!! THE EXCHANGE LIST ONLY MEANS THAT YOU CAN CHOOSE ANY FOOD FROM THE SAME LIST, SINCE IT CONTAINS THE SAME NUMBER OF NUTRIENTS. THE EXCHANGE LISTS MERELY PROVIDE FOR A VARIETY OF FOODS IN A DIET.

LEARNING ACTIVITIES - continued

THE SEVEN FOOD EXCHANGE LISTS

List 1 Free Foods (allowed as desired, need not be measured)

SEASONINGS: celery salt, cinnamon, garlic salt, garlic, mustard, mint, lemon, nutmeg, parsley, saccharin, pepper, and other sugarless sweeteners, spices, vanilla, and vinegar.

OTHER FOODS: tea or coffee (without sugar or cream), bouillon, fat-free broth, rennet tablets, unflavored gelatin, dill or sour pickles, cranberries (without sugar), rhubarb (without sugar).

VEGETABLES: Group A - minimal calories or insignificant carbohydrates. You may eat as much as desired of the raw vegetables. If a cooked vegetable is eaten, limit the amount to one cup.

Asparagus
Brussels sprouts
Broccoli
Cauliflower
Cabbage
Chicory
Celery
Cucumbers
Eggplant
Greens: chard, beets, collard dandelion, kale, mustard, spinach, turnip
Lettuce
Okra
Mushrooms
Radishes
Peppers - green or red
String beans
Sauerkraut
Tomatoes
Summer squash
Watercress

List 2 Vegetable Exchanges

Each individual portion supplies approximately 7 grams of carbohydrates and 2 grams of protein, or 36 calories.

VEGETABLES: Group B (One serving equals 1/2 cup or 100 grams.)

Carrots
Beets
Onions
Peas, green
Rutabagas
Pumpkin
Winter squash
Turnips

LEARNING ACTIVITIES - continued

List 3 Fruit Exchanges (fresh, dried, or canned without sugar)

Each individual portion supplies approximately 10 grams of carbohydrates or 40 calories.

Fruits	Household Measurements	Weight of Portion
Apple	1 small (2" diam.)	80 grams
Applesauce	1/2 cup	100 grams
Apricots, dried	4 halves	20 grams
Apricots, fresh	2 medium	100 grams
Berries	1 cup	150 grams
Banana	1/2 small	50 grams
Blueberries	2/3 cup	100 grams
Cantaloupe	1/4 (6" diam.)	200 grams
Dates	2	15 grams
Cherries	10 large	75 grams
Figs, fresh	2 large	50 grams
Grapefruit	1/2 small	125 grams
Grapes	12	75 grams
Honeydew melon	1/8 (7")	150 grams
Orange	1 small	100 grams
Orange juice	1/2 cup	100 grams
Peach	1 medium	100 grams
Pear	1 small	100 grams
Pineapple	1/2 cup	80 grams
Raisins	2 tablespoons	15 grams
Tangerine	1 large	100 grams
Watermelon	1 cup	175 grams
Prunes, dried	2	25 grams

LEARNING ACTIVITIES - continued

List 4 Bread Exchanges

Each individual portion supplies approximately 15 grams of carbohydrates and 2 grams of protein or 68 calories.

Breads	Household Measurements	Weight of Portion
Bread	1 slice	25 grams
Muffin	1 (2" diam.)	35 grams
Biscuit, roll	1 (2" diam.)	35 grams
Cornbread	1 1/2 2" cube	35 grams
Cereal, cooked	1/2 cup	100 grams
Cereal, dry (flakes or puffed)	3/4 cup	20 grams
Rice or grits cooked	1/2 cup	100 grams
Spaghetti, noodles, etc.	1/2 cup	100 grams
Crackers, round	6 to 8	20 grams
Crackers, soda	3	20 grams
Crackers, saltine	5	20 grams
Crackers, oyster	20 (1/2 cup)	20 grams
Crackers, graham	2	20 grams
Vegetables		
Beans (lima, navy, etc.), dry cooked	1/2 cup	90 grams
peas (split peas, etc.), dry, cooked	1/2 cup	90 grams
baked beans, no pork	1/4 cup	50 grams
Parsnips	2/3 cup	125 grams
Corn	1/3 cup	80 grams
Potato, white, baked, or boiled	1 (2" diam.)	100 grams
Potatoes, white, mashed	1/2 cup	100 grams
Sponge cake, plain	1 1/2" cube	25 grams
Ice cream	1/2 cup	70 grams

LEARNING ACTIVITIES - continued

List 5 Meat Exchanges

Each individual portion supplies approximately 7 grams of protein and 5 grams of fat or 73 calories. (30 grams equal 1 ounce)

Meat/Meat Substitutes	Household Measurements	Weight of Portion
Meat and poultry (beef, lamb, pork, liver, chicken, etc.) (med. fat)	1 slice (3" x 2" x 1/8")	30 grams
Frankfurter	1 (8-9 per pound)	50 grams
Cold cuts	1 slice	45 grams
Salmon, tuna, crab	1/4 cup	30 grams
Codfish, mackerel, etc.	1 slice	30 grams
Sardines	3 medium	30 grams
Oysters, shrimp, clams	5 small	45 grams
Cheese, cottage	1/4 cup	45 grams
Cheese, cheddar, American	1 slice	30 grams
*Peanut butter	2 tablespoons	30 grams
Egg	1	50 grams

*Limit the intake of peanut butter to 1 exchange per day unless allowance is made for carbohydrates in the diet plan.

LEARNING ACTIVITIES - continued

List 6 Fat Exchanges

Each individual portion supplies approximately 5 grams of fat or 45 calories.

Fats	Household Measurements	Weight of Portion
Bacon, crisp	1 slice	5 grams
Butter or margarine	1 teaspoon	10 grams
Cream, heavy	1 tablespoon	15 grams
Cream, light	2 tablespoons	30 grams
French dressing	1 tablespoon	15 grams
Cream cheese	1 tablespoon	15 grams
Oil or cooking fat	1 tablespoon	5 grams
Mayonnaise	1 teaspoon	5 grams
Olives	5 small	50 grams
Nuts	6 small	10 grams
Avocado	1/8 (4" diam.)	25 grams

List 7 Milk Exchanges

Each individual portion supplies approximately 12 grams of carbohydrates, 8 grams of protein, and 10 grams of fat or 170 calories.

Milk	Household Measurements	Weight of Portion
Milk, evaporated	1/2 cup	120 grams
Milk, whole	1 cup	240 grams
Milk, skim	1 cup	240 grams
*Milk, powdered	1/4 cup	35 grams
*Buttermilk	1 cup	240 grams

*Add 2 fat exchanges if the milk is fat free.

LEARNING ACTIVITIES - continued

Exercise

Directions: Complete this exercise on diet therapy for a diabetic. Answers can be found on pages 36 and 37 of this module.

1. Proper diet planning for the diabetic is considered a _____.

2. In some mild cases _____ alone may control the disease.

3. Since obesity is one thing which helps to develop diabetes, the first aim of diet therapy is to _____.

4. A _____ body weight is one of the most important things in helping a diabetic control the blood sugar level.

5. Calories come from the three major nutrients:

   a. _____

   b. _____

   c. _____

6. The diabetic diet is generally: (Circle the correct one.)

   a. High protein, low carbohydrates, and low fat
   b. High carbohydrates, low fat, and low protein
   c. Low fat, high carbohydrates, and high protein
   d. Low carbohydrates, low fat, and low protein

7. The _____ prescribes the diabetic diet.

8. List five things the physician considers when prescribing a diabetic diet.

   a. _____

   b. _____

   c. _____

   d. _____

   e. _____

9. State the seven general dietary rules the diabetic must follow.

   a. _____

   b. _____

   c. _____

LEARNING ACTIVITIES - continued

d. _____

e. _____

f. _____

g. _____

10. The purpose of the "food exchange lists" is to _____ in the diet.

11. The diabetic needs a diet HIGH in protein to help _____ and _____ body tissues.

12. Within each "exchange list" foods are _____.

13. The above answer means that you can exchange a bread exchange for a fruit exchange. TRUE FALSE (Circle One)

ACTIVITY #3. Review Exercises on Liquid, General, Soft, and Special Diets

Exercise 1.

Directions: Match the right-hand column with the correct diet in the left-hand column. Answers can be found on pages 37 and 38 of this module.

LIQUID/GENERAL

1.	___	Surgical liquids	A. Pot roast, string beans, salad, baked potato, ice cream, coffee.
2.	___	Tube feeding	B. Tea, broth, jello, 7-Up.
3.	___	Full liquids	C. Soft cooked or pureed vegetables, meats, no spices.
4.	___	Clear liquids	D. Ice cream, milk, fruit juice, tea.
5.	___	Regular diet	E. Blenderized foods or milk-based formulas.

SOFT

1.	___	Bland	A. Diet used if the patient has no teeth.
2.	___	Soft	B. For the patient with gastric ulcers.
3.	___	Mechanical soft	C. For patient with severe diarrhea or ulcerative colitis.
4.	___	Low residue	D. Included on progression diets from liquids to regular diet.

LEARNING ACTIVITIES - continued

SPECIAL DIETS

1.	___	Diabetic	A. No salt on meal tray.
2.	___	Increased protein	B. Used for loss of weight.
3.	___	Decreased sodium	C. Gallbladder disease.
4.	___	Low caloric	D. Kidney disease.
5.	___	Fat restricted	E. Used for burned patients and for repair of body tissues.
6.	___	Decreased protein	F. Used to increase body weight.
7.	___	High caloric	G. Heart disease.
8.	___	Low cholesterol	H. Exchange list regulating carbohydrates.

Exercise 2.

Directions: Write the name of the specific diet described in the following statements. Answers can be found on page 38 of this module.

1. Give four names for the diet that requires NO restrictions upon food choices.

   a. _____

   b. _____

   c. _____

   d. _____

2. The diet that includes clear broth, tea, and 7-Up is the _____ diet.

3. The diet that includes milk, custard, and ice cream is the _____ diet.

4. The diet which omits salt from the meal tray is the _____ diet.

5. The diet that includes foods that are high in calories is the _____ diet.

6. The diet that omits foods that are hard to digest is the _____ diet.

7. The diet that omits rich and strongly-flavored foods is the _____ diet.

LEARNING ACTIVITIES - concluded

8. The diet that includes chopped foods only is the _____ diet.

9. The diet that limits the amount of butter, margarine, cream, and eggs is the _____ diet.

10. The diet that includes milk formula and liquid forms of meats and vegetables is the _____ diet.

ANSWERS

ACTIVITY #1

Exercise 2.

1. a. tea or coffee
   b. broth (fat-free)
   c. 7-Up
   d. apple juice
   e. jello
   f. water, ice chips

2. a. to relieve thirst and to maintain fluid balance
   b. to start peristalsis in recent postoperative patients

3. a. dehydration
   b. vomiting
   c. diarrhea
   d. postsurgery

4. Full liquid diets include all foods that are liquid at room and body temperature. A clear liquid diet includes all liquids that you can see through.

5. a. acute infections
   b. fevers
   c. too ill to chew
   d. post surgical or gastrointestinal upsets

Exercise 6.

1. The high caloric diet is to increase body weight and the low caloric diet is to decrease body weight.

2. The purpose of a high caloric diet is to increase body weight.

3. milk
   breads
   butter
   creams
   desserts

4. underweight
   hyperthyroidism
   pneumonia
   fevers

5. The purpose of a low caloric diet is to decrease body weight.

6. breads
   butter
   creams
   sauces
   desserts

ANSWERS - continued

7. vegetables
   fruits
   lean meats
   eggs
   skim milk

8. obesity
   cardiovascular diseases
   high blood pressure

Exercise 7.

1. A low fat diet is a normal diet with limited amounts of fats.

2. lean meats
   egg whites
   skim milk
   cottage cheese
   fruits
   vegetables low in fat

3. pork
   egg yolks
   whole milk
   butter
   sauces
   gravies

4. gallbladder disease
   heart disease
   liver disease
   obesity
   digestive disturbances

5. Body cells and fluids

6. skim milk
   lean meat
   fish
   margarine
   vegetable oil

7. butter
   whole milk
   egg yolks
   pork

8. a. atherosclerotic heart disease
   b. hyperlipidemia
   c. hyperlipoproteinemia

ANSWERS - continued

Exercise 8.

1. lean meat
   milk
   cheese
   eggs
   fish

2. burns
   anemia
   liver disease (hepatitis)
   kidney disease (nephritis)
   celiac disease

3. Protein would be restricted when the kidney cannot remove the waste product of protein metabolism.

4. Kidney failure or nephritis

Exercise 9.

1. a. pork
   b. table salt
   c. carbonated beverages (soda pop)

2. a. cardiac - heart patients
   b. toxemias
   c. cardiovascular disease
   d. renal (kidney) disease
   e. patient taking cortisone medication

ACTIVITY #2

1. treatment

2. diet

3. reduce weight

4. normal

5. a. carbohydrates
   b. proteins
   c. fats

6. a

7. physician

ANSWERS - continued

8. a. weight
   b. severity of disease
   c. age and sex
   d. amount of physical activity
   e. medication

9. a. measure food
   b. prepare food properly
   c. fresh or water packed fruits
   d. avoid concentrated carbohydrates
   e. eat only those things on the exchange lists
   f. never skip a meal
   g. never eat between meals

10. provide variety

11. build and repair

12. interchangeable

13. FALSE

ACTIVITY #3

Exercise 1.

LIQUID/GENERAL

1. B
2. E
3. D
4. B
5. A

SOFT

1. B
2. D
3. A
4. C

ANSWERS - concluded

SPECIAL DIETS

1. H
2. E
3. A
4. B
5. C
6. D
7. F
8. G

Exercise 2.

1. a. Regular
   b. House
   c. Normal
   d. General
2. clear liquid (surgical)
3. full liquid (medical)
4. low sodium or NaCl (sodium chloride)
5. high caloric
6. low residue - bland
7. soft
8. mechanical soft
9. low fat
10. tube feeding

CULTURAL FOOD PATTERNS

By

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University of Colorado School of Nursing

August 1976

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Catherine Benavidez-Clayton, R.N., M.S.
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WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION

MODELS FOR INTRODUCING CULTURAL DIVERSITY IN NURSING CURRICULA

CULTURAL FOOD PATTERNS

BY

Catherine Benavidez-Clayton, R.N., M.S.
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August 1976

To the student:

This module is included in the Nutrition Unit #5 because of the importance of food patterns in the numerous cultures. It is presented as supplementary reading and you will be allowed to test yourself on the content; however, there will be a scheduled class discussion on the material in the module and you will be expected to participate in the discussion.

The module is presented as it was written by Catherine Benavidez-Clayton, R.N., M.S.

TABLE OF CONTENTS

GENERAL INSTRUCTIONS TO THE STUDENT:

1. This module reflects a continuation of the overall curriculum as related to cultural components of individualized patient care and nurse-patient relationships. Please read all instructions carefully.

2. This module has one central objective and several specific objectives.

3. A pre-test will precede content to evaluate your specific areas of strengths and weaknesses related to the overall content and specific objectives.

4. A post-test will be given upon completion of the content. Subtract five (5) points for each incorrect answer, a score of 95 - 100 will represent successful completion of the module.

CULTURAL FOOD PATTERNS

Chicano, Black, Native American, Asian

CENTRAL OBJECTIVE

To acquaint students with the cultural and nutritional value of foods preferred by ethnic groups as revealed through a historical and analytical perspective and to develop an awareness that foods are valued quite apart from their nutritional value and that many food practices are related to ethnic origin.

SPECIFIC BEHAVIORAL OBJECTIVES

After reading the required material and completing the required exercises, the student will be able to:

1. Describe the importance of food as a socialization process.
2. Analyze the nutritional value of the two selected diets according to the basic four food groups. (See Appendix B)
3. List at least one food staple of each cultural group: Chicano, Black, Asian, Native American: Navajo, Pueblo, Sioux.
4. List three foods which are believed to result in diseases of "hot and cold" imbalances as perceived by the Mexican/Chicano.

PRE-TEST

True - False

1. ___ Geography is reflected in traditional food patterns.

2. ___ The harmony of health, as perceived by the Navajo, may be disrupted by indulging in excesses of food and drink.

3. ___ A common beverage of the Mexican/Chicano, usually served to the sick, is called atole.

4. ___ Guisado is a term utilized in Mexican/Chicano culture in describing food without flavoring.

5. ___ Sashimi is a term used to describe the typical Asian dish of batter fried shrimp.

6. ___ Cheese made from goat's milk is a favorite food of the Navajo Indian.

7. ___ Chili peppers are not native to the American Indian cuisine, but were acquired from Spanish invaders.

8. ___ The main beverage of the Sioux is coffee, consumed by young and old.

9. ___ Corn is the grain of choice utilized in the Black diet.

10. ___ Beef and pork heart are utilized in the Black diet, prepared as a luncheon meat.

PRE-TEST ANSWERS

1. T
2. T
3. T
4. F
5. F
6. T
7. T
8. T
9. T
10. T

CULTURAL FOOD PATTERNS

Introduction:

Food and eating can signify many things as they are intimately woven into the social and cultural life of an individual. In the anxiety that accompanies the crisis of hospitalization and separation from family and friends, food assumes even greater importance. Poor appetite is often associated with illness, but oftentimes the patient may use food as a vehicle to express anxiety about his illness. He may rebel against his situation as a dependent hospitalized patient and may demand food he knows is not available. When a patient is hospitalized, there is generally no area in which he has control; but by means of selective menus and daily visits from dieticians, food is one area where the patient's opinions are solicited. Food thus serves as a mechanism of providing the patient with the feeling of having some control over his immediate environment. Awareness of the significance of the social and psychological implications of food patterns is of extreme importance to those who are in contact with patients. (Jenner, p. 1)

Food not only serves to provide nourishment to the body, but for many people it is a symbol of warmth, friendliness and social acceptance. The meal oftentimes serves as an avenue for expressing friendship. Meals are for family, close friends and special events. Those friends who have never been invited into our home to share a meal have presumably another threshold of intimacy to cross. The popular barbeque is one event which seems to serve to bridge this gap between intimacy and distance. Drinks are for strangers and acquaintances, "those we only know at drinks we know less intimately." (Douglas, p. 66)

Emotional feelings are involved with certain foods and to many people certain foods may trigger a flood of life-long memories. These foods are valued, not necessarily for their nutritional value, but many for their relationship to cultural and religious origins. A popular expression suggests, "you are what you eat." Food is a mirror that reflects a thousand phases of personal, national and international history. Geography is reflected in food, so is climate, religion, superstition and taboos. Food remembers where people traveled, who their grandmothers were and from what part of the world their ancestors hailed. It is thus an important dimension of the total care of the individual. (Jenner, p. 47)

A number of cultural food patterns are represented in American community life. These different food patterns continue to be used among the older family members, while members of the younger generations may only experience traditional cultural food patterns on special occasions or religious holidays. (Williams, p. 265) Traditional food patterns have strong meanings and serve to bind families and cultural communities in close fellowship. For some cultural groups; food, especially where there is an abundance of it, symbolizes success in overcoming the struggle for survival. Religious beliefs may also serve to influence food patterns. Fasting, during the Lenten Season, is considered to be one way of giving thanks for the vast abundance one has managed to reap during this life. The Navajo Indian believes that "keeping one's feet and mind on the cornpollen path of beauty, is the only way to preserve harmony and harmony is health." Allowing oneself to indulge in excesses of food and drink can be one way of disrupting this harmony. (Groman, p. 3)

In describing the foods of a specific ethnic group, it is sometimes assumed that all people adhere to that pattern. Obviously, this is not true. The Asian living in the midwest most

likely will follow a different food pattern that the Asian living on the Pacific Coast because of the economics involved in obtaining traditional foods. Food preferences will also be recognized among individuals within a given ethnic group. Not every Chicano will prefer a taco; in fact, among the younger generation, his preference just might be a Big Mac.

It is obvious that a number of cultural food patterns will exist in a society as diverse as ours. Realizing this, it is essential that the health care giver recognize widely varying patterns, learning to capitalize upon the desirable characteristics of any given diet. (Robinson, p. 216)

Mexican/Chicano Food Patterns:

A blending of the food habits of the past and present - an amalgamation of Indian, Spanish, Mexican and American - form the basis for the food patterns of the Mexican-American/Chicano. Three foods which are basic to this group are: pinto beans, red and green chili, and white flour and/or corn tortillas. Nutritionally, beans are a source of protein, green chili a source of Vitamin C. Variations and additions are found in different regions or among those of different income levels. Those of low income use very little meat, usually as a flavoring for beans, soups and stews. (Robinson, p. 221)

When an animal is butchered, the Chicano prepares and consumes all organ meats. It is considered wasteful to discard any portion of the animal. (New Mexico Extension Circular, p. 8) Beef, lamb, chicken, and kid goat are preferred meats. Common vegetables are corn and squash. Corn is served in a variety of ways: fresh or canned, steamed while green and dried on the cob (chicos), and corn similar to hominy (pesole). Ground red chili powder is essential to most dishes. Garlic and onion, oregano, salt, cumino and cilantro are common additions for flavoring. Common beverages which are usually served to sick people are: 1. atole (gruel), which consists of blue corn meal and milk, and 2. poleadas (white flour gruel), consisting of white flour, sugar, water, salt and anise seed. Both beverages are served hot. (New Mexico Extension Circular, p. 33-34)

Guisar, which has no exact English translation, is the most popular word in preparing Mexican food. Roughly speaking, it means to dress up food, perhaps only by adding a little onion or a pinch of oregano; good food always deserves a finishing touch. Food must never taste flat, but it will if it is not guisado. (New Mexico Extension Circular, p. 1)

To some Mexican/Chicanos, food has taken on another meaning, especially if he adheres to the concept of "hot and cold" food imbalances which may result in illness. Food is classified as hot or cold, and the maintenance of a healthy state requires care to avoid mixing of incompatible foods. "The qualities of 'hot and cold' in this system have nothing to do with physiological effect." (Clark, p. 165) For example, infants and small children are believed to be unusually vulnerable to "cold stomach", an imbalance producing symptoms of colic. Babies, therefore, should not be given large amounts of "cold" foods as melon and citrus (a fact which might account for the resistance demonstrated by some mothers to giving infants daily orange juice). (Clark, p. 166)

HOT AND COLD FOODS

Food Types	Very Hot	Hot	Temperate	Cold	Very Cold
Fruits & Vegetables	Chili; Green & red Garlic	Onion		Beans, green Beets Cabbage Cauliflower Carrots Coriander Parsley Peas Pumpkin Squash Turnip	Cucumber Pickles Spinach Tomato Melon Orange juice
Meats & Milk	Crackles	Capon Fish Milk - goat's Pork Turkey	Goat	Beef Boar Lamb Cow's milk Mutton Rabbit	Hen - pullet Breast milk
Starches & Sweets	White beans	Barley Wheat bread Chick peas Sweet potatoe Irish potatoe Rice Sweet rolls Corn tortillas Wheat Honey Brown sugar Salt	Pinto Beans White sugar	Red beans Lentils	

(Clark, p. 166)

Asian Food Patterns: Chinese - Japanese

Japanese food patterns are in some ways similar to Chinese. Rice is a basic constituent of the diet, soy sauce (high in salt) is used for seasoning and tea is the main beverage. There are some differences as the Japanese diet contains more seafood, especially raw fish. Of course, as one goes inland, the cost of obtaining traditional foods, especially seafoods, may be prohibitive and, as a consequence, food patterns will be altered to foods available. "A number of taboos prohibit certain food combinations, or the use of certain foods in specific localities or at specific times. Some of these taboos are associated with religious practices such as ancestor veneration." (William, p. 272)

In areas where no city is far from the ocean, the main protein source is seafood. Many varieties of seafood and shellfish are served. Families living inland may also eat duck, pork, chicken and occasionally beef and lamb. Many vegetables are included, usually steamed and served with soy sauce. Rice is the staple grain, while some corn, barley and oats are also served. Little milk or cheese are used. Asian culture patterns carried over to the present generation continue to limit the use of dairy products. (Yamamoto, 1976)

"A specific sequence of courses is followed at most meals. A dinner is served in this order: green tea, unsweetened; some appetizer such as soy or red bean cake, a raw fish (sashimi) or radish relish (komono); broiled fish or omelet; vegetables with soy sauce; plain steamed rice; herb relish; fruits in season; a broth base soup (shirumise), and perhaps more unsweetened green tea. Typical dishes include tempura (batter fried shrimp) and aborakge (fried soybean curd). Sukiyaki is as American as chow mein. Soybean oil is the main cooking fat." (Williams, p. 273)

Native American: Navajo - Pueblo - Sioux

Of all the food cultures that have melted into our cooking pot, none can claim more native flavor than that of the American Indian. The food that sustained these people for centuries has also become an integral part of many other Americans' diets. Due to geography, Indian food patterns may vary from one region to another.

Navajo - Pueblo: Southwestern United States

As one would expect, corn leads the list of mainstay foods, followed by beans, squash and chili peppers. The importance of corn to the Indian cannot be overstated. In cooking, it is used fresh, dried, roasted and ground. Chicos are used in stew, usually cooked with some meat such as mutton or some other meat. Blue corn meal mixed as a broth may be served after meals to settle one's stomach. (Grimm, 1976) Lamb, kid goat and beef are meats most frequently eaten; all organ meats are prepared and eaten. Cheese is a favorite food, usually made from goat's milk.

The focal point of a traditional dinner is a variety of chilis, which are accompanied by several kinds of breads. Generally based on meat, corn, and/or beans, these chili mixtures are literally seasoned with hot chili peppers so they closely resemble their Mexican counterparts. "(Surprisingly, chili peppers are not native to the American Indian cuisine, but were acquired from Spanish invaders.)" (Eby, et al, p. 86) The breads and pies are traditionally cooked outdoors. Some are fried, resembling the sopaipilla, others are baked in thick-walled, beehive-shaped adobe ovens called hernos. Cedar kindlings are burned in the ovens about an hour or so until the desired baking temperature is reached. (Grimm)

Sioux: North Dakota, South Dakota, Iowa and Nebraska

Historically, the main foods available to the Sioux Indian were corn, buffalo meat - a source of protein, and wild berries utilized when available. Dairy products were not utilized as no tame livestock was available. Breast milk was utilized as a source of protein to children, as weaning did not occur until age five. Today, some of the preferred foods for the Sioux are: meats, beef and pork, corn as the main grain staple, pinto beans and dried fruits. The main beverage is coffee, consumed by young and old. (Provost 1976)

Black Food Patterns

Black people who have migrated from the South to the northern cities continue to enjoy at least some of the foods to which they have been accustomed, such as blackeyed peas, greens with pot liquor, chitterlings, biscuits and many others. On the other hand, black people who have lived in the North for several generations may prefer other northern dishes. Within a given ethnic group, one will also find individuals who differ widely in their food habits.

Meats preferred by the black are fried chicken and pork. No portion of a pig is wasted as pork is prepared a variety of ways. Ways in which pork may be prepared are: chitterlings, tripe, sweet bread, pig ears, pig feet and hog head cheese. Beef and pork heart is prepared and used as a luncheon meat. (Cook, 1976) Green vegetables such as turnip tops, collards and mustard greens are well-liked; they are likely to be cooked for a relatively long time with pork fat as a flavoring agent. The water in which vegetables are boiled (pot liquor) is often consumed, thus retaining some of the vitamins and minerals which would otherwise be lost. Corn is the grain of choice, although rice is widely used. Corn appears in such forms as hominy grits and corn bread. Chicory coffee is a preferred beverage of the Southern black.

"Soul food is a term often associated wtih foods eaten by blacks. The word soul is used in reference to other aspects of living such as 'soul singing'. It is used with food to connote dishes that give a sense of well-being, that are enjoyed, and that are associated with sentiments or feelings. Soul foods have vestiges of American Indian foods, such as hominy and mush. The poor white colonists, by bringing hogs into the country, contributed to the emphasis on pork. The blacks of Africa provided the foundation of soul, with seasoned sauces and gravies, okra, watermelon, and beans. It was a diet that not only reflected the above impacts, but an attempt to make the most of the discards of plantation owners. From the hog came foods such as chitterlings from the entrails; hog maws from the stomach lining; boiled pig's feet, tails, ears, and snout, sometimes made into scrapple; hog jowl; and neck bones." (Fleck, p. 265)

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POST-TEST

True - False

1. ___ Food should be considered as a major dimension of total patient care.

2. ___ The meal oftentimes serves as an avenue for expressing friendship.

3. ___ During hospitalization, the patient may rebel against his situation and may demand food he knows is not available.

4. ___ Beef is the preferred meat of the Black.

5. ___ Corn is the common grain staple of the Native American.

6. ___ Pinto beans have little in nutritional value.

7. ___ Soy sauce has a high sodium content.

8. ___ Sukiyaki is traditional Chinese food.

9. ___ In comparing the Chinese and Japanese diet, the Japanese diet contains more seafood.

10. ___ According to M. Clark, The Chicano believes that good health is influenced by proper diet, tracing many diseases to imbalanced intake of "hot" and "cold" foods.

POST-TEST ANSWERS

1. T
2. T
3. T
4. F
5. T
6. F
7. T
8. F
9. T
10. T

SELECTED DIETS

Analyze according to the Basic Four:

Breakfast:

Grits - ½ cup
Egg - 1
Crisp bacon - 1 slice
Milk - 1 glass

Lunch:

Kidney beans with onions and pepper - ½ cup
Collard greens with ham - 2 oz.
Cornbread with margarine
Peach - 1
Coffee - 1 cup

Dinner:

Fried chicken - 2 small pieces
Tomatoes and okra - ½ cup
Rice - ½ cup
Turnips - ½ cup
Biscuit - 1
Coffee - 1 cup

Breakfast:

1 egg with green chili
Fried potatoes - ½ cup
Tortilla - flour - 1
1 slice goat cheese
Coffee - 1 cup

Lunch:

Refried beans - ½ cup (with green chili)
Tortilla - 1
Vegetable stew with meat
Dried apricots - 2
Coffee
1 slice goat cheese

Dinner:

Baked Mutton - 2 oz.
(Posole) - hominy with red chili - ½ cup
1 apple
Green salad with avocado slice
Coffee

APPENDIX: A

EXCHANGE LIST FOR MEXICAN - AMERICAN PATIENTS

Item	Constituents	Exchanges
1. Arroz con Carne (327 Calories)	1 cup rice 2 oz. meat 1 tsp. fat	2 bread 2 meat 1 fat
2. Fidello con Carne (327 Calories)	1 cup vermicelli, cooked 2 oz. meat, cooked 1 tsp. fat	2 bread 2 meat 1 fat
3. Papas con Carne (327 Calories)	1 cup potatoes 2 oz. meat 1 tsp. fat	2 bread 2 meat 1 fat
4. Chicharo con Carne (303 Calories)	1 cup peas 2 oz. meat 1 tsp. fat	2 B-vegetable 2 meat 1 fat
5. Frijoles con Jamon Salado (226 Calories)	1 cup beans Salt Pork	2 bread 2 fat
6. Tortillas de Harina (5" diameter; 1/8" thick) (136 Calories)	2 tortillas	2 bread 2 fat
7. Tortillas de Maiz (5" diameter; 1/8" thick) (136 Calories)	2 tortillas	2 bread 2 fat
8. Enchiladas (140 Calories)	2 enchiladas	2 bread 2 meat
9. Tamales (140 Calories)	1 tamale	1 bread 1 meat 1 fat

APPENDIX: A (continued)

	Item	Constituents	Exchanges
	SAN ANTONIO RECIPES		
10.	Chile Relleno (250 Calories)	1 green pepper 2 oz. meat 1 tbs. onion 2 tsp. tomato sauce ½ cup rice	1 A-vegetable 2 meat 1 B-vegetable 1 bread
11.	Picadillo- (277 Calories)	⅛ onion garlic 2 oz. ground meat ½ cup cooked potatoes 2 tsp. fat	½ B-vegetable 2 meat 1 bread 2 fat
12.	Huevos con Papas Fritas (204 Calories)	½ cup potatoes, cooked ½ small onion 1 egg 1 tsp. margarine	1 bread ½ B-vegetable 1 meat 1 fat
13.	Tortillas with re-fried beans (147 Calories)	1 flour tortilla ⅛ cup refried beans	1 bread 1 fat ½ bread
14.	Refried Beans (176 Calories)	½ cup beans, cooked 2 tsp. fat	1 bread 2 fat ½ B-vegetable
15.	Fried Vermicelli (289 Calories)	1 cup, cooked 1 tbs. margarine onion green pepper	2 bread 2 fat ½ B-vegetable A-vegetable

(Rice may be substituted for Vermicelli in same measure)

16.	Flour tortilla (recipe) (113 Calories)	2½ tbs. flour 1 tsp. shortening	1 bread 1 fat
17.	Fried Sweet potatoes (113 Calories)	⅛ cup sweet potatoes 1 tsp. margarine	1 bread 1 fat
18.	Nopolitos (154 Calories)	½ cup cactus 1 tsp. onion 1 egg 1 tsp. fat	1 B-vegetable 1 meat 1 fat

APPENDIX: A (continued)

	Item	Constituents	Exchanges
19.	Avocado with Chili (45 Calories)	1/8 avocado Pinch chili powder	1 fat free
20.	Pork chops (277 Calories)	1 med. pork chop ¼ onion ¼ cup tomatoes ½ cup potatoes	2 meat ½ B-vegetable A-vegetable 1 bread 1 fat
21.	Asadura (liver) (272 Calories)	2 oz. liver ¼ cup tomatoes 1 tsp. onion 2 tsp. fat	2 meat 1 B-vegetable 2 fat
22.	Fried Tripe (191 Calories)	2 oz. cooked (½ cup) 1 tsp. fat	2 meat 1 fat
23.	Fried Intestines (281 Calories)	3 oz. cooked (¼ cup) (½ cup)	2 meat 3 fat
24.	Chorizos (456 Calories)	1 Chorizo (2 pork sausage link) 1 egg 1 corn tortilla ½ cup beans	2 meat 3 fat 1 meat ½ bread 1 bread
25.	Fried Chicken (236 Calories)	2 oz. chicken 2 tbs. tomatoes 2 tsp. onion 2 tsp. fat	2 meat A-vegetable 2 fat
26.	Sauce for fried eggs (45 Calories)	1 tbs. tomatoes 1 tsp. onion 1 tsp. fat	A-vegetable 1 fat
27.	Green Mexican Tomato (25 Calories)	2 tbs. tomatoes 1 tsp. fat 2 tsp. onion garlic	Free food (but fat must be kept at a minimum)
28.	Rice boiled with milk and sugar (207 Calories)	½ cup cooked rice ½ cup milk 1 tsp. sugar	1 bread ½ milk ½ fruit

(If artificial sweetener is used, fruit exchange can be omitted.)

APPENDIX: A (continued)

Item	Constituents	Exchanges
29. Atole de Harina (156 Calories)	4 tbs. flour 1½ tsp. sugar	2 bread ½ fruit
30. Calabaza (295 Calories)	2 oz. pork ⅛ cup calabaza ⅛ cup onion 1/3 cup corn ½ cup tomatoes garlic oregano cominoe	2 meat 1 B-vegetable 1 bread A-vegetable Free foods 1 fat

Taken from the University of Texas Nursing School (System-Wide) N. 661 Community Health Nursing.

APPENDIX: B

USE DAILY:

Milk Group

3 or more glasses milk - children
smaller glasses for some children under 8
4 or more glasses - teenagers
2 or more glasses - adults

Cheese, ice cream and other milk-made foods can supply part of the milk.

Meat Group

2 or more servings

Meats, fish, poultry, eggs, or cheese - with dry beans, peas, nuts as alternates.

Vegetables and Fruits

4 or more servings

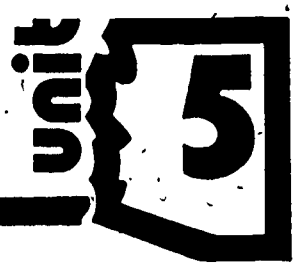
Include dark green or yellow vegetables; citrus fruit or tomatoes.

Breads and Cereals

4 or more servings

Enriched or whole grain. Added milk improves nutritional values.

Taken from National Dairy Council



TERMINOLOGY

The following is a list of terms and their definitions. These are the terms you should recognize and understand for the successful completion of Unit 5 of the Health Occupations Program. Directions for studying and using them are given in the modules of the unit.

ABSORPTION: Process whereby the usuable form of food, having completed the chemical phase, enters into the bloodstream.

ANTIVITAMINS: Substances that prevent normal use of a vitamin.

AVITAMINOSIS: Without vitamins or vitamin deficiency, may be due to dietary lack of a problem in absorption.

CALORIE: A measure of heat and a unit of food energy.

CARBOHYDRATES: Nutrient made up of sugars. It gives quick energy to the body.

CHEILOSIS: Deficiency disease due to lack of Vitamin B_2 - Riboflavin.

CHOLESTEROL: A fat-like substance that is present in many animal foods and that the body can also synthesize, was shown to be a major constituent of the other sclerotic plagues that form on the inside of some blood vessels.

COMPOUND: The end result after two or more elements get together. (They have fixed ratios.)

DIABETIC FOOD EXCHANGE: Groups foods into 5 groups. The allotted portion of each food in the group has the same calorie, carbohydrate, protein, and fat content as all other foods in the same group. It provides variety and flexibility for the diet of the diabetic.

DIGESTION: Process that gets food into an absorbable form. It has a mechanical and chemical phase.

ELEMENT: The smallest amount of any substance which has its own unique qualities. Oxygen and carbon are examples.

ENZYME: A protein substance that does a specific job while still retaining its original qualities.

TERMINOLOGY - concluded

EXCRETION:	Process whereby the body rids itself of wastes - perspiration, urine, and stools are examples.
FATS:	Nutrient made up of fatty acids and glycerol. It provides concentrated energy to the body.
HYPERVITAMINOSIS:	An excessive amount of vitamins taken in may cause toxic symptoms.
LIPOPROTEINEMIA:	Condition where triglycerides or complex fats are found in excess in the bloodstream.
MINERALS:	Nutrient composed of inorganic compounds present in foods. They regulate body processes and comprise 4% of the body weight.
NUTRITION:	The study of foods.
NUTRIENTS:	Chemical substances needed by the body and provided to it by the food it receives.
PELLAGRA:	Deficiency disease due to lack of Vitamin B_3 - Niacin.
PHOTOSYNTHESIS:	Complex process where sun energy via plant's chlorophyll converts into carbohydrates.
PROTOPLASM:	Basic structure of ALL cells.
PROTEIN:	Nutrient made up of amino acids. It builds and repairs body tissues.
SECRETION:	Process by which the body pours out useful substances - hormones and enzymes are examples.
SCURVY:	Deficiency disease due to lack of Vitamin C.
SYMBOL:	Letter abbreviation for an element. Examples are: O = Oxygen, H = Hydrogen.
RICKETS:	Deficiency disease due to lack of Vitamin D.
VITAMINS:	Nutrients composed of organic compounds. In the diet, they help to regulate metabolism.
WATER:	Nutrient that comprises 60-75% of the total body weight. It is located INTRACELLULARLY and EXTRACELLULARLY.

POST TEST

Module A

Unit 5

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. Nutrition is best defined as the study of:

   a. anabolism
   b. catabolism
   c. metabolism
   d. food

2. One of the three jobs done by food is:

   a. digestion of food by body tissues
   b. absorption of food by the body tissues
   c. assimilation of food by body tissues
   d. anabolism of food for buidling and repairing tissues

3. A second job done by foods is:

   a. making energy and providing body heat by anabolism
   b. making energy and providing body heat by catabolism
   c. providing body heat by mitosis
   d. making energy by means of the sun

4. A third job done by food is:

   a. digestion of food by body tissues
   b. regulation of body processes by providing the proper nutrients
   c. absorption of protoplasm
   d. secretion of hormones and enzymes

5. Chemical substances needed by the body are called:

   a. elements
   b. compounds
   c. nutrients
   d. symbols

6. The process whereby food is changed into an absorbable form is:

   a. nutrition
   b. digestion
   c. secretion
   d. absorption

POST TEST - continued

7. The process whereby food in a usable form enters the bloodstream is:

   a. nutrition
   b. digestion
   c. absorption
   d. secretion

8. The process whereby the body pours out useful substances is:

   a. nutrition
   b. digestion
   c. absorption
   d. secretion

9. The process whereby the body rids itself of water such as urine and perspiration is:

   a. secretion
   b. excretion
   c. absorption
   d. digestion

10. Metabolism is the word that describes:

    a. digestion of food by the body cells
    b. assimilation of food by the body cells
    c. all the processes done by the body cells
    d. building up of tissue in the body

11. The basic material of all cells is:

    a. cytoplasm
    b. protoplasm
    c. anabolism
    d. catabolism

12. Diet therapy provides treatment through the prescription of:

    a. medication
    b. specific diets
    c. liquid diets only
    d. none are correct

13. Food habits are characteristic attitudes and actions concerning food and are influenced by:

    a. food likes and dislikes
    b. religion and nationality
    c. availability of food and social environment
    d. all are correct

POST TEST - concluded

14. The term which defines how the sun's energy, water, and carbon dioxide combine with chlorophyll in plants to make carbohydrates is:

a. compound
b. element
c. photosynthesis
d. glycogensis

15. Food fads include:

a. hamburgers
b. yogurt and vegetarian foods
c. fast food restaurants
d. all are correct

ANSWERS TO POST TEST

Module A

Unit 5

1. d
2. d
3. b
4. b
5. c
6. b
7. c
8. d
9. b
10. c
11. b
12. b
13. d
14. c
15. d

POST TEST

Module B

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. The categorizing of foods into groups which are the basis for a good diet is called:

   a. the basic nutritional foods
   b. the basic three food groups
   c. the basic five food groups
   d. the American basic five

2. Which foods are included in the milk group?

   a. milk and eggs
   b. milk and milk products
   c. milk and meat
   d. milk and vegetables

3. Which foods are included in the meat group?

   a. meat and eggs
   b. meat and milk products
   c. meat and yogurt
   d. meat and vegetables

4. Which foods are included in the fruits and vegetables group?

   a. cheese and eggs
   b. beans and fruits
   c. nuts and vegetables
   d. carrots and oranges

5. Which foods are included in the bread and cereal group?

   a. meat and eggs
   b. milk and toast
   c. milk and cereal
   d. toast and "Wheaties"

6. How many daily servings are suggested for adults in the meat group?

   a. 1
   b. 2
   c. 3
   d. 4

POST TEST – concluded

7. How many daily servings are suggested for adults in the bread and cereal group and in the fruit and vegetable group?

   a. 1
   b. 2
   c. 3
   d. 4

8. To satisfy the adult daily requirement for the milk group, how many glasses of milk are suggested?

   a. 1
   b. 2
   c. 3
   d. 4

9. Which foods are included in the fats, sweets, alcohol group?

   a. margarine and butter
   b. coke and seven-up
   c. jelly and jam
   d. all are correct

10. How many daily servings are suggested for adults in the fats, sweets, alcohol group?

    a. 0
    b. 1
    c. 2
    d. 3

ANSWERS TO POST TEST

Module B

1. c
2. b
3. a
4. d
5. d
6. b
7. d
8. b
9. d
10. a

POST TEST

Module C1

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. The necessary elements needed by the body and which come from the food we eat are called:

   a. nutrients
   b. elements
   c. compounds
   d. symbols

2. The six basic nutrients can be identified as:

   a. oxygen, carbon, nitrogen, carbohydrates, protoplasm, and foods
   b. oxygen, carbon, carbon dioxide, fats, minerals, and hormones
   c. proteins, fats, carbohydrates, water, vitamins, and minerals
   d. proteins, fats, carbohydrates, water, vitamins, and hormones

3. Which nutrient has the job of providing quick energy:

   a. protein
   b. fat
   c. carbohydrate
   d. vitamin

4. Which nutrient stimulates the Islands of Langerhans of the pancreas to make insulin?

   a. protein
   b. fat
   c. carbohydrate
   d. vitamin

5. Which class of carbohydrates is also called single unit sugars?

   a. monosaccharides
   b. polysaccharides
   c. glycogen
   d. disaccharides

6. An example of a single unit sugar is:

   a. sucrose
   b. glycogen
   c. glucose
   d. maltose

POST TEST - continued

7. Which foods are the best source of carbohydrates?

   a. meats and milk
   b. sugars and fruits
   c. fruits and butter
   d. fat and cream

8. Too much carbohydrate in the diet can cause:

   a. kwashiorkor
   b. overweight
   c. underweight
   d. retardation

9. Too little carbohydrate in the diet can cause:

   a. kwashiorkor
   b. overweight
   c. underweight
   d. retardation

10. An example of a double sugar is:

    a. sucrose
    b. glucose
    c. glycogen
    d. fructose

11. An example of a polysaccharide or many sugars is:

    a. sucrose
    b. glucose
    c. glycogen
    d. fructose

12. Which nutrient is made up of amino acids and its main job is to build and repair tissue?

    a. protein
    b. carbohydrate
    c. fat
    d. vitamin

13. Which nutrient comprises the "building blocks" of every cell and gives four calories of energy for each one gram burned?

    a. fat
    b. mineral
    c. protein
    d. water

POST TEST - continued

14. Which class contains all of the essential amino acids which are needed to grow and to keep body weight stable?

    a. incomplete proteins
    b. complete proteins
    c. monosaccharides
    d. disaccharides

15. Examples of complete proteins are:

    a. gelatin and legumes
    b. nuts and cereal
    c. meat and milk
    d. fruits and vegetables

16. Examples of incomplete proteins are:

    a. gelatin and legumes
    b. steak and candy
    c. meat and milk
    d. cereals and vegetables

17. Which condition denotes a protein deficiency in children?

    a. overweight
    b. underweight
    c. kwashiorkor
    d. retardation

18. Which nutrient is a concentrated source of heat and energy?

    a. protein
    b. fat
    c. vitamin
    d. mineral

19. Which nutrient gives nine calories per gram burned?

    a. fat
    b. protein
    c. carbohydrates
    d. vitamin

20. When the fatty acids are solid at room temperature they are called:

    a. saturated fats
    b. polyunsaturated fats
    c. monounsaturated fats
    d. unsaturated fats

POST TEST - concluded

21. Fatty acids which are soft or liquid at room temperature are called:

a. saturated fats
b. unsaturated fats
c. liquid proteins
d. incomplete proteins

22. Fatty acids that help lower blood cholerterol levels are:

a. hydrogenated fats
b. saturated fats
c. disaccharide fats
d. polyunsaturated fats

23. Cholesterol is:

a. found in all body cells and fluids
b. produced by the liver
c. a necessary part of brain tissue
d. all are correct

24. Which foods are the best sources of fats:

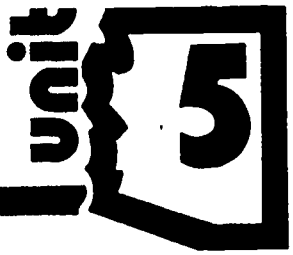
a. meats and milk
b. sugars and starches
c. butter and cream
d. fruits and vegetables

25. A condition which results from too many lipids in the blood is:

a. hydrogenation
b. hyperlipoproteinemia
c. kwasiorkor
d. pernicious anemia

ANSWERS TO POST TEST

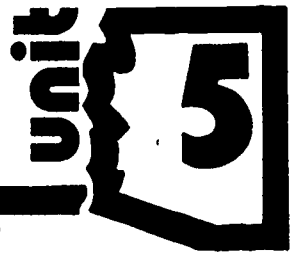
Module C1



1. a
2. c
3. c
4. c
5. a
6. c
7. b
8. b
9. c
10. a
11. c
12. a
13. c
14. b
15. c
16. a
17. c
18. b
19. a
20. a
21. b
22. d
23. d
24. c
25. b

POST TEST

Module C2



Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. Which nutrient makes up 60-75% of the body weight?

   a. fat
   b. vitamin
   c. protein
   d. water

2. Which nutrient carries other nutrients in solution, regulates body temperature, and carries body wastes?

   a. mineral
   b. vitamin
   c. water
   d. protein

3. Which food is the best source of water?

   a. meat
   b. butter
   c. fruit
   d. candy

4. A condition which can result from a lack of water is:

   a. perspiration
   b. edema
   c. dehydration
   d. diaphoresis

5. The term which best describes the retention of fluid in the tissue is:

   a. perspiration
   b. edema
   c. dehydration
   d. diaphoresis

6. Nutrients which maintain an acid base balance are:

   a. proteins
   b. vitamins
   c. carbohydrates
   d. minerals

POST TEST - continued

7. Nutrients which regulate vital life processes and comprise 4% of the body are:

   a. proteins
   b. water
   c. minerals
   d. vitamins

8. Iron is a mineral which is an essential component of hemoglobin. Good sources of iron are:

   a. spinach and peas
   b. fish and egg white
   c. carrots, turnips and beets
   d. egg white and cereals

9. A condition due to lack of iron is called:

   a. polycythemia
   b. anemia
   c. leukemia
   d. scurvy

10. Which is the mineral that is needed for blood clotting and whose best sources are milk and milk products?

   a. iron
   b. calcium
   c. iodine
   d. sodium

11. Which mineral works with calcium, prevents rickets, and whose best sources are milk and milk products?

   a. phosphorus
   b. iron
   c. iodine
   d. sodium

12. Which mineral is used by the thyroid gland and whose best food sources are iodized salts and seafoods?

   a. phosphorus
   b. calcium
   c. iodine
   d. iron

POST TEST - continued

13. Which of these three are salts and are called electrolytes?

    a. iron, calcium, and phosphorus
    b. iron, iodine, and calcium
    c. iron, iodine, and phosphorus
    d. sodium, potassium, and chloride

14. Which vitamin is fat soluble and one job it performs is to assist in good vision?

    a. Vitamin A
    b. Vitamin D
    c. Vitamin E
    d. Vitamin K

15. Liver, spinach, cantaloupe, and carrots are the best food sources for:

    a. Vitamin A
    b. Vitamin D
    c. Vitamin E
    d. Vitamin K

16. Which deficiency condition occurs when "Vitamin A" is lacking?

    a. beri-beri
    b. night blindness
    c. scurvy
    d. rickets

17. Which vitamin is fat soluble, helps harden bones and teeth, and has been called the "Sunshine Vitamin"?

    a. Vitamin A
    b. Vitamin D
    c. Vitamin E
    d. Vitamin K

18. Fortified milk, fish liver oil, and liver are the best food sources for:

    a. Vitamin A
    b. Vitamin D
    c. Vitamin E
    d. Vitamin K

19. Which deficiency condition occurs when "Vitamin D" is lacking?

    a. beri-beri
    b. pruritis
    c. scurvy
    d. rickets

POST TEST - continued

20. Which vitamin is fat soluble, and prevents the destruction of red blood cells, muscles and other tissues?

    a. Vitamin A
    b. Vitamin D
    c. Vitamin E
    d. Vitamin K

21. Which is a fat-soluble vitamin needed in the clotting of blood?

    a. Vitamin A
    b. Vitamin D
    c. Vitamin E
    d. Vitamin K

22. Which vitamin is lacking when hemorrhage can occur?

    a. Vitamin A
    b. Vitamin D
    c. Vitamin E
    d. Vitamin K

23. Which foods are the best sources for "Vitamin K"?

    a. fish, milk, and cereal
    b. vegetables, liver and eggs
    c. carrots, lettuce, and turnips
    d. chicken, cantaloupe, and apple

24. Which water-soluble vitamin is also known as thiamine and helps digestion?

    a. Vitamin B-1
    b. Vitamin B-2
    c. Vitamin B-6
    d. Vitamin B-12

25. Which foods are best sources for thiamine?

    a. fish, enriched bread and cereal, and pork
    b. liver, tomatoes, carrots, and lettuce
    c. cantaloupe, carrots, lettuce, and apples
    d. liver, tomatoes, apples, and carrots

26. Which foods are the best sources for Vitamin B-2?

    a. tomato, lettuce, and cabbage
    b. liver, eggs and cheese
    c. cantaloupe, carrots, and apples
    d. carrots, lettuce, and corn

POST TEST - continued

27. The properties of fat-soluble vitamins include:

a. soluble in water, develop deficiency symptoms rapidly
b. excreted in urine if excess
c. daily dietary supplement.
d. soluble in fats, develop symptoms slowly

28. The lack of which vitamin causes the deficiency condition pellagra?

a. thiamine
b. riboflavin
c. niacin
d. pyridoxine

29. Which vitamin deficiency causes skin problems?

a. thiamine
b. riboflavin
c. pyridoxine
d. niacin

30. Pyridoxine is also called:

a. Vitamin B-1
b. Vitamin B-2
c. Vitamin B-6
d. Vitamin B-12

31. The properties of water soluble vitamins include:

a. daily dietary supply needed, rapid deficiency symptoms develop
b. elements of carbon, hydrogen, and oxygen
c. storage of intake if in excess of daily need
d. excess not excreted in urine, nonsoluble in water

32. Which is the deficiency condition for Vitamin B-12?

a. beri-beri
b. pellagra
c. dermatitis
d. pernicious anemia

33. Which vitamin is water soluble, is needed to make gums and teeth strong, and helps heal wounds and burns?

a. Vitamin B-1
b. Vitamin B-2
c. Vitamin B-6
d. Vitamin C

POST TEST - concluded

34. The lack of which vitamin causes the deficiency condition scurvy?

a. Vitamin B-1
b. Vitamin B-6
c. Vitamin C
d. Vitamin B-12

35. Which foods are the best sources for Vitamin C?

a. meat, milk, and liver
b. oranges, grapefruits, and lemons
c. carrots, apples, and pears
d. pears, apples, and prunes

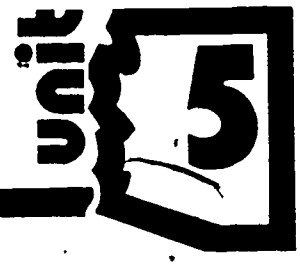
ANSWERS TO POST TEST

Module C2

1. d
2. c
3. c
4. c
5. b
6. d
7. c
8. a
9. b
10. b
11. a
12. c
13. d
14. a
15. a
16. b
17. b
18. b
19. d
20. c
21. d
22. d
23. b
24. a
25. a
26. b
27. d
28. c
29. c
30. c
31. a
32. d
33. d
34. c
35. b

POST TEST

Module D



Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. A diet which requires no restriction upon food choice is:

   a. liquid
   b. soft
   c. clear liquid
   d. general

2. A diet that includes clear broth, tea, and 7-Up is:

   a. full liquid
   b. clear liquid
   c. soft
   d. mechanical soft

3. A diet that includes milk, fruit juices, and ice cream is:

   a. full liquid
   b. clear liquid
   c. soft
   d. mechanical soft

4. A diet in which salt is omitted from the meal tray is:

   a. low cholesterol
   b. low sodium
   c. low protein
   d. low calorie

5. A diet that includes foods that are high in calories is:

   a. high colesterol
   b. high protein
   c. high residue
   d. high caloric

6. A diet which contains foods that are nonirritating to the gastrointestinal system is:

   a. bland
   b. high residue
   c. regular
   d. low caloric

POST TEST - continued

7. A diet which contains only very tender meats, vegetables, and fruits is:

   a. low fat
   b. soft
   c. regular
   d. liquid

8. A diet which is used by people who have no teeth or who have problems chewing is:

   a. low cholesterol
   b. low calorie
   c. low residue
   d. mechanical soft

9. A diet which limits the amount of butter, margarine, cream, and eggs is:

   a. low residue
   b. low protein
   c. low cholesterol
   d. low salt

10. A diet which includes milk formula, and liquid forms of meats and vegetables is:

    a. tube feeding
    b. high residue
    c. high protein
    d. high cholesterol

11. A diet required by a person who cannot secrete the hormone that carries glucose to the body cells is the:

    a. cholesterol diet
    b. sodium diet
    c. diabetic diet
    d. low protein diet

12. The specific purpose of the "Exchange Lists" is:

    a. to see that the patient sticks to caloric intake
    b. to provide necessary proteins and carbohydrates
    c. to provide variety in the diet
    d. none of the above

13. The diabetic diet is generally:

    a. high protein, low carbohydrate, and low fat
    b. high carbohydrate, low fat, and low protein
    c. low fat, high carbohydrate, and high protein
    d. low carbohydrate, low fat, and low protein

POST TEST - continued

14. In prescribing a diabetic diet, the physician will consider:

    a. present weight
    b. severity of disease
    c. age, physical activity, and medication
    d. all are correct

15. The diabetic must remember to:

    a. eat until he/she is full
    b. eat between meals
    c. skip breakfast every other day
    d. eat only those foods on the diet

16. The patient who has been diagnosed as having a liver or gallbladder condition would have the following diet:

    a. low caloric
    b. low sodium
    c. low fat
    d. low residue

17. The low cholesterol diet is usually ordered for the patient with the following condition:

    a. gastric ulcer
    b. ulcerative colitis
    c. arthrosclerotic heart disease
    d. liver and gallbladder disorders

18. A clear liquid diet may be given to the patient when:

    a. he/she has no teeth
    b. he/she returns from surgery
    c. he/she is a diabetic
    d. all are correct

19. Tube feeding is usually ordered for the individual who:

    a. is unconscious or has had a gastrectomy
    b. has just had surgery, previous to a soft diet
    c. is unable to metabolize the body sugar
    d. cannot eat a regular diet

20. A patient who has a disorder of the lower gastrointestinal tract such as ulcerative colitis is usually given a:

    a. low cholesterol diet
    b. low sodium diet
    c. low residue diet
    d. bland diet

POST TEST - concluded

21. A patient who has a gastric ulcer may have the following diet ordered:

    a. low residue
    b. low fat
    c. bland
    d. low fiber

22. The physician may order a low sodium diet when a patient has the following diagnosis:

    a. cardiac disease
    b. diabetes
    c. obesity
    d. colitis

23. A mechanical soft diet is ordered for:

    a. the geriatric diabetic
    b. the cardiac patient
    c. the patient with liver/bladder disorders
    d. the patient who does not have any teeth

24. A full liquid diet is ordered:

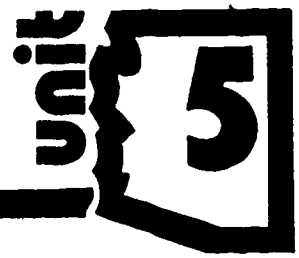
    a. immediately after surgery
    b. prior to a soft diet after surgery
    c. in all burn cases
    d. for a gastric ulcer

25. A low calorie diet is ordered for:

    a. fractured jaw
    b. dehydration
    c. malnutrition
    d. obesity

ANSWERS TO POST TEST

Module D



1. d
2. b
3. a
4. b
5. d
6. a
7. b
8. d
9. c
10. a
11. c
12. c
13. a
14. d
15. d
16. c
17. c
18. b
19. a
20. c
21. c
22. a
23. d
24. b
25. d

Unit 6 emphasizes the importance of cleanliness. Specific methods are studied to preserve medical and surgical asepsis. Bacterial names, diseases they cause, and the means by which bacteria are transmitted are examined.

ASEPSIS

Module A - General Principles of Asepsis
Module B - Specific Methods of Maintaining Medical and Surgical Asepsis
Module C - Infectious Process and Transmission of Disease Terminology
Post Tests: 1. Module A
2. Module B (Demonstration only)
3. Module C
Answer Sheets

When you have completed the Learning Activities and are ready for a test, or wish to challenge a test, please see your instructor.

Suggested References

1. Programmed Instruction in Asepsis. Arlington, Texas: Arbrook, Inc., 1969.

2. Seedor, Marie M. Introduction to Asepsis. 2d rev. ed. Teachers Gollege Press, Teachers College, Columbia University, 1970.

3. Trainex Corporation, Garden Grove, Calif. (audiovisual)

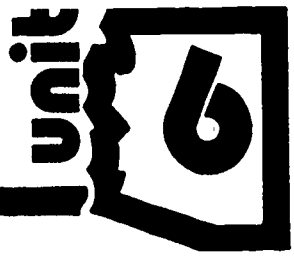
Isolation Technique

Sterile Technique and Dressing Change

Changing Sterile Dressings

ASEPSIS

Module A - General Principles of Asepsis



RATIONALE

Asepsis is the technique of preventing infections and removing germs. Some patients for whom you will be caring may have infections caused by germs. This module will explain this technique.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Identify the three general principles of asepsis.
2. Identify eight terms related to the practice of asepsis.

LEARNING ACTIVITIES

Directions: All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

ACTIVITY #1. Principles of Aspesis

Directions: Read the following material and complete the exercises.

The first general principle of asepsis states:

1. Sterile surfaces may touch only sterile surfaces. Sterile means complete and total absence of all bacteria including both good and bad bacteria.

   Normally, the skin provides a natural protection against germs or bacteria. During surgery this protection is broken and the patient has an added chance of contracting an infection.

   As the nurse or doctor changes dressings in a health care facility, sterile supplies are handled so that only the untouched or the absolutely sterile dressing is applied to the incision site. This is to prevent any kind of germs, even harmless ones, from entering the wound.

   The following questions pertain to the first principle of asepsis.

LEARNING ACTIVITIES - continued

Directions: Circle the correct word in the following statements. Answers can be found on page 5 of this module.

A. Sterile surfaces touch only (sterile, non-sterile) surfaces.

B. Sterile means a (complete, partial) absence of all bacteria.

C. Some bacteria are good and some are bad. In a sterile field you find (some, none) of these bacteria?

REMEMBER: Sterile surfaces touch only sterile surfaces!!!!!!!!

The second general principle of asepsis states:

2. Clean surfaces touch only clean surfaces.

Clean means to be free from dirt, contamination or disease. Nonetheless, clean surfaces do have normal bacteria on them. This explains the difference between clean surfaces and sterile surfaces. Sterile surfaces contain no bacteria on them. Clean supplies, although washed and presumed to be free of disease-causing germs, still contain normal germs.

Utility rooms in health care facilities are divided into two sides. One side, the clean side, contains all the supplies and equipment which have had no patient contact. These supplies are held on this side for delivery to the patient area. The second side, the dirty side, handles all supplies that have been used and are ready to be returned to central service for recleaning.

The following questions pertain to the second principle of asepsis.

Directions: Circle the correct answer to each of the following questions. Answers can be found on page 5 of this module.

A. Clean means to be free from dirt and disease.

YES NO

B. Clean surfaces have sterile surfaces.

YES NO

C. Clean supplies have dirt and disease-causing germs on them.

YES NO

D. The dirty side of the utility room can have clean supplies too.

YES NO

REMEMBER: Clean surfaces touch only clean surfaces!!!!!!!!

LEARNING ACTIVITIES - continued

The third general principle of asepsis states:

3. Contaminated surfaces touch only contaminated surfaces.

Contaminated means germs and/or infection are present. In other words, a contaminated object or person has come into contact with bacteria. Contaminate is the opposite of sterile. Sterile dressings can be contaminated by the normal bacteria on supposedly clean hands.

Directions: Circle the correct response to the following statements. Answers can be found on page 5 of this module.

A. Contaminated surfaces touch only contaminated surfaces.

YES NO

B. Contaminated is the same as sterile.

YES NO

C. If a clean hand touches a sterile dressing, the dressing is still sterile.

YES NO

REMEMBER: Contaminated surfaces touch only contaminated surfaces!!!!!!!

Directions: The following statements relate to all three principles of asepsis. Fill in the blanks correctly. Answers can be found on page 5 of this module.

A. Sterile surfaces touch only _____ surfaces.

B. Clean surfaces touch only _____ surfaces.

C. Contaminated surfaces touch only _____ surfaces.

ACTIVITY #2. Terminology

Directions: Read the following material and complete the exercise. The eight terms related to the practice of aspesis are as follows:

1. Antisepsis - Antisepsis is the process of using a chemical agent, such as alcohol, on the skin to stop the growth of or kill bacteria. Stopping the growth of bacteria is called Bacteriostasis. Killing bacteria is called Bacteriocide.

2. Disinfection - Disinfection is the process of stopping bacterial growth by using a chemical agent, such as staphene, on floors and equipment. It may or may not kill the bacteria.

3. Concurrent Disinfection - Concurrent disinfection is the process of using chemical agents to disinfect materials while a disease is still in progress. Examples are using Cidex soak for IPPB equipment or Microbac for beds and tables.

LEARNING ACTIVITIES - concluded

4. Terminal Disinfection - Terminal disinfection is the process of using chemical agents to disinfect the environment after a disease has run its course. For example, scrubbing walls and floors with disinfectant or sterilizing equipment.

5. Chemical Agent - A chemical agent is a chemical compound used in the correct solution strength to either kill bacteria (Bacteriocide) or stop bacterial growth (Bacteriostasis). Two examples of chemical agents are Detergicide and Cidex.

6. Physical Agent - A physical agent is a nonchemical agent that affects the growth of or kills bacteria. Sunlight, heat, temperature, moisture and pressure are examples of physical agents.

7. Sterilization - Sterilization is the process of destroying all bacteria.

   Example: Hot sterilization is a process whereby supplies are washed and wrapped and put into an oven-like machine called an autoclave and subjected to intense heat for a specified period of time (250 degrees for 20 minutes).

   Example: Cold sterilization is a process whereby very delicate instruments, capable of falling apart in heat, are washed and put into a container of germicide of correct strength for a specified length of time.

   Example: Gas sterilization is a process whereby Ethylene Gas is used on equipment that cannot be steamed, such as plastic, at 140 degrees for one hour.

8. Autoclave - An autoclave is an oven-like machine used for sterilization by steam pressure, usually at 250 degrees, for a specified length of time.

Directions: Match the following terms in the right-hand column with their correct definitions in the left-hand column. Check your answers with the information you have read in this module.

_____	1.	Process used on floors.	A.	Antisepsis
_____	2.	Used while disease is still in progress.	B.	Disinfection
_____	3.	Process whereby all bacteria are destroyed.	C.	Concurrent disinfection
_____	4.	Sunlight, heat, pressure, moisture	D.	Terminal disinfection
_____	5.	In solution that is bacteriostatic and may be bacteriocidal.	E.	Chemical agent
_____	6.	Oven-like machine that sterilizes.	F.	Physical agent
_____	7.	Done after disease has run its course.	G.	Sterilization
_____	8.	Process used on skin.	H.	Autoclave

ANSWERS

ACTIVITY #1

First principle of asepsis

A. sterile

B. complete

C. none

Second principle of asepsis

A. YES

B. NO

C. NO

D. NO

Third principle of asepsis

A. YES

B. NO

C. NO

A. sterile

B. clean

C. contaminated

ASEPSIS

Module B - Scientific Methods of Maintaining Medical and Surgical Asepsis

UNIT 6

RATIONALE

As a health worker, you will take care of patients who have communicable diseases. Before you can do this safely, you will need to acquire some skills in medical and surgical asepsis. This module will explain the necessary skills.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Demonstrate the following methods of practicing medical asepsis:

   A. Handwashing: General - for all nursing care
   Specific - in isolation or protective care

   B. Isolation: Putting on gown for isolation
   Gowning out of isolation
   Double bagging out of isolation
   Reverse isolation

2. Demonstrate the following methods of practicing surgical asepsis:

   A. Putting on sterile gloves

   B. Opening sterile supplies

   C. Changing sterile dressings

LEARNING ACTIVITIES

Directions: All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

ACTIVITY #1. Medical Asepsis

Directions: Read the following material and complete the exercises.

The definition for medical asepsis states:

> Medical asepsis is a method used to prevent the spread of communicable disease. This means that a person with a communicable disease and his/her immediate surrounding is confined to a limited area.

LEARNING ACTIVITIES - continued

Try to write your own understanding of this definition.

_____

_____

_____

Now, fill in the blanks to give the definition of medical asepsis stated above.

Medical asepsis is defined as a _____ used to prevent the spread of a _____ disease.

Handwashing

Steps in Handwashing

Directions: Read the following material and complete the exercise.

Handwashing is a way of maintaining Medical Asepsis. Form a habit of washing your hands before and after caring for each patient and after performing such tasks as handling soiled dressings, bedpans, etc. The steps you are about to read apply to handwashing, generally. An asterisk (*) before a step denotes special precautions to take when caring for patients in ISOLATION or PROTECTIVE CARE.

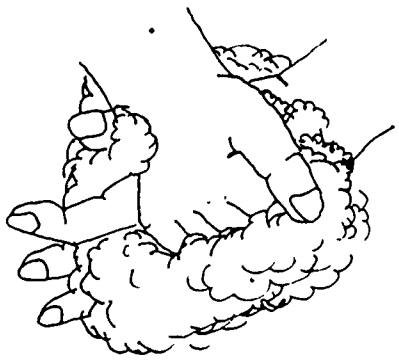
Steps in Handwashing	Key Points
1. Turn on water, adjusting temperature. Leave water running throughout the entire procedure.	1. Do not touch the sink or faucets once you start, as they are considered very dirty.
2. Wet your hands and wrists under running water.	2. Wet promotes lather.
3. Apply soap or detergent and rub all over hands for one full minute. Be sure to include under fingernails.	3. Handwashing is the BEST way to prevent cross-infection. Rubbing promotes friction.
4. Rinse carefully with hands held lower than the arms.	4. Keep fingertips down so bacteria will run off the fingertips into the sink.
5. Dry each wrist and hand with a different paper towel. Dry from wrist towards the fingertips.	5. Work from clean area (the wrist) to dirty area (the fingertips).

LEARNING ACTIVITIES - continued

*6.	Turn off each faucet handle with a different paper towel and discard it.	6.	Avoid contaminating the faucet handles for the next person washing their hands.
*7.	Wash hands again after you leave the isolation area.	7.	Take extra precaution not to carry any germs to your next patient.

NOTE: *These steps are done in isolation or protective care situations only.

ILLUSTRATION ON HANDWASHING



Hands are kept lower than arms because arms are not soiled; the hands are. Water flows downhill; therefore, the inside of the sink is considered contaminated.

Go over any questions with your instructor. Reread the material if necessary. Then, go to a sink and practice the Steps in Handwashing. After you have practiced washing, demonstrate each step to your instructor. Be prepared also to answer questions about the key points.

Isolation

General Information

Directions: Read the following information on isolation. It will provide an overview and background on the topic.

Isolation or Protective Care is a way of practicing Medical Asepsis by using special precautions in caring for people with communicable, infectious, or "catchy" diseases.

Some "catchy" diseases, such as the common cold, are not serious enough to require putting a person in an Isolation Unit. Communicable diseases which are dangerous to other humans, such as tuberculosis, require that the patient be placed in isolation.

LEARNING ACTIVITIES - continued

Isolation is the means used to restrict contamination from a communicable disease. Communicable diseases may be spread by direct or indirect contact with other patients, personnel and visitors.

Helpful Hints for Isolation or Protective Care

Before entering the isolation unit, always gather all of the linen and equipment that you will need.

When you have given the patient complete care and are ready to begin ungowning, always ask the patient if there is anything else he or she needs. BE ORGANIZED!!! Make sure that everything is complete before you leave the unit.

How Diseases are Transmitted

Direct Contact - implies that the contamination is passed on directly by the sick person to another person.

For example: In a person-to-person disease such as tuberculosis, Person "X" has T.B. and sneezes. Person "Y" is in line of fire as "X" sneezes. Later, "Y" comes down with the same disease, tuberculosis.

Veneral disease is passed directly by sexual intercourse.

Indirect Contact - implies that the contamination is passed on via a healthy person who uses an object that has been contaminated by the infected person.

For example: Person "X" has hepatitis. "X" drinks from a glass of soda. Person "Y" comes in and drinks from the same glass and later comes down with hepatitis.

How to Avoid Contamination by Direct and Indirect Contact

1. USE OF MASK IN ISOLATION - The mask is used in caring for patients with respiratory or breathing diseases. It helps to protect you from germs coughed or sneezed into the air. This mask must be changed once it becomes moist. Hands must be washed before removing the mask.

2. USE OF GLOVES IN ISOLATION - Gloves are worn when changing dressings or handling contaminated excretions or secretions (such as hepatitis contaminated feces). Do not let stools or urine splash when being emptied. The gloves will protect you from getting infectious germs on open cuts on your skin and from passing these germs on to another person.

3. ARTICLES USED IN ISOLATION AREA - Articles used in isolation are disposable. If nondisposables are used, they must be washed, disinfected, and double bagged BEFORE LEAVING THE PATIENT'S AREA. They must then be sterilized before they can be washed and recycled for general use. Double bagging refers to the procedure of putting all nondisposable supplies into one bag inside the isolation room and then putting them into another clean bag that is sitting outside the isolation room. In this way, any person handling the bag outside of

LEARNING ACTIVITIES - continued

the room will only touch a clean surface. Double bagging is explained in greater detail later in this module.

View the filmstrip and listen to the record, Isolation Technique by Trainex, (if it is available).

Gowning for Isolation

Directions: Read the following information paying close attention to each step and to the key points. If you feel it is necessary, ask your instructor to demonstrate the procedure for you as you read the material.

Steps in Putting on Gown for Isolation	Key Points
1. Take off watch and rings.	1. Watches and rings are usually not worn in isolation as they can be sources of cross infection.
2. Get clean gown.	2. Gown is worn to protect your clothing when in direct contact with a patient and/or to protect patient from you. Example: Turning the patient before giving an injection.
3. Put gown on with the opening to your back.	
4. Tie neck strings.	
5. Tie waist strings.	
6. Check to be sure your uniform is completely covered!	6. Gown is worn to protect you!!

If any of the above material is unclear, check with your instructor.

Do you remember the main steps? The key points? Now, demonstrate gowning (step by step) for your instructor. Practice again if necessary.

LEARNING ACTIVITIES - continued

Gowning Out of Isolation

Directions: Read the following information paying close attention to each step and to the key points. If you feel it is necessary, ask your instructor to demonstrate the procedure as you read the material.

Steps for Gowning Out of Isolation	Key Points
1. Untie waist strings.	1. Waist strings are considered the dirtiest part of the gown. REMEMBER: "Dirty things can touch dirty things."
2. Cross arms at wrist and work sleeves upward.	2. Keep sleeves from getting wet.
3. Wash your hands.	3. Keep fingertips down.
4. Untie neck strings.	4. Hands have now been washed and are considered clean, but you are still in a dirty area. Neck strings are the cleanest part of the gown.
5. Grasp neck string and pull downward.	5. Gown will slide down and off.
6. Turn gown inside out.	6. Be careful that the dirty outside of the gown does not touch you or your clothes.
7. Roll the gown in bundle shape.	7. Keep at arms length.
8. Drop bundle into linen hamper.	
9. Wash hands before leaving room.	

Go over all of the above material carefully. When you are ready, demonstrate gowning out for your instructor. If you have mastered all of the steps, you are ready to move on!!

LEARNING ACTIVITIES - continued

Double Bagging Out of Isolation

Directions: Read the following information paying close attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

Double Bagging Out of Isolation	Key Points
1. Get another person to help you.	1. One of you is designated the clean person. The other one is designated the dirty person.
2. Get two bags and one gown and find an isolated or contaminated area.	2. You may use a "mock area". Outside a doorway is a clean area; inside is a contaminated area.
3. Clean person goes outside of the isolated or contaminated area.	3. Stand outside the door at the threshold.
4. Dirty person wearing gown stays inside of the isolated area.	4. Stand inside of door.
5. Clean person holds large bag open with hands hidden and protected inside of a 6" or 8" wide cuff (made by folding the edges of the bag back).	5. Do not let hands touch the dirty supplies or the "dirty person" that is handling them.
6. Dirty person picks up dirty bag containing supplies or linen.	
7. Move toward clean person.	
8. Insert dirty bag inside the clean bag.	8. Be careful to touch only the inside of the bag.
9. Clean person unrolls cuff and folds down the edges.	9. Be careful not to touch any part of the contents inside.
10. Get ISOLATION label and put on the outside of the bag.	
11. Place marked bag in properly designated area.	

Practice each step carefully. Demonstrate the steps to your instructor as soon as you feel you are ready.

LEARNING ACTIVITIES - continued

Reverse Isolation

Directions: Read the following information and complete the exercise. After completing this activity, you will be asked to explain Reverse Isolation to your instructor.

In reverse isolation, you are protecting the patient from your bacteria. Therefore, you must wear a clean or sterile gown, gloves, and a mask each time you enter the room. If you have to leave the room, you must ungown, making sure that the dirty gown is not left inside the room.

Reverse isolation is very important for patients who have a greatly reduced resistance to disease. Taking chemotherapy for cancer treatment or diseases such as leukemia, reduce the body's ability to fight infections. Even a slight cold or infection for such patients may be life-threatening.

Reverse isolation is also often required in caring for patients with burns.

Directions: Complete the following exercise. The answers can be found in the material you have read in Activity #1 of this module.

Can you name the three conditions that would require you to use Reverse Isolation? List them.

1. _____

2. _____

3. _____

Now, make sure that you really understand the process by explaining reverse isolation to your instructor.

ACTIVITY #2. Surgical Asepsis

Directions: Read the following material and complete the exercise.

Surgical asepsis is defined as a method of using sterile equipment and sterile supplies when entering the sterile "interior" of the body.

Sterile is a word used to describe the condition of being absolutely free from any and all microorganisms. Sterile equipment and supplies have been made totally free from any and all microorganisms.

Microorganisms are sometimes called bacteria or germs. So, sterile means to be free of bacteria or germs.

LEARNING ACTIVITIES - continued

Directions: Complete the following exercise. If you make any mistakes, go over the material again.

Try to write your own understanding of the definition of sterile.

_____

_____

_____

Now, fill in the blanks for the definition of surgical asepsis. The answers can be found in the material you have studied in this module.

Surgical Asepsis is defined as a method of using _____ equipment and _____ supplies when entering the "_____" interior or inside of the body.

If you made any mistakes, go over the material again.

Putting On Sterile Gloves

Directions: Read the following information paying close attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

Sterile gloves are generally used when:

1. A patient has an incision
2. Patient care requires sterile procedures: for instance, catheterization, biopsy, or entering a sterile cavity of the body (e.g., the urinary bladder).

REMEMBER: There is no such thing as partly sterile. Gloves are either sterile or they are nonsterile.

An important procedure in surgical asepsis is putting on sterile gloves. View the Trainex film on Sterile Technique and Dressing Change which demonstrates the proper method for putting on sterile gloves.

Also, read carefully the following step-by-step description of the procedure for putting on sterile gloves.

Steps for Putting on Sterile Gloves	Key Points
1. Wash and dry your hands.	
2. Place glove wrapper on table or work surface and open it.	2. Do not touch the inside of the wrapper. A sterile area (such as the inside of the wrapper) becomes contaminated when touched by unsterile objects (such as your bare hands).

LEARNING ACTIVITIES - continued

Steps for Putting on Sterile Gloves	Key Points
3. Pick up the first glove carefully by the folded edge of the cuff, and remove it from the wrapper.	3. Touch only the cuff of the glove. Do not touch any part of the paper. This is the sterile field.
4. Put on glove:	
a. Hold glove by folded edge of cuff with thumb and first fingers. Position the other hand ready to receive glove.	
b. Touching only the cuff, pull well over the wrist. (Keep hands out in front of you and away from the uniform.)	4. b. Sterile objects that are out of sight may touch unsterile objects accidentally.
c. Leave the cuff of the glove as it is.	4. c. Do not be concerned if fingers do not fit properly in glove. Wait until second glove is on before adjusting the gloves and turning back the cuffs.
5. Remove second glove from wrapper. Slip the fingers of gloved hand under the cuff of the second glove, and pick it up off sterile field.	
6. Still holding gloved fingers under cuff, pull glove on other hand. Do not allow gloved fingers to touch bare hand or wrist. Hold gloved hands thumbs up and away from wrists.	6. REMEMBER: Sterile surfaces can only touch sterile surfaces.
7. Make adjustments to fit fingers comfortably in glove fingers. Do not allow anything to touch your gloved hands.	

Ask your instructor any questions you may have about the procedure. Then, get a package of sterile gloves from your instructor, open the package, and practice the procedure. You will probably make mistakes at first. Just keep practicing.

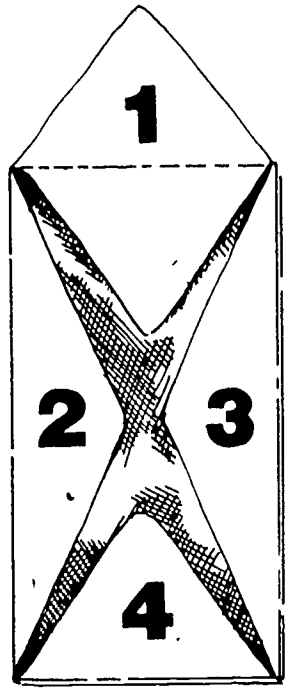
When you feel you have mastered the procedure, demonstrate to your instructor the proper method for putting on sterile gloves. Also, be prepared to answer questions about the key points.

LEARNING ACTIVITIES - continued

Opening Sterile Supplies

Directions: Read the following information paying close attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

Steps to Opening Sterile Supplies	Key Points
1. Get a sterile package from your instructor.	1. Sterile packages are dated, labeled, free from holes, and usually have double thickness for wrappers. A TORN PACKAGE IS NOT STERILE.
2. Place the package on the table with the top facing you.	
3. Remove the label.	
4. Grasp Tab 1 and pull out. Lay tab down away from you.	4. Touch outside of the wrapper only. REMEMBER: INSIDE IS STERILE.
5. At this point, your package should look like an envelope that has the flap opened.	5. SEE ILLUSTRATION
6. Grasp Tab 2 and 3, pulling to opposite sides.	
7. Grasp the final Tab 4 and lay it flat.	
8. Does your package look like an envelope that has come apart at the seams?	
9. Practice the steps again.	
10. A word to the wise. Many of the sterile supplies are prepackaged by machine and; therefore, all the edges are sealed except the one edge that is marked, "Tear Here".	
This type of package is opened by grasping both edges at the "Tear Here Point" and pulling down. It is similar to holding a banana straight up and pulling the skin off each side at the same time. Do not touch the "banana"	



LEARNING ACTIVITIES - continued

Steps to Opening Sterile Supplies	Key Points
itself - only the peel! As you get the entire "banana unpeeled", carefully hold one side of the skin up and let the "banana" gently down! NOT BAD!!	

After you have practiced each step and feel that you can open sterile packages correctly, demonstrate the procedure to your instructor.

Changing Sterile Dressings

Directions: View the Trainex presentation on Changing Sterile Dressings. Then read the following information, paying attention to each step and to the key points. If necessary, ask your instructor to demonstrate the procedure as you read the material.

Sterile dressings are used to protect an incision or a cut on the skin from contamination or infection. Since the skin is the natural protective covering or barrier for the body, any cut or incision is an invasion into this protection; therefore, all cuts and/or incisions are possible sites for infection.

It is, therefore, very important to change dressings correctly so as to keep the wound free from infection.

Fresh dressings are usually reinforced as needed.

Steps in Changing Sterile Dressings	Key Points
1. Get all supplies that will be necessary.	
2. Take to "patient" area.	
3. Wash your hands before going to the next step.	
4. Open sterile supplies using proper procedure.	
5. Remove soiled dressing and dispose of it in a paper or plastic bag already opened near your work area.	5. Do so carefully and look for drains and any attached tubes.
6. Remove any drainage by using sterile forceps and antiseptic wipes.	6. Wipe from the incision AWAY to the outside and discard the antiseptic wipes into a paper or plastic bag. NEVER VICE VERSA!

LEARNING ACTIVITIES - concluded

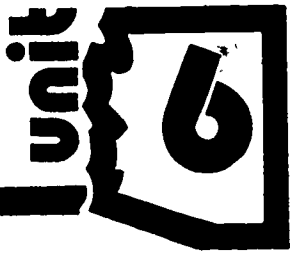
Steps in Changing Sterile Dressings	Key Points
7. Pick up sterile dressing from your opened pack using forceps.	7. Place gently and directly on incision site. NEVER TOUCH INCISION SITE WITH BARE HAND.
8. Add enough dressings to cover entire incision.	
9. Apply tape. Do not stretch the tape as tape can blister the skin.	
10. Gather the used supplies.	
11. Discard plastic bag with soiled dressings in specified container.	
12. Wash hands.	
13. Report or chart dressing change.	

Ask your instructor any questions you may have about the procedure. Then get a package of sterile dressings from your instructor, open the package, and practice the procedure.

When you feel you have mastered the procedure, demonstrate to your instructor the proper method for changing sterile dressings. Also, be prepared to answer questions about the key points.

ASEPSIS

Module C - Infectious Process and Transmission of Disease



RATIONALE

As a health worker, you will need to understand how bacteria or microbes can be harmful or helpful to our bodies. If you understand the differences between different kinds of bacteria, you will be able to protect yourself and your patients effectively.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

1. Identify the infectious process by:
   a. Identifying the following terms: Pathogenic, Nonpathogenic, Normal Flora, Microbiology.
   b. Identifying the major groups of microorganisms that cause disease.
   c. Identifying the factors that determine the severity of an infection.
2. Identify Portals of Entry, Portals of Exit, and the four major routes of the spread of infection.
3. Identify methods used to identify microbes.

LEARNING ACTIVITIES

Directions: All the information you need to complete this module successfully is included in the learning activities. The written activities are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. Always go to your instructor if you have any questions.

ACTIVITY #1. The Infectious Process

Directions: Read the following material and complete the exercises.

The course of human history has been greatly affected by infectious diseases such as Small Pox, Measles, Influenza, Typhoid Fever, Plague, Dysentery and Cholera. Infectious diseases were a major cause of death in the United States early in the century. Ask your grandparents for the cause of death of their parents, aunts and uncles.

As a health worker, you need to understand how microorganisms or microbes can be helpful or harmful to our bodies. Infectious diseases persist. Infectious diseases can be prevented and can be cured!

LEARNING ACTIVITIES - continued

Terms

Microbiology is the study of a nearly invisible living world of microorganisms or microbes. This invisible-living world of microbes is so small it can only be studied under a microscope. These microbes are living cells and are called normal flora.

There are millions of microbes all around us and in us. Some of these microbes are capable of producing disease. These are called pathogenic microbes. The microbes that do not cause disease are called nonpathogenic microbes.

Disease Producing Microbes

The majority of all human disease are produced by the following groups of microbes.

1. virus
2. rickettsia
3. bacteria
4. fungus
5. protozoa
6. parasites or worms

We will look at each of these microbes in more detail later in this module.

Research discovers new specific microbes every day. Remember the recent outbreak of Legionnaire's Disease? This type of pneumonia was caused by a new bacteria that was named for the disease.

Factors of Infection

Whether an infection takes place and how severe that infection may be depends on the following three factors.

1. The virulence or strength of the infecting microbe and its ability to invade the body.
2. The number of microbes entering the body.
3. The body's ability to fight off the invading microbes. (This is called natural immunity.)

Natural immunity can be affected by many things such as poor diet, inadequate sleep, stress, age, other diseases, and the surrounding environment. All of these affect our ability to fight disease.

Directions: Fill in the blanks correctly. Answers can be found on page 6 of this module.

1. Microbiology is the study of _____

_____

LEARNING ACTIVITIES - continued

2. Name the major groups of microbes that can cause disease.

   a. _____ b. _____

   c. _____ d. _____

   e. _____ f. _____

3. Define in your own words:

   Pathogenic: _____

   Nonpathogenic: _____

   Normal Flora: _____

4. What are the factors that determine whether an infection takes place?

   a. _____

   b. _____

   c. _____

ACTIVITY #2. Portals of Entry and Exit and the Routes of Disease Transmission

Directions: Read the following information and complete the exercises.

Microbes enter our body through portals (passages) of entry. Microbes leave our body through portals (passages) of exit. Microbes might be airborne and enter through the nose and mouth of our respiratory system and leave the same way. Microbes might be in our food or water (enteric) and enter through our mouth and leave through our rectum (anus). Another microbe might be carried by an insect and enter our body through a bite in the skin. Another insect may bite the skin of the infected person and become a new carrier of disease. We might be in direct contact with microbes that can enter our body through our nose and rectum (the openings to the gastrointestinal tract) or through our vaginal and urinary openings (the entries to the genitourinary tract). Don't forget our eyes are a portal of entry.

Our body does have natural barriers or defenses against disease. Some of these include our skin, the hairs in our nose, our mucous membrane lining and enzymes in our gastrointestinal tract.

Now you can understand how microbes enter and exit our body. This helps you to understand how microbes are transmitted or transferred from one person to another. We must understand this to control or to stop the spread of infection and disease.

LEARNING ACTIVITIES - continued

Directions: Fill in the blanks correctly. Answers can be found on page 6 of this module.

1. Portals of entry are _____.
2. Portals of exit are _____.
3. Portals of entry and portals of exit include:
   a. _____
   b. _____
   c. _____
   d. _____
   e. _____
4. Name four major routes of the spread of infection:
   a. _____
   b. _____
   c. _____
   d. _____

ACTIVITY #3. Groups of Microbes

Directions: Read the following information.

There are different ways to identify microbes. They can be identified by their shape; for example, bacteria can be in the shape of a rod, a spiral, or a round form. Microbes also can be identified by the stain color they take up in the microscopic exam. Gram-positive bacteria are purple, while Gram-negative bacteria are red.

Microbes need specific conditions to grow and to multiply. The conditions in which microbes grow best include:

1. Darkness
2. Body temperature
   a. too high a temperature destroys microbes
   b. too low a temperature inhibits microbes
3. Moisture
4. Oxygen - not all microbes require oxygen.

LEARNING ACTIVITIES - concluded

Here is a simple summary of the major groups of disease-producing microbes.

1. Virus: Minute microorganism, smaller than bacteria that can pass through most filters. Virus requires living cells for growth. Some examples of diseases produced by virus include: measles, mumps, chicken pox, polio, common cold and hepatitis.

2. Rickettsia: Group of microorganisms which occupy a position between viruses and bacteria in their characteristics. They are transmitted by arthropods (lice, fleas, ticks, mites). Some examples of diseases produced by rickettsia are Rickettsialpox, Rocky Mountain Spotted Fever.

3. Bacteria: One cell, plant-like microorganisms that lack chlorophyll (green coloring) and come in many shapes and groupings. Certain bacteria have the ability to develop a capsule and go into a resting stage. This is called a spore. Spores are resistant to heat, drying, and the action of disinfectants. Some examples of bacteria and the diseases they cause include: S pneumonia causes pneumonia; tubercle bacillum causes Tuberculosis; B streptococci causes Strep throat infections; Staphylococci (a virus) causes many boils and wound infections, E. coli, Salmonella and Shigella cause inflammation of intestines (enteritis).

4. Fungus: A plant-like microorganism that lives on organic matter. Examples of diseases caused by a fungus are: Athletes Foot and Coccidioidmycosis (Valley Fever).

5. Protozoa: Simple, one cell animal microorganism. Examples of diseases caused by protozoa are: Malaria, Toxoplasmosis and Trichomoniasis.

6. Parasite or worm: An organism that gets food from a living plant, human, or animal host. Does not necessarily cause disease. Examples of conditions they cause are: Pinworms, Roundworms, and Tapeworms.

What you have just read is a very simple presentation of the infectious process. For example, there are 90 separate viruses which cause the common cold.

ANSWERS

ACTIVITY #1

1. Invisible living world of microbes

2. a. virus
   b. rickettsia
   c. bacteria
   d. fungus
   e. protozoa
   f. parasites or worms

3. a. Microbes that are capable of producing disease
   b. Microbes that do not cause disease
   c. Microbes that are always around us and in us

4. a. The virulence or strength of microbe
   b. The number of microbes invading the body
   c. The ability (natural immunity) to fight disease

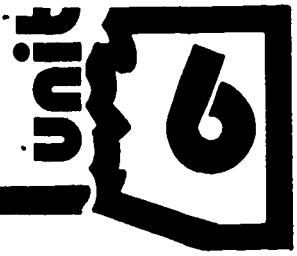
ACTIVITY #2

1. passages through which microbes enter the body

2. passages through which microbes leave our body

3. a. cuts in skin
   b. respiratory tract
   c. gastrointestinal tract
   d. genitourinary tract
   e. eyes

4. a. airborne (respiratory)
   b. food and waterborne (enteric)
   c. insect (arthropod)
   d. direct contact



TERMINOLOGY

The following is a list of terms and their definitions. These are the terms you should recognize and understand for the successful completion of Unit 6 of the Health Occupations Program. Directions for studying and using them are given in the modules of the unit.

ANTISEPSIS:	Process whereby chemicals are used on the skin for bacteriostatic and germicidal purposes.
ASEPSIS:	To be free from germs and infection.
ASEPSIS (medical):	A method used to prevent the spread of a communicable disease. Handwashing and isolation are examples.
ASEPSIS (surgical):	A method using sterile equipment and sterile supplies when entering the "sterile" interior of the body.
AUTOCLAVE:	An oven-like machine, using steam under pressure, in which supplies are subjected to intense heat for a specified period of time. It is also called a sterilizer.
BACILLUS:	Bacteria that is rod-shaped.
BACTERIA:	Used in this unit to mean the same as germs, microbes, and/or microorganisms.
CHEMICAL AGENT:	A chemical added to a solution in the correct dose which will kill bacteria or at least stop its growth.
COCCUS:	Bacteria that is round-shaped.
DISINFECTION:	Process whereby chemicals are used on floors and equipment for bacteriostatic and germicidal purposes.
DISINFECTION (concurrent):	Process used while disease is still in progress.
DISINFECTION (terminal):	Process used when disease has ended.
FUNGUS:	Simple plants lacking chlorophyll. Bread mold is an example.
MICROBIOLOGY:	The study of microorganisms.

TERMINOLOGY - concluded

PATHOGENIC:	Disease-causing or disease producing.
PHYSICIAL AGENTS:	Nonchemical agents that will affect the growth of bacteria or destroy it. Examples of nonchemical agents are sunlight, temperature, heat, moisture, and pressure.
SPIROCHETE:	Corkscrew-shaped microorganisms.
SPORE:	Microorganisms that are in a restive, protective shell.
STAPHLOCOCCUS:	Grape-like cluster organism which causes pimples and boils.
STERILIZATION:	Process whereby all bacteria are killed.
STREPTOCOCCUS:	Chain-like round organism which causes strep throat.
VIRUS:	The smallest in size of the microorganisms.

POST TEST

Module A

Unit 6

Directions: Read each question and indicate the answer you have decided is correct on your answer sheet. DO NOT WRITE ON THIS TEST.

1. List the three general principles of asepsis on the lines provided on your answer sheet.

   a. _____

   b. _____

   c. _____

2. From the following list, select eight terms that are related to the practice of asepsis. Write these terms on the lines provided on your answer sheet.

_____ a.	Antisepsis	_____ g.	Terminal Disinfection
_____ b.	Germs	_____ h.	Microorganisms
_____ c.	Disinfection	_____ i.	Chemical Agent
_____ d.	Sterilization	_____ j.	Microbiology
_____ e.	Concurrent Disinfection	_____ k.	Physical Agent
_____ f.	Bacteria	_____ l.	Autoclave

Directions: Read each statement and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet.

3. A principle of asepsis states:

   a. Sterile surfaces can touch unsterile surfaces.
   b. Sterile surfaces can touch contaminated surfaces.
   c. Sterile surfaces can touch clean surfaces.
   d. Sterile surfaces touch only sterile surfaces.

4. A second principle of asepsis states:

   a. Clean surfaces can touch dirty surfaces.
   b. Clean surfaces usually touch sterile surfaces.
   c. Clean surfaces can touch only unsterile surfaces.
   d. Clean surfaces can touch clean surfaces.

POST TEST - continued.

5. A third principle of asepsis states:

   a. Contaminated surfaces can touch clean surfaces.
   b. Contaminated surfaces can touch contaminated surfaces.
   c. Contaminated surfaces can touch sterile surfaces.
   d. Contaminated surfaces can touch super sterile surfaces.

6. Which identifies antisepsis?

   a. Process of asepsis used on floors.
   b. Process of asepsis used on skin.
   c. Process of asepsis used after disease.
   d. Process of asepsis used during disease.

7. Which identifies disinfection?

   a. Process of asepsis used on floors.
   b. Process of asepsis used on skin.
   c. Process of asepsis used after disease.
   d. Process of asepsis used during disease.

8. Which identifies concurrent disinfection?

   a. Process of asepsis used after disease is over.
   b. Process of asepsis used during disease.
   c. Process of asepsis used on floors.
   d. Process of asepsis used on skin.

9. Which identifies terminal disinfection?

   a. Process of asepsis used during disease.
   b. Process of asepsis used after disease is over.
   c. Process of asepsis used on floors.
   d. Process of asepsis used on skin.

10. Which best identifies a chemical agent?

    a. A solution that is bacteriostatic and may be germicidal.
    b. A solution that is germicidal.
    c. A solution that is used in steam.
    d. A solution that is bacteriostatic.

11. Which best identifies a physical agent?

    a. A chemical added to water.
    b. A chemical added to equipment.
    c. A process using sunlight and air.
    d. A process using sunlight, heat, and pressure.

POST TEST - concluded

12. Which best identifies sterilization?

    a. Process where all bacteria are present.
    b. Process where all bacteria are killed.
    c. Process where no bacteria are killed.
    d. Process where some bacteria are killed.

13. Which best identifies autoclave?

    a. Oven-like machine that has disinfectants.
    b. Oven-like machine that has antiseptics.
    c. Oven-like machine that sterilizes supplies.
    d. Oven-like machine that deodorizes equipment.

ANSWERS TO POST TEST

Module A

UNIT 6

1. Three general principles of asepsis:

   a. sterile touches sterile
   b. clean touches clean
   c. contaminated touches contaminated

2. Eight terms related to the practice of asepsis:

   a. Antisepsis

   c. Disinfection

   d. Sterilization

   e. Concurrent Disinfection

   g. Terminal Disinfection

   i. Chemical Agent

   k. Physical Agent

   l. Autoclave

3. d

4. d

5. b

6. b

7. a

8. b

9. b

10. a

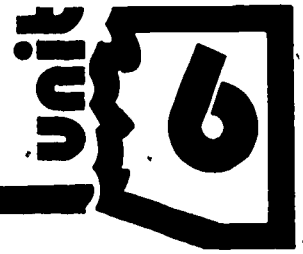
11. d

12. b

13. c

POST TEST

Module B

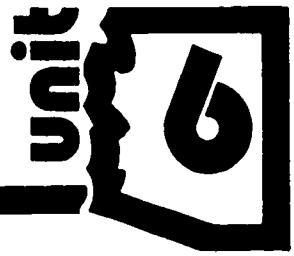


Directions: Applying the information learned in Module B, demonstrate the steps of the following activities to the satisfaction of your instructor.

1. Handwashing:
   a. For all nursing care
   b. For isolation or protective care
2. Isolation:
   a. Putting on a gown for isolation
   b. Gowning out of isolation
   c. Double bagging out of isolation
3. Surgical Asepsis:
   a. Putting on sterile gloves
   b. Opening sterile supplies
   c. Changing sterile dressings

ANSWERS TO POST TEST

Module B



1. Refer to steps listed in Module B

   a. page 2-3
   b. page 3

2. Refer to steps listed in Module B

   a. page 5
   b. page 6
   c. page 7

3. Refer to steps listed in Module B

   a. page 9-10
   b. page 11-12
   c. page 12-13

POST TEST

Module C

UNIT 6

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. There may be more than one correct answer for each question. DO NOT WRITE ON THIS TEST.

1. Microbiology is the study of:

   a. small animals
   b. disease producing microbes
   c. the invisible-living world of microorganisms or microbes
   d. bones, their function and structure

2. The major groups of microbes that can cause disease are:

   a. staphylococci and streptococci
   b. virus, rickettsia and bacteria
   c. fungus, protozoa and parasites
   d. pinworms, roundworms and tapeworms

3. The term pathogenic microbe refers to the:

   a. microbes that are all around us
   b. microbes that are capable of producing disease
   c. germs around us
   d. microbes we study under a microscope

4. The term nonpathogenic microbes refers to the:

   a. microbes all around us
   b. newly discovered microbes
   c. microbes that do not cause disease

5. The term normal flora refers to the:

   a. flowers all around us
   b. microbes that are always around us and in us
   c. number of microbes around us
   d. microbes that cause disease

6. The three factors that determine whether an infection takes place are:

   a. how the microbes enter our body
   b. the number of microbes invading the body
   c. the strength of the microbe
   d. the ability (natural immunity) of the body to fight disease

POST TEST - concluded

7. Portals of entry and portals of exit are:

   a. how we enter the program and how we leave the program
   b. passages through which microbes enter our body and leave our body
   c. cuts in the skin
   d. the major routes of the spread of infection

8. The major routes of the spread of infection are:

   a. animals, food, air
   b. respiratory and gastrointestinal tract
   c. indirect and direct contact
   d. airborne, enteric, insect, and direct contact

9. Microbes can be identified according to:

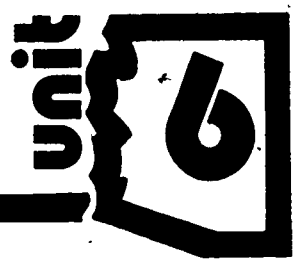
   a. their shape and the stain they pick up in microscopic exam
   b. alphabetic order
   c. the Latin names
   d. the diseases they cause

Directions: Match the correct portals of entry and portals of exit on your answer sheet.

10.	cut in skin	a.	eyes
11.	respiratory tract	b.	vaginal-urinary openings
12.	gastrointestinal tract	c.	incision, cut, abrasion
13.	genitourinary tract	d.	nose/mouth
14.	eyes	e.	mouth/rectum

ANSWERS TO POST TEST

Module C



1. c
2. b & c
3. b
4. c
5. b
6. b, c, d
7. b
8. d
9. a
10. c
11. d
12. e
13. b
14. a

Unit 7 stresses the origin, development and use of medical terminology. Included are professional words, phrases, abbreviations, symbols, and surgical and diagnostic terms.

MEDICAL TERMINOLOGY

Module A - Words and Phrases Used in Making Nursing Observations
Module B - Roots, Prefixes, and Suffixes
Module C - Commonly Used Abbreviations and Symbols
Module D - Surgical and Diagnostic Terms
Post Tests: 1. Module A
2. Module B
3. Module C
4. Module D
Answer Sheets

When you have completed the Learning Activities and are ready for a test, or wish to challenge a test, please see your instructor.

Suggested References

1. Taber's Cyclopedic Medical Dictionary. Philadelphia: F.A. Davis Incorporated, 1973.

2. McKenna, Margaret. Assessing Skin Color Changes in Ethnic People of Color. University of Seattle, Seattle, Washington 98195. (audiovisual)

MEDICAL TERMINOLOGY

Module A -- Words and Phrases Used in Making Nursing Observations.

Unit 7

RATIONALE

While you care for people, you will need to observe them and to report what you see in a special way. This process is called "making nursing observations".

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the meanings of the following in Nursing Observation Terms:

a. General Appearance
b. Skin, Eyes, and Eyelids
c. Respiration or Breathing
d. Vomiting
e. Levels of Consciousness
f. Emotional Response
g. Walking
h. Appetite
i. Speech
j. Pulse
k. Pain
l. Bleeding and Drainage from Incisions
m. Dressings and Incisions
n. Urine
o. Stools or Feces
p. Appearance of Abdomen

LEARNING ACTIVITIES

Directions: All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

ACTIVITY. Nursing Observation Terms

General Appearance

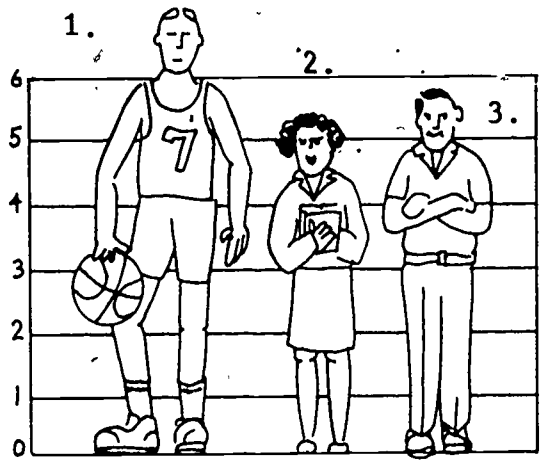
Directions: Read the following material and complete the exercise.

In making a nursing observation, the first major category to consider is the patient's overall general appearance. There are three areas you may notice at a glance -- the patient's size, shape, and posture. The following information tells you how the three areas are to be described.

LEARNING ACTIVITIES - continued

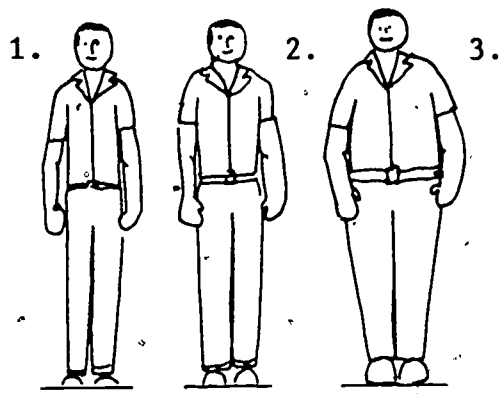
Size

1. tall--women over five feet, six inches; and men over six feet.
2. medium height--women between five feet, two inches and five feet, six inches; and men between five feet, ten inches and six feet.
3. short--women under five feet, two inches; and men under five feet, ten inches.



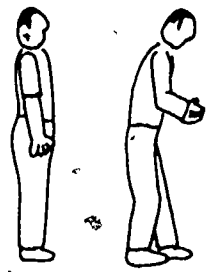
Shape

1. thin--someone who looks skinny. Actual weight doesn't really determine whether one is thin.
2. average build--someone who is not thin and not fat. "Looks good".
3. obese--fat.



Posture

1. straight or erect--stands straight, not slumped over.
2. stooped--head down, leaning forward.



Directions: Fill in the chart below so that it describes your general appearance.

Name _____

General Appearance

Size _____

Shape _____

Posture _____

LEARNING ACTIVITIES - continued

Now find another student whose general appearance is different from yours and fill in the chart below on that person.

Name _____

General Appearance

Size _____

Shape _____

Posture _____

Now see if you and your partner agree on how you have described each other.

Skin, Eyes, and Eyelids

Directions: Read the following information and complete the exercise. Also, if possible, view the slide-tape presentation Assessing Skin Color Changes in Ethnic People of Color by Margaret McKenna, University of Seattle, Seattle, Washington 98195.

The next three areas to notice in making a nursing observation are also external, but not as readily noticeable as a person's size, shape, and posture. They are the skin, eyes, and eyelids. The first thing to observe about these three features is whether they are normal or abnormal. If they are abnormal, you must then describe the abnormalities.

Skin

People have varying amounts of melanin (skin pigment). Depending on your patients' ethnic background, their normal complexion color will range from light to dark tones. Some variables that affect skin color changes are: room temperature, emotional state, and edema (swelling).

1. Normal skin is clear and free from irritation; no bumps, pimples or acne.

2. A patient with abnormal skin might have:

   a. a rash or hives. The skin might be reddened and have welts. (A welt is a raised spot or lump, like some people get from mosquito bites).

   b. mottled skin (blotchy or patched). These blotches or patches may be either lighter or darker than the patients' skin color.

   c. variations in skin color.

How and what you observe concerning the skin color of a patient will vary depending on environmental factors and the normal complexion color of the patient. The chart below for light and dark complexions will help you with these variations.

LEARNING ACTIVITIES - continued

Light Complexions	Dark Complexions
1. flushed--reddened as in blushing or with fever. Redness may be increased if the patient is embarrassed or excessively warm.	1. flushed--reddened as in blushing or with fever. Look closely at the forehead and cheeks; these areas will probably appear darker if the patient is flushed.
2. pallor--unusual paleness of the skin. In really light complexioned people, freckles may seem to "stand out" in pallor. Air conditioning or lying on a cold examination table may cause pallor.	2. pallor--no red or pink tones are seen. The patient lacks the tones that give black or brown skin its "glow" or "living" color. Darker complexions also become lighter with edema.
3. cyanosis--lips may look blue. Skin may have a "pasty" look. If you think a person is cyanotic, you may try applying sufficient pressure to the nailbeds and observe how quickly the color returns. (In cyanosis, the color returns slowly.) This is called capillary refill.	3. cyanosis--skin becomes grey looking, especially the earlobes, around the mouth, over the cheeks, and the nailbeds. Again, the red tones that make the skin seem alive are not present.
4. jaundice--yellowish discoloration of the skin. This can be most easily observed in the sclera of the eye, mucous membranes and lips.	4. jaundice--dark complexions show jaundice in the same areas: the sclera, mucous membranes and lips.

Eyes

1. Normal eyes are clear and bright. The eyes shine with reflected light. They are glossy like some pictures or enamel paint.

   The pupils are of the same size and change size when light is flashed into the eyes.

2. Abnormal eyes may be:

   a. dull--eyes are not bright and shiny. They may be flat looking like flat wall paint. They are not glossy like some pictures.

   b. inflamed--eyes are swollen or sore, often with secretions.

   c. reddened--whites of eyes (sclerae) are bloodshot as if crying or suffering from hayfever or a hangover. Redness of the eyes may be more difficult to recognize in dark-skinned people since the sclerae may be normally yellowish-brown toned. The redness may not be really obvious unless you look closely.

LEARNING ACTIVITIES - continued

d. abnormal in pupil size — very small (constricted) as when you go out into very bright sunlight; or, very large (dilated) as when you have been in a dimly lit room for some time. Abnormal pupils may not change size when light is flashed into the eyes.

Eyelids

1. Normal eyelids open and close easily.

2. Abnormal eyelids droop (ptosis), or they may blink excessively.

When making observations about skin, eyes, and eyelids, be sure you have good light. In the daytime, open drapes or blinds so you will have adequate natural light. At night, turn on enough light to see your patient clearly; a standing light, with at least a 60-watt bulb, will usually be sufficient.

Directions: Now find a mirror with a good light and describe yourself using nursing terms you have learned.

Name _____

Skin _____

Eyes _____

Eyelids _____

Respiration or Breathing

Directions: Read the following material and complete the exercise.

There are other things you may notice right away about your patient. Is the person coughing or having trouble breathing? These are also things you need to learn to describe in nursing terms.

Breathing

1. Normal breathing is quiet, not noisy.

2. Abnormal breathing may include:

   a. wheezing

   b. snoring, sounds, noise

   c. a rate or rhythm that is different. Terms to describe these differences in rate or rhythm are:

      (1) dyspnea — irregular, painful breathing

      (2) apnea — not breathing at all

LEARNING ACTIVITIES - continued

(3) hyperpnea -- breathing very rapidly

(4) Cheyne-Stokes breathing -- stop and go breathing

(5) orthopnea -- the ability to breath only when sitting upright or propped up on pillows.

Coughing

If your patient is coughing, there are terms to describe the cough which will tell your team leader or the physician exactly what is happening with the patient.

1. Productive cough - coughing up many secretions (sputum)
2. Nonproductive cough - coughs but does not produce sputum
3. Persistent cough - coughs often and the cough hangs on for a long time (days or even weeks)
4. Intermittent - cough comes and goes

In addition to describing the patient's cough, you also have to describe the sputum of a productive cough. Terms to describe sputum are:

1. Tenacious - stringy, thick sputum
2. Hemoptysis - spitting up blood
3. Clear
4. Yellow
5. Blood-tinged

Directions: Read the following paragraph and describe the patient's breathing and coughing in the space provided below. Use the nursing terms you have learned in this activity. Answers can be found on page 18 of this module.

Priscilla Patient is the patient in 422-B. She is often coughing and is coughing up reddish-looking secretions. During the periods when she is not coughing, Ms. Patient is having obvious difficulty in breathing.

LEARNING ACTIVITIES - continued

Vomiting

Directions: Read the following information and complete the exercise.

Imagine you have answered a patient's call light and find the patient vomiting. There are nursing terms you will need to know to correctly describe the situation. Some terms to describe vomiting follow.

1. Emesis - act of vomiting
2. Projectile emesis - vomiting with great force
3. Undigested emesis - vomiting of undigested food
4. Hematemesis - vomiting of blood, may or may not have clots
5. Fecal emesis - vomiting of body wastes (stool)
6. Liquid emesis - may be green or clear in color.

There are also terms which describe the odor of vomit. Here are some terms to describe odor.

1. Sweet or fruity smelling
2. Foul smelling (has a bad odor)

Directions: Match these terms with their definitions. Check your answers by referring to the preceding information.

_____	1. emesis	A.	great force
_____	2. projectile	B.	smells bad
_____	3. undigested	C.	act of vomiting
_____	4. foul	D.	identifiable food particles

Levels of Consciousness

Directions: Read the following material and complete the exercise.

There are some things that are more difficult to find out about your patients. These are primarily things that involve talking to your patients and asking them questions.

One of the first things you need to know is the mental alertness of the patient. The following terms related to this alertness are called the levels of consciousness.

1. Alert - the patient is able to speak and knows where he/she is and is able to carry on a conversation that makes sense. NOTE: If you speak only English and your patient speaks very little English, you may not be able to make a judgment

LEARNING ACTIVITIES - continued

about alertness. Don't guess - let your team leader know so an interpreter may be found.

2. Restless - the patient tosses and turns in bed, picks at the sheets, or may speak sharply in response to questions.

3. Stupor - the patient can be aroused but may not make much sense when asked questions. The patient responds to pain (for example, moving a patient with a broken leg), or sound by opening his/her eyes but does not respond verbally.

4. Comatose - the patient does not respond to any stimuli (usually present before death).

Directions: Match these terms with their definitions.

_____	1. comatose	A.	answers questions correctly
_____	2. restless	B.	groans when turned
_____	3. stupor	C.	does not respond
_____	4. alert	D.	alertness of the patient
_____	5. level of consciousness	E.	picks at sheets

Emotional Response

Directions: Read the following information and complete the exercise.

Sometimes you may need to relate to your team leader or physician your patient's emotional response. This means you will have to try to determine how patients feel by looking at them. Here are some terms to describe emotional response.

1. Worried or anxious - imagine a mother waiting at a bus stop for a child. The bus was due at 4:00 p.m., it is now 4:15. The facial expressions and actions of this mother probably express worry or anxiety.

2. Afraid or frightened - do you remember the first time another trainee was assigned a patient with two tubes? The facial expressions and actions of your fellow trainee probably reflected fear.

3. Tense or frowning - think of a time 5 minutes before a test. Do you remember the expressions on faces around you? You were probably seeing tense and frowning faces.

4. Relaxed or smiling - your fellow trainees' faces after successfully completing that test are good examples of relaxed or smiling emotional responses.

LEARNING ACTIVITIES - continued

Directions: Read each situation below and the various lettered emotional responses. When you have decided which answer is correct, circle the appropriate letter. Answers can be found on page 18 of this module.

SITUATION 1: Mr. Gonzales is pacing the floor in the fathers' waiting room at a local hospital. Mrs. Gonzales has been in labor for 5 hours but still has not delivered. Mr. Gonzales' facial expressions and actions might be:

a. worried or anxious

b. frightened or afraid

c. relaxed or smiling

SITUATION 2: Ms. Nurse comes into the waiting room and tells Mr. Gonzales that his wife has just had a baby boy. Mr. Gonzales' facial expressions and emotional response might be.

a. worried or anxious

b. tense or frowning

c. relaxed or smiling

SITUATION 3: You are driving on the freeway near the Congress St. entrance. Suddenly a car comes onto the freeway. The oncoming car is in your lane and there are cars in all other lanes. Traffic is moving at 55 miles per hour. Your emotional response and actions would probably be:

a. worried or anxious

b. relaxed and smiling

c. afraid or frightened

SITUATION 4: You are sitting in the lunch room at the Skill Center. Your pay check was supposed to come yesterday but did not. Your rent was due last Friday but the landlord gave you until today to pay it. You don't have a telephone at home so you have no way of finding out if your check came. Your facial expressions and emotional response might be:

a. relaxed and smiling

b. tense or frowning

c. afraid or frightened

LEARNING ACTIVITIES - continued

Walking

Directions: Read the following material and complete the exercise. You may sometimes need to describe a patient's walk. Some precise terms to help you do this follow.

1. Normal walk - a steady walk that is not wavering.
2. Abnormal walk - might be described by using any of the three following terms:
   a. Unsteady - weaving, may be having trouble keeping balance.
   b. Faltering - probably best understood by imagining a child just learning to walk. The child starts and then stops to get a better balance, then walks again.
   c. Swaying - beginning to fall and then straightening up again, this also has to do with balance.

Directions: Fill in the blanks in the following sentences. Check your answers by referring to the preceding information.

If I walk with a steady rhythm and regular rate, my walk is said to be _____.

An abnormal walk can be described by the words _____, _____ and/or _____.

Appetite

Directions: Read the following material and complete the exercise.

How well a patient eats must be described each and every time that patient is offered anything to eat. By clearly defining how much your patient ate, your team leader and your patient's doctor will know exactly how well the patient is eating. The terms for appetite and their corresponding percentages are listed below.

1. Anorexia - having no appetite. The patient just pushed food around on the plate or possibly refuses the tray altogether. If your patient is on a liquid diet, she/he possibly takes only a small sip of what is offered.
2. Good appetite - this means the patient ate 85% to 100% of the meal served. This might mean all of the meat, vegetables, salad, bread, butter, dessert, and milk served; or, it might mean all but one bite of toast and one sip of tea if those were the only things offered.
3. Fair appetite - the patient ate 50% to 80% of the meal served.
4. Poor appetite - the patient ate between 20% and 45% of what was served.

LEARNING ACTIVITIES - continued

Directions: Read the following paragraph and fill in the blanks in the statements below. Check your answers by referring to the preceding information.

Let's visit Priscilla Patient again. Priscilla Patient has been served breakfast prior to x-ray. She has been given a pot of tea and two slices of dry toast. When you go to pick up her tray, you find a couple of bites of toast left and all the tea gone. Ms. Patient returns from x-ray at noon and is served her regular lunch of roast beef, mashed potatoes, green beans, sliced tomato salad, bread, butter, cake, and milk. Ms. Patient pushes the green beans around a little, makes a hole in the mashed potatoes, butters one slice of bread and eats a couple of bites, eats one slice of tomato, and opens her milk.

Ms. Patient's appetite at breakfast was _____.

Ms. Patient's appetite at lunch was _____.

Speech

Directions: Read the following information and complete the exercise.

A patient's speech is often an indicator of alertness. Normal speech is fluent and coherent. Speech is fluent when a patient speaks without difficulty. Coherent speech makes sense. For example, if patients know who they are and what they are doing in the hospital, you may assume they are coherent. **Note:** If you speak only English and your patient speaks little or no English, you may not be able to make a judgment about fluency and coherency. Don't guess -- let your team leader know so an interpreter may be found.

Abnormal speech may be described with the following terms.

1. Stuttering - repeating short phrases or syllables rapidly. This does not mean your patient is incoherent. Some people may stutter in tense situations such as being admitted to the hospital.

2. Slurred speech - letters or words are unclear. Words seem to drop off at the end or sometimes run together. Patients who have had strokes sometimes slur; they know the words but have trouble saying them.

3. Incoherent - what is said doesn't make sense, speech just sort of rambles on. Words or phrases may be completely unrelated.

4. Disoriented - patient doesn't know his/her own name, may not know where he/she is, or what day or time it is. Very often, patient may think the time is some past time.

5. Aphasia - not able to talk at all.

LEARNING ACTIVITIES - continued

Directions: Match the words in the column at the left with their definitions in the column at the right. Check your answers by referring to the preceding information.

_____	1. aphasia	A.	speaks without difficulty
_____	2. disoriented	B.	not able to talk
_____	3. coherent	C.	makes no sense
_____	4. incoherent	D.	does not know name, time, or place
_____	5. fluent	E.	makes sense

Pulse

Directions: Read the following information and complete the exercise.

A patient's pulse is reported in numbers (beats per minute); for example, "pulse 72".

A normal pulse is a lot like music; there is a regular, easily felt beat. The rhythm is regular with a rate between 60 and 100 for adults, and between 70 and 120 for children under 12.

Sometimes it is helpful to know the terms for pulse rates that are too fast or too slow. There are also terms for the variations in rhythm and volume of a pulse. The following are terms to help you define an abnormal pulse.

1. Irregular rhythm - rhythm is imperfect, perhaps an extra long pause (skipped beat), or possibly several beats very close together.

2. Tachycardia - pulse beats too fast, more than 100 for adults, and more than 120 for children under 12.

3. Bradycardia - pulse beats too slowly, less than 60 for adults and less than 70 for children under 12.

4. Thready - pulse is hard to find, and when you do find it, it seems to come and go.

5. Feeble - very weak.

6. Bounding - pulse is very forceful and may seem to pound against your fingertips when you are checking it.

LEARNING ACTIVITIES - continued

Directions: Match the terms in the column at the left with their definitions in the column at the right. Check your answers with the preceding information.

____	1. feeble pulse	A.	regular rate, rhythm, and volume
____	2. tachycardia	B.	pulse pounds against fingertips
____	3. normal pulse	C.	pulse very weak
____	4. bradycardia	D.	pulse too slow
____	5. bounding	E.	pulse too fast

Pain

Directions: Read the following material and complete the exercise.

Pain means different things to different people. Here are nursing terms with some definite guidelines to help you describe the amount, quality, and duration of a patient's pain.

1. Severe (or acute) pain - a great deal of pain that doesn't quickly go away; for instance, a finger smashed in a car door, or a hand burned with hot grease. This type of pain needs immediate attention.

2. Sharp pain - a sharp, cutting pain; for example, from a knife cut.

3. Radiating pain - the kind of pain that starts in one area and ends in another. Did you ever catch a baseball without a glove and have it hurt all the way to your shoulder? That's radiating pain!

4. Localized pain - pain that stays in one place. When you burn your hand, the pain stays in one place. (Pain can be described in more than one term. For example, if you burn your hand with hot grease, it can be severe and localized.)

5. Generalized pain - pain that goes all over the body; for example, when you have the flu and your whole body hurts.

6. Persistent or chronic pain - this type of pain is present all the time; it doesn't go away.

7. Transient pain - pain that lasts for a short time; for example, when you are running and you get a "stitch" in your side that goes away as soon as you slow down.

8. Intermittent pain - pain that comes and goes; for example, labor pains and stomach cramps.

LEARNING ACTIVITIES - continued

Directions: Match the terms below with their correct definitions. Check your answers with the preceding information.

____	1. transient pain	A.	hurts all the time
____	2. localized pain	B.	a great deal of pain
____	3. radiating pain	C.	comes and goes
____	4. severe or acute pain	D.	stays in one place
____	5. intermittent pain	E.	cutting, stabbing pain
____	6. generalized pain	F.	lasts for a short time
____	7. sharp pain	G.	hurts all over
____	8. persistent or chronic pain	H.	begins one place and ends another

Bleeding and Drainage from Incisions

Directions: Read the following material and complete the exercise.

The terms to describe bleeding tell how much blood is seen and how it is flowing. There can be bleeding from obvious sources such as a nosebleed or a cut, and from not so obvious sources like bleeding from under a dressing or vaginal bleeding.

The terms to describe drainage tells you how much drainage there is and what it looks like.

1. Scant - when there is very little drainage or bleeding. In the case of vaginal bleeding or drainage from an incision, the amount of wetness (blood or drainage) seen on the pad or dressing would be about the size of a penny.

2. Oozing - blood or drainage that is trickling very slowly. The blood from a nosebleed (epistaxis) usually oozes.

3. Profuse or copious - large amounts of blood or drainage. You might see blood gushing from a deep cut and describe it as "profuse bleeding". In vaginal bleeding, pads might be soaked quickly. "Copious drainage" from an incision would completely soak the bandage.

4. Moderate - may refer to either bleeding or drainage. The amount of blood or drainage would be larger than the penny we talked about earlier but would not completely soak a bandage or pad. For example, if you had an under bandage that was 4 inches long, and 2 inches of it was wet with drainage, this would be considered a "moderate" amount of drainage.

5. Bright red drainage - if you superficially cut your hand while slicing vegetables, the blood coming through the paper towel you wrap around the cut would probably be bright red.

LEARNING ACTIVITIES - continued

6. Dark red drainage - would look like the blood in a syringe from a blood test.

7. Serosanguineous drainage - when you cut yourself and the bleeding stops but a yellow fluid keeps oozing from the cut, that is serum. Sanguineous means bloody. So, serosanguineous drainage is drainage that contains both blood and serum. It is pink.

8. Clear drainage - the bandage is wet but the drainage is colorless.

Directions: Read the following paragraph and use the terms you have just learned to complete the statements. Check your answers with the preceding information.

Let's visit with Priscilla Patient again. Ms. Patient has been to surgery and is now back in her room. Your team leader sends you to check Ms. Patient's bandage for drainage. When you first check the under bandage, it is wet from one end to the other with a pink drainage. The doctor changes the bandage and you are sent back to check it four hours later. Now the bandage has a wet spot about the size of a penny.

How would you describe the first bandage check? _____

The amount of drainage the second time was _____.

Dressings and Incisions

Directions: Read the following information and complete the exercise.

Dressings are bandages placed over wounds, cuts, or incisions. They are described in terms of how they look and what size they are. Dressings may be as small as Band-Aids or as large at bath towels. Clean, dirty, wet, or dry are terms to describe how a dressing looks.

1. Clean - a dressing that is not soiled in any way and that is absolutely dry.

2. Dirty - a dressing that is soiled with either blood or other drainage; may be either wet or dry.

3. Wet - a dressing that is wet with drainage.

4. Dry - a dressing that is absolutely dry; it may be either clean or dirty.

Dressings usually cover incisions. An incision is a cut made into the body in order to either remove or repair something. There are two terms generally used to describe how an incision looks.

1. Clean - the skin around an incision is normal flesh color.

2. Reddened - the skin around an incision is reddened and possibly inflamed.

LEARNING ACTIVITIES - continued

Directions: Match the terms on the left with their correct definitions on the right. Check your answers by referring to the preceding information.

_____	1. dry dressing	A.	bandage not soiled in any way
_____	2. incision	B.	bandage that is not wet, may be clean or soiled
_____	3. clean dressing	C.	cut into the body
_____	4. wet dressing	D.	dressing with serosanguineous drainage

Urine

Directions: Read the following information and complete the exercise.

General terms used to describe the discharge of urine from the body are voiding, urination, and micturition. These three terms mean exactly the same thing: the act of discharging urine from the body.

You may be asked to describe how urine looks. The following nursing terms will help you do this clearly.

1. Clear and amber - considered the normal appearance of urine.
2. Cloudy - urine that is not clear, particles of matter may be visible.
3. Bloody - urine that obviously has blood in it (hematuria).

You will also need the following terms to describe how much urine is discharged.

1. Anuria - discharging no urine at all.
2. Moderate - discharging between 500 to 2500 cc of urine per day.
3. Oliguria - discharging between 0 and 500 cc of urine per day.
4. Polyuria - discharging more than 2500 cc of urine per day.

Here are some other terms to help you describe urine and its discharge.

1. Nocturia - having to get up during the night to urinate.
2. Pyuria - pus in the urine, can only be determined from microscopic examination.
3. Dysuria - painful or difficult urination.
4. Continent - able to control the discharge of urine.

LEARNING ACTIVITIES - concluded

5. Incontinent - unable to control the discharge of urine.

6. Frequency - voiding six to eight times within eight hours.

Directions: Read the following paragraph and use the nursing terms you have learned to complete the statements on page 17. Check your answers with the preceding information.

Let's visit Priscilla Patient again. You answer Ms. Patient's light and find that she has been unable to pass any urine after surgery. You tell your team leader and Ms. Patient is catheterized. The amount of urine obtained is about 250 cc. The urine is bloody. Four hours later, Ms. Patient is able to discharge urine without help; however, she experiences a great deal of pain during urination.

The terms used to describe Ms. Patient's inability to pass urine is _____.

The appearance of blood in the urine is termed _____.

Painful urination is _____.

When Ms. Patient did urinate, she was able to control the discharge of urine so she is said to be _____.

Stools or Feces

Directions: Read the following information and complete the exercise.

Feces or stools are the waste product of digestion. These are terms to describe stools or feces. Stools are considered normal when they are soft, formed, and brown in color. Abnormal feces may be hard, watery, or semi-liquid. Abnormal colors may be green, black (tarry), bright red, or clay colored (yellowish-tan).

Directions: Using the terms you have learned, fill in the blanks below. Check your answers with the preceding information.

Normal feces are _____ in color and _____ in consistency.

A watery stool is said to be _____.

The waste product of digestion is _____.

Appearance of the Abdomen

Directions: Read the following information.

The appearance of the abdomen is described in terms of size and touch or feel.

1. Protruding or distended - big and fat, sticking out as in pregnancy, fullness.

2. Flaccid - flabby

3. Rigid - hard to the touch, like a board or table might feel.

4. Flat - not protruding, usually soft to the touch.

ANSWERS

Respiration or Breathing

The things you should have written about Ms. Patient are: dyspnea, persistent cough, productive cough, blood-tinged sputum. These things may be listed in any order. The important thing is that you let your team leader know all of them.

Emotional Response

1. a
2. c
3. c
4. b

MEDICAL TERMINOLOGY

Module B - Roots, Prefixes and Suffixes

RATIONALE

Studying the following medical roots, prefixes, and suffixes will help you in learning the entire section on medical terminology and in learning terminology in other sections. Since roots, prefixes, and suffixes are repeated again and again in words, you will be able to cut out a great deal of memory work and rely on your ability to recognize familiar parts of the word in order to figure out the meaning. The knowledge of roots, prefixes, and suffixes will also aid you in dealing with unfamiliar terms throughout your medical career.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the definitions and medical terms used as examples for:

1. Roots
2. Prefixes
3. Suffixes

LEARNING ACTIVITIES

Directions: All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

ACTIVITY #1. Roots

Directions: Read the following information about roots and complete the exercises.

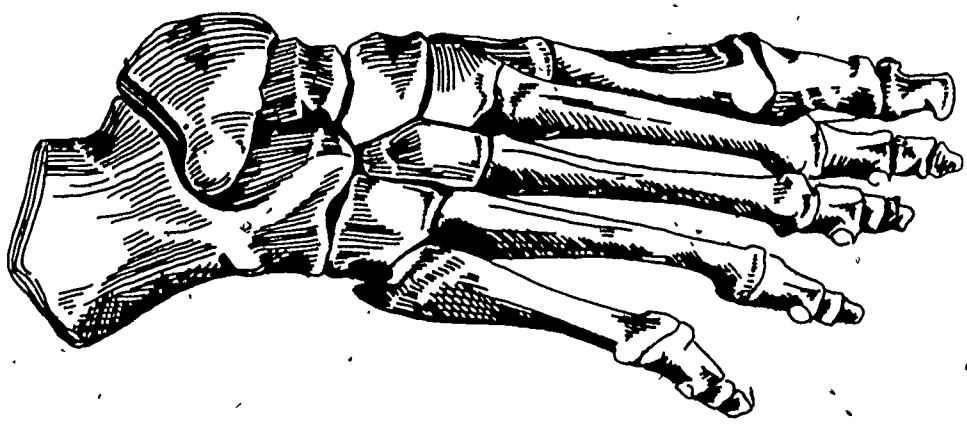
Roots are defined as the main bodies of words. Roots usually give us the meanings of words. The English language obtains many of its roots or stems from other languages such as Greek, Spanish, Latin, and French. The terms root and stem can both be used when referring to the main bodies of words; however, we will use the term root in Unit 7.

For convenience, roots have been grouped according to body systems whenever possible.

LEARNING ACTIVITIES - continued

Roots Pertaining to Bones and Muscles

osteo:	bone
ortho:	bone
myelos:	marrow (center of bone)
manus:	hand
cost:	rib
pedes:	foot
arthro:	joint
myo:	muscle



LEARNING ACTIVITIES - continued

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
osteo	bone	osteoarthritis	osteo - bone; arthritis - inflammation of joints; "inflammation of bone joints"
myelos	marrow	myelogenous	myelo - marrow; gen - originating; "originating in marrow"
manus	hand	manipulation	mani - to move by hand; "manually moving"
cost	rib	intercostal space	inter - between; cost - rib; "space between ribs"
pedes	foot	pedal pulse	pedal - foot; "pulse found in foot"
arthro	joint	arthritis	arthro - joint; itis -inflammation; "inflammation of joint"
myo	muscle	myositis	myo - muscle; itis - inflammation; "inflammation of muscle"

Exercise 1.

Directions: Match the following roots with their meanings. Answers can be found on page 27 of Module B.

____ 1.	osteo	A. hand
____ 2.	myelos	B. rib
____ 3.	manus	C. muscle
____ 4.	cost	D. joint
____ 5.	pedes	E. marrow
____ 6.	arthro	F. foot
____ 7.	myo	G. bone

LEARNING ACTIVITES - continued

Exercise 2.

Directions: List one example for each root. Possible answers to this exercise are found on page 27 of Module B.

1. osteo _____
2. myelos _____
3. manus _____
4. cost _____
5. pedes _____
6. arthro _____
7. myo _____

Roots Pertaining to Breathing

rhino:	nose
pharynx:	throat
larynx:	voice box
trachea:	windpipe
pnea:	breathing
pneumo:	air (lung)
thorax:	chest

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
rhino	nose	rhinitis	rhin - nose; itis - inflammation; "inflammation of the nose"
pharynx	throat	pharyngitis	pharyn - throat; itis - inflammation; "inflammation of the throat"
larynx	voice box	laryngitis	larynx - voice box; itis - inflammation; "inflammation of the voice box"
trachea	windpipe	tracheotomy	trachea - windpipe; otomy - incision into; "incision into windpipe"

LEARNING ACTIVITIES - continued

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
pnea	breathing	eupnea	eu - normal; pnea - breathing; "normal breathing"
pneumo	air (lung)	pneumonitis	pneumo - air (lung); itis - inflammation; "inflammation of the lung"
thorax	chest	thoracotomy	thorax - chest; otomy - incision into; "surgical incision into the chest"

Exercise 3.

Directions: Match the following roots with their meanings. Answers to this exercise are found on page 27 of Module B.

____	1. rhino	A.	chest
____	2. pharynx	B.	voice box
____	3. larynx	C.	nose
____	4. trachea	D.	throat
____	5. pnea	E.	windpipe
____	6. pneumo	F.	breathing
____	7. thorax	G.	air (lung)

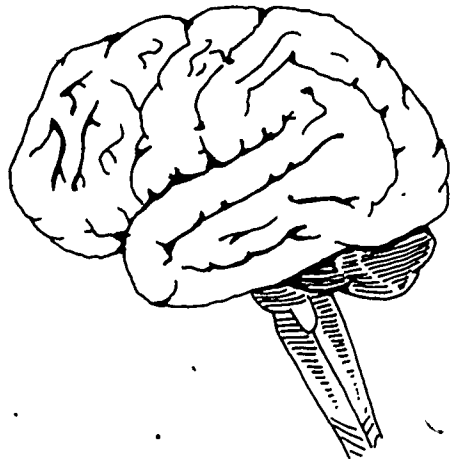
Exercise 4.

Directions: Write one example for each root. Possible answers to this exercise are found on page 27 of Module B.

1. rhino _____
2. pharynx _____
3. larynx _____
4. trachea _____
5. pnea _____
6. pneumo _____
7. thorax _____

LEARNING ACTIVITIES - continued

Roots Pertaining to the Brain and Nerves



cerebro:	brain
cephalo:	head
cranio:	skull
neuro:	nerve
meningo:	membrane
spondyl:	vertebra

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
cerebro	brain	cerebrum	cerebro - brain; "thinking center is brain"
cranio	skull	craniotomy	cranio - skull; otomy - incision into; "incision into the skull"
neuro	nerve	neuralgia	neuro - nerve; algia - painful; "painful nerve"
meningo	membrane	meningitis	meningo - membrane; itis - inflammation; "inflammation of membrane of brain"
spondyl	vertebra	spondylitis	spondyl - vertebra; itis - inflammation; "inflammation of the vertebra"

Exercise 5.

Directions: Match these roots with their meanings. Answers to this exercise are found on page 27 of Module B.

____ 1.	cerebro	A.	cranio
____ 2.	skull	B.	nerve
____ 3.	neuro	C.	meningo
____ 4.	membrane	D.	brain
____ 5.	vertebra	E.	spondyl

LEARNING ACTIVITIES - continued

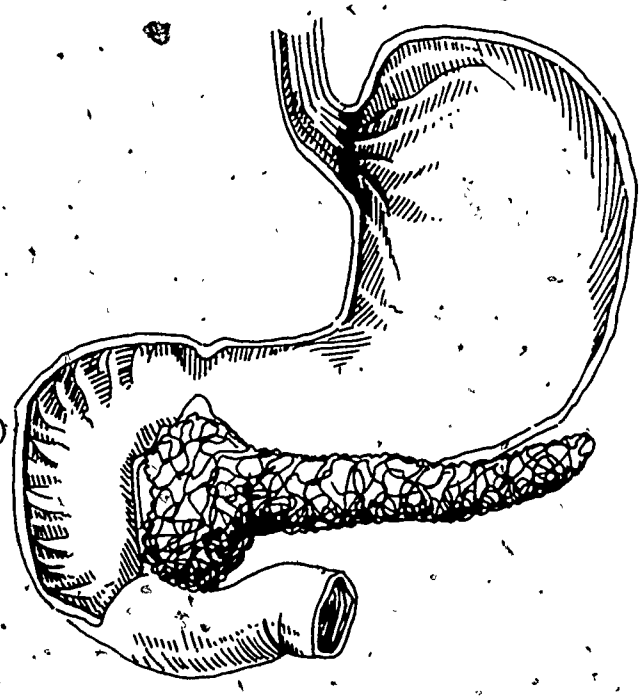
Exercise 6.

Directions: Write one example for each root. Answers to this exercise can be found on page 27 of Module B.

1. cerebro _____
2. cranio _____
3. neuro _____
4. meningo _____
5. spondyl _____

Roots Pertaining to Digestion

lingua:	tongue
glossa:	tongue
stoma:	mouth
os:	mouth
phagia:	swallow
gastro:	stomach
colo:	large intestine (colon)
chole:	bile
hepato:	liver
laparo:	abdomen
procto:	rectum



ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
glossa	tongue	subglossal	sub - below; glossa - tongue; "below tongue"
lingua	tongue	sublingual	sub - below; lingua - tongue; "below tongue"
stoma	mouth	stomatitis	stoma - mouth; itis - inflammation; "inflammation of the mouth"

LEARNING ACTIVITIES - continued

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
os	mouth	per os	per - by way of; os - mouth; "by mouth"
phagia	swallow	dysphagia	dys - difficulty; phagia - swallow; "difficulty in swallowing"
gastro	stomach	gastrectomy	gastro - stomach; ectomy - removal; "removal of the stomach"
colo	large intestine (colon)	colostomy	colo - colon; ostomy - opening into; "opening into large intestine"
chole	bile (gall)	cholecystectomy	chole - bile (gall); cyst - sac (bladder); ectomy - removal; "removal of bile sac (gallbladder)"
hepato	liver	hepatitis	hepato - liver; itis - inflammation; "inflammation of the liver"
laparo	abdomen	laparotomy	laparo - abdomen; otomy - incision into; "incision into the abdomen (to explore)"
procto	rectum	proctoscopy	procto - rectum; scopy - look or inspect; "inspecting the rectum with instruments"

Exercise 7.

Directions: Circle the correct answer. Check your answers with the preceding information.

1. The root for tongue is glossa, phagia.
2. The root for mouth is glossa, stoma.
3. The root for swallow is glossa, phagia.
4. The root for stomach is gastro, laparo.
5. The root for large intestine is colo, laparo.
6. The root for bile is colo, chole.

LEARNING ACTIVITIES - continued

7. The root for liver is chole, hepato.
8. The root for abdomen is laparo, colo.
9. The root for rectum is hepato, procto.
10. The root for tongue is laparo, lingua.
11. The root for mouth is glossa, os.

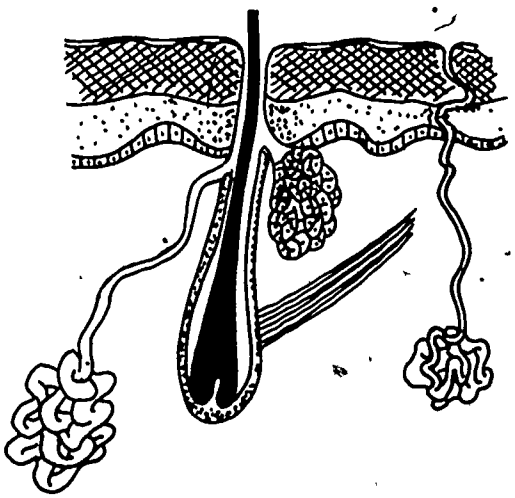
Exercise 8.

Directions: Write the correct meaning for each root in the following blanks. Answers can be found in the preceding material.

1. glossa _____
2. lingua _____
3. stoma _____
4. os _____
5. phagia _____
6. gastro _____
7. colo _____
8. chole _____
9. hepato _____
10. laparo _____
11. procto _____

Roots Pertaining to the Skin

psora:	itch
sebum:	oil
myco:	fungus
decubitus:	bedsore
nevus:	mole
derm:	skin

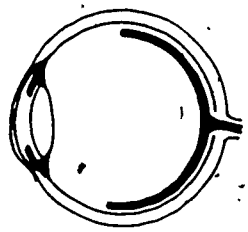


LEARNING ACTIVITIES - continued

Roots Pertaining to the Ear

oto: ear

tympano: eardrum



Roots Pertaining to the Eye

oculus: eye

blepharo: eyelid

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
derm	skin	dermatitis	derm - skin; itis - inflammation; "inflammation of the skin"
sebum	oil	sebaceous	sebum - oil; ous - containing; "oil containing"
myco	fungus	mycology	myco - fungus; ology - study of; "study of fungus"
decubitus	bedsore	decubitus ulcer	"bedsore"
nevus	mole	nevus	"mole"
oto	ear	otitis	oto - ear; itis - inflammation; "inflamed ear"
tympano	eardrum	tympanitis	tympano - eardrum; itis - inflammation; "inflamed eardrum"
oculus	eye	oculus dexter	oculus - eye; dexter -right; "right eye"
blepharo	eyelid	blepharitis	blepharo - eyelid; itis - inflammation; "inflamed eyelid"

LEARNING ACTIVITIES - continued

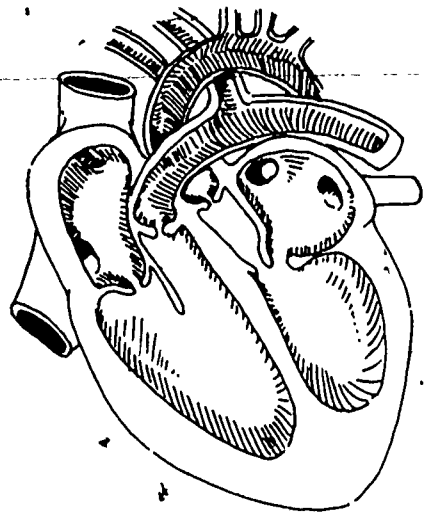
Exercise 9.

Directions: Match the following roots with their meanings. Answers to this exercise can be found on page 28 of Module B.

____	1.	derm	A. ear
____	2.	sebum	B. skin
____	3.	myco	C. oil
____	4.	decubitus	D. fungus
____	5.	nevus	E. eyelid
____	6.	oto	F. bedsore
____	7.	tympano	G. mole
____	8.	oculus	H. eardrum
____	9.	blepharo	I. eye
____	10.	psora	J. itch

Roots Pertaining to the Blood and Blood Vessels

cardio:	heart
hemo:	blood
angio:	vessel
phlebo:	vein
thrombus:	clot
brady:	slow
tachy:	fast
penia:	decrease
erythro:	red
leuko:	white
splen:	spleen



LEARNING ACTIVITIES - continued

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
cardio	heart	myocardium	myo - muscle; cardium - heart; "heart muscle"
hemo	blood	hemogram	hemo - blood; gram - picture; "blood picture (report of blood test)"
angio	vessel	angiogram	angio - vessel; gram - picture; "picture of blood vessel (x-ray)"
phlebo	vein	phlebotomy	phlebo - vein; otomy - incision into; "incision into the vein"
thrombus	clot	thrombophlebitis	thrombus - clot; phlebo - vein; itis - inflammation; "inflamed vein with clot"
brady	slow	bradycardia	brady - slow; cardia -heart; "slow heart (pulse)"
tachy	rapid, fast	tachycardia	tachy - fast; cardia -heart; "fast heart (pulse)"
penia	decrease	leukopenia	leuko - white; penia - decrease; "decrease in white blood cells"
erythro	red	erythrocyte	erythro - red; cyte - cell; "red cell (blood)"
leuko	white	leukocyte	leuko - white; cyte - cell; "white cell (blood)"
splen	spleen	splenectomy	splen - spleen; ectomy - removal; "removal of spleen"

LEARNING ACTIVITIES - continued

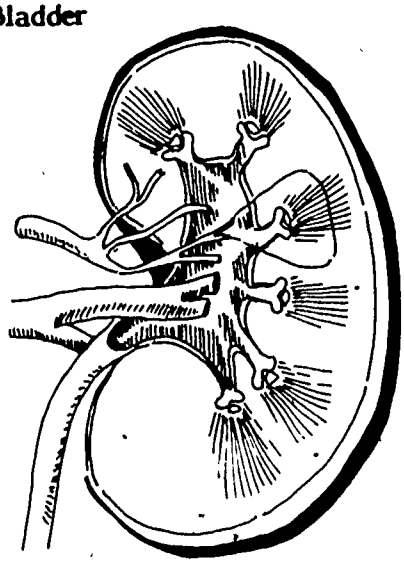
Exercise 10.

Directions: Complete the exercise by writing the correct meaning and an example for each root in the proper column. Check your answers with the preceding information.

TERM	MEANING	EXAMPLE
cardio		
hemo		
angio		
phlebo		
thrombus		
brady		
tachy		
penia		
erythro		
leuko		
splen		

Roots Pertaining to the Kidney and Urinary Bladder

nephro:	kidney
ren:	kidney
lith:	stone
calculus:	stone
vesica:	bladder
cyst:	bladder
pyelo:	kidney pelvis



LEARNING ACTIVITIES - continued

Roots Pertaining to Sensations

cryo:	cold
helio:	sun
algesia:	pain

Roots Pertaining to General Information

glyco:	sugar
onco:	tumor
carcino:	cancer
pyo:	pus
adeno:	gland
lipid:	fat

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
nephro	kidney	nephrectomy	nephro - kidney; ectomy - removal; "removal of kidney"
ren	kidney	renal calculus	renal - kidney; calculus - stone; "kidney stone"
lith	stone	lithotomy	lith - stone; otomy - incision into; "incision into for removal of stone"
calculus	stone	renal calculus	renal - kidney; calculus - stone; "kidney stone"
vesica	bladder	vesicotomy	vesica - bladder; otomy, incision into; "incision into bladder"
cyst	bladder	cystectomy	cyst - bladder; ectomy - removal; "removal of bladder"
pyelo	pelvis of kidney	pyelolithotomy	pyelo - kidney pelvis; lith - stone; otomy - incision into; "incision into kidney pelvis for removal of stone"

LEARNING ACTIVITIES - continued

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
cryo	cold	cryometer	cryo - cold; meter - measure; "instrument for measuring very low temperatures"
helio	sun	heliotherapy	helio - sun; therapy - treatment; "sun treatment"
algesia	pain	analgesia	an - without; algesia -pain; "without pain"
glyco	sugar	glycosuria	glyco - sugar; uria - urine; "sugar in urine"
onco	tumor	oncology	onco - tumor; ology -study of; "study of tumors"
carcino	cancer	carcinogenic	carcino - cancer; genic - producing; "cancer producing"
pyo	pus	pyuria	pyo - pus; uria - urine; "pus in urine"
adeno	gland	adenoma	adeno - gland; oma -tumor; "tumor of gland"
lipid	fat	lipoma	lip - fat; oma - tumor; "tumor of fat"

LEARNING ACTIVITIES - continued

Exercise 11.

Directions: Complete the exercise by writing the correct meaning and an example for each root in the proper column. Answers can be found in the preceding information.

TERM	MEANING	EXAMPLE
nephro		
lith		
cyst		
pyelo		
cryo		
helio		
algesia		
glyco		
onco		
carcino		
pyo		
adeno		
lipid		
ren		
calculus		

Roots Pertaining to the Female and the Male Reproductive Systems

colpo:	vagina
salpingo:	fallopian tube
orchido:	testicle
cervix:	neck of uterus
hyster:	uterus (womb)

LEARNING ACTIVITIES - continued

Roots Pertaining to the Female and the Male Reproductive Systems (continued)

mast: breast

mamma: breast

vas: vessel or duct

ROOT	MEANING	EXAMPLE	DISCUSSION/DEFINITION
colpo	vagina	colporrphaphy	colpo - vagina; rhaphy - suture (repair); "repair of vagina"
orchido	testicle	orchiectomy	orchi - testicle; ectomy - removal of; "surgical excision of a testicle"
cervix	neck of uterus	cervicitis	cervix - neck of uterus; itis - inflammation; "inflamed cervix"
salpingo	fallopian tube	salpingectomy	salpingo - fallopian tube; ectomy - removal; "removal of fallopian tube"
hystero	uterus (womb)	hysterectomy	hystero - uterus; ectomy - removal; "removal of uterus"
mast	breast	mastectomy	mast - breast; ectomy - removal; "removal of breast"
mamma	breast	mammography	mamma - breast; graph - visual record; "visual record of breast (x-ray)"
vas	vessel or duct	vas deferens	"excretory duct of the testes"

LEARNING ACTIVITIES - continued

Exercise 12.

Directions: Match the following roots with their meanings. Answers to this exercise are found on page 28 of Module B.

____ 1.	colpo	A.	uterus
____ 2.	orchido	B.	fallopian tube
____ 3.	salpingo	C.	vagina
____ 4.	hystero	D.	breast
____ 5.	mast	E.	testicle

ACTIVITY #2. Prefixes

Directions: Read the following information about prefixes and complete the exercises.

A prefix is defined as a syllable or phrase which is placed at the beginning of the root in order to modify or change the meaning of that root.

The prefixes which follow are listed in alphabetical order.

a:	without, not	hemi:	half
ab:	from, away from	hyper:	above, excessive
ad:	to, toward, near	hypo:	under, below
an:	without, not	inter:	between
ante:	before	intra:	inside
anti:	against	peri:	around, about
bi:	two	pre:	before, in front of
con:	with, together	pro:	before, in front of
contra:	against, opposite	quadri:	four
dys:	painful, difficult	retro:	behind, backward
ecto:	outside	semi:	half
endo:	within, inside	sub:	under, below
eu:	normal	supra:	above, beyond
epi:	above, upon	trans:	across, through
ex:	out, away from	tri:	three

LEARNING ACTIVITIES - continued

PREFIX	MEANING	EXAMPLE	DISCUSSION/DEFINITION
a	without, not	apnea	a - without; pnea - breathing; "without breathing"
ab	from, away from	abduction	ab - away from; ductor - that which draws; "draw away from (the center of the body)"
ad	to, near, toward	adduction	ad - toward; ductor - that which draws; "draw toward (the center of the body)"
an	without, not	anesthesia	an - without; esthesia - sensation; "without sensation"
ante	before	antenatal	ante - before; natal -birth; "before birth"
anti	against	antibiotic	anti - against; biosis - life (in this case, infection causing organisms); "against life (infection)"
bi	two	bilateral	bi - two; lateral - side; "two sides"
con	with, together	congenital	con - with; genitus - born; "born with"
contra	against, opposite	contralateral	contra - opposite; lateral - side; "opposite side"
dys	painful, difficult	dysuria	dys - painful; uria - urine; "painful urination"
ecto	outside	ectopic	ecto - outside; topos - place; "outside of (normal) place"
endo	within, inside	endoscopy	endo - inside; scope - examine; "examine (with an instrument) inside (body cavity)"

LEARNING ACTIVITIES - continued

PREFIX	MEANING	EXAMPLE	DISCUSSION/DEFINITION
eu	normal	eupnea	eu - normal; pnea - breathing; "normal breathing"
epi	above, upon	epigastric	epi - above; gastrium - stomach; "above stomach"
ex	out, away from	excise	ex - out; cise - cut; "cut out"
hemi	half	hemiplegic	hemi - half; plegia - stroke (paralyzed); "half (of body) paralyzed"
hyper	above, excessive	hypertrophy	hyper - excessive; trophe - nourishment (size); "excessive size (of an organ not due to tumor)"
hypo	under, below	hypodermic	hypo - below; derm - skin; "below skin"
inter	between	intercostal	inter - between; cost - rib; "between ribs"
intra	inside	intravenous	intra - inside; venous - pertaining to vein; "inside vein"
peri	around, about	pericardial	peri - around; cardium - heart; "around heart"
pre	before, in front of	precordial	pre - in front of; cordium - heart; "in front of the heart"
pro	before, in front of	prognosis	pro - before; gnosis - a knowing; "knowing (outcome) beforehand"
quadri	four	quadriceps	quadri - four; cep - head; "four heads (in this case, a muscle with four places of insertion)"
retro	behind	retrograde	retro - behind (backward); grade - step (move); "move backward"

LEARNING ACTIVITIES - continued

PREFIX	MEANING	EXAMPLE	DISCUSSION/DEFINITION
semi	half	semicomatose	semi - half; comatose - coma; "half coma"
sub	under, below	sublingual	sub - under; lingua - tongue; "under tongue"
supra	above	suprapubic	supra - above; pubis - bone of pelvis; "above pubic bone"
trans	across, through	transurethral	trans - through; urethra - urine outlet; "through urethra"
tri	three	triceps	tri - three; cep - head; "three heads (in this case, a muscle with three insertions)"

Exercise 1.

Directions: Match the following prefixes with their meanings. Answers to this exercise can be found on page 28 of Module B.

____ 1.	a, an	A.	to, toward
____ 2.	ab	B.	against
____ 3.	ad	C.	before
____ 4.	ante, pre, pro	D.	with
____ 5.	anti, contra	E.	without
____ 6.	bi	F.	two
____ 7.	con	G.	away from
____ 8.	dys	H.	inside
____ 9.	ecto	I.	painful
____ 10.	endo, intra	J.	outside

LEARNING ACTIVITIES - continued

Exercise 2.

Directions: Complete the exercise by writing the correct meaning and an example for each prefix in the proper column. Check your own answers by referring to the previous pages.

PREFIX	MEANING	EXAMPLE
eu		
epi		
ex		
hemi		
hyper		
hypo		
inter		
peri		
quadri		
retro		
semi		
sub		
supra		
trans		
tri		

ACTIVITY #3. Suffixes

Directions: Read the following information on suffixes and complete the exercises.

A suffix is defined as a syllable or phrase which is placed at the end of a root to modify or change the meaning of that root.

The suffixes which follow are listed in alphabetical order.

LEARNING ACTIVITIES - continued

algia:	pain
cele:	protrusion
centesis:	puncture
desis:	fixation, binding
ectomy:	removal
emia:	blood
genic:	origin
iasis:	condition, presence of
itis:	inflammation
lysis:	dissolving, breaking down
megaly:	enlargement
oma:	tumor
osis:	condition, disease
ostomy:	opening
otomy:	incision into
pathy:	disease
penia:	decrease, deficiency
pexy:	fixation, suspension
plasty:	surgical repair
ptosis:	falling, drooping
rhaphy:	suture, repair by sewing
scopy:	inspection, examination

LEARNING ACTIVITIES - continued

SUFFIX	MEANING	EXAMPLE	DISCUSSION/DEFINITION
algia	pain	neuralgia	neuro - nerve; algia -pain; "nerve pain"
cele	protrusion	cystocele	cyst - bladder; cele - protrusion; "protrusion of bladder (into the vagina)"
centesis	puncture	thoracentesis	thorax - chest; centesis - puncture; "puncture of chest (to remove fluid)"
desis	fixation, binding	arthrodesis	arthro - joint; desis - fixation; "(surgical) fixation of joint"
ectomy	removal	colectomy	colo - colon; ectomy - removal; "removal of colon"
emia	blood	hyperglycemia	hyper - excessive; glyco - sugar; emia - blood, "excessive sugar in blood"
genic	origin	neurogenic	neuro - nerve; genic - origin; "originates in nerve"
iasis	condition, presence of	nephrolithiasis	nephr - kidney; lith -stone; iasis - presence of; "stones present in kidney"
itis	inflammation	cholecystitis	chole - bile (gall); cyst - bladder; itis - inflammation; "inflammaion of gallbladder"
lysis	dissolving, breaking down	hemolysis	hemo - blood; lysis - breaking down; "blood cells break down"
megaly	enlargement	splenomegaly	splen - spleen; megaly - enlargement; "enlarged spleen"
oma	tumor	nephroma	nephr - kidney; oma - tumor; "kidney tumor"

LEARNING ACTIVITIES - continued

SUFFIX	MEANING	EXAMPLE	DISCUSSION/DEFINITION
osis	condition, disease	nephrosis	nephr - kidney; osis - disease; "kidney disease"
ostomy	opening	nephrostomy	nephr - kidney; ostomy - opening (usually permanent); "usually permanent opening into the kidney"
otomy	incision into	thoracotomy	thorax - chest; otomy - incision into; "incision into chest"
pathy	disease	neuropathy	neuro - nerve; pathy - disease; "diseased nerve"
penia	decrease, deficiency	cytopenia	cyto - cell; penia - decrease; "decrease (in number) of cells"
pexy	fixation, suspension	orchiopexy	orch - testis; pexy - fixation; "fixation of (undescended) testis"
plasty	surgical repair	nephroplasty	nephr - kidney; plasty - surgical repair; "repair of kidney"
ptosis	falling, drooping	blepharoptosis	blephar - eyelid; ptosis - drooping; "drooping eyelid"
rhaphy	suture, repair by sewing	herniorrhaphy	hernia - rupture; rhaphy - repair by sewing; "repair of rupture (hernia) by sewing"
scopy	inspection, examination	cystoscopy	cyst - bladder; scopy - inspection; "inspection (with an instrument) of bladder"

LEARNING ACTIVITIES - concluded

Exercise

Directions: Fill in the following blanks with the correct information. Check your own answers by referring to the previous pages.

SUFFIX	SUFFIX MEANING	EXAMPLE
1. algia	_____	arthralgia
2. _____	protrusion	_____
3. centesis	_____	_____
4. desis	_____	_____
5. _____	removal of	_____
6. _____	_____	anemia
7. _____	origin	_____
8. iasis	_____	lithiasis
9. _____	_____	cystitis
10. lysis	_____	_____
11. _____	enlargement	_____
12. _____	_____	myoma
13. osis	_____	_____
14. ostomy	_____	colostomy
15. _____	incision into	_____
16. _____	_____	adenopathy
17. penia	decrease	_____
18. _____	_____	nephropexy
19. plasty	_____	hernioplasty
20. _____	drooping	_____
21. rhaphy	_____	_____
22. _____	_____	cystoscopy

ANSWERS

ACTIVITY #1

Exercise 1

1. G
2. E
3. A
4. B
5. F
6. D
7. C

Exercise 2

1. osteoarthritis, osteoma
2. myelogenous, myelitis
3. manipulation, maneuver
4. intercostal, costophrenic
5. pedal pulse, pedicure
6. arthritis, arthrotomy
7. myositis, myocardial

If you have given other examples, check them in your medical dictionary.

Exercise 3

1. C
2. D
3. B
4. E
5. F
6. G
7. A

Exercise 4

1. rhinitis, rhinoplasty
2. pharyngitis, pharyngocele
3. laryngitis, laryngoscopy
4. tracheotomy, tracheostomy
5. eupnea, dyspnea
6. pneumonitis, pneumonia
7. thoracotomy, thoracentesis

If you have given other examples, check them in your medical dictionary.

Exercise 5

1. D
2. A
3. B
4. C
5. E

Exercise 6

1. cerebrum, cerebrospinal
2. craniotomy, cranial
3. neuralgia, neuritis
4. meningitis, meningococcus
5. spondylitis, spondylosis

If you have given other examples, check them in your medical dictionary.

ANSWERS - concluded

Exercise 9

1. B
2. C
3. D
4. F
5. G
6. A
7. H
8. I
9. E
10. J

Exercise 12

1. C
2. E
3. B
4. A
5. D

ACTIVITY #2

Exercise 1

1. E
2. G
3. A
4. C
5. B
6. F
7. D
8. I
9. J
10. H

MEDICAL TERMINOLOGY

Module C - Commonly Used Abbreviations and Symbols

UNIT 7

RATIONALE

We use many standardized written "short cuts" in nursing so that we can spend more time with the patients. You will use these symbols and abbreviations often and will be referring to them continuously throughout your career.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the meanings of commonly used nursing abbreviations and symbols.

LEARNING ACTIVITIES

Directions: All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented. You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

ACTIVITY. Abbreviations and Symbols

Directions: Learn the following abbreviations and symbols, and their meanings. If you need any further information, remember to ask for help. Abbreviations are short forms of longer words or phrases. Symbols are visual signs that also represent words.

General Abbreviations

Abbreviations	Meaning
PO	by mouth
NPO	nothing by mouth
STAT	do it now, immediately
PRN	whenever necessary, as needed
Liq.	liquid
Cl. liq.	clear liquid
Reg.	regular

LEARNING ACTIVITIES - continued

Abbreviation	Meaning
Wt.	weight
R	rectal
Ax.	axillary
Resp.	respirations
Spec.	specimen
C & A	Clinitest and Acetest (urine test)
F	Fahrenheit
C	centigrade (Celsius)
Cal.	calorie
Tol.	tolerated
Ad lib	as desired
DC	discontinue
cc	cubic centimeter
gtt. or gtts.	drop or drops
QS	quantity sufficient (for testing)
QNS	quantity not sufficient (for testing)
A.M.	morning
a.c. (A.C.)	before meals
p.c. (P.C.)	after meals
H.S.	at bedtime
h	hour
OOB	out of bed
BRP	bathroom privileges

LEARNING ACTIVITIES - continued

Abbreviation	Meaning
I & O	intake and output
BM	bowel movement
OU	both eyes
OD	right eye
OS	left eye
qd (QD)	each day
bid (BID)	twice daily
tid (TID)	three times daily
qid (QID)	four times daily
qod (QOD)	every other day
qh (QH)	every hour
q2h (Q2H)	every two hours
DNR	do not resuscitate
SSE	soap suds enema
TPR	temperature, pulse, respirations
BP	blood pressure
FHT	fetal heartbeat
V.O.	verbal order
T.O.	telephone order

Common Lab Test Abbreviations

Abbreviation	Meaning
CBC	complete blood count
Hgb	hemoglobin
Hct	hematocrit
FBS	fasting blood sugar

LEARNING ACTIVITIES - continued

Abbreviation	Meaning
GTT	glucose tolerance test
UA	urinalysis
2 hr. PP	two hour post prandial (usually blood sugar, drawn 2 hours after patient eats)
Sp.G	specific gravity

Hospital Location Abbreviations

Abbreviation	Meaning
ER	emergency room
OB	obstetric unit
PEDS	pediatric unit
GYN	gynecology unit
Neuro	neurosurgery unit
EENT	ear, eye, nose, throat unit
LAB	laboratory
MICU	medical intensive care unit
SICU	surgical intensive care unit
ICU	intensive care unit
IT	inhalation therapy
PT	physical therapy
CS	central supply
OR	operating room
CCU	coronary care unit (cardiac care unit)

Hospital Personnel Abbreviations

Abbreviation	Meaning
NA	nursing assistant

LEARNING ACTIVITIES - continued

Abbreviation	Meaning
LPN	licensed practical nurse
RN	registered nurse
MD	medical doctor
PT	physical therapist
DO	doctor of osteopathy

Diagnostic Abbreviations

Abbreviation	Meaning
ASHD	arteriosclerotic heart disease
CHF	congestive heart failure
MI	myocardial infarction (heart attack)
CVA	cerebrovascular accident (stroke)
FUO	fever of undetermined origin
URI	upper respiratory infection
IVP	intravenous pyelogram x-ray
BAE	barium enema x-ray
GI	gastrointestinal tract x-ray
GB	gallbladder x-ray
IPPB	intermittent positive pressure breathing
EEG	electroencephalogram (brain studies)
EKG	electrocardiogram (heart tracings)
EMG	electromyogram (muscle tracings)

Symbols

Symbol	Meaning	Symbol	Meaning
@	at	K	potassium
c̄	with	Cl	chloride

LEARNING ACTIVITIES - continued

Symbol	Meaning	Symbol	Meaning
s̄	without	Na	sodium
p̄	after	H_2O	water
>	increases	O_2	oxygen
<	decreases	CO_2	carbon dioxide
↑	higher	ʒ	dram
↓	lower	℥	ounce

Directions: Write the correct meanings for the abbreviations and symbols below. Check your answers with the preceding information.

PO	_____	PT	_____
NPO	_____	CS	_____
STAT	_____	OR	_____
C & A	_____	CBC	_____
A.M.	_____	Hgb	_____
OOB	_____	Hct	_____
BRP	_____	FBS	_____
I & O	_____	PP	_____
BM	_____	UA	_____
qh	_____	MI	_____
SSE	_____	CVA	_____
TPR	_____	IVP	_____
BP	_____	IPPB	_____
NA	_____	EKG	_____
LPN	_____	c̄	_____
RN	_____	s̄	_____
MD	_____	↑	_____

LEARNING ACTIVITIES - concluded

ER	_____	↓	_____
ICU	_____	0_2	_____
H_20	_____	$C0_2$	_____

Directions: Write the correct abbreviation or symbol for the following words or phrases. Check your answers with the preceding information.

by mouth _____

nothing by mouth _____

immediately _____

Clinitest and Acetest _____

morning _____

out of bed _____

bathroom privileges _____

soap suds enema _____

temperature, pulse, respiration _____

blood pressure _____

nursing assistant _____

licensed practical nurse _____

registered nurse _____

medical doctor _____

emergency room _____

intensive care unit _____

physical therapy _____

central supply _____

operating room _____

hemoglobin _____

hematocrit _____

fasting blood sugar _____

post prandial _____

urinalysis _____

myocardial infarction _____

cerebrovascular accident _____

intravenous pyelogram _____

intermittent positive pressure breathing _____

electrocardiogram _____

with _____

without _____

higher _____

lower _____

water _____

oxygen _____

carbon dioxide _____

complete blood count _____

MEDICAL TERMINOLOGY

Module D - Surgical and Diagnostic Terms

UNIT 7

RATIONALE

In the first three modules you learned how to record observations, how to originate words, and how to abbreviate words. Now you will learn how to break down and define words using the information you have learned in the preceding modules.

PERFORMANCE OBJECTIVES

To the instructor's satisfaction you will:

Identify the definitions of surgical and diagnostic terms.

LEARNING ACTIVITIES

Directions: All the information you will need to complete this module successfully is included in the learning activities. The exercises are included to help you prepare for the Post Test and to help you learn the information presented: You will be instructed what to do as you proceed with the module. If you have any questions, be sure to check with your instructor.

ACTIVITY. **Defining Surgical and Diagnostic Terms**

Directions: Read the following information and complete the exercise. In this activity, you will tie together everything you have learned about roots, prefixes, and suffixes. You will look at a word; separate that word into root, prefix and/or suffix; and then define that word using the definitions of its parts.

The following chart is an illustration of this procedure.

Examples:

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
appendectomy	append	-ectomy	append - appendix; ectomy - removal of; "removal of the appendix"
cholecystectomy	chole cyst	-ectomy	chole - bile (gall); cyst - bladder; ectomy - removal of; "removal of the gall-bladder"
incise	cise	in-	in - into; cise - to cut; "to cut into"

Surgical and Diagnostic Terms Related to the Digestive System

Directions: Define the following terms using the procedure illustrated above. If you have any problems use a medical dictionary or see your instructor.

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
colostomy	_____	_____	_____
laparotomy	_____	_____	_____
gastrectomy	_____	_____	_____

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
sublingual			
gastroscopy			
esophagoscopy			
pneumonectomy			
thoracotomy			
tonsillectomy			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
bronchoscopy			
laryngoscopy			

Surgical Terms and Procedures Related to Muscle, Skin, and Bone

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
mastectomy			
arthrotomy			
osteotomy			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
dermatitis			

Surgical Terms and Procedures Related to the Reproductive System

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
hysterectomy			
colporrhaphy			
prostatectomy			
orchiectomy			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
salpingectomy			
vasectomy			

Surgical and Diagnostic Terms and Procedures Related to the Circulatory System

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
embolectomy			
endarterectomy			
splenectomy			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
valvotomy			
aortogram			
arteriogram			

Surgical and Diagnostic Terms and Procedures Related to the Nervous System

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
craniotomy			
laminectomy			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
myelogram			
meningitis			

Surgical Term or Procedure Related to the Endocrine System

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
thyroidectomy			

Surgical and Diagnostic Terms and Procedures Related to the Eyes

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
blepharedema			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
cataract extraction			
ophthalmoscopy			

Surgical and Diagnostic Terms and Procedures Related to the Kidney and Urinary Tract

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
nephrectomy			
cystectomy			
cystotomy			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
ureterolithotomy			
ureterostomy			
nephroscopy			
cystoscopy			

Surgical and Diagnostic Terms and Procedures Related to the Ear and Nose

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
otoplasty			

WORD	ROOT	PREFIX OR SUFFIX	MEANING OF WORD OR TERM
mastoidectomy			
nasal septoplasty			

POST TEST

Module A

Unit 7

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. Tall or short describes a patient's:

   a. size
   b. shape
   c. posture
   d. all of the above

2. Thin or average build describes a patient's:

   a. size
   b. shape
   c. posture
   d. all of the above

3. Stooped or erect describes a patient's:

   a. size
   b. shape
   c. posture
   d. all of the above

4. Skin that is reddened with fever is described as:

   a. normal
   b. mottled
   c. cyanotic
   d. flushed

5. Skin that is blotched or patched is described as:

   a. normal
   b. mottled
   c. cyanotic
   d. flushed

6. Skin that has a rash or hives is described as:

   a. abnormal
   b. normal
   c. pallored
   d. cyanotic

POST TEST - continued

7. Unusual paleness or the loss of red or pink tones describes skin that is:

   a. abnormal
   b. normal
   c. pallored
   d. cyanotic

8. The skin of a dark-complexioned patient that is grey looking around the mouth and over the cheeks might be described as:

   a. mottled
   b. flushed
   c. pallored
   d. cyanotic

9. Normal eyes are described as:

   a. flat looking
   b. bloodshot
   c. bright
   d. all of the above

10. Abnormal eyes are described as:

    a. flat looking
    b. swollen
    c. bloodshot
    d. all of the above

11. Normal _____ are of the same size and change size when exposed to flashes of light.

    a. pupils
    b. eyelids
    c. eyes
    d. all of the above

12. Ptosis describes abnormal:

    a. pupils
    b. eyelids
    c. eyes
    d. all of the above

13. Reddened sclerae describes abnormal:

    a. pupils
    b. eyelids
    c. eyes
    d. all of the above

POST TEST - continued

14. If my breathing is normal, it is described as:

a. Cheyne-Stokes
b. orthopneic
c. abnormal
d. normal

15. Dyspnea describes breathing that is:

a. very rapid
b. painful
c. wheezing
d. noisy

16. Hyperpnea describes breathing that is:

a. very rapid
b. painful
c. wheezing
d. noisy

17. Coughing up sputum describes a/an:

a. persistent cough
b. intermittent cough
c. nonproductive cough
d. productive cough

18. Priscilla Patient coughs up stringy, thick sputum. The nursing observation that best describes this is:

a. persistent
b. intermittent
c. tenacious
d. blood-tinged

19. How mentally alert Priscilla Patient is describes her:

a. emotional response
b. level of consciousness
c. neither of the above
d. both of the above

20. If I am able to speak and to carry on a conversation, I may be described as:

a. comatose
b. restless
c. stuporous
d. alert

POST TEST - continued

21. If I do not respond to anything, I may be described as:

a. comatose
b. restless
c. stuporous
d. alert

22. If I can be aroused but only respond to pain, I may be described as:

a. comatose
b. restless
c. stuporous
d. alert

23. My appetite is fair if I eat:

a. 0-20% of what is served
b. 85-100% of what is served
c. 50-80% of what is served
d. 20-45% of what is served

24. My appetite is good if I eat:

a. 0-20% of what is served
b. 85-100% of what is served
c. 50-80% of what is served
d. 20-45% of what is served

25. My appetite is poor if I eat:

a. 0-20% of what is served
b. 85-100% of what is served
c. 50-80% of what is served
d. 20-45% of what is served

26. Priscilla Patient is babbling without making sense. Her speech is described as:

a. coherent
b. incoherent
c. disoriented
d. aphasic

27. A patient who responds to questions about what day it is with inappropriate answers is described as:

a. coherent
b. incoherent
c. disoriented
d. aphasic

POST TEST - continued

28. A patient who is unable to speak is described as:

    a. coherent
    b. incoherent
    c. disoriented
    d. aphasic

29. Tachycardia describes a pulse of:

    a. less than 60 for adults
    b. less than 100 for adults
    c. more than 60 for adults
    d. more than 100 for adults

30. Bradycardia describes a pulse that is:

    a. less than 60 for adults
    b. less than 100 for adults
    c. more than 60 for adults
    d. more than 100 for adults

31. A patient's pulse that is thready, feeble, and irregular is best described as:

    a. abnormal
    b. normal
    c. bounding
    d. rhythmic

32. A patient's pulse that pounds against your fingertips is best described as:

    a. abnormal
    b. normal
    c. bounding
    d. rhythmic

33. If I burn my hand with hot grease, the pain is described as:

    a. transient
    b. severe
    c. generalized
    d. radiating

34. If I have a cutting, stabbing pain, it is described as:

    a. transient
    b. chronic
    c. radiating
    d. sharp

POST TEST - continued

35. If I have a pain that begins in my chest and goes down my arm it is described as:

a. transient
b. chronic
c. radiating
d. sharp

36. If I ache all over, my pain is described as:

a. generalized
b. chronic
c. intermittent
d. sharp

37. If I have a pain that doesn't go away, it is described as:

a. generalized
b. chronic
c. intermittent
d. sharp

38. If I run and get a "stitch" in my side, and it quits when I stop running, the pain is described as:

a. radiating
b. transient
c. intermittent
d. chronic

39. Labor pains are described as:

a. radiating
b. transient
c. intermittent
d. chronic

40. Priscilla Patient comes into the doctor's office with a towel around her hand. You remove the towel and find a large area wet with blood. Blood is gushing from a cut on her hand. Bleeding would be described as:

a. moderate
b. scant
c. profuse
d. oozing

POST-TEST - continued

41. Priscilla Patient comes back to the doctor's office 3 days later to have her bandage changed. She has wet serosanguineous drainage on her bandage about the size of a penny. Her drainage would be described as:

a. moderate
b. scant
c. profuse
d. oozing

42. Now, let's describe Priscilla's dressing when she came to have it changed. Read question #41 again and describe her dressing:

a. clean
b. blood stained
c. dry
d. saturated

43. A dry dressing may also be:

a. clean
b. dirty
c. neither a nor b
d. both a and b

44. Voiding is another term for:

a. oliguria
b. polyuria
c. urination
d. dysuria

45. Painful micturition is described as:

a. oliguria
b. polyuria
c. urination
d. dysuria

46. A patient who is able to control the discharge of urine is described as:

a. incontinent
b. continent
c. anuric
d. pyuric

47. A normal stool is described as:

a. brown and soft
b. brown and formed
c. neither a nor b
d. both a and b

POST TEST - concluded

48. Hematuria describes:

a. pus in urine
b. blood in urine
c. acid in urine
d. yellow urine

49. Priscilla Patient's abdomen is board-like to the touch. It is described as:

a. protruding
b. flacid
c. flat
d. rigid

50. I've had a really good day. It looks like I've passed this test, the kids are all well, the job market has improved, the garden is producing like mad, and I've got steak for supper. Relaxed and smiling describe my:

a. level of consciousness
b. emotional response
c. both a and b
d. neither a or b

ANSWERS TO POST TEST

unit 7

Module A

1. a
2. b
3. c
4. d
5. b
6. a
7. c
8. d
9. c
10. d
11. a
12. b
13. c
14. d
15. b
16. a
17. d
18. c
19. b
20. d
21. a
22. c
23. c
24. b
25. d
26. d
27. c
28. d
29. d
30. a
31. a
32. c
33. b
34. d
35. c
36. a
37. b
38. b
39. c
40. c
41. b
42. b
43. d
44. c
45. d
46. b
47. d
48. b
49. d
50. b

POST TEST

Module B

UNIT 7

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

Roots

1. Osteo means:

   a. hand
   b. rib
   c. bone
   d. arm

2. A disease of the bone is:

   a. osteoarthritis
   b. myelogenous
   c. myositis
   d. leukemia

3. Myelos means:

   a. intercostal space
   b. manipulation
   c. marrow
   d. muscle

4. Arthro means:

   a. muscle
   b. marrow
   c. bone
   d. joint

5. An intercostal space is the space between two:

   a. vertebrae
   b. joints
   c. ribs
   d. fingers

POST TEST - continued

6. Arthritis involves:

   a. muscle
   b. joint
   c. nerve
   d. fat

7. Myo means:

   a. muscle
   b. bone
   c. nerve
   d. blood

8. Rhino means:

   a. muscle
   b. bone
   c. blood
   d. nose

9. Pharynx means:

   a. voice box
   b. throat
   c. lung
   d. bone

10. Larynx means:

    a. voice box
    b. throat
    c. lung
    d. bone

11. Cranio means:

    a. head
    b. brain
    c. skull
    d. nerve

12. Neuro means:

    a. head
    b. nerve
    c. skull
    d. brain

POST TEST - continued

13. Stoma means:

a. tongue
b. mouth
c. swallow
d. stomach

14. Gastro means:

a. tongue
b. mouth
c. stomach
d. liver

15. Hepato means:

a. tongue
b. mouth
c. stomach
d. liver

16. Derm means:

a. itch
b. sweat
c. skin
d. mole

17. Oto means:

a. ear
b. eye
c. nose
d. skin

18. Oculus means:

a. ear
b. eye
c. nose
d. skin

19. Cardio means:

a. blood
b. vessel
c. heart
d. clot

POST TEST - continued

20. Hemo means:

a. blood
b. vessel
c. heart
d. clot

21. Thrombus means:

a. blood
b. vessel
c. heart
d. clot

22. Brady means:

a. fast
b. slow
c. heart
d. blood

23. Tachy means:

a. fast
b. slow
c. heart
d. blood

24. Erythro means:

a. cell
b. blood
c. red
d. white

25. Nephro means:

a. liver
b. stone
c. bladder
d. kidney

26. Algesia means:

a. heart
b. cold
c. pain
d. warm

POST TEST - continued

27. Onco means:

a. tumor
b. tissue
c. blood
d. gland

28. Carcino means:

a. tumor
b. cancer
c. pain
d. warm

29. Hyster means:

a. uterus
b. vagina
c. bladder
d. breast

30. Mast means:

a. cervix
b. vagina
c. uterus
d. breast

31. Myositis is a disease of the:

a. bone
b. muscle
c. nerve
d. blood

32. Rhinitis affects the:

a. muscle
b. bone
c. nose
d. blood

33. Pharyngitis affects the:

a. nose
b. lung
c. throat
d. diaphragm

POST TEST - continued

34. Inflammation of the voice box is:

a. rhinitis
b. pharyngitis
c. trachitis
d. laryngitis

35. Surgery on the skull is called:

a. craniotomy
b. laminectomy
c. chordotomy
d. rhizotomy

36. Stomatitis is a condition of the:

a. throat
b. vocal cord
c. mouth
d. gum

37. Removal of the stomach is called:

a. gastrectomy
b. laminectomy
c. colectomy
d. cholecystectomy

38. Hepatitis affects the:

a. stomach
b. mouth
c. liver
d. gallbladder

39. Dermatitis affects the:

a. skin
b. mouth
c. liver
d. heart

40. Otitis affect the:

a. ear
b. eye
c. nose
d. skin

POST TEST - continued

41. Oculus dexter means:

a. left eye
b. right eye
c. ophthalmology
d. ophthalmologist

42. Myocardium is:

a. heart muscle
b. fatty tissue
c. interstitial tissue
d. none of the above

43. Hemogram means:

a. dissolving of blood
b. blood volume
c. iron in blood
d. report of blood test

44. Thrombophlebitis affects the:

a. arteries
b. capillaries
c. veins
d. none of the above

45. A condition that means a slow pulse rate is:

a. myocarditis
b. endocarditis
c. bradycardia
d. tachycardia

46. A condition that means a fast pulse rate is:

a. myocarditis
b. endocarditis
c. bradycardia
d. tachycardia

47. An erythrocyte is a:

a. white blood cell
b. red blood cell
c. clotting cell
d. none of the above

POST TEST - continued

48. Nephrectomy means removal of:

a. stone
b. bladder
c. ureter
d. kidney

49. Oncology is the study of:

a. tumors
b. tissues
c. blood
d. glands

50. Hysterectomy is removal of the:

a. uterus
b. vagina
c. cervix
d. breast

51. Mastectomy is the removal of the:

a. uterus
b. breast
c. cervix
d. vagina

52. Cost means:

a. muscle
b. bone
c. rib
d. gland

53. Thorax means:

a. head
b. brain
c. chest
d. abdomen

54. Pnea means:

a. breathing
b. sweating
c. assimilating
d. digesting

POST TEST - continued

55. Trachea means:

a. throat
b. voice box
c. windpipe
d. nose

56. Cephalo means:

a. ankle
b. head
c. nerve
d. chest

57. Spondyl means:

a. vertebra
b. membrane
c. nerve
d. skull

58. Meningo means:

a. skull
b. membrane
c. nerve
d. skull

59. The term meaning difficulty in swallowing is:

a. stomatitis
b. subglossal
c. diaphoresis
d. dysphagia

60. An opening into the large intestine is called a:

a. cystostomy
b. colostomy
c. proctoscopy
d. cholecystectomy

61. An opening into the abdomen is called a:

a. craniotomy
b. gastrotomy
c. laparotomy
d. tracheotomy

POST TEST - continued

62. Dermatitis refers to an inflammation of the:

a. ear
b. stomach
c. lung
d. skin

63. The term which means to cut out a stone is:

a. nephrectomy
b. cholecystectomy
c. lithotomy
d. craniotomy

64. A fatty tumor is called a:

a. lipoma
b. adenoma
c. carcinoma
d. myoma

65. The term which means removal of a fallopian tube is:

a. hysterectomy
b. mastectomy
c. salpingectomy
d. nephrectomy

Prefixes

66. Ab means:

a. to
b. before
c. against
d. away

67. Dys means:

a. painful
b. outside
c. inside
d. abnormal

68. Ecto means:

a. painful
b. outside
c. inside
d. abnormal

POST TEST - continued

69. Endo means:

a. painful
b. outside
c. inside
d. abnormal

70. Supra means:

a. painful
b. outside
c. inside
d. above

71. Hemi means:

a. painful
b. inside
c. half
d. outside

72. Hyper means:

a. above
b. decrease
c. outside
d. below

73. Hypo means:

a. increase
b. below
c. above
d. outside

74. Trans means:

a. across
b. above
c. below
d. between

75. A word that means away from is:

a. adduction
b. abduction
c. addiction
d. rotation

POST TEST - continued

76. Painful urination is:

a. anuria
b. polyuria
c. dysuria
d. hematuria

77. Outside of the normal place is:

a. endoscopic
b. ectopic
c. eupneac
d. suprapubic

78. Looking inside of a body cavity is:

a. endoscopy
b. ectopic
c. bronchoscopy
d. suprapubic

79. Suprapubic means:

a. below pubic bone
b. above pubic bone
c. away from pubic bone
d. toward pubic bone

80. A term to describe half paralyzed is:

a. hemisphere
b. hemiplegia
c. bilateral
d. quadriplegia

81. Hypertrophy of an organ means it is of:

a. excessive size
b. normal size
c. small size
d. none of the above

82. Hypodermic means:

a. above the skin
b. above the muscle
c. below the muscle
d. below the skin

POST TEST - continued

83. Transurethral means:

a. above the urethra
b. below the urethra
c. through the urethra
d. outside the urethra

84. Ad means:

a. without
b. away from
c. toward
d. before

85. Bi means:

a. life
b. two
c. three
d. living

86. Peri means:

a. between
b. around
c. increase
d. decrease

87. Inter means:

a. around
b. between
c. above
d. behind

88. A term which means normal breathing is:

a. apnea
b. dyspnea
c. eupnea
d. orthopnea

89. Sublingual means:

a. above the tongue
b. under the tongue
c. above the stomach
d. under the stomach

POST TEST - continued

90. A term which means against life is:

a. antibiotic
b. antidote
c. interstitial
d. pericardial

Suffixes

91. Algia means:

a. pain
b. protrusion
c. puncture
d. fixation

92. Cele means:

a. pain
b. protrusion
c. puncture
d. fixation

93. Desis means:

a. pain
b. protrusion
c. puncture
d. fixation

94. Ectomy means:

a. removal of
b. repair of
c. puncture of
d. opening into

95. Emia means:

a. urine
b. blood
c. cell
d. tissue

96. Itis means:

a. inflammation
b. removal
c. repair
d. puncture

POST TEST - continued

97. Oma means:

a. tumor
b. opening
c. incision into
d. repair

98. Ostomy means:

a. fixation of
b. opening into
c. incision into
d. tumor

99. Otomy means:

a. fixation of
b. opening into
c. incision into
d. excising

100. Plasty means:

a. fixation
b. repair
c. enlargement
d. disease

101. Scopy means to:

a. repair
b. inspect
c. cut away
d. add on

102. Pain in a nerve is called:

a. uremia
b. neuralgia
c. nephroma
d. neuritis

103. A protrusion of the bladder is a:

a. cystocele
b. rectocele
c. cystitis
d. cystectomy

POST TEST - continued

104. Arthrodesis is to surgically:

a. remove a joint
b. fix a joint
c. exercise a joint
d. repair a bone

105. Removal of the colon is a:

a. cholecystectomy
b. colostomy
c. colectomy
d. gastrectomy

106. Hyperglycemia means:

a. high sugar in urine
b. high sugar in blood
c. high urea in urine
d. high urea in blood

107. Inflammation of the gallbladder is:

a. hepatitis
b. cholecystitis
c. cholelithiasis
d. gastritis

108. A tumor of the kidney is a:

a. nephritis
b. nephroma
c. cystitis
d. cystoma

109. An opening into the kidney is a:

a. cystotomy
b. nephrostomy
c. nephrotomy
d. colostomy

110. The surgical repair of a kidney is a:

a. nephroplasty
b. nephrectomy
c. cystoscopy
d. cystotomy

POST TEST - concluded

111. Inspection of the urinary bladder is:

a. nephropexy
b. gastroscopy
c. cystoscopy
d. laparotomy

112. Puncturing the chest to remove fluid is called a/an:

a. arthrotomy
b. arthrodesis
c. thoracentesis
d. thoracotomy

113. Cutting into the chest is called a/an:

a. arthrotomy
b. arthrodesis
c. thoracentesis
d. thoracotomy

114. Megaly means:

a. inflammation
b. enlargement
c. fixation
d. dissolving

115. Rhaphy means:

a. suture
b. falling
c. incision into
d. removal of

ANSWERS TO POST TEST

Module B

Roots

1. c
2. a
3. c
4. d
5. c
6. b
7. a
8. d
9. b
10. a
11. c
12. b
13. b
14. c
15. d
16. c
17. a
18. b
19. c
20. a
21. d
22. b
23. a
24. c
25. d
26. c
27. a
28. b
29. a
30. d
31. b
32. c
33. c
34. d
35. a
36. c
37. a
38. c
39. a
40. a
41. b
42. a
43. d
44. c
45. c
46. d
47. b
48. d
49. a
50. a
51. b
52. c
53. c
54. a
55. c
56. b
57. a
58. b
59. d
60. b
61. c
62. d
63. c
64. a
65. c

Prefixes

66. d
67. a
68. b
69. c
70. d
71. c
72. a
73. b
74. a
75. b
76. c
77. b
78. a
79. b
80. b
81. a
82. d
83. c
84. c
85. b
86. b
87. b.

ANSWERS TO POST TEST - concluded

88. c

89. b

90. a

Suffixes

91. a
92. b
93. d
94. a
95. b
96. a
97. a
98. b
99. c
100. b
101. b
102. b
103. a
104. b
105. c
106. b
107. b
108. b
109. b
110. a
111. c
112. c
113. d
114. b
115. a

POST TEST

Module C

Unit 7

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. The abbreviation for by mouth is:

   a. NPO
   b. PO
   c. STAT.
   d. OOB

2. The abbreviation for nothing by mouth is:

   a. NPO
   b. PO
   c. STAT
   d. OOB

3. STAT means:

   a. immediately
   b. later
   c. tomorrow
   d. today

4. The abbreviation for Clinitest and Acetest is:

   a. C & A
   b. STAT
   c. OOB
   d. NPO

5. A.M. stands for:

   a. evening
   b. morning
   c. tomorrow
   d. today

POST TEST - continued

6. Bathroom privileges is written:

   a. bedrest
   b. BRP
   c. dangle
   d. up

7. BM stands for:

   a. better meals
   b. by mouth
   c. bowel movement
   d. none of the above

8. SSE means:

   a. slow, sailing, easy
   b. soap suds enema
   c. neither a nor b
   d. both a and b

9. Respirations, pulse, and temperature is written:

   a. RTP
   b. TRP
   c. PTR
   d. TPR

10. Nursing assistant is written:

   a. NA
   b. AN
   c. neither a nor b
   d. both a and b

11. LPN means:

   a. licensed practical nurse
   b. licensed physical nurse
   c. practical nurse
   d. leukopoietic nucleus

12. The abbreviation OOB means:

   a. out of bandages
   b. out of bedpans
   c. out of bed
   d. out of binders

POST TEST - continued

13. The abbreviation cal. means:

    a. clinitest
    b. colon
    c. calorie
    d. calcium

14. Twice a day is written:

    a. tid
    b. bid
    c. qid
    d. qd

15. Every other day is written:

    a. tid
    b. bid
    c. qid
    d. qod

16. The abbreviation for intake and output is:

    a. in and out
    b. IO
    c. I & O
    d. O & I

17. MD means:

    a. deaf-mute
    b. medical disaster
    c. mid dorsal
    d. medical doctor.

18. Write the meaning for the following abbreviations on the lines provided on your answer sheet.

    a. ER
    b. ICU
    c. PT
    d. CS
    e. OR
    f. CBC
    g. Hgb
    h. Hct
    i. FBS
    j. h
    k. UA
    l. MI
    m. CVA
    n. IVP
    o. IPPB
    p. EKG
    q. $\bar{c}$
    r. $\bar{s}$
    s. ↑
    t. ↓
    u. H_2O
    v. O_2
    w. CO_2
    x. BP
    y. LPN
    z. RN
    aa. QH

POST TEST - concluded

19. Write the abbreviation for the following terms or phrases on the lines provided on your answer sheet.

a. weight

b. as desired

c. left eye

d. four times daily

e. do not resuscitate

f. gynecology

g. potassium

ANSWERS TO POST TEST

Module C

Unit 7

1. b
2. a
3. a
4. a
5. b
6. b
7. c
8. b
9. d
10. a
11. a
12. c
13. c
14. b
15. d
16. c
17. d

18. a. Emergency Room
    b. Intensive Care Unit
    c. Physical Therapy
    d. Central Supply
    e. Operating Room
    f. Complete Blood Count
    g. Hemoglobin
    h. Hematocrit
    i. Fasting Blood Sugar
    j. Hour
    k. Urinalysis
    l. Myocardial Infarction
    m. Cerebrovascular Accident
    n. Intravenous Pyelogram
    o. Intermittent Positive Pressure Breathing
    p. Electrocardiogram
    q. with
    r. without
    s. above, over, higher, increase
    t. below, under, lower, decrease
    u. water
    v. oxygen
    w. carbon dioxide
    x. blood pressure
    y. Licensed Practical Nurse
    z. Registered Nurse
    aa. every hour

ANSWERS TO POST TEST - concluded

19. a. wt
    b. ad lib
    c. os
    d. qid
    e. DNR
    f. gyn
    g. K

POST TEST

Module D

Unit 7

Directions: Read each question and its lettered answers. When you have decided which answer is correct, circle that letter on your answer sheet. DO NOT WRITE ON THIS TEST.

1. Appendectomy means:

   a. cutting into appendix
   b. removal of appendix
   c. making an opening into appendix
   d. none are correct.

2. A cholecystectomy is:

   a. cutting into common duct
   b. cutting into gall sac
   c. removal of stones
   d. removal of gallbladder

3. A colostomy is:

   a. an incision into gall sac
   b. surgical opening into colon
   c. removal of colon
   d. none are correct

4. Gastrectomy is:

   a. opening into stomach
   b. removal of colon
   c. removal of stomach
   d. none are correct

5. A laparotomy is:

   a. surgical incision into abdomen
   b. surgical incision into stomach
   c. surgical excision of abdomen
   d. none are correct

POST TEST - continued

6. Gastroscopy means:

   a. removal of the stomach
   b. inspecting the stomach
   c. cutting into the stomach
   d. none are correct

7. Thoracotomy means:

   a. removal of lung
   b. removal of chest
   c. cutting into the chest
   d. cutting into the lung

8. Bronchoscopy means:

   a. removal of bronchus
   b. cutting into bronchus
   c. inspecting the bronchus
   d. none are correct

9. Mastectomy means:

   a. removal of heart
   b. removal of chest
   c. removal of breast
   d. none are correct

10. Arthrotomy means:

   a. removal of joint
   b. incision into joint
   c. opening into joint
   d. none are correct

11. Hysterectomy means:

   a. removal of uterus
   b. removal of ureter
   c. removal of urethra
   d. none are correct

12. Prostatectomy means:

   a. removal of prosthesis
   b. removal of prostate
   c. removal of uterus
   d. none are correct

POST TEST - continued

13. Vasectomy means:

a. incision into the vas deferens
b. removal of the testicle
c. removal of the vas deferens
d. none are correct

14. Arteriogram means:

a. visual study of the artery
b. visual study of the kidney
c. visual study of the aorta
d. none are correct

15. Craniotomy means:

a. incision into scalp
b. incision into skull
c. incision into brain
d. none are correct

16. Meningitis means:

a. inflammation of the lining of the joints
b. inflammation of the membrane of the brain
c. inflammation of the heart muscle
d. none are correct

17. Cataract extraction means:

a. implanting cataract
b. removing cataract
c. cutting into eye
d. none are correct

18. Cystectomy means:

a. removal of the bladder
b. removal of the kidney
c. removal of the uterus
d. none are correct

19. Cystotomy means:

a. removal of the bladder
b. incision into the bladder
c. removal of the gall sac
d. none are correct

POST TEST - concluded

20. Cystoscopy means:

a. removal of bladder
b. inspection of the bladder
c. dissecting bladder
d. none are correct

21. Otoplasty means:

a. repair of otoscope
b. repair of ear
c. repair of eye
d. none are correct

22. Esophagoscopy means:

a. removal of esophagus
b. cutting into esophagus
c. resection of esophagus
d. looking into the esophagus

23. Laryngoscopy means:

a. removal of voice box
b. cutting into voice box
c. resection of voice box
d. looking into voice box

24. Salpingectomy means:

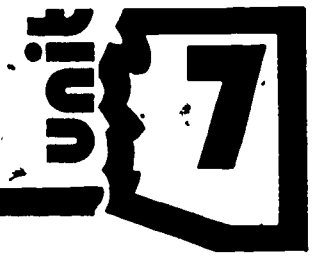
a. removal of ovary
b. removal of fallopian tube
c. cutting into ovary
d. cutting into fallopian tube

25. Ureterostomy means:

a. removal of ureter
b. looking into ureter
c. opening into ureter
d. resection of ureter

ANSWERS TO POST TEST

Module D



1. b
2. d
3. b
4. c
5. a
6. b
7. c
8. c
9. c
10. b
11. a
12. b
13. c
14. a
15. b
16. b
17. b
18. a
19. b
20. b
21. b
22. d
23. d
24. b
25. c

SAMPLE ANSWER SHEET

NAME _____ DATE _____

UNIT _____ MODULE _____

(1) a b c d e f g	(2) a b c d e f g	(3) a b c d e f g
(4) a b c d e f g	(5) a b c d e f g	(6) a b c d e f g
(7) a b c d e f g	(8) a b c d e f g	(9) a b c d e f g
(10) a b c d e f g	(11) a b c d e f g	(12) a b c d e f g
(13) a b c d e f g	(14) a b c d e f g	(15) a b c d e f g
(16) a b c d e f g	(17) a b c d e f g	(18) a b c d e f g
(19) a b c d e f g	(20) a b c d e f g	(21) a b c d e f g
(22) a b c d e f g	(23) a b c d e f g	(24) a b c d e f g
(25) a b c d e f g	(26) a b c d e f g	(27) a b c d e f g
(28) a b c d e f g	(29) a b c d e f g	(30) a b c d e f g
(31) a b c d e f g	(32) a b c d e f g	(33) a b c d e f g
(34) a b c d e f g	(35) a b c d e f g	(36) a b c d e f g
(37) a b c d e f g	(38) a b c d e f g	(39) a b c d e f g
(40) a b c d e f g	(41) a b c d e f g	(42) a b c d e f g
(43) a b c d e f g	(44) a b c d e f g	(45) a b c d e f g
(46) a b c d e f g	(47) a b c d e f g	(48) a b c d e f g
(49) a b c d e f g	(50) a b c d e f g	(51) a b c d e f g