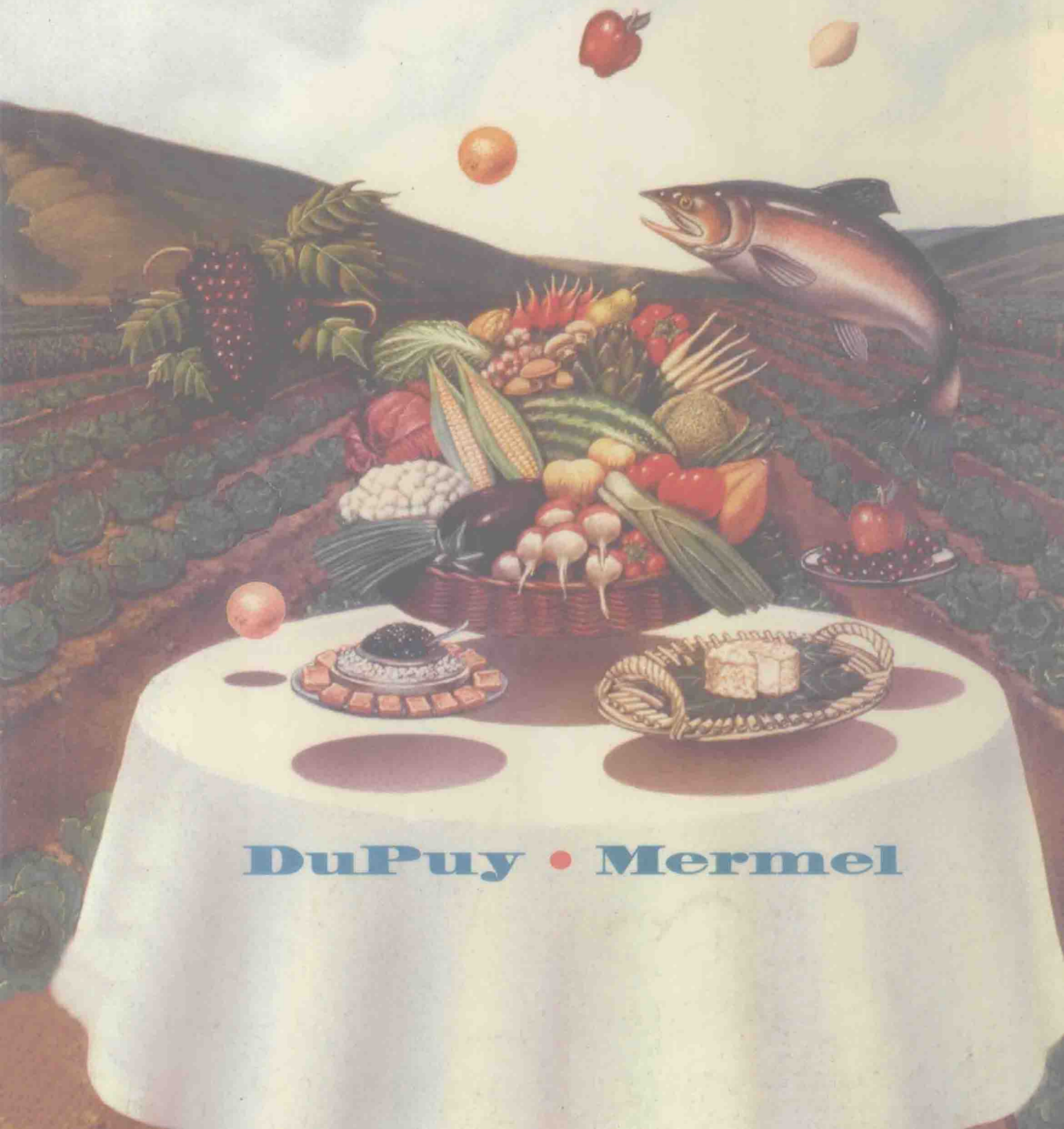


FOCUS N NUTRITION



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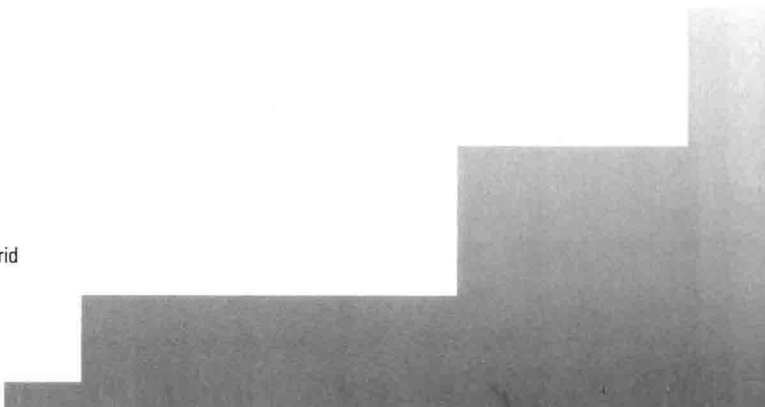
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Median Heights and Weights and Recommended Energy Intake

Category	Age (years) or Condition	Weight		Height		Average Energy Allowance (kcal)			
		(kg)	(lb)	(cm)	(in)	REE ^a (kcal/day)	Multiples of REE	Per kg body weight	Per day ^b
Infants	0.0-0.5	6	13	60	24	320		108	650
	0.5-1.0	9	20	71	28	500		98	850
Children	1-3	13	29	90	35	740		102	1,300
	4-6	20	44	112	44	950		90	1,800
Males	7-10	28	62	132	52	1,130		70	2,000
	11-14	45	99	157	62	1,440	1.70	55	2,500
	15-18	66	145	176	69	1,760	1.67	45	3,000
	19-24	72	160	177	70	1,780	1.67	40	2,900
	25-50	79	174	176	70	1,800	1.60	37	2,900
	51+	77	170	173	68	1,530	1.50	30	2,300
Females	11-14	46	101	157	62	1,310	1.67	47	2,200
	15-18	55	120	163	64	1,370	1.60	40	2,200
	19-24	58	128	164	65	1,350	1.60	38	2,200
	25-50	63	138	163	64	1,380	1.55	36	2,200
	51+	65	143	160	63	1,280	1.50	30	1,900
Pregnant	1st Trimester								+0
	2nd Trimester								+300
	3rd Trimester								+300
Lactating	1st 6 months								+500
	2nd 6 months								+500

^aResting energy expenditure (REE); calculation based on FAO equations, then rounded. This is the same as resting metabolic rate (RMR).

^bFigure is rounded.

Daily Values established by the Food and Drug Administration as standards for nutrient labeling purposes

REFERENCE DAILY INTAKES (RDIs)*‡§		DAILY REFERENCE VALUES (DRVs)‡§		
NUTRIENT	REFERENCE AMOUNT	NUTRIENT	BASIS FOR CALCULATING DAILY REFERENCE VALUE	
Vitamin A	5000 International Units (IU)	Total fat	30% of calories	
Vitamin C	60 mg	Saturated fat	10% of calories	
Thiamin	1.5 mg	Carbohydrate	60% of calories	
Riboflavin	1.7 mg	Dietary fiber	11.5 g of fiber per each 1000 calories	
Niacin	20 mg	Protein [†]	10% of calories for adults and children over 4 years	
Calcium	1 g			
Iron	18 mg			
Vitamin D	400 IU			
Vitamin E	30 IU			
Vitamin B ₆	2 mg	NUTRIENT	2000 CALORIES	2500 CALORIES
Folic acid	0.4 mg	Total fat	65 g	80 g
Vitamin B ₁₂	6 µg	Saturated fat	20 g	25 g
Phosphorus	1 g	Cholesterol	300 mg	300 mg
Iodine	150 µg	Sodium	2.4 mg	2.4 mg
Magnesium	400 mg	Total carbohydrate	300 g	375 g
Zinc	15 mg	Dietary fiber	25 g	30 g
Copper	2 mg	Protein	50 g	65 g
Biotin	0.3 mg	Potassium	3.5 mg	3.5 mg
Pantothenic acid	10 mg			

* Based on the National Academy of Sciences' 1968 recommended dietary allowances (same as U.S. RDA used until 1994). Values are highest RDAs except for pregnancy and lactation.

[†] The DRV for protein does not apply to certain populations. An RDI for protein has been established for these groups: infants under 1 yr, 14 g; children 1-4 yrs, 16 g; pregnant women, 50 g; and nursing mothers, 66 g.

[†] Some Daily Values (DVs) have been rounded to make label reading easier for consumers.

[§] DV as used on label includes both Reference Daily Intakes (RDIs) for vitamins and minerals and DRVs for macronutrients and electrolytes.

^{||} % DVs must be declared on label. % DV for other nutrients may be provided voluntarily.

Estimated Sodium, Chloride, and Potassium Minimum Requirements of Healthy Persons

Age	Weight (kg)	Sodium (mg) ^{a,b}	Chloride (mg) ^{a,b}	Potassium (mg) ^c
Months				
0-5	4.5	120	180	500
6-11	8.9	200	300	700
Years				
1	11.0	225	350	1,000
2-5	16.0	300	500	1,400
6-9	25.0	400	600	1,600
10-18	50.0	500	750	2,000
>18 ^d	70.0	500	750	2,000

^aNo allowance has been included for large, prolonged losses from the skin through sweat.

^bThere is no evidence that higher intakes confer any health benefit.

^cDesirable intakes of potassium may considerably exceed these values (~13,500 mg for adults).

^dNo allowance included for growth. Values for those below 18 years assume a growth rate at 50th percentile reported by the National Center for Health Statistics and averaged for males and females.

Estimated Safe and Adequate Daily Dietary Intakes of Selected Vitamins and Minerals^a

Category	Age (years)	Vitamins		Trace Elements ^b				
		Biotin (µg)	Pantothenic Acid (mg)	Copper (mg)	Man-ganese (mg)	Fluoride (µg)	Chromium (µg)	Molybdenum (mg)
Infants	0-0.5	10	2	0.4-0.6	0.3-0.6	0.1-0.5	10-40	15-30
	0.5-1	15	3	0.6-0.7	0.6-1.0	0.2-1.0	20-60	20-40
Children and adolescents	1-3	20	3	0.7-1.0	1.0-1.5	0.5-1.5	20-80	25-50
	4-6	25	3-4	1.0-1.5	1.5-2.0	1.0-2.5	30-120	30-75
	7-10	30	4-5	1.0-2.0	2.0-3.0	1.5-2.5	50-200	50-150
	11+	30-100	4-7	1.5-2.5	2.0-5.0	1.5-2.5	50-200	75-250
Adults		30-100	4-7	1.5-3.0	2.0-5.0	1.5-4.0	50-200	75-250

^aBecause there is less information on which to base allowances, these figures are not given in the main table of RDA and are provided here in the form of ranges of recommended intakes.

^bSince the toxic levels for many trace elements may be only several times usual intakes, the upper levels for the trace elements given in this table should not be habitually exceeded.

INSTRUCTOR'S PREFACE

Because food both feeds the body and nourishes the soul, the field of human nutrition considers the physiological, environmental, cultural, economic, and psychological factors that govern our individual food choices. The major challenge of writing a book for nonscience majors is making these key aspects of nutrition palatable and relevant to students with no scientific background. Writing a “chemistry free,” “ecology free” book, as has been tried before, is like trying to teach history without talking about time and geography. Ecology, physiology, and scientific controversy are challenging but not impossible concepts to teach to novices. To help students master these aspects of nutrition *Focus on Nutrition* uses analogies to everyday experiences and takes advantage of a proven learning technique to reinforce comprehension of new information.

Since the typical student enrolls in a nonmajor's nutrition course to increase his or her personal nutrition IQ, *Focus* concentrates on giving students concrete examples of how to personalize and implement their newly learned nutrition and exercise knowledge, evaluate the impact of their dietary choices, and keep abreast of changes in the field of nutrition after they complete the course. *Focus* is more than just a nutrition text; it is a sound personal wellness plan, usable today and in the future.

WHAT'S DIFFERENT ABOUT FOCUS?

Focus on Nutrition uses a number of design and content features that are intended to present material in a clear, readable, and colorful way. Our goal was to help students enjoy learning, remember what they learn, and apply their new knowledge in everyday life.

SQ4R Learning System

Focus on Nutrition is designed according to the tenets of the SQ4R learning system (Survey, Question, Read, Record, Rewrite, and Review). Since using this system in our own courses, we've seen an immediate

improvement in student satisfaction, self-esteem, retention, and grades. All of these benefits translate into enhanced instructor satisfaction, with favorable student course evaluations and high rates of student retention.

Why a learning system? Many students have not learned to read and critically evaluate text material. Many also lack good study and test-taking skills. Using the proven techniques of a single learning system rather than selected parts of different learning theories gave us the opportunity to coordinate text, pedagogy, and test elements. Here is how *Focus* puts SQ4R into action:

SURVEY: The Instructor's Resource Manual contains assignments designed to encourage students to survey the material in each chapter before it is discussed in class.

QUESTION: Focus Questions introduce major concepts in each chapter to help guide students' critical thinking.

READ: Reading the text is obviously the student's responsibility. Definition boxes and a glossary enhance understanding of the material. Pronunciation is provided for unfamiliar or difficult terms.

RECORD: Recording key points briefly at the end of each paragraph (either in the text itself or in a notebook) helps students reinforce and retain what they learn. To identify these key points, students can use headings, subheadings, and Focus Questions.

REWRITE: The questions in Connections: Tying It All Together at the end of each chapter encourage students to integrate, review, and rewrite the material from a different perspective.

REVIEW: Preview/Review tables appear throughout the text to help students make connections between the material they have just completed and the information they are about to cover. In addition, NutriQuiz questions placed throughout the text and the Test Yourself section at the end of each chapter help students review and test their understanding of concepts they have just studied.

The Student Preface explains the SQ4R features of the text to students, shows examples of the pedagogy-

cal elements, and gives practical study and test-taking tips.

Flexible Core Science and Applications Sections

Each chapter is divided into two sections. The first section explains science concepts relevant to that chapter. The second section, including *In Today's World* and *In My Diet*, examines ecological issues and gives students information they can use to put the science concepts they have learned to work in their personal environment. For example, the first section of Chapter 9, *Energy*, explains the physiological basis of energy utilization. The second section explores ecological concerns related to the energy used in food processing and gives examples of new uses of energy that students will encounter at the grocery store (irradiation) and in the kitchen (microwaving).

Organizing the chapters in this way offers several benefits. First, it helps students distinguish scientific/theoretical considerations from applications. It also allows you as the instructor the flexibility to teach the material in accordance with your individual preferences and circumstances. If lecture time is short, you can assign the second section of each chapter for out-of-class reading or simply make your students aware that the material is there if they would like to explore it. Alternatively, if you decide to take a very application-oriented approach to nutrition, you can use the second section of each chapter as the basis for your lectures and introduce just a few key scientific points from the first section.

A Separate Chapter Devoted Entirely To Water

Most texts combine water with minerals. As a result, many students leave introductory nutrition courses without realizing the essential role water plays in many body functions. In *Focus* we devote an entire chapter to this vital but often forgotten nutrient.

Foods vs. Nutrients

A major stumbling block for students in introductory nutrition courses is understanding the difference between foods and nutrients and appreciating the role digestion plays in nutrition. "People eat foods; cells eat nutrients" is a recurring theme throughout this text. The link among foods, digestion, and nutrients is explained this way: "Foods contain the nutrients our cells require. Digestion is the process that changes the foods we eat into the nutrients our cells require."

To reinforce the transformation of foods into nutrients, the first section of each nutrient chapter is divided into three areas: (1) *In the Diet*, (2) *In Between—Digestion*, and (3) *In the Body*. Each chapter contains pedagogical aids that categorize intake standards, in-

cluding the Food Guide Pyramid and the RDA into either Food Intake Standards or Nutrient Intake Standards.

Functional Organization of Vitamin and Mineral Chapters

Nutrition texts traditionally present vitamins and minerals according to their solubility in water or prevalence in the diet. In *Focus* we take a different approach: we discuss these nutrients in terms of the functions they perform in the body, such as blood building, tissue synthesis, and energy utilization. This functions-oriented approach makes it easier for you to organize your lectures and helps students understand the physiological importance of these nutrients.

The vitamin chapter also contains up-to-date antioxidant information, including a plan for safely increasing antioxidant intake through dietary improvements rather than supplementation.

Up-to-date Meal Planning Information

Focus emphasizes using the Food Guide Pyramid, the new food label, simple calculations for determining individual calorie needs, and fat and sugar intake goals to help students develop a personalized menu.

Multicultural Examples

Multicultural examples of food intake patterns throughout the text help you introduce cultural diversity into your lectures. The Instructor's Resource Manual provides additional examples, including a brief culinary history of each of the 50 United States, and lists resources for delving further into the topic.

COPING WITH CHANGE AND CONTROVERSY

Like most scientific disciplines, nutrition is a rapidly evolving field. Understandably, the ongoing influx of new information gives rise to a number of changes as well as fueling some heated controversies.

The Food Guide Pyramid, 5-A-Day campaign, and new food labels required us as instructors to change the way we think about and present nutrition information. More difficult to resolve is how to teach controversial topics like the cholesterol–cardiovascular disease link, the sodium–hypertension connection, and the issues that surround antioxidant vitamin intake.

To provide balanced and accurate coverage of these controversies, we have relied on authoritative reports such as the Surgeon General's Report on Nutrition and Health; The National Academy of Sciences Reports: Diet and Health, Nutrition During Pregnancy, and the tenth edition of the RDAs; reports from FASEB's Life

Science Research Office; and position papers from the American Dietetic Association. We have supplemented the information in these documents with up-to-date scientific reviews and selected articles from basic science journals, most published since 1990. In addition, more than 60% of the references are from sources published since 1993. Thus *Focus* presents your students with the most balanced and accurate picture of nutrition today.

SUPPLEMENTARY MATERIALS

Instructor's Resource Manual and Test Bank

Prepared by the authors with the assistance of learning specialist Rob Simas, this teaching aid provides you with sample lesson plans for every chapter. Each plan includes key concepts and terms, suggestions for in-class activities and demonstrations (like teaching lipid chemistry with pipe cleaners), multicultural material, intriguing tidbits of information to spice up lectures, and suggestions for teaching difficult material. An example is the mnemonic "The fat on which you sat was a saturated fat," which helps students remember that animal fats tend to be saturated and solid. Because "a picture is worth a thousand words," the resource manual introduces a nonchemical technique to illustrate the configuration of dietary fats and how it affects their behavior in the body. With "bendable rod" illustrations, it is easy for students to understand that saturated fats stay straight, stackable, and solid, whereas unsaturated fats bend at their double bonds, which causes them to stay fluid. An instructor's "survival guide" chapter is also provided for new instructors.

The Test Bank features more than 750 test items: agree/disagree, multiple choice, short answer, and matching. The resource manual also includes 50 Transparency Masters of key illustrations from the text and other sources.

Computerized Test Bank

Qualified adopters of the text receive a computerized test bank package compatible with IBM or Macintosh computers. This advanced-feature test generator allows you to add, delete, or edit questions; save and reload tests; and print different versions of each test.

Computerized Instructor's Resource Manual

The resource manual is available on disk in both IBM and Macintosh formats.

Nutrient Analysis Software

Mosby offers easy-to-use interactive software that allows students to input food intake and physical activities to determine total kcalories consumed and expended in multiple 24-hour periods. A toll-free number

is available for technical support for students and instructors.

Transparency Acetates

Full-color transparency acetates feature key illustrations from the text with large, easy-to-read labels.

Audiovisual Resources

Qualified adopters may choose from an excellent selection of videotapes and videodiscs. The Mosby Multimedia Library: Nutrition II Teaching Videodisc offers almost 50 spectacular 3-D animations of physiological processes, 280 colorful still images, and several short video clips that will help students apply nutrition concepts.

Nutri-News

Mosby offers a 16-page semiannual nutrition update with expert opinions on late-breaking or controversial nutrition topics. You'll find this interesting material to supplement lectures or to hand out to students.

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Nancy Anne DuPuy
Virginia Lee Mermel

DEDICATION

Professionally to Rob Simas and Carol Bishop, colleagues and friends, who saw me through the conception and birthing of this book. Personally to granddaughter Meghan Marie Kelly, who often patiently waited while I worked.

NAD

To Gary and Matthew Mermel and Nancy Bjonerud.

VLM

STUDENT PREFACE

SQ4R: YOUR PASSWORD TO LEARNING

What in the world is SQ4R? Although SQ4R looks like a secret code, it's really a not-so-secret learning system that anyone can use. SQ4R stands for **S**urvey, **Q**uestion, **R**ead, **R**ecord, **R**ewrite, and **R**evue. We've designed this text for you to use with the SQ4R system because in our experience as instructors it's proved to be the most effective method of learning for our students.

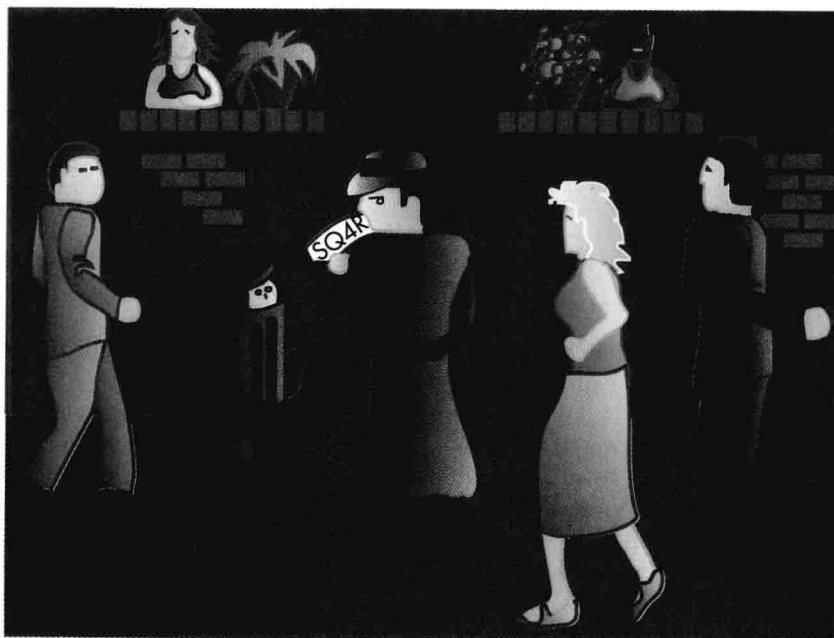
How does SQ4R work? When introduced to new material, particularly in an unfamiliar subject area, many students simply try to memorize all of the information (facts) presented. There's no question that facts are essential: they are the very building blocks of our knowledge. But if you focus only on memorizing individual facts, your brain will soon be overwhelmed. How can you keep all the facts straight? How can you make sense of them?

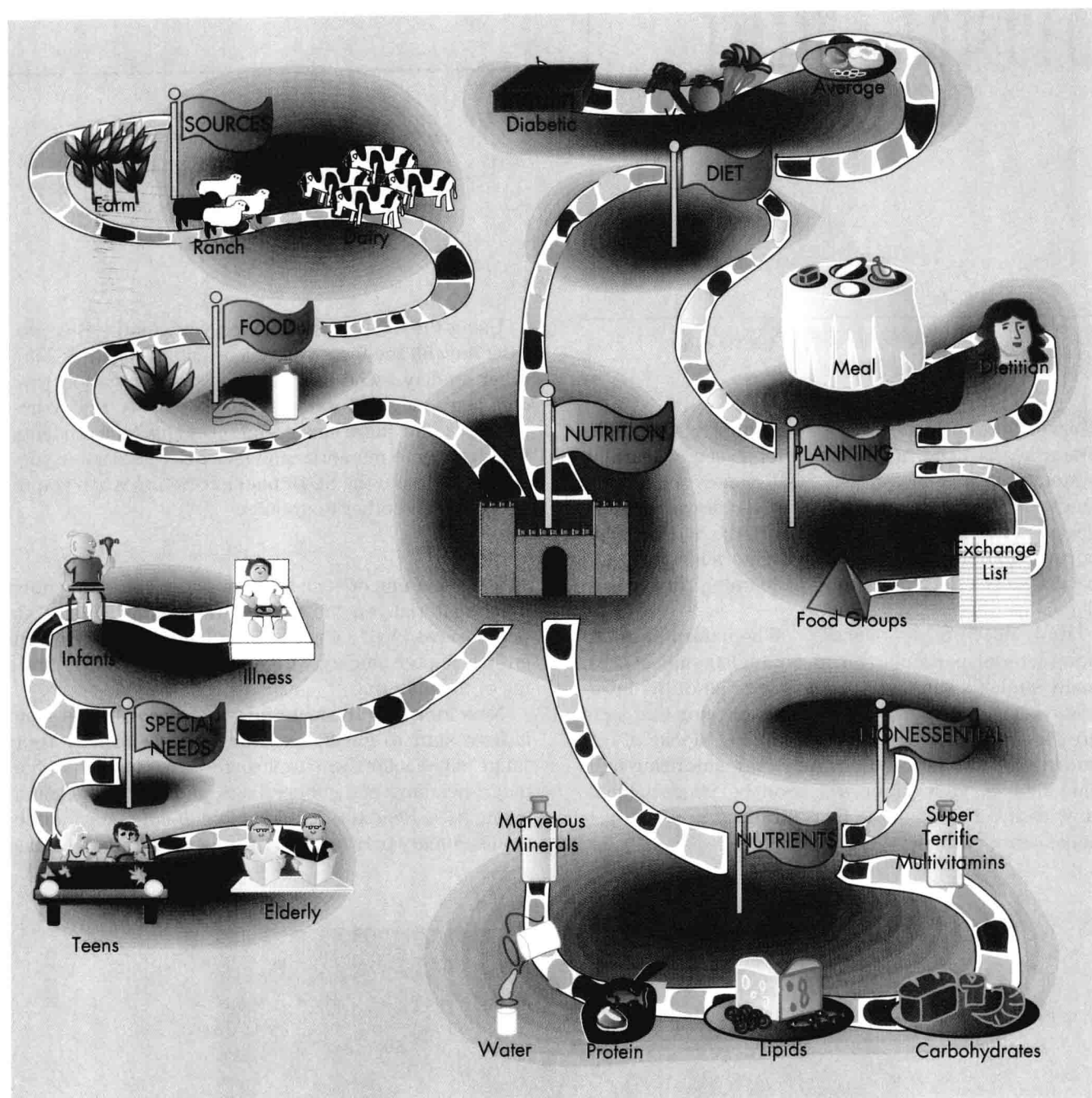
Using the SQ4R system helps you see the BIG picture: how all the facts you're learning fit together. Like other students who use SQ4R or some variation, you can learn new information more quickly and completely and be more successful on exams than students who just try to memorize the facts. Here are some specific steps to put the SQ4R plan into action when you're using this and other textbooks.

S: Survey

At the beginning of each study session, determine how much material you can cover in the time available. It's better to read half a chapter thoroughly than to read an entire chapter quickly without gaining an understanding of the material.

Next look over the material you'll be covering—scan it from start to finish, searching for key topics. Your “alert” signals for these topics are the chapter title, the major headings and subheadings, and the outlines and summaries. Read the detailed table of contents and the final summary paragraph, if the chapter has one. At this





You can use this cognitive map to help you understand the relationships among major topics related to nutrition.

point you're not trying to read or understand all the material—you're just getting a general idea of the chapter's purpose and major topics.

As you skim a chapter in this text, watch for **Focus Questions** (in a different typeface from the text, highlighted in blue). Also look for **visual learning cues** (like Review/Preview tables and Intake Standards boxes) and for the boxes that contain **definitions of key terms**. All of these features pinpoint essential information. You'll also want to check out the **illustrations**—including cartoons—the **Nutri-**

nuggets, **Nutralerts**, and other supplemental information.

Taking a few minutes to go through this procedure will help you recognize and organize the key ideas presented in each chapter.

Q: Question

List the major topics and subheadings in your notebook, leaving several lines between each. This list is the "blueprint" for your questions and notes on the topic. It will help you determine what information is

relevant to the chapter's main ideas and guide you in organizing the information.

Every chapter in this text contains Focus Questions to direct your attention to key points. Add to these any questions that came to mind as you surveyed the material. These questions will become your guides during the next step.

R: Read

Read each section and answer the Focus Question that precedes it. Read the material carefully. Note the highlighted words (in italic or bold print). Also pay close attention to key qualifying words like *sometimes*, *always*, and *never*. Look up unfamiliar terms.

R: Record

This step forces you to slow down and process the text material in small bites. It also helps you create your own signposts back into the text material to assist you in finding and reviewing information.

After reading each paragraph, stop. In the margin at the top of the page, jot down a word or phrase that captures the main topic of the paragraph. Continue this process paragraph by paragraph until you complete an entire section of the chapter.

After completing the last paragraph of a section, stop again. Do you understand the information in the section and how it relates to other material you have covered? Did you find the answers to the questions you developed? If so, record them in your notes. What don't you understand? Write it down also. You may find clarification as you continue. If not, you can raise the issue in class.

A practical tip:

Always go back to highlight key words and main points *after* you have read and understood a section of material. If you highlight as you're reading, you'll tend to highlight everything; then nothing really stands out.

R: Rewrite

After you finish reading and taking notes on a chapter, the next step is to rewrite the material from memory in your own words, preferably by answering the questions you've developed and the questions in the text. Why rewrite? For several very good reasons.

1. Reading and writing use different parts of your body and therefore your brain. The more parts of yourself you involve in the learning process, the more "handles" you have to remember the information.
2. Rewriting the material gives you a chance to review the information again. The more frequently you go over material, the more likely you are to remember it.
3. Writing is a good way to practice generating information as you must do on subjective test items, such as essay or fill-in-the-blank questions.

Generating sentences is a higher level activity than passively recognizing written material as you do when you answer objective test items such as true or false, matching, and multiple choice questions.

R: Review

After completing the Rewrite step, review the entire chapter's content. Review it again before starting to study the next chapter, if you're not covering both in the same study session. Look at your topic outline and questions. Does everything look complete? Go back through all the material, scanning quickly to confirm your notes and answers and maybe to gain new understanding of various details of the topic. Cover your notes. Check your memory by reciting the major points of each section. Expose each major point and try to recall the subpoints under it.

Answer the questions at the end of the chapter. Find study partners so you can compare your answers with theirs.

Draw diagrams (cognitive maps) to show how main points relate to one another. Talk aloud as you work your way through a diagram. The diagram on p. xvi is a cognitive map outline of some major topics related to nutrition: food, diet, nutrients, and special needs.

Try Teamwork

A good way to reinforce what you're learning is to teach it to someone else. Consider joining a study group with two to five of your classmates. By participating in a study group you can practice explaining to someone the information you're studying (just as you have to do for your instructor on a test or in a paper). By listening to other students and comparing answers to the questions in the text, you can add different perspectives to the information you already know. What's more, you and your study partners can test each other to see how much you really remember and understand.

TAKING TESTS: PREPARING FOR THE INEVITABLE

How can I improve my test results? Follow the SQ4R system during your pretest study sessions. Note key differences between various concepts. Which areas did the instructor emphasize? Develop some of your own practice questions about these concepts.

Ask your instructor for copies of old tests and/or practice exams. Try to answer the questions on these exams.

All tests are not alike. Objective tests (multiple choice, true or false, matching, and fill in the blank questions) require that you be able to recognize a correct answer. In contrast, subjective tests (short answer

Test-Taking Tactics

1. **Try to find out ahead of time the general composition of the test.** Different types of questions demand different study techniques and answering strategies. Objective items usually require only visual recognition of information. Subjective questions require more detailed information. Prepare for these by outlining written or oral answers to likely questions.
2. **Budget your testing time.** Divide the time available by the total points on the test. For example, if you have 60 minutes to complete a 60-point test you can spend 1 minute per point. If the test contains 30 multiple-choice items worth 1 point each and two short essay items worth 15 points each, spend a maximum of 30 minutes on the multiple-choice section and 15 minutes on each of the two essay items. Try to allow a few minutes to review your answers. If you are stumped by a question, move on. Answering subsequent questions may provide clues to help you answer the question(s) that stumped you.
3. **Read the instructions carefully.** It is essential that you fully understand both the general test instructions as well as the specific instructions for completing each section. Where should the answers go? Is there a penalty for guessing? Can you use scratch paper to work out problems, or should all work be done on the test or answer sheet? Can you use any reference materials? When in doubt, ask your instructor or test proctor.
4. **Attack the test systematically.** Begin with the objective questions, as they are usually the easiest to answer. Next tackle the subjective section, if there is one.
5. **Read questions carefully.** For multiple-choice and matching questions, be sure you understand the question. Then read *all* of the alternative answers before making your selection. For essay questions, note all the key points to which you are being asked to respond. Briefly outline your response. Using the outline, write a brief essay, including specific facts and examples when possible. Check your answer, making sure you have responded to the entire question.
6. **Pay attention to qualifying words.** In objective questions, look for key words like *sometimes*, *always*, and *never*. An unqualified *always* or *never* suggests an answer is false; conditional qualifiers like *sometimes*, *usually*, or *almost* suggest an answer is true.

questions and essays) demand that you recall facts, integrate concepts, and formulate a correct response. Prepare for a subjective exam by briefly outlining major concepts and giving specific examples.

Avoid cramming. It's no substitute for real studying. Facts "learned" while cramming are easily confused and quickly forgotten. Cramming also adds to test anxiety. For test-taking triumphs, avoid last-minute cram sessions—and even last-minute crammers! Then follow the test-taking tips outlined in the box on the following page.

ORGANIZATION

This text is organized according to the principles of the SQ4R learning system outlined earlier. Getting acquainted with its special features will help you make the best use of your study time.

Sequencing of Chapters

Skim through the detailed table of contents to get an overview of the field of nutrition and to learn how the text is organized to cover each major topic.

The first two chapters, Nutrition Awareness and Consumer Concerns:

- Present an overview of the factors that influence our food choices
- Introduce the six nutrient classes and the standards used to make dietary recommendations
- Explain how our bodies extract the nutrients from foods

- Introduce the vital role of energy (kilocalories)

Each of the next six chapters covers one of the major nutrients:

1. **Water** is the first nutrient covered because it is a vital nutrient, in terms of both the quantity we require (approximately 64 ounces a day) and how quickly a deficiency will prove fatal.
2. **Carbohydrates** is presented second because it is our bodies' preferred energy source.
3. **Lipids** (fats and oils) follows carbohydrates because it is our bodies' other major energy source.
4. **Proteins** perform another vital role: they provide the materials needed to build body parts and many specialized chemicals.
5. **Vitamins** is presented fifth because although only tiny amounts are needed in our diets, these nutrients are "vital" to the regulation of carbohydrate, fat, and protein utilization.
6. **Minerals** is the last class of nutrients presented but is by no means the least important. Ongoing research is increasing our understanding of the exciting roles minerals play in metabolism and fluid balance.

The next four chapters—Energy, Exercise, Weight Control, and Life Cycle—focus on applied nutrition. Each chapter explores the ways in which the nutrients you learned about earlier are used in special situations. The text ends with Looking to the Future, in which we examine emerging trends in the field of nutrition.

TABLE 0-1 Outline Used in Nutrient Chapters of Text**I. FOOD SOURCES***What exactly is this nutrient?*

A. INTRODUCTION—Science of Nutrition

Which foods contain this nutrient?

B. IN THE DIET—Food Sources

II. NUTRIENT USE*How is this nutrient removed from the food and moved into the cell where it is used?*

A. IN BETWEEN—Digestion

Why does my body need it?

B. IN THE BODY—Metabolism

III. CONTEMPORARY CONCERNS*What contemporary concerns—personal, social, environmental—are linked to this nutrient?*

A. IN TODAY'S WORLD—Processed Foods

How can I plan a diet that provides adequate amounts of each nutrient?

B. IN MY DIET—Menu Planning

VISUAL CUES**How can I find my way around all the information in this textbook?**

We've developed several visual cues that will act as learning aids to help you organize new information.

Outline Style**Is there a logical pattern or order to this information?**

In each chapter we use an outline format to help you **survey** the material, locate information, and identify major concepts. In general, the six nutrient chapters are organized according to the grid shown in the table below so that you can recognize the concerns that are common to all nutrients.

Each of the nutrient chapters is subdivided into sections. In the first and second sections we present the basic scientific facts about that class of nutrients. In the third section we explain how processing affects the nutrient class, examine environmental impacts on the nutrient class, and apply the scientific facts about the nutrient class to everyday diet choices. At the end of each In My Diet section we refer to the Menu Matrix. You can use this information to develop a personal Menu Matrix for weekly diet planning, one nutrient class at a time.

Chapters on other topics are divided into at least two main sections: The first presents the core concepts related to the chapter topic. In the second section, including In Today's World and In My Diet, we explore contemporary personal, social, and environmental issues related to the chapter topic. For example, the In Today's World section of Chapter 11, Weight Control, explores ways in which people who tend to overeat can

learn to cope with holidays and other celebrations that are full of tempting foods.

Questions**What is the purpose of the questions built into the chapter outline shown above?**

Each chapter contains four kinds of questions:

1. **Focus Questions**, in a larger typeface and highlighted in blue (like the question above), are placed throughout each chapter to direct your attention to the core concepts and help you *survey* the material. You should be able to answer some of these questions from earlier material, others from reading the section.
2. **NUTRIQUIZ questions**, found in yellow boxes throughout each chapter, help you review and also understand how to turn nutritional theory into practical dietary changes.
3. **Test Yourself** questions right after the text in each chapter serve as a built-in study guide to help you check your grasp of the factual information in the chapter (see p. xxi).
4. **Connections—Tying It All Together questions** at the end of each chapter help you determine how well you have understood the material by asking you to apply what you have learned (see p. xxi).

Tables, Illustrations, and Boxed Features

Each chapter also contains a variety of features to supplement and reinforce what you're learning. We describe each of these learning aids in the sections that follow.

Tables and Boxes

The tables, boxes, and illustrations condense and highlight core concepts. They also provide a framework you can use to arrange the new information being presented, to relate it to material you've already mastered, and to review the material.

Review/Preview tables summarize the core concepts related to nutrients. Table 0-2 below is an example of this kind of summary table you'll find near the beginning of the six nutrients chapters.

Vocabulary

Which words are important? A major challenge of learning a new subject is to grasp the special terminology used. To help you master the vocabulary of nutri-

oligosaccharide a sugar that contains a known small number of monosaccharide units (from Greek *oligos*, "few, little," and *sakkharon*, "sugar")

TABLE 0-2 Review/Preview

Core Concepts	Nutrient		
	Carbohydrates	Lipids	Proteins
Building block	Monosaccharides	Mostly fatty acids and glycerol	Amino acid
Kcalorie content	4 kcal/gram	9 kcal/gram	4 kcal/gram
Source	Breads, cereals, grains	Oils, fats	MFP, legumes, dairy products
Nutrient intake standard	Exchange Lists	Dietary Goals	RDA
Food intake standard	Dietary Guidelines, Food Guide Pyramid	Dietary Guidelines, Food Guide Pyramid	Food Guide Pyramid
In the body	Fuel (blood glucose), mucus	Cell membranes, fuel storage, hormones	Structural proteins, functional proteins
Deficiency	Ketosis, gluconeogenesis	(Unlikely) Flaky dermatitis	Decreased growth, anemia, edema, im- paired immune function
Excess	Stored as glycogen and fat	Obesity, CVD, some cancers	Excess urea, excess kcal stored as fat

tion, selected words throughout the text are **boldfaced** for added emphasis. Terms that appear in **bold italicized** print are defined in special vocabulary boxes in the text, often accompanied by pronunciation and derivation of the word. Learning the roots of words can often help you remember their meaning. Both **boldfaced** and **boldface italic** terms appear in the glossary.

Intake Standards Boxes

How much of which foods should I eat? A variety of intake standards have been developed to help nutrition professionals and consumers alike determine how much of which foods and nutrients a healthy

TABLE 0-3 Intake Standards

Foods	Nutrients
Dietary Guidelines	RDA
Food Guide Pyramid	% Daily Value (labels)
5-A-Day Program	
American Heart Association	Dietary Goals
American Cancer Society	
People eat foods.	Cells eat nutrients.

person needs. Beginning nutrition students are frequently confused by which standard applies to which class of nutrients and how nutrient standards relate to food intake standards. To clarify this information, the six nutrient chapters each contain an Intake Standards table like the one shown in Table 0-3. We use **boldface** type to highlight the nutrition and food intake standards most closely linked to the nutrient class being studied.

Nutralerts

These features provide pertinent nutrition-related health warnings. They appear in yellow boxes with orange type and a bright yellow and orange heading.

Cycles and Recycling

Is there more to nutrition than what I eat? Life on Earth depends on recycling, a concept that is basic to an understanding of the field of nutrition. In fact, nutrition can be approached in terms of interrelated recycling processes. Energy, water, and specific nutrients are all recycled.



FYI

Are there any other features I'll find helpful? Nutrinuggets and A Closer Look boxes are items of interest that are not required for mastery of basic nutrition concepts. Your instructor may assign some of these features for study and class discussion.

Nutrinuggets

Nutrinuggets are designed to tie course content to everyday life. They appear throughout the text in blue type and are identified by a gold nugget icon.



The size and shape of a molecule affect the way our taste buds perceive it.

NUTRALERT

Although some fitness experts advise people to use hand or ankle weights to increase the intensity of their workout, many others caution against this practice because these kinds of weights increase stress on ankle, back, knee, and hip joints, increasing the potential for injury. A safer approach: wear a weight belt!

A Closer Look

A Closer Look boxes present selected topics in more depth than you need for a basic understanding of the field of nutrition.

A CLOSER LOOK

Each chapter contains one or more of these boxed features. They provide more in-depth information on a given topic than

you need for a basic understanding of nutrition. They help you put what you're learning about nutrition into a larger, real-world context and illuminate historical or behind-the-scene aspects of specific topics and issues. Instructors may assign this material at their discretion.



True or False. Put a **T** for true or an **F** for false in the space beside each question.

- ___ 1. It doesn't matter *how* you study; it only matters *if* you study.
- ___ 2. Cognitive maps help you connect different aspects of related information.

- ___ 3. Working with study partners can give you a chance to test your knowledge.
- ___ 4. You should review old material before beginning to study new information.
- ___ 5. Study only if you have time to read the entire chapter.
- ___ 6. Highlight important words as you come across them.
- ___ 7. Pause after each paragraph and explain to yourself what you have just read.
- ___ 8. When studying, pay close attention to qualifying words like *always*, *sometimes*, and *never*.

Short Answer

- ___ 9. What does **SQ4R** stand for?
- ___ 10. List two learning aids built into this book.

TYING IT ALL TOGETHER CONNECTIONS

The purpose of this section is to test your understanding and application of the chapter material. The questions that follow will help you try out the SQ4R learning process.

- 1. Read each of the Focus Questions in this chapter and answer each in your own words.
- 2. List the steps you normally have followed when studying textbooks.
- 3. What changes would you have to make to follow the SQ4R approach?
- 4. List the general procedures you would use in the SQ4R approach to studying.