Nutritional Sciences 4th edition McGuire Solutions Manual

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Instructor Manual

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Purpose and Perspective of the Chapter

The purpose of this chapter is to understand how good nutrition is essential for your health and learn how how scientists study nutrition. You will learn the information necessary to make sound decisions about selecting a healthy diet based on scientific information.

Chapter Objectives

The following objectives are addressed in this chapter:

1.1 Define nutrition as a science and as a field for both work and study.
1.2 Outline the role of nutrients in the body and explain what determines if they are considered essential, nonessential, or conditionally essential.
1.3 List the six classes of nutrients and differentiate between their key properties and classifications.
1.4 Explain how nutrients in food provide energy to the body and calculate the calories and percentage of calories in a food.
1.5 Outline the scientific method and key factors to consider in the design of research studies.
1.6 Compare and contrast the different types of studies used in nutrition.
1.7 Distinguish between reliable science-based nutrition information and misinformation and how to identify credible, evidence-based sources for information.
1.8 Summarize the role that nutrition plays in health, longevity, and disease and how this has changed over time.

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Key Terms

Adenosine triphosphate (ATP) (a – DEN – o – sine tri – PHOS – phate)**:** A chemical used by the body to perform work.

Animal study: The use of experimental animals such as mice, rats, or primates in a study.

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Autoimmune disease: A condition in which the immune system attacks an otherwise healthy part of the body.

Bomb calorimeter (cal – o – RIM – e – ter)**:** A device used to measure the amount of energy in a food.

Calorie: A unit of measure used to express the amount of energy in a food.

Case-control study: A type of epidemiologic (observational) study in which researchers compare two groups with differing outcomes, such as overweight (case) vs. healthy weight (control).

Cause-and-effect relationship (also called causal relationship)**:** When an alteration in one variable causes a change in another variable.

Cell culture system: Specific type of cells that can be grown in the laboratory and used for research purposes.

Certified organic foods: Plant and animal foods that have been grown, harvested, and processed without conventional pesticides, fertilizers, growth promoters, bioengineering, or ionizing radiation.

Chronic degenerative disease: A noninfectious disease that develops slowly and persists over time.

Comorbidity: When an individual has more than one disease.

Complex relationship: A relationship that involves one or more interactions.

Conditionally essential nutrient: Normally nonessential nutrient that, under certain circumstances, becomes essential.

Confounding variable: A factor, other than the one of interest, that might influence the outcome of an experiment.

Control group: A group of people, animals, or cells in an intervention study that does not receive the experimental treatment.

Correlation (also called association): When a change in one variable is related to a change in another variable.

Cross-sectional study: A type of epidemiologic (observational) study in which data are collected at a single time point.

Dependent variable: The outcome factor of interest (e.g., obesity, nutrient deficiency).

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Dietitian: A nutritionist who helps people make healthy dietary choices.

Disease: A condition that causes physiological or psychological discomfort, dysfunction, or distress.

Double-blind study: A human experiment in which neither the participants nor the scientists know to which group the participants have been assigned.

Energy: The capacity to do work.

Energy-yielding nutrient: A nutrient that the body can use to produce ATP.

Environmental factor: An element or variable in our surroundings over which we may or may not have control (such as pollution and temperature).

Epidemiologic study (e – pi – de – mi – o – LO – gic)**:** A study in which data are collected from a group of individuals who are not asked to change their behaviors in any way.

Essential nutrient: A substance that must be obtained from the diet, because the body needs it and cannot make it in required amounts.

Etiology: The cause or origin of a disease.

Framingham Heart Study: A large epidemiologic study begun in the 1940s designed to assess the relationship between lifestyle factors and risk for heart disease.

Functional food: A food that contains enhanced levels of an essential nutrient, phytochemical, or zoonutrient and thought to benefit human health.

Genetic factor: An inherited element or variable in our lives that cannot be altered.

Graying of America: The phenomenon occurring in the United States in which the proportion of elderly individuals in the population is increasing with time.

Hawthorne effect: Phenomenon in which study results are influenced by an unintentional alteration of a behavior by the study participants.

Hypothesis (hy – PO – the – sis)**:** A prediction about the relationship between variables.

***In vitro*:** Involving the use of cells or environments that are not part of a living organism.

***In vivo*:** Involving the study of natural phenomena in a living organism.

Incidence: The number of people who are newly diagnosed with a condition in a given period of time.

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Infant mortality rate: The number of infant deaths (<1 year of age) per 1,000 live births in a given year.

Infectious disease: A contagious illness caused by a pathogen such as a bacteria, virus, or parasite.

Inorganic compound: A substance that does not contain carbon–carbon bonds or carbon–hydrogen bonds.

Interaction: When the relationship between two factors is influenced or modified by another factor.

Intervention study: An experiment in which something is altered or changed to determine its effect on something else.

Kilocalorie (kcal or Calorie)**:** 1,000 calories.

Life expectancy: A statistical prediction of the average number of years of life remaining to a person at a specific age.

Lifestyle factor: Behavioral component of our lives over which we may or may not have control (such as diet and tobacco use).

Longitudinal study: A type of study in which researchers continue to follow their participants over time; this type of study can be epidemiologic or intervention.

Macronutrients: Nutrients that we need to consume in relatively large quantities (>1 gram/day).

Micronutrients: Nutrients that we need to consume in relatively small quantities (<1 gram/day).

Morbidity rates (mor – BID – i – ty)**:** The number of illnesses in a given period of time.

Mortality rate (mor – TAL – i – ty)**:** The number of deaths in a given period of time.

National Center for Health Statistics (NCHS): A component of the U.S. Public Health Service whose mission is to compile statistical information to be used in improving the health of Americans.

National Health and Nutrition Examination Survey (NHANES): A federally funded epidemiologic study begun in the 1970s to assess trends in diet and health in the U.S. population.

Negative correlation (also called inverse correlation)**:** An association between factors in which a change in one is related to a change in the other in the opposite direction.

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Nonessential nutrient: A substance found in food and used by the body to promote health but not required to be consumed in the diet.

Noninfectious disease: An illness that is not contagious.

Nutrient: A substance in foods used by the body for energy, maintenance of body structures, or regulation of chemical processes.

Nutrition: The science of how living organisms obtain and use food to support processes required for life.

Nutrition transition: The shift from undernutrition to overnutrition or unbalanced nutrition that often occurs simultaneously with the industrialization of a society.

Nutritional science: A broad spectrum of academic and social disciplines related to nutrition.

Nutritional scientists: A person who conducts and/or evaluates nutrition-related research.

Organic compound: A substance that contains carbon–carbon bonds or carbon–hydrogen bonds.

Peer-reviewed journal: A publication that requires a group of scientists to read and approve a study before it is accepted.

Phytochemical (also called phytonutrient) (phy – to – CHEM – i – cal)**:** A substance found in plants and thought to benefit human health above and beyond the provision of essential nutrients and energy.

Placebo: A "fake" treatment, given to the control group, that cannot be distinguished from the actual treatment.

Placebo effect (pla – CE – bo)**:** The phenomenon in which there is an apparent effect of the treatment because the individual expects or believes that it will work.

Positive correlation: An association between factors in which a change in one is related to a similar change in the other.

Prevalence: The total number of people who have a condition in a given period of time.

Primary (information) source: The location (e.g., scientific journal) in which a scientific finding is first published.

Prospective study: When data are collected as they occur.

PubMed: A computerized database that allows access to approximately 11 million biomedical journal citations.

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Random assignment: When study participants have equal chance of being assigned to each experimental group.

Rate: A measure of the occurrence of a certain type of event within a specific period of time.

Researcher bias: When the researcher influences the results of a study.

Retrospective study: When information in the past is collected from subjects.

Risk factor: A lifestyle, environmental, or genetic factor related to a person's chances of developing a disease.

Scientific method: Steps used by scientists to explain observations.

Simple relationship: A relationship between two factors that is not influenced or modified by another factor.

Single-blind study: A human experiment in which the participants do not know to which group they have been assigned.

U.S. Centers for Disease Control and Prevention (CDC): A governmental agency that monitors the nation's health to prevent and control disease outbreaks both in the US and globally.

Zoonutrient (ZO – o – nu – tri – ent)**:** A substance found in animal foods and thought to benefit human health above and beyond the provision of essential nutrients and energy.

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Chapter Outline

Everyone Has a Story: Choosing Nutrition as a Career Path

Yimin's story describes how she chose nutrition as her major during college.

I. What Do We Mean by "Nutrition"? (1.1 and 1.2)

The term nutrition refers to the science of how living organisms obtain and use food to support all the processes required for their existence.

a. Nutrients have traditionally been defined as substances in foods required or used by the body for energy, structure, or regulation of chemical reactions.
b. Some foods contain both nutrients, such as carbohydrates and proteins, and non-nutrients, such as food coloring.

c. Organic nutrients contain carbon and inorganic nutrients do not contain carbon. These are different from organic foods.

d. In addition to the traditional macronutrients, our foods contain bioactive

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substances like phytochemicals and zoonutrients.

e. Focus On Food: Understanding What Is Meant by “Organic Foods”

II. What Are the Major Nutrient Classes? (1.3)

The major nutrient classes are carbohydrates, proteins, lipids, vitamins, minerals, and water.

a. The macronutrients include carbohydrates, proteins, lipids, and water.

b. The micronutrients include vitamins and minerals.

III. How Do Foods Provide Energy? (1.4)

Carbohydrates, proteins, and lipids are energy-yielding nutrients because they contain chemical energy that is converted to ATP.

a. We measure the energy we get from food with calories.

b. Classroom Activity 1.6: Bomb Calorimeter (Learning Outcome 1.4)

IV. How Is Nutrition Research Conducted? (1.5), (1.6)

Scientists test theories (including those related to nutrition) in many ways, most of which involve a series of steps collectively called the scientific method.

a. There are three steps involved in the scientific method: making an observation, proposing a hypothesis, and testing the hypothesis.

b. Intervention studies are conducted to determine the effect of a particular food, nutrient, or bioactive substance on a specific outcome.

V. Are All Nutrition Claims Believable? (1.7)

Nutrition research continues to reveal new findings. Because of this, our understanding of the relationship between diet and health is continually changing.

a. To measure the validity of nutrition research, one must determine the source of the information, who financed the research, the credibility of the researchers, and evaluate the experimental design.

b. Research becomes widely accepted when public health organizations concur with research results.

VI. Nutrition and Health: What Is the Connection? (1.8)

Nutritional scientists continually study the importance of nutrition because experts agree that nutrition plays a powerful role in health and disease.

a. Public health agencies are responsible for assessing the health of the nation.

b. Mortality and morbidity rates measure death and illness over time, demonstrating that life expectancy has increased dramatically.

c. Diseases are classified as either infectious or noninfectious.

d. Chronic diseases are the leading cause of death, so understanding nutrition is more important than ever.

e. Risk factors do not necessarily cause diseases.

f. Because of the powerful role nutrition has on health, understanding nutrition is more important than ever.

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g. Focus On Diet and Health: Industrialization, Population Growth, and the Nutrition Transition

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Discussion Questions

1. A research project designed to evaluate the effectiveness of a new exercise program evaluates participants in the new exercise program, participants in an established exercise program, and participants in a sedentary group. What must be done to eliminate as many confounding variables as possible that might influence the study results? (1.5)

   Answer: Randomization of subjects to each study group will control for confounding variables. Confounding variables that you might be concerned about include previous exercise, smoking, and diet. By randomizing group assignments, participants with confounding variables have an equal chance of being in each study group, minimizing the influence of these variables.

2. Explain how the relationship between two variables is a simple relationship and how the relationship between two variables is a complex relationship. Give examples of each relationship. (1.4)

   Answer: Height and weight is a simple relationship because the taller a person is, usually the more they will weigh. A complex relationship would be the relationship between type 2 diabetes and diet. Since there are numerous factors that influence type 2 diabetes (e.g., genetics, physical activity, fat intake), the relationship is more complex and more difficult to research.

3. Why is it important to learn about nutrition? (1.1 and 1.8)

   Answer: Learning about nutrition is important because nutrients support everything we do. Nutrient abundance, inadequacy, and imbalance contribute to chronic diseases such as diabetes, cardiovascular disease, and cancer. Since these chronic diseases are among the most common and costly diseases we have in the U.S. and many of these diseases are preventable, it is important to be educated about their prevention.

4. Differentiate between a cause-and-effect relationship and a correlational relationship. Give examples of a positive and a negative correlation. (1.5)

   Answer: A cause-and-effect relationship is when we know that one factor causes a change in another factor. For example, we know that smoking cigarettes causes lung

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cancer. A cause-and-effect relationship is more difficult to establish than a correlational relationship.

A correlational relationship means that the two factors are associated with each other, but we cannot show directly that one factor caused a change in another factor. An example of a correlational relationship would be time spent studying and test scores. The greater time spent studying results in higher test scores. However, some people do not spend much time studying and get high test scores, while others spend a lot of time studying and do not get high test scores. This is an example of a positive correlation. An example of a negative correlation would be time spent running on a treadmill and a decrease in body fat. As time on the treadmill increases, body fat decreases, resulting in an inverse relationship or a negative correlation. Often, correlational research is incorrectly labeled as a cause-and-effect relationship when one does not exist.

5. Explain the differences in kilocalories, calorie (small c), and Calorie (large C). (1.3)

   Answer: calorie (with a small c) is a very small unit of measure that is used to express the amount of energy in a food.

   Kilocalorie is used most often to report calories in a food because calories (small c) are such a small unit that they are typically expressed as a 1000 calorie unit or a kilocalorie.

   Calorie (large C) is sometimes used to express calories on a food label. Calorie (with a large C) is equivalent to 1000 calories or a kilocalorie.

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Additional Activities and Assignments

1. Classroom/Online Activity 1-1: Students' Burning Questions (1.1)

   Objective: Introduction to nutrition. Class size: All sizes. Materials needed: Post-It notes (three per student), 29 sheets of construction paper, and tape. Instructions: This assignment can be completed in the classroom and remotely/virtually. 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 14 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 29 topics by placing their Post-It notes 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

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notes if necessary. As you begin a new chapter, bring the corresponding piece of construction paper to class, and read the questions aloud.

2. Classroom/Online Activity 1-2: "Find a Person Who" Introduction Activity (1.1)

   Objective: Enhancing emotional classroom environment. Class size: All sizes. Materials needed: Copy of form described below (developed by instructor) for each student. Instructions: This assignment can be completed in the classroom and remotely/virtually. Students sometimes enjoy classes more when they are acquainted with other students. One way to assist this process is by providing students with a "Find a Person Who" form. Develop a form several columns wide and several rows long that lists a variety of traits in each square such as enjoys cooking, recycles, has a pet, is a nutrition major, etc. Instruct students to walk around the class, introduce themselves to each other, and try to find a person who fits each of the categories described on the sheet. When they find someone who fits a category, have them write the person's first name in that category. The goal is to complete the sheet. You may also suggest that they exchange e-mail addresses or phone numbers and form study groups. This activity works best for small to medium-sized classes.

3. Classroom/Online Activity 1-3: Why are you taking this nutrition course? (1.1)
   Why are you taking this nutrition course, and what are your personal goals for what you will learn?
   Answer: For a student, there might be multiple motivations for taking a general nutritional science course: (1) requirement for GE science, (2) interest in the subject, (3) exploring nutrition as a possible major, (4) curious about current issues in nutrition, (5) following a specialized diet or exercise routine and seeking further knowledge, (6) preventive health, and (7) many other health-related reasons.
   Personal goals for taking a general nutrition class might include weight management, learning about specialized diets (gluten-free, diabetes management, organic/natural, vegetarian, raw food), integrating the study of exercise science with nutritional science, learning about new foods and vegetables with preventive qualities, and learning how to prepare nutritious meals.

   Are there specific issues that are of special interest to you as you embark upon your study of nutrition?
   Answer: Some issues of special interest in the area of nutrition are wisely choosing foods for a long, high-quality life and understanding how foods are metabolized.

   Why are you especially interested in these topics?
   Answer: Increased longevity and access to a safe food supply have resulted in an increased significance of the study of nutrition throughout the lifespan. A multitude of diet and dietary supplement options are available to everyone, but making an educated choice is difficult.

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Nutrigenomics, an emerging and integrative area of nutritional science, uses clearly elucidated pathways of nutrient metabolism and indicators of disease to study the possibility of using a human's genetics to promote healthy choices and increase lifespan. Gaining an understanding of nutrient metabolism is the first step in learning about this vital field of nutrigenomics.

Has nutrition been an interest of yours for many years, or has some situation or experience made you particularly interested in learning more about it?
Answer: Yes/no. [Let's hear your story.]

4. Classroom/Online Activity 1-4: Intake Analysis – Diet Planning (1.3)

   Review eating plans A and B listed in worksheet 1-1 and then answer the questions comparing the two food intakes.

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

5. Classroom/Online Activity 1-5: Influences on Food Choices (1.2)

   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. Then, examine your food record and consider your choices. Follow the instructions on worksheet 1-2.

   Student answers will vary.

6. Individual Activity 1.1: Complete Worksheet 1-3: Evaluation of Published Nutrition Information (1.7)

   Student answers will vary.

7. Individual Activity 1-2: Bomb Calorimeter (1.4)

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Objective: Explain how a bomb calorimeter works. Class size: Any Instructions: Watch the following video that explains how a bomb calorimeter works at **https://www.youtube.com/watch?v=VG9YG0VviHc**.

- Partner with one other person in the class either in person, on a discussion board, or virtually.
- Choose one person as A (student) and the other person as B (teacher).
- Have person B teach person A how a bomb calorimeter works in as much detail as possible.
- Switch roles and have person A explain to person B how a bomb calorimeter works, emphasizing information that was not part of the first explanation.

8. Essay Activity 1.1: Nutrition Transition (1.8)

Objective: Describe nutrition transition as it affects developing countries. Class size: Any Instructions: Define the term nutrition transition. What are the causes of nutrition transition? What can be done to prevent this phenomenon?

Answer: Nutrition transition is when developing countries adopt a western lifestyle resulting in increased obesity, type 2 diabetes, and other chronic diseases. The causes of nutrition transition are a sedentary lifestyle and overconsumption of high-energy foods. The phenomenon is less prevalent in countries that have preserved an active lifestyle and a balance of cultural foods.

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Worksheet 1-1: Intake Analysis – Diet Planning

Instructions: Review eating plans A and B and answer the questions that follow.

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

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?

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

3b. What are the strengths of Eating Plan A in terms of representation of the major food groups?

3c. What are the weaknesses of Eating Plan A based on your findings in 3a and 3b?

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

4b. What are the weaknesses of Eating Plan B?

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Worksheet 1-2: Influences on Food Choices (page 1 of 2)

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. Then, examine your food record and consider your choices.

24-Hour Food Diary					
Meal	Time/Place	Food Items	How Much	How do you feel while eating?	Do you feel this was a good meal?
Breakfast		Grains Fruits Dairy Protein Fat			
Snack					
Lunch		Grains Fruits Dairy Vegetables Protein Fat			
Snack					
Dinner		Grains Fruits Dairy Vegetables Protein Fat			
Snack					

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Worksheet 1-2: Influences on Food Choices (page 2 of 2)

Answer the following questions based on the 24-hour food diary you filled out.

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

2. Was social pressure a factor in any food decisions?

3. Which, if any, food choices were influenced by marketing strategies or food ads?

4. What role does availability, convenience, and economy play in your food choices?

5. Does your age, ethnicity, or health influence your food choices?

6. How many times did you eat because you were truly hungry? How often did you think of health and nutrition when making food choices? Were those food choices different from others made during the day?

Compare the choices you made in your 24-hour food diary to the USDA My Plate Food Plan Recommendation. To obtain a set of personalized recommendations, you can enter your age, sex, height, weight, and activity level after clicking on "Get Your My Plate Plan" at the https://www.choosemyplate.gov/resources/MyPlatePlan

Food Group	USDA Suggested Amount	Amount Consumed
Grains		
Vegetables		
Fruits		
Dairy		
Protein Foods		

7. Do you eat the suggested amounts from each of the five food groups daily?

8. Do you try to vary your choices within each food group from day to day?

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

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Worksheet 1-3: Evaluation of Published Nutrition Information

Literature Critique: Critical Evaluation of Published Nutrition Information—
"Should I Believe What I Just Read?" Assignment for discussion: Carefully read a journal article and answer the following questions on a separate sheet of paper.

1. Summarize the basic idea of the article in a short paragraph.
    a. What are the credentials of the author(s)? What do the abbreviations after the name(s) mean? Do they enhance the authors' credibility? Explain.
    b. Is the author 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?
2. Is scientific research being presented or discussed? Is the research current?
    a. If so, what specific kinds of research or data are presented or cited to support the ideas?
    b. Were references listed to allow readers to investigate the information's original source? Were full citations provided?
3. What is the underlying hypothesis (if/then, cause/effect, etc.)?
    a. What are the article's conclusions/recommendations?
    b. Are the conclusions or recommendations supported by the research discussion? Explain briefly why or why not.
4. Design and describe in depth additional research that could more decisively test the hypothesis identified. Pay particular attention to details and controls.
    a. Indicate what will be measured.
    b. State the type of experimental design and type of experiment.
5. Identify the statements in the article that you believe and those that you do not believe and discuss why or why not for each.
6. What sources other than those listed in the periodical would you refer to if you were to research the article's topic further?

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Additional Resources

External Videos

- Registered Dietitian vs. Nutritionist: The Difference Is Evidence-Based Practice **https://www.youtube.com/watch?v=ctVvVzQM1hI**
- Introduction to vitamins and minerals | Biology foundations | High school biology | Khan Academy **https://www.youtube.com/watch?v=TBNCqRCsSvY&list=PLQrJd5ClElLtJXVHvL5dECuil-yFVrVsw&index=1**
- TED-Ed How do vitamins work? **https://www.youtube.com/watch?v=ISZLTJH5lYg**
- Using the Scientific Method in the Nutrition Field **https://www.youtube.com/watch?v=U9pNx03Xcww&list=PLQrJd5ClElLtJXVHvL5dECuil-yFVrVsw&index=2**
- USFDA Health Fraud Scams -- Be Smart, Be Aware, Be Careful Video **https://www.youtube.com/watch?v=KsPlwKbGxE8&t=143s**
- Diet and brain health: You are what you eat? **https://www.youtube.com/watch?v=2I-YOFEffOs**

Internet Resources

- Academy of Nutrition and Dietetics, **www.eatright.org**
- American Public Health Association, **www.apha.org**
- Centers for Disease Control and Prevention, **www.cdc.gov**
- Department of Health and Human Services, **www.hhs.gov**
- Environmental Protection Agency, **www.epa.gov**
- Food and Agriculture Organization of the United Nations, **www.fao.org**
- Food and Drug Administration, **www.fda.gov**
- Food and Nutrition Information Center, **http://fnic.nal.usda.gov**
- Healthy People 2030, **www.healthypeople.gov**
- National Center for Chronic Disease Prevention, **www.cdc.gov/chronicdisease/index.htm**
- National Institutes of Health, **www.nih.gov**
- Pan American Health Organization, **www.paho.org**

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- Quackwatch, **https://quackwatch.org/**
- World Health Organization, **www.who.int**

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Appendix

General Rubrics

Providing students with rubrics helps them understand expectations and components of assignments. Rubrics help students become more aware of their learning process and progress, and they improve students' work through timely and detailed feedback.

Customize these rubric templates as you wish. The writing rubric indicates 40 points and the discussion rubric indicates 30 points.

Standard Writing Rubric

Criteria	Meets Requirements	Needs Improvement	Incomplete
Content	The assignment clearly and comprehensively addresses all questions in the assignment. 15 points	The assignment partially addresses some or all questions in the assignment. 8 points	The assignment does not address the questions in the assignment. 0 points
Organization and Clarity	The assignment presents ideas in a clear manner and with strong organizational structure. The assignment includes an appropriate introduction, content, and conclusion. Coverage of facts, arguments, and conclusions are logically related and consistent. 10 points	The assignment presents ideas in a mostly clear manner and with a mostly strong organizational structure. The assignment includes an appropriate introduction, content, and conclusion. Coverage of facts, arguments, and conclusions are mostly logically related and consistent. 7 points	The assignment does not present ideas in a clear manner and with strong organizational structure. The assignment includes an introduction, content, and conclusion, but coverage of facts, arguments, and conclusions are not logically related and consistent. 0 points
Research	The assignment is based upon appropriate and adequate academic literature, including peer reviewed journals and other scholarly work. 5 points	The assignment is based upon adequate academic literature but does not include peer reviewed journals and other scholarly work. 3 points	The assignment is not based upon appropriate and adequate academic literature and does not include peer reviewed journals and other scholarly work. 0 points
Citation	The assignment follows the required citation guidelines. 5 points	The assignment follows some of the required citation guidelines. 3 points	The assignment does not follow the required citation guidelines. 0 points

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Grammar and Spelling	The assignment has two or fewer grammatical and spelling errors. 5 points	The assignment has three to five grammatical and spelling errors. 3 points	The assignment is incomplete or unintelligible. 0 points

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Standard Discussion Rubric

Criteria	Meets Requirements	Needs Improvement	Incomplete
Participation	Submits or participates in discussion by the posted deadlines. Follows all assignment. instructions for initial post and responses. 5 points	Does not participate or submit discussion by the posted deadlines. Does not follow instructions for initial post and responses. 3 points	Does not participate in discussion. 0 points
Contribution Quality	Comments stay on task. Comments add value to discussion topic. Comments motivate other students to respond. 20 points	Comments may not stay on task. Comments may not add value to discussion topic. Comments may not motivate other students to respond. 10 points	Does not participate in discussion. 0 points
Etiquette	Maintains appropriate language. Offers criticism in a constructive manner. Provides both positive and negative feedback. 5 points	Does not always maintain appropriate language. Offers criticism in an offensive manner. Provides only negative feedback. 3 points	Does not participate in discussion. 0 points

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