Chapter 1 – Food Choices and Human Health

Quick List: IM Resources for Chapter 1

- **Class preparation resources:** learning objectives/key points, suggested activities and projects, lecture outline
- **Assignment materials:** **Related LO**
  - Critical thinking questions (with answer key) 1.4, 1.5, 1.6, 1.7
  - Discussion questions (with answers) for Controversy 1 ..... 1.8
  - Worksheet 1-1: Palak Paneer Label Analysis 1.3, 1.4
  - Worksheet 1-2: Intake Analysis—Diet Planning 1.4
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  - Worksheet 1-5: Evaluation of Published Nutrition Information[2] 1.5, 1.8
  - **New!** Worksheet 1-6: Chapter 1 Review Crossword Puzzle
- **Enrichment materials:** Handout 1-1: Can Diet Help Manage Chronic Disease? 1.1

Chapter Learning Objectives and Key Points

1.1 **Discuss how daily food choices can help or harm the body's health over time.**
The nutrients in food support growth, maintenance, and repair of the body. Deficiencies, excesses, and imbalances of energy and nutrients bring on the diseases of malnutrition. Nutrition profoundly affects health. Diet influences long-term health within the range set by genetic inheritance. Nutrition has little influence on some diseases but strongly affects others. Life choices, such as being physically active or using tobacco or alcohol, can improve or damage health.

1.2 **Describe the national *Healthy People* objectives for the nation, and identify some nutrition-related objectives.**
Each decade, the U.S. Department of Health and Human Services sets health and nutrition objectives for the nation.

1.3 **Define the term *nutrient* and be able to list the six major nutrients.**
Foremost among the nutrients in food is water. The energy-yielding nutrients are carbohydrates, fats (lipids), and protein. The regulator nutrients are vitamins and minerals. Food energy is measured in calories; nutrient quantities are often measured in grams. Food conveys emotional satisfaction and hormonal stimuli that contribute to health. Foods also contain phytochemicals.

1.4 **Summarize the five characteristics of a healthy diet and describe cultural or other influences on human food choices.**
Foods that form the basis of a nutritious diet are whole foods, such as ordinary milk and milk products; meats, fish, and poultry; vegetables and dried peas and beans; fruits; and grains. A well-planned diet is adequate, balanced, moderate in energy, and moderate in unwanted constituents, and offers a variety of nutritious foods. Cultural traditions and social values often revolve around foodways. Many factors other than nutrition drive food choices.

1.5 **Describe the major types of research studies and give reasons why national nutrition research is important for the health of the population.**
Scientists ask questions and then design research experiments to test possible answers. Single studies must be replicated before their findings can be considered valid. News media often sensationalize single-study findings, and so may not be trustworthy sources. National nutrition research projects, such as NHANES, provide data on U.S. food consumption and nutrient status.

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[1] Contributed by Sharon Rady Rolfes

[2] Adapted with permission of: Deborah Fleurant, MOE Thesis, University of New Hampshire, 1989 (Thesis Advisor Sam Smith)

1.6 **List the major steps in behavior change and devise a plan for making successful long-term changes in the diet.**
Behavior change follows a predictable pattern. Setting goals and monitoring progress facilitate behavior change.

1.7 **Define *nutrient density* and explain the advantages of choosing nutrient-dense foods.**

1.8 **Identify misleading nutrition information in infomercials, advertorials, and other sources in the popular media.**

Critical Thinking Questions

1. *Why is it important to develop an eating plan that incorporates adequacy, balance, calorie control, moderation, and variety in order to prevent or delay the development of a nutrition-related chronic condition?*

   If someone has high blood pressure, for example, he would want an **adequate** diet that provides all of the essential vitamins, minerals, fiber, carbohydrates, proteins, and lipids to support the health of the body's cells. There are studies that suggest that certain minerals such as calcium and potassium may help reduce blood pressure.

   This person would want to eat a **balanced** diet including foods from all of the major food groups. This way, he is likely to get all of the nutrients he needs without getting an excessive amount of any one nutrient. For example, a person who eats a lot of meat but little grains, vegetables, or fruits will likely be getting too much saturated fat but not enough fiber, minerals, vitamins, or carbohydrates. He can use the MyPlate online tools to help him assess his dietary balance.

   This person would want to practice **calorie control** to balance energy intakes with expenditures and thus maintain his weight. Excess weight is associated with many chronic conditions (including high blood pressure).

   This person would want to eat the recommended portions of each food group to avoid taking in too many calories or too much of any one nutrient or harmful food component. Most eating plans that are successful in terms of weight management and adequacy incorporate this concept of **moderation** as well.

   Dietary **variety** prevents monotony and sometimes over-consumption of unhealthful contaminants that may be present in a particular food source. If a person wishes to exercise variety in his eating plan, he will include several different vegetables or grains from different sources. This will increase the adequacy of the diet as well.

2. *Imagine someone in this situation: a single mother who is working two jobs to support herself and her two young children. What factors will likely influence her choices of foods for herself and for her family?*

   She is likely on a budget, so she will choose foods that are inexpensive. She may not have much free time and will look for foods that are easy to prepare. She may not have time to read food labels and may choose foods that are filling but may not have all of the essential nutrients. She may also choose foods that are familiar to her since she doesn't have time to investigate new foods. This could lead to her choosing fast foods or processed foods, which are inexpensive and easy to prepare but often lack essential ingredients.

   It is possible for a person who has limited time and finances to eat well if she/he has received nutrition education. For example, this person could select staple foods, such as brown rice, as a base for quick meals. Brown rice has more nutrients than many fast foods and is inexpensive. She could also buy whole foods like apples that could be stored at room temperature and can be taken along with her to work or with her children.

3. *Nutrition researchers want to study the link between a high-fiber diet and the reduced risk of colon cancer. Describe how they could carry out each of the following types of studies:*

   a. *Interventional study*

   The researchers could have 2 groups of people who eat a preplanned diet. The control group eats a typical diet that has 10-15 grams of fiber per day. The experimental group eats a diet that has more high-fiber foods, and they consume 25-30 grams per day for a given amount of time. The researchers could have the subjects fill out questionnaires or even have them go in for colonoscopies to see the effects of high fiber intakes on the walls of their colons. The two groups would be compared to see the effects of fiber on the health of their colon.

b. *Epidemiologic study*

The researchers would observe a group of people who tend to eat a higher-fiber diet versus a group of people who tend to eat a lower-fiber diet. The researchers could have the groups of people fill out health assessment surveys to determine whether their diet can be correlated with a higher or lower risk of colon cancer.

c. *Laboratory study*

The researchers would work with animals such as rats or mice in the lab and would manipulate their diets. One group of animals would receive a high-fiber diet and the other group would receive a low-fiber diet. After a given amount of time, the researchers could examine the colons of each group of animals to determine whether there is any increase in the rate of cancer. By manipulating the animals' diets, the researchers could determine whether the increase of cancer is due to the level of fiber in the diet.

4. *You decide that you want to increase your intake of fruits and vegetables up to 3 cups a day for both. Describe how you would work towards this goal using the 6 steps to behavior change listed in Chapter 1.*

First of all, you may not realize that you have a problem with this but you see reports on TV or in the newspaper about the importance of eating enough fruits and vegetables. At this point, you are in the **pre-contemplation** stage.

You then think about whether you want to start eating more fruits and vegetables (produce). You consider the pluses such as eating more nutrients with fewer calories. You also consider the minuses such as the fact that fruits and vegetables cost more and don't last as long as other foods. You decide whether or not you want to start this eating plan. You decide to do it and pick a date to start. You are in the **contemplation** stage.

Next, you decide which fruits and vegetables you like are easy to prepare. You also consider how you can eat more of these while you are at work. You are in the **preparation** stage and are making plans to change your eating behaviors.

You then start to add ½ to 1 cup of the fruits and vegetables to your daily meals. You are actively involved in your new behavior; this is the **action** stage. You note how you feel as you add more produce to your diet.

You continue with your new behavior but you sometimes don't make your goal. You keep track of your produce intake and you also note what obstacles interfere with your progress. You are in the **maintenance** stage of your behavior change. You may have setbacks, but you keep acting on your behavior change.

You have been eating more produce without even thinking about having setbacks. This is a normal part of your eating behavior. You now wish to increase your whole grain intake. So you have moved on to new goals and are in the **adoption** stage as far as eating more fruits and vegetables each day is concerned.

5. *How can the concept of nutrient density of foods help you to develop a healthier eating pattern?*

Nutrient density describes the essential nutrient contents of a food relative to its calorie content. A food that is more nutrient dense will have more nutrients such as fiber, vitamins, or minerals but fewer calories. For example, instead of having fried chicken with a lot of calories, you can have baked chicken, which has fewer calories with the same key nutrients, such as protein and vitamin B_{12}. You can compare the nutrient density of foods at the grocery store by reading the labels and selecting the food that has more fiber, minerals, and vitamins and less saturated and *trans* fat and sugar. Eating nutrient-dense foods will help you achieve adequacy with calorie control in your eating plan.

6. *What strategy could you develop to overcome each of the excuses for not eating well that are listed in Table 1-6?*

No time to cook: You could try cooking a few meals on the weekend and then freezing them into smaller portions for easy reheating during the week. There are also many healthy options for meals that serve one person. Just check the labels to make sure that the meal does not supply too many calories, sugar, salt, or fat.

Not a high priority: You could ask any healthcare provider what chronic diseases could be caused by a poor diet. You could also talk with people who have these conditions to see how their quality of life has been impacted.

Crave fast food and sweets: It may work well to allow yourself a small serving of fast food or sweets each day. If you eliminate these foods all together, you will crave them. You can also make small, simple substitutions of a piece of fruit for sweets or pretzels or some other lower-fat food for potato chips.

Too little money: You should go to the grocery store and compare the price of produce (fruits and vegetables) with processed or snack foods. You may only want to buy a couple of pieces of fruit at a time so that you will eat them before they spoil. You could also try growing fruits or vegetables in your own garden or as part of a community garden.

Take vitamins instead: You could try eating a piece of fruit or a vegetable daily and see how you feel over time as compared with taking a supplement with coffee or some other beverage. Your body will absorb nutrients much more efficiently from foods than from supplements.

Controversy Discussion Questions

1. *Your good friend asks you if there is any particular type of diet that you can recommend for her sister who has multiple sclerosis. You have taken a consumer nutrition course at your local community college. What can you tell her to do to get reliable nutrition information?*

   You could suggest that she check out the website of the Academy of Nutrition and Dietetics (www.eatright.org) or the American Society for Clinical Nutrition for information. If she does not want to use the Internet, she could look in her phone book for registered dietitians in her area. If she cannot find this information on her own, she could ask her doctor for a referral to a registered dietitian. She may also be able to find reliable information online from the National Multiple Sclerosis Society.

2. *Discuss how anecdotal evidence for the effectiveness of a weight-loss supplement differs from scientific evidence of the effectiveness of a weight-loss supplement. Which source of evidence would you trust more and why?*

   Anecdotal evidence comes in the form of patient testimonies as to how well the product works. There may only be testimonies from a few people who make the product sound wonderful. There is often a disclaimer that says that the results are not typical in small print. There is usually no cited study from a credible research center. This type of anecdotal evidence would be seen on TV or would be published in a popular magazine as a story.

   Scientific evidence would actually describe a study that is done at an accredited research or clinical center. There would be results from a large number of people and the study would employ the suitable controls such as a group of patients who get the weight-loss supplement versus patients who get a placebo. The results of this study would be reviewed by and then published in a journal that is read by experts in the fields of nutrition and medicine.

   Most people would trust information from a well-designed and published scientific study, since large numbers of people have participated in the study and the results are more easily repeatable by other researchers.

3. *Your community leaders decide to have a speaker come to discuss the management of diabetes using lifestyle approaches. They have a choice between inviting a physician who specializes in internal medicine or a certified diabetes educator. Which of these individuals is more apt to have reliable nutrition information related to diabetes and why?*

   A certified diabetes educator is a health professional who has obtained additional training in nutrition and other lifestyle factors related to the management of diabetes and earned a certification on diabetes education through work experience and successful completion of an examination. Many certified diabetes educators are also either registered dietitians or registered nurses. The National Certification Board for Diabetes Educators has a website (www.ncbde.org) with information about the certification requirements.

   A physician does receive extensive schooling (4 years beyond college for the medical doctor degree) and completes a 2- to 4-year residency. Most medical school programs only devote a small amount of time to the study of nutrition—often, they spend less time on this topic than students who take nutrition at the undergraduate level! In fact, very few medical schools teach 25 hours of instruction in the field of nutrition. There are some physicians who are trained in clinical nutrition and are highly qualified to give nutritional

advice on diabetes management and other health issues. Unless a physician specializes in clinical nutrition, she or he will have spent much LESS time learning about nutrition than a certified diabetes educator.

4. *Discuss any 3 websites with reliable sources of nutrition information and explain why you chose them.*

   The Academy of Nutrition and Dietetics website or the American Society for Clinical Nutrition website are the first choices for reliable nutrition information. If you are looking for nutrition information related to cardiovascular disease, the American Heart Association has a website. The American Diabetes Association, the Arthritis Foundation, and the American Cancer Society all have websites that will contain reliable nutrition information.

Worksheet Answer Key

Worksheet 1-1: Palak Paneer Label Analysis

1. Cheery Chef Foods, Inc.
2. a. 5 ounces (142 grams)
   b. *Open question (answers will vary)*
3. 2
4. a. 14
   b. 126 kilocalories
5. 2,000 kilocalories
6. There are microwave or conventional cooking directions
7. a. Spinach
   b. It is reassuring to know that a product with the word *spinach* in the name (*palak* = spinach) has spinach as the main ingredient instead of another artificial ingredient.
8. a. Citric acid
   b. Preservative
9. 35% of the DV of vitamin A is provided by this product

Worksheet 1-2: Intake Analysis—Diet Planning

1. Fruits, vegetables, and whole grains
2. Beer and 1 enchilada instead of 2
3. a. Milk, whole-wheat bread, cereal, and meat
   b. It has a lot of grains and dairy products
   c No fruit, few vegetables, and too much beer
4. a. Lots of fruits, vegetables, and whole grains
   b. A bit light on complex carbohydrates

Worksheet 1-6: Chapter 1 Review Crossword Puzzle

1. essential
2. staple foods
3. nutrient dense
4. Healthy People 2020
5. intervention
6. organic
7. fortified
8. control group
9. gram
10. balance
11. epidemiologic
12. calories
13. nitrogen
14. maintenance
15. hypothesis
16. adequacy

Learning Activities & Project Ideas

Activity 1-1: Brief Research Report on Milk[3] LO 1.5

Most students don't understand that there are harmful effects of everyday foods, along with "tainted" marketing. This project helps students to discover the truth in marketing foods for themselves. Explain: "I'd like to see some current research on how good milk really is for you. Certainly you should include the different types of milk (whole milk vs. 2% vs. skim) along with the organic varieties. Be sure to include the good and the bad. Your citations should be from either this year or last year."

[3] Contributed by Peter C. DuBois, M.Ed., Lorain County Community College

Activity 1-2: Students' Burning Questions[4]
The first day of class, give each student three "Post-It" notes. On each note, students are to write down a "burning" question they have about nutrition. While they are doing this, tape fifteen large pieces of construction paper around the room, each with a title that roughly corresponds to chapters of the text.

When they finish writing their questions, have them categorize their Post-It notes according to the fifteen chapters by placing their Post-It on the piece of construction paper that relates to their question. When they finish, ask them to take turns reading the questions that they have generated. Before the next class, check the categorization of their questions and rearrange the Post-It notes so that they are placed with the appropriate chapter sheet if necessary. As you begin a new chapter, bring the corresponding piece of construction paper to class, and read the questions aloud.

This activity helps reassure students, early on, that you will (or won't) be covering some of their "burning" questions. It also helps show students the relevance of the information you're covering in class, and helps show instructors the interests of the students.

Activity 1-3: Scheduled Interruption—Think/Pair/Share[5]
Examination of student attention levels throughout class indicate that students' attention levels are the highest during the first five minutes of class, then levels slowly decline throughout a lecture. To enhance students' attentiveness, teaching authorities suggest scheduled interruptions. One planned interruption is think, pair, and share. The purpose of this activity is to encourage the participation of all students, especially those who are quiet. Pose a statement, problem, or situation. Instruct students to quietly write their comments including their thoughts and feelings regarding this topic. Next, pair students with a partner and instruct them to share their comments. Circulate while students are talking. After they have shared with their partner, ask for comments to be shared with the entire class.

Activity 1-4: Controversies Presentations Project[6] LO 1.8
For controversies, divide the students into 2 teams per chapter to present the controversies. Instruct the students to look for peer-reviewed journal articles that include points in favor and points against. Students should also interview 15 people outside of their nutrition class to get the general public opinion. Afterwards, the 2 teams will present the two sides of the issue and the rest of the class will discuss and then vote. The leader of each team will receive extra points.

Chapter Lecture Outline

I. Introduction – The science of how food nourishes the body
   A. What is this chapter about??
   B. Why care about nutrition?
   C. What are the nutrients in foods and what roles do they play in the body?
   D. What constitutes a nutritious diet?
   E. How do we know what we know about nutrition?
   F. How do people go about making changes to their diets?

II. A Lifetime of Nourishment
   A. Introduction
      1. The nutrients in food support growth, maintenance, and repair of the body.
      2. Deficiencies, excesses, and imbalances of nutrients can lead to malnutrition that can negatively impact health over time.
   B. The Diet and Health Connection
      1. Nutrition profoundly affects health.
      2. Chronic diseases have a connection to a poor diet.
         a. Which of these diseases are chronic? Chronic diseases include: Heart disease, chronic lung disease, diabetes, some cancers, dental disease, adult bone loss

[4] Contributed by Caroline Roberts, R.D., M.P.H., Nutrition Education Specialist for California Department of Education and Instructor at Sierra College

[5] Contributed by Lori W. Turner, Ph.D., R.D., University of Alabama

[6] Contributed by Nancy J. Correa-Matos, Ph.D., R.D., University of North Florida

b. Cannot be prevented by a good diet alone
c. To some extent determined by genetics, activities, and lifestyle

C. Genetics and Individuality
1. Inherited disease – condition that is passed from a parent to a child, e.g., hemophilia, sickle cell anemia, Down syndrome, cystic fibrosis, and many others
2. Acquired disease – condition that is associated with infections, lifestyle behaviors or diet, e.g., heart attack, diabetes, stroke, mineral or vitamin deficiencies
3. Choice of diet influences long-term health within the range set by genetic inheritance.
4. Nutrition has little influence on some diseases but strongly affects others.
5. Nutrition may play a role in how the genes in human DNA are expressed as well.

D. Think Fitness: Why Be Physically Active?
1. Regular physical activity should be integrated into everyone's daily lives.
2. There are many short- and long-term health benefits of physical activity.

E. Other Lifestyle Choices
1. Only two common lifestyle habits have a stronger influence on long-term health than dietary choices. Can you guess which?
a. Smoking & other tobacco use
b. Excessive alcohol consumption
2. Tobacco use and alcohol and other substances can destroy health.
3. Staying active, getting enough sleep, and stress can all affect health.

III. *Healthy People*: Nutrition Objectives for the Nation
A. U.S. Department of Health and Human Services sets nutrition objectives for the nation each decade
B. In 2010, the nation's health report shows some negative and positive trends.
1. Most people lacked enough fruits, vegetables, and whole grains in their diets as well as physical activity each day.
2. Blood cholesterol levels have come down and the number of foodborne illnesses has also dropped.
3. The number of people with diabetes and obesity has increased.

IV. The Human Body and Its Food
A. Meet the Nutrients
1. Classes of nutrients – 6 different families of molecules of food required for the body's functioning
2. Roles: Provide energy, building material, maintenance and repair, support growth
3. Which are organic? – carbohydrates, fats, proteins, vitamins
4. Gram – a unit of weight. For instance, one teaspoon of sugar weighs roughly 5 grams.
5. The Energy-Yielding Nutrients – Which nutrients provide energy? – carbohydrates (4 cal/g), fats (9 cal/g), proteins (4 cal/g)
6. Vitamins and Minerals – Which regulate body processes and provide no calories? – vitamins, minerals
7. The Concept of Essential Nutrients – must be obtained in the diet because the body does not make them; found in all 6 classes of nutrients
8. Calorie Values
a. Calorie is a unit of heat energy
b. Scientists have determined the amount of calories and nutrients people need based on their gender, age, and activity level.

B. Can I Live on Just Supplements?
1. Elemental diets – diets with a precise chemical composition
a. Lifesaving for people who cannot eat ordinary food
b. Not appropriate over long periods for healthy people as "meal replacers" or "insurance" against malnutrition
2. Food is better than supplements.
a. The digestive system can break down and absorb nutrients most efficiently from whole foods.
b. People in the hospital improve more quickly after eating food than when receiving their nutrients through IVs.
c. Eating provides physical, psychological, and social comfort for people as well.
d. Food provides phytochemicals and other bioactive compounds that interact with the body's metabolism.

V. The Challenge of Choosing Foods
   A. The Abundance of Foods to Choose From
      1. Foods come in a bewildering variety in the marketplace, but the foods that form the basis of a nutritious diet are basic foods.
      2. The original foods were whole foods that underwent little if any processing.
      3. There are fast foods, processed foods, functional foods, and staple foods that people need to consider in their daily food choices.
   B. How, Exactly, Can I Recognize a Nutritious Diet? – Elements of a healthy diet = ABCMV
      1. Adequacy – get enough of essential nutrients as well as fiber and energy.
      2. Balance – contains a good proportion of nutrients. No overemphasis of a food group.
      3. Calorie Control – choose foods to maintain ideal body weight.
      4. Moderation – eat any food in reasonable-size portions.
      5. Variety – eat different types of food to prevent boredom and to ensure dietary adequacy.
   C. Why People Choose Foods
      1. Eating is an intentional act. People choose: What to eat, where to eat, whom to eat with, how to prepare it
      2. People often have a variety of excuses for not eating well such as no time to cook, not making nutrition a health priority, craving fast foods or sweets, and taking supplements instead.
      3. Cultural and Social Meanings Attached to Food
         a. Food ways – the sum of a culture's habits, customs, beliefs, and preferences concerning food
         b. Omnivore – a person who eats food of both plant and animal origin, including animal flesh
         c. Vegetarian – avoid animals out of respect for them or for health benefits
            1. Lacto-ovo – animal products but no flesh
            2. Vegan – neither animal products nor flesh
      4. Factors That Drive Food Choices
         a. Advertising
         b. Availability
         c. Cost
         d. Emotional comfort
         e. Habit
         f. Personal preference
         g. Positive or negative associations
         h. Region of the country
         i. Social pressure
         j. Values or beliefs
         k. Weight
         l. Nutrition and health benefits

VI. The Science of Nutrition
   A. Introduction
      1. Nutrition is a science so scientists and dieticians work together to develop studies that are well designed, controlled, and reviewed by other experts.
      2. Many studies take a long time to complete so information may not be available as quickly as most people would like it to be.
   B. The Scientific Approach
      1. The scientific method is used to advance the knowledge within nutrition in a consistent way.
      2. The findings of such studies are published in journals that are reviewed and read by other scientists.
   C. Scientific Challenge
      1. Once a finding is published, it is still only preliminary.
      2. One experiment does not "prove" or "disprove" anything.
      3. Must be duplicated, supported, and challenged by other scientists
      4. A finding that has stood up to repeated, rigorous testing may become a theory.
      5. A theory is still subject to challenge by other studies and is not "set in stone."
      6. Research designs
         a. Include case studies, epidemiologic studies, controlled clinical studies, and lab studies

b. Controlled clinical studies should have large number of experimental as well as control subjects so that the effects of a variable (such as a nutrient) can be studied more thoroughly.

7. When many of these types of studies together confirm a relationship between the intake of a nutrient and a health outcome, one can confidently state that the relationship is supported.

D. Can I Trust the Media to Deliver Nutrition News?
   1. Read nutrition information with an educated eye.
   2. Consider the source of the information: Is it from a reputable journal? A magazine? An Internet chat room? A talk show? Your mother???
   3. Scientists watch trends and evaluate nutritional studies to see if they are properly carried out before the scientist endorses the data from the study.
   4. Popular media may release information about preliminary findings without describing details of the studies being done – An example is the cholesterol lowering effects of oats in the diet

E. A Consumer's Guide to Reading Nutrition News
   1. Tricks and Traps
      a. Nutrition headlines are constantly changing, which leads to consumer frustration.
      b. Reporters use phrases like "now we know or truth is" to get the reader's attention.
      c. Scientists use more tentative language when describing their research findings.
   2. Markers of Authentic Reporting
      a. Only peer-reviewed journals contain reliable information from clearly described studies.
      b. The subjects in the studies should be clearly described as well and the harms and benefits of a studied treatment should be clearly stated.
      c. Review articles written by nutrition experts will reference reliable studies.
      d. Scientific journals contain credible sources of nutrition information.
   3. Moving Ahead – All consumers should read nutrition news with a critical eye and with the scientific method in mind.

F. National Nutrition Research – National Health and Nutrition Examination Surveys (NHANES)
   1. Includes *What We Eat in America* survey
   2. Asks about 50,000 people what they have eaten
   3. Records measures of their health status

VII. A Changing Behaviors
   A. Introduction
      1. Nutrition knowledge is useful if it helps people improve their diets.
      2. People need to change behaviors.
   B. The Process of Change – Psychologists describe 6 stages of behavior change: precomtemplation, comtemplation, preparation, action, maintenance, and adoption or moving on.
   C. Taking Stock and Setting Goals
      1. Track food intake over several days and compare to standards.
      2. Set small, achievable goals in areas that need changing.
   D. Start Now
      1. As you read this book, little reminders entitled "Start Now" appear in each chapter.
      2. They invite you to go to the website to take inventory of your current behaviors and set goals for needed changes.

VIII. Food Feature: How Can I Get Enough Nutrients without Consuming Too Many Calories?
   A. Nutrient density – a measure of nutrients per calorie
   B. Whole foods like vegetables have high nutrient density.
   C. People are pressed for time and tend to choose convenience foods like frozen pizzas or ramen noodles which are not the most nutrient-dense choices.

IX. Controversy: Sorting the Impostors from the Real Nutrition Experts
   A. More Than Money at Stake – Costs include worsened health & wasted money
   B. Information Sources
      1. Misinformation is spread through television, magazines, urban legends
      2. Table C1-1 shows quackery and Internet terms to look out for.
   C. Nutrition on the Net

1. PubMed is a reliable website with links to scientific and medical journals.
2. Tables C1-2 and C1-3 show credible sources of nutrition information.

D. Who Are the True Nutrition Experts?
   1. The Academy of Nutrition and Dietetics is the professional organization of dietitians and provides nutrition recommendations for other healthcare providers as well as directly to clients.
   2. The Academy of Nutrition Dietetics Proposal – nutrition education should be included in the curriculum for health-care professionals
   2. Registered Dietitians: The Nutrition Specialists – Table C1-4 describes terms associated with nutrition advice.

E. Detecting Fake Credentials – essential to avoid getting inaccurate information
   1. Educational Background
      a. Look out for diploma mills.
      b. See Table C1-6 for terms related to nutritional education.
   2. Accreditation and Licensure
   3. A Failed Attempt to Fail
   4. Would You Trust a Nutritionist Who Eats Dog Food?
   5. Staying Ahead of the Scammers

Worksheet 1-1: Palak Paneer Label Analysis

Instructions: Use the label for frozen palak paneer to answer the questions that follow on a separate sheet of paper.

DIRECTIONS: (Do not thaw)
Microwave Oven:
1. Remove tray from carton and puncture film 3-4 times.
2. Heat on high setting for 3 minutes.
3. Remove film completely.
4. Gently stir contents, turn dish and heat for additional 2 minutes.
5. Gently stir before serving.

Conventional Oven: See side panel.

INGREDIENTS: Spinach, paneer (milk, part skim milk, vinegar, salt), tomatoes (tomatoes, tomato juice, salt, calcium chloride, citric acid), cream, onions, tomato puree (water, tomato paste, citric acid), milk, canola oil (expeller pressed), water, spices, sea salt, garlic, green peppers, tumeric, bay leaves, citric acid.
Allergens: Milk
Made in a facility that processes peanuts, tree nuts, soy, milk and wheat.

Cheery Chef Foods, Inc.
Belmont, CA 94002

Nutrition Facts

Serving Size 5 oz. (142g)
Servings Per Container 2

Amount Per Serving	
Calories 170	Calories from Fat 130
	% Daily Value*
Total Fat 14g	**22**%
Saturated Fat 6g	**31**%
Trans Fat 0g	
Cholesterol 35mg	**12**%
Sodium 600mg	**25**%
Total Carbohydrate 6g	**2**%
Dietary Fiber 2g	**9**%
Sugars 1g	
Protein 6g	

Vitamin A 35%	•	Vitamin C 30%
Calcium 8%	•	Iron 10%

* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.

1. Who is the manufacturer of your product?
2. a. What is the serving size of your product?
   b. Does this serving size seem reasonable to you based on your perception of portion sizes?
3. How many servings are in each container of your product?
4. a. How many grams of total fat are in your product?
   b. How many calories does this amount of fat represent?
5. What total calorie per day diet is the label information based on?
6. How can this product be prepared?
7. a. Which ingredient is present in the highest amount?
   b. Why might this information be important to know?
8. a. What ingredient is present in the least amount?
   b. What is this ingredient?
9. What percentage of the Daily Value for vitamin A is contained in this product?

Worksheet 1-2: Intake Analysis—Diet Planning

Eating Plan A (1 Day's Intake)	**Eating Plan E (1 Day's Intake)**
1 cup of Corn Flakes cereal	¾ cup Nature's Path flax cereal
1 cup of 1% fat milk	½ cup soy milk
2 cups of coffee	½ cup acai juice + seltzer water
2 slices of whole-wheat bread	1 medium banana
2 ounces thinly sliced baked ham	12 ounces coffee
2 ounces cheddar jalapeño cheese	6 ounces 6-grain yogurt
8 ounces chocolate milk	½ cup blueberries
3 12-ounce beers	¾ cup raspberries
2 beef and cheese enchiladas	2 Mushroom Lover's Veggie Burgers
	1 cup roasted carrot soup
	½ cup sweet green peppers
	6 carrot sticks
	2 whole-wheat wasa crackers
	8 ounces Vruit juice
	8 ounces soy milk
	1 peanut butter Fiber One Bar
	6 ounces grilled salmon
	10 cooked asparagus spears
	6 ounces white wine
	½ cup olives
	½ cup sun-dried tomatoes
	½ cup whole-wheat angel hair pasta
	¼ cup mixed nuts

Look at Eating Plans A and E:

1. What types of foods could you add to Eating Plan A to increase its adequacy?

2. What foods could you reduce in Eating Plan A to help ensure moderation?

3. a. What are the strengths of Eating Plan A in terms of nutritional adequacy?

   b. What are the strengths of Eating Plan A in terms of representation of the major food groups?

   c. What are its weaknesses based on your findings in 3 a. and 3 b. above?

4. a. What are the strengths of Eating Plan E?

   b. What are its weaknesses?

Worksheet 1-3: Why Do You Eat What You Eat?

Instructions: Record what you eat and drink for 1 day in the spaces provided below. Note what helped you decide to pick a particular food. Some examples could be convenience, taste, familiarity, cost, or other reasons.

	Food	Preparation Level	Amount	Reason
Breakfast:				
Snack:				
Lunch:				
Snack:				
Dinner:				
Snack:				

Table 1-5 in the textbook shows a glossary of food types. Compare your food types recorded with the food types described.

1. Do you see any patterns in the food types that you choose?

2. Do you eat any one type of food type more than others and, if so, what factors may influence you to select this type of food more often?

3. How could you adjust your food choices such that you can included more whole foods or fortified foods?

Worksheet 1-4: Making Food Choices

We decide what to eat, when to eat, and even whether to eat for a variety of reasons. Examine the factors that influence your food choices by keeping a food diary for 24 hours. Record the times and places of meals and snacks, the types and amounts of foods eaten, and a description of your thoughts and feelings when eating. Now examine your food record and consider your choices.

1. Which, if any, of your food choices were influenced by emotions (happiness, boredom, or disappointment, for example)?

2. Was any particular social pressure a factor in any food decisions that you made on this day?

3. Which if any, of your food choices were influenced by marketing strategies or food advertisements?

4. How large a role do food availability, convenience, and economy play in your food choices?

5. How might your age, ethnicity, or health concerns influence your food choices?

6. At what times did you eat because you were truly hungry? How often did you think of health and nutrition when making food choices?

7. Were these food choices based on your level of hunger or on your appetite?

8. If you were to record your intakes for 3-5 days instead of one day, do you think that there would be a time of day that you would consistently eat more based on your appetite?

Compare the choices you made in your 24-hour food diary to the USDA Food Patterns recommendation for your age, gender, and activity level (see Table 2-2 on page 45).

Food Groups	Suggested Quantity	Quantity Consumed
Fruits		
Vegetables		
Grains		
Protein foods		
Milk		
Oils		
Solid fats and added sugars	Limit intakes	

9. Do you eat appropriate amounts of food from each of the five major groups daily?

10. Do you try to vary your choices within each food group from day to day? If not, suggest some foods that you would be willing to eat regularly to increase the variety.

11. a. What dietary changes could you make to improve your chances of enjoying good health?

    b. What choices can you make within each food group to improve your chances of enjoying good health?

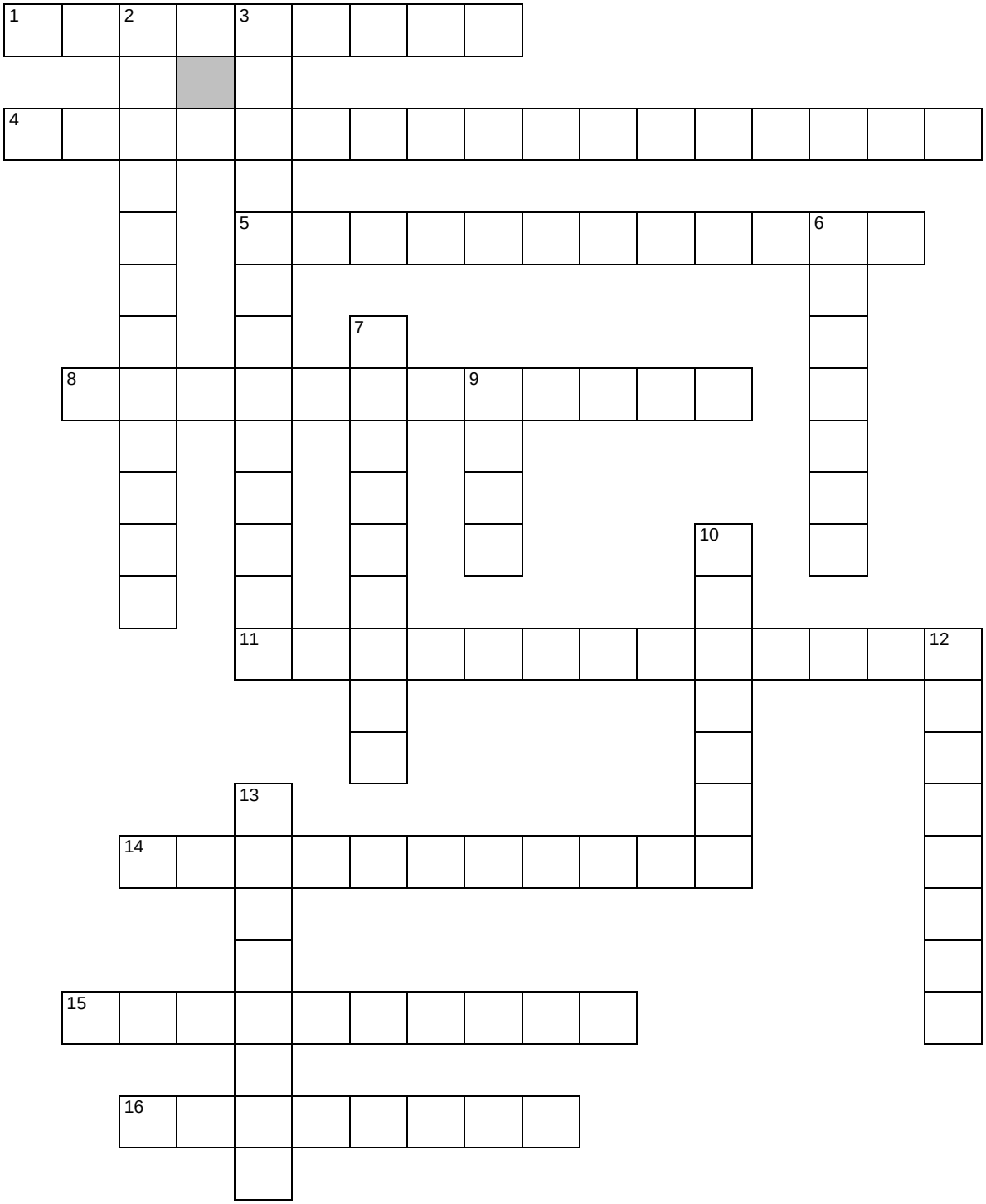
Worksheet 1-5: Evaluation of Published Nutrition Information

Assignment for discussion: Carefully read a nutrition article and answer the following questions on a separate sheet of paper:

1. a. What type of information source did you use to find this article?
   b. Summarize the basic idea of the article in a short paragraph.
2. a. What are the credentials of the author(s)? What do the initials, signifying degrees, after the name(s) mean? Do they enhance the authors' credibility? Explain.
   b. Is the author(s) affiliated with an organization or institution? Does the affiliation with the organization or institution enhance the authors' credibility? Briefly explain.
   c. Does the periodical have an editorial board? Do the editors' credentials enhance the article's credibility? Where does one look in a periodical for the editorial board?
   d. Does the website that you used (if applicable) have a .gov, .edu., or .org URL? These types of websites often use information that has been published and scrutinized by experts.
3. a. Is scientific research being presented or discussed? Is the research current (from within the last 3-5 years)?
   b. If so, what specific kinds of research or data are presented or cited to support the ideas?
   c. Were references listed to allow readers to investigate the information's original source? Were full citations provided?
4. a. What is the underlying hypothesis (if/then, cause/effect, etc.)?
   b. What are the article's conclusions/recommendations?
   c. Are the conclusions or recommendations supported by the research discussion? Explain briefly why or why not.
5. a. Develop and describe potential additional research that could more decisively test the hypothesis identified. Describe any control measures that you would use in your study.
   b. Indicate what variables will be measured.
   c. State the type of experimental design and type of experiment that is being described in your article.
6. Identify the statements in the article that you believe and those that you do not believe, and discuss why or why not for each.
7. What sources other than those listed in the periodical would you refer to if you were to research the article's topic further?

Source: Adapted with permission of: Deborah Fleurant, MOE Thesis, University of New Hampshire, 1989 (Thesis Advisor Sam Smith)

Worksheet 1-6: Chapter 1 Review Crossword Puzzle



(clues on following page)

Across	Down
1. A nutrient that must be taken in through the diet 4. Most current objectives of nutrition for the nation 5. Studies in which an experimental variable is manipulated by the researchers 8. The subject group that does not receive a treatment is called a _____. 11. Studies that examine correlations between dietary intakes and disease in populations 14. The act of making a new behavior part of everyday life 15. A tentative explanation of a relationship between 2 variables 16. Facet of a nutritious diet that ensures all nutrients are present in the necessary amounts	2. Foods that make up a large part of a diet such as rice or pasta 3. Foods that provide a lot of nutrients and not a lot of calories 6. Carbon containing and made by living things 7. Foods that have nutrients added to them 9. Metric unit of weight 10. A dietary facet that emphasizes foods from all of the different food groups 12. Units used to measure energy from foods 13. Unique element found in protein

Handout 1-1: Can Diet Help Manage Chronic Disease?

A chronic disease cannot be cured, can progress, and can be due to genetic factors or lifestyle choices (or a combination of the two). Why do some people with chronic diseases seem more active or more able to function than others with a similar chronic disease? Could it be due to their genetic make-up? Could their food choices affect their ability to cope with their condition? Can a person's diet help him to manage his condition by allowing him to function more fully or be able to use a lower dose of medicine or fewer medicines?

You can look up information about any condition that you are interested in learning more about. You can consult the following web sites to get reliable information about a variety of chronic conditions:

- www.mayoclinic.com
- www.diabetes.org
- www.cancer.org
- www.heart.org
- www.eatright.org
- www.nih.gov
- www.ama-assn.org

There are other web sites that you can get to by using a general search engine such as Google or Yahoo and typing a key word to access your site of interest. Be sure to look for a .gov, .edu, or .org website as these sites use reliable sources of information.

After you select a condition of interest, you can research whether a certain food may help you cope with a particular condition. For example, people with rheumatoid arthritis are encouraged to eat fish in order to get essential fatty acids. These polyunsaturated acids may play a role in reducing inflammation and pain. You can also find out if a certain food is an accepted part of a treatment plan for a chronic condition by consulting more than one website that has reliable information about that particular condition. If any particular food is recommended by more than one reliable website, it is relatively likely to be considered by several experts to be an acceptable part of a treatment plan for a chronic condition.