**Instructor’s Manual for Unit 1—Key Nutrition Concepts and Terms**

**Class Preparation Materials in the Instructor’s Manual for Unit 1**

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* Classroom Activities
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  + Activity 1-2: Understanding the Key Nutrition Concepts
* Handout 1-1: Dietary Practices and Beliefs Survey
* Transparency Master 1: Key Nutrition Concepts

**Learning Objectives**

After completing Unit 1, the student should be able to accomplish the following learning objectives:

1.1 Explain the scope of nutrition as an area of study.

1.2 Demonstrate a working knowledge of the meaning of the 10 nutrition concepts.

**Brief Chapter Outline**

I. The Meaning of Nutrition

A. Nutrition Defined

a. Nutrition Is a “Melting Pot” Science

b. Nutrition Knowledge Is Applicable

II. Foundation Knowledge for Thinking about Nutrition

Nutrition Concept #1: Food is a basic need of humans.

A. Who Are the Food Insecure?

a. Food Security and Sustainable Diets

Nutrition Concept #2: Foods provide energy (calories), nutrients, and other substances needed for growth and health.

B. Calories

C. Nutrients

D. Other Substances in Food

a. Some Nutrients Must Be Provided by the Diet

b. Our Requirements for Essential Nutrients

c. Nutrient Intake Standards

d. Dietary Reference Intakes

Nutrition Concept #3: Health problems related to nutrition originate within cells.

a. Nutrient Functions at the Cellular Level

Nutrition Concept #4: Poor nutrition can result from both inadequate and excessive levels of nutrient intake.

a. Steps in the Development of Nutrient Deficiencies and Toxicities

b. Nutrient Deficiencies Are Often Multiple

c. The “Ripple Effect”

Nutrition Concept #5: Humans have adaptive mechanisms for managing fluctuations in nutrient intake.

Nutrition Concept #6: Malnutrition can result from poor diets and from disease states, genetic factors, or combinations of these factors.

Nutrition Concept #7: Some groups of people are at higher risk of becoming inadequately nourished than others.

Nutrition Concept #8: Poor nutrition can influence the development of certain chronic and other diseases.

Nutrition Concept #9: Adequacy, variety, and balance are key characteristics of healthy dietary patterns.

a. Energy and Nutrient Density

Nutrition Concept #10: There are no “good” or “bad” foods.

**Critical Thinking Questions with Answers**

1. Explain why a lack of a nonessential nutrient will not cause a specific deficiency disease but lack of an essential nutrient will.

*Students’ answers to this question will vary. However, they should address the following points. Both essential and nonessential nutrients are required for growth and health. The difference between them is that essential nutrients must be obtained in the diet because the body either cannot generally produce them or produces them in insufficient amounts. Nonessential nutrients are present in food and used by the body, but they are not required parts of our diet because we can produce them ourselves. For example, people develop scurvy (the vitamin C–deficiency disease) if they do not consume enough vitamin C, which is essential. But one could have zero cholesterol in their diet and not become “cholesterol deficient,” because the liver produces cholesterol. (LO 1.2)*

2. Discuss whether or not everyone needs the same nutrients and the same amount of nutrients.

*Students’ answers to this question will vary. However, they should address the following points. Everyone needs the same nutrients, but not always in the same amounts. Certain factors such as body size and genetic traits may influence the amount of nutrients needed. Conditions, such as pregnancy and illness, can also influence nutrient requirements. (LO 1.2)*

3. If an individual consumed the Tolerable Upper Intake Level (UL) of a particular nutrient every day for a month, would that person be at risk for developing a toxicity disease? Justify your answer.

*Students’ answers to this question will vary. However, they should address the following points. No. Tolerable Upper Intake Levels are the upper limits of nutrient intake compatible with health. Examine Table 1.5 and note that the risk of overdose reactions does not increase until the UL is exceeded. (LO 1.2)*

4. Explain why it may take weeks, or even months, of inadequate nutrient intake before physically obvious signs of deficiency occur.

*Students’ answers to this question will vary. However, they should address the following points. After a period of deficient intake of an essential nutrient, the body’s tissue reserves of the nutrient become depleted. Blood levels of the nutrient then decrease because there are no reserves left to replenish the blood supply. Without an adequate supply of the nutrient in the blood, cells get shortchanged. They no longer have the supply of nutrients needed to maintain normal function. If the dietary deficiency is prolonged, the malfunctioning cells cause sufficient impairment to produce physically obvious signs of a deficiency disease (see Illustration 1.7). (LO 1.2)*

5. Should people only consume “good” foods? Justify your answer.

*Students’ answers to this question will vary. However, they should address the following points. People tend to classify foods as being “good” or “bad,” but such opinions over-simplify each food’s potential contribution to a diet. Some people who eat only what they consider to be “good” foods such as broccoli, berries, brown rice, and tofu may still miss the healthful diet mark due to inadequate consumption of essential fatty acids and certain vitamins and minerals. All foods can fit into a healthy dietary pattern as long as nutrient needs are met at calorie intake levels that maintain a healthy body weight. (LO 1.2)*

**Classroom Activities**

#### Preface to Suggested Activities

The activities section of this instructor’s manual provides suggestions for interactive learning. To customize your class activities and assignments, plan around the action verb list below or think of your own action verb activities. The possibilities are illustrated with suggestions from the activities section.

***Go to the following places:***

* a grocery store
* a health food store

***“Experiment” with the following techniques in class:***

* Weigh something.
* Dissolve something.
* Taste something.

***Calculate or estimate (with or without a computer) the following:***

* + your body mass index
  + your calorie expenditure during various activities
  + the nutrient content of various foods
  + your health risk of chronic diseases (e.g., heart disease)

***Use the Internet to do the following:***

* Find websites (this kind of activity should probably be minimized or directed).
* Get information (be sure to have students evaluate and compare sites for information reliability).
* Take quizzes or inventories.
* Track your diet using Diet Analysis Plus*.*

***Play a game such as:***

* flashcards
* *Jeopardy!*-style unit review

***Read the following:***

* a journal article (and report to the class)
* a tutorial

***Write:***

* a brief report (and report to the class)

***Prepare a presentation:***

* Use presentation software (e.g., PowerPoint); the phytochemicals unit has an example.

***Interview:***

* someone from another culture

***Keep a record/diary of the following:***

* food intake
* physical activity

***Plan the following:***

* a meal
* a strategy for changing your eating habits
* how to make a favorite recipe healthier

***Tips on Internet activities:***

This section includes activities that refer to specific websites. Because of the nature of the Web, these specific sites may change or disappear. Substitute sites will always be available through Web searches. Government sites and those associated with large national organizations like the Institute of Food Technologists, the American Heart Association, the American Cancer Society, and the Academy of Nutrition and Dietetics will consistently provide information and links to other reliable sites.

If a site refers to a specific file (i.e., when the address ends with “.html”) that cannot be opened, go back to the parent site (the part of the address before the first slash). Every Web-related assignment should be accompanied by the well-known shopper’s (and reader’s) warning: *Caveat emptor!* (Let the buyer beware!)

**Activity 1-1: Dietary Practices and Beliefs Survey—Individual Activity[[1]](#footnote-1)**

As an introduction to the course, ask students to complete and discuss the Dietary Practices and Beliefs Survey (Handout 1-1). Additional questions may be added by the instructor.

**Activity 1-2: Understanding the Key Nutrition Concepts[[2]](#footnote-2)**

Introduction: A good way to crystallize one’s understanding of a concept is to explain its meaning to someone else. This activity asks students to explain the “Key Nutrition Concepts” presented in Unit 1 to each other.

Activity Overview: Groups of five students will present the meaning of the “Key Nutrition Concepts” presented in Unit 1 to each other.

Purpose: To enhance students’ mastery of the foundational nutrition concepts presented in Unit 1

Preparation:

* Let students know when you start covering the key nutrition concepts that this activity is coming up and they will have a minute or less to explain the concepts to each other.
* When it is time for the activity, show Transparency Master 1: Key Nutrition Concepts (or a visual of Table 1.6) to the class.

Instructions:

* Divide the class into groups of five students; they should be seated in such a way that they can face each other.
* Inform students of the time limit you have set for the explanation of each concept (a minute or less is suggested).
* Ask students to introduce themselves by saying their first names. Assign the key nutrition concepts in alphabetical order by first name. Each student will explain two of the concepts.

**Handout 1-1: Dietary Practices and Beliefs Survey**

**Instructions:** Please mark whether you agree with, feel neutral toward, or disagree with each statement by placing a check mark in the appropriate column.

|  |  |  |  |
| --- | --- | --- | --- |
| **Statement of Belief** | **Agree** | **Neutral** | **Disagree** |
| 1. I think most college students would benefit more from taking a vitamin and mineral supplement regularly than from improving food choices. | 🞏 | 🞏 | 🞏 |
| 2. I feel confident in my ability to decide if something I read or hear about food, supplements, or other nutritional products is truthful. | 🞏 | 🞏 | 🞏 |
| 3. What I eat has little to do with how I feel physically. | 🞏 | 🞏 | 🞏 |
| 4. I usually consume at least five servings of fruits and vegetables a day. | 🞏 | 🞏 | 🞏 |
| 5. Individuals my age only need to be concerned about what they eat if they are overweight. | 🞏 | 🞏 | 🞏 |
| 6. Vegetarian diets are less healthy than diets that include meat. | 🞏 | 🞏 | 🞏 |
| 7. Within the past month, I have used the nutrition information provided on food labels to help me decide which foods to purchase. | 🞏 | 🞏 | 🞏 |
| 8. Foods basically come in two categories: those that are good for you and those that are not. | 🞏 | 🞏 | 🞏 |
| 9. Within the past few months, I have changed my diet in order to lower my intake of fat. | 🞏 | 🞏 | 🞏 |
| 10. Protein supplements help people build muscle. | 🞏 | 🞏 | 🞏 |

**Transparency Master 1: Key Nutrition Concepts**

1. Food is a basic need of humans.

2. Foods provide energy (calories), nutrients, and other substances needed for growth and health.

3. Health problems related to nutrition originate within cells.

4. Poor nutrition can result from both inadequate and excessive levels of nutrient intake.

5. Humans have adaptive mechanisms for managing fluctuations in nutrient intake.

6. Malnutrition can result from poor diets and from disease states, genetic factors, or combinations of these factors.

7. Some groups of people are at higher risk of becoming inadequately nourished than others.

8. Poor nutrition can influence the development of certain chronic and other diseases.

9. Adequacy, variety, and balance are key characteristics of healthy dietary patterns.

10. There are no “good” or “bad” foods.

1. contributed by Judith Brown, University of Minnesota [↑](#footnote-ref-1)
2. contributed by Judith Brown, University of Minnesota [↑](#footnote-ref-2)