



ELECTIVE

STUDENT BOOK

► **Family and Consumer Science**

Unit 2

FAMILY AND CONSUMER SCIENCE

NUTRITION & MEAL PLANNING

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LIFEPAC Test is located at the back of the booklet. Please remove before starting the unit.

Nutrition & Meal Planning

Introduction

In Family & Consumer Science Unit 1, you learned a lot about how to live a healthy life. In this unit, you'll learn more about the science behind nutrition and how to use that knowledge to develop healthy eating habits and choose the foods you'll buy to stock your kitchen. You will also learn about ways to balance the tasks of planning meals, buying food, and preparing your healthy meals with a busy schedule, a set food budget, and your personal preferences.

Lastly, you will learn about the different types of food retail stores, their advantages and disadvantages, how to make the most of your food budget and keep your kitchen stocked with healthy ingredients, and how to evaluate food advertisement claims against nutrition and ingredient labels. Equipped with this knowledge, you'll be well prepared to make healthy food choices, make smart shopping decisions, and keep your kitchen stocked with the healthy ingredients you need for delicious meals.

Objectives

Read these objectives. The objectives tell you what you will be able to do when you have successfully completed this LIFEPAK®. When you have finished this LIFEPAK, you should be able to:

1. Identify the components of proper health and nutrition.
2. Recognize that too much fat and not enough fiber may contribute to health problems.
3. Explain the role of carbohydrates as the body's energy source.
4. Explain the role of fats in maintaining a healthy body.
5. Explain the role of proteins in maintaining a healthy body.
6. Explain the role of vitamins in maintaining a healthy body.
7. Explain the role of minerals in maintaining a healthy body.
8. Become familiar with the USDA's recommended dietary guidelines.
9. Understand how to apply dietary guidelines to daily eating choices.
10. Know how to identify the information given on food nutrition labels.
11. Understand how to calculate nutrition label information by serving size.
12. Recognize the importance of reading food labels.
13. Identify strategies to maintain a healthy diet with a busy schedule.
14. Identify strategies to balance a food budget with healthy dietary choices.
15. Understand how food preferences impact dietary choices.
16. Recognize the impact of a food budget on food choices.
17. Identify strategies for smart food shopping.
18. Compare and contrast different types of grocery stores.
19. Recognize psychological appeals of food advertisements.
20. Understand how to evaluate price and nutritional values of foods.

1. THE SCIENCE OF NUTRITION

Understanding how the foods you eat impact the functions of your body will help you make smart choices as you plan meals and purchase the foods you'll stock your pantry and refrigerator with and use to prepare meals. In this first section, you'll learn about the chemical processes that happen as your body breaks down foods, how they are converted and used by the body, and what happens when you consume foods that are unhealthy.

Section Objectives

Review these objectives. When you have completed this section, you should be able to:

1. Identify the components of proper health and nutrition.
2. Recognize that too much fat and not enough fiber may contribute to health problems.
3. Explain the role of carbohydrates as the body's energy source.
4. Explain the role of fats in maintaining a healthy body.
5. Explain the role of proteins in maintaining a healthy body.
6. Explain the role of vitamins in maintaining a healthy body.
7. Explain the role of minerals in maintaining a healthy body.

Vocabulary

Study these words to enhance your learning success in this section.

anabolism

calories

carbohydrates

catabolism

circulatory system

enzyme

glucose

minerals

nutrients

vitamins

Note: All vocabulary words in this unit appear in **boldface** print the first time they are used. If you are unsure of the meaning when you are reading, study the definitions given.

Carbohydrates. **Carbohydrates** are the body's primary and immediate source of energy. Each gram of carbohydrate provides the body with 4 calories. Calories refer to the amount of energy consumed from food and beverages and the amount expelled through activities and exercises. For example, if you were to walk for an hour, you would burn approximately 200 calories. That means various cells in your body would need to convert 50 grams of carbohydrates into glucose to provide the energy needed to walk an hour.

Carbohydrates are “burned” in the form of **glucose**. During digestion, complex carbohydrates are broken down into glucose units. Glucose is then absorbed by cells and used for energy during metabolism. Unused glucose is sent to the liver, where it is stored for later use as fuel. In the liver, glucose is stored as glycogen, a form of starch.

Carbohydrates exist in abundance in foods that contain starch and sugar. Foods, such as pasta, bread, corn, potatoes, beans, fruits, table sugar, honey, and candy, are high in carbohydrates. However, not all carbohydrates affect the body in the same way. Complex carbohydrates require a prolonged process of digestion to break down into glucose. This extended process helps to maintain proper “blood sugar” levels.

Total Carbohydrates			
Food/Drink	per Serving	Sugars	Fibers
Dr. Pepper™	27 grams	27 grams	0 grams
Coca Cola™	27 grams	27 gram	0 gram
Pepsi Cola™	27 grams	27 grams	0 grams
Mountain Dew™	31 grams	31 grams	0 grams
Pop-Tarts™ (frosted Cherry)	38 grams	19 grams	1 gram
Frosted Flakes™ (cereal)	28 grams	12 grams	1 gram
Fruit Loops™	28 grams	15 grams	1 gram
Cocoa Puffs™	26 grams	14 grams	0 grams
Cap'N Crunch™	23 grams	12 grams	1 gram
Jello™ (Chocolate)	28 grams	22 grams	1 gram
Jello™ (Strawberry)	17 grams	17 grams	0 grams
Fudgesicles™	17 grams	4 grams	1 gram
Twinkies™	25 grams	14 grams	0 grams
Hostess Cup Cakes™	30 grams	17 grams	1 gram
Fig Newtons™	22 grams	12 grams	1 gram
Oreo™ cookies	23 grams	13 grams	1 gram
Chips Ahoy!™ cookies	21 grams	10 grams	1 gram

Fats. Another source of energy is fat. Fat is the most concentrated form of energy, yielding 9 calories per gram. Because of its role in the absorption of vitamins, the protection of vital organs, and the digestion of other foods, fat is essential to good health.

There are two types of dietary fats, saturated and unsaturated. Dietary fats are fats that are eaten, as opposed to the fat found in your body. Saturated fats are found in animal products, such as meat, cheese, lard, and butter, and some plant oils, such as coconut oil and palm oil. Unsaturated fats are found in vegetables or nuts. Peanuts, olives, sunflower seeds, avocados, olives, and corn contain unsaturated fats.

Both unsaturated and saturated fats contain fatty acids. Fatty acids are organic acids that aid in the transportation and breakdown of cholesterol. Cholesterol is used by the body to synthesize Vitamin D, to maintain the proper functioning of nerve cells, to keep skin soft and supple, and to transport fat to cells.

Certain fatty acids are termed “essential” because they cannot be produced by the body. Therefore, eating foods that contain fats are vital to good health.

Fats are also essential to the absorption of Vitamins A, D, E, and K, and play a crucial role in the development of healthy bones, teeth, and skin. Any fats that are consumed (unsaturated or saturated) beyond the body’s needs are stored in tissue under the skin and around vital organs. These layers help to insulate the body from extreme temperatures and protect organs and bones from injury.

Saturated fat



Unsaturated fat



Circle the correct answer to each question.

- 1.17 _____ is/are the most concentrated form of energy.
 - a. Carbohydrates
 - b. Water
 - c. Fats
- 1.18 No more than _____ percent of a person’s total calorie intake should consist of fat.
 - a. 50
 - b. 40
 - c. 30
- 1.19 The consumption of _____ fats cause the rise of low-density lipoprotein in the blood.
 - a. saturated
 - b. unsaturated
- 1.20 The consumption of _____ fats cause the rise of high-density lipoprotein in the blood.
 - a. saturated
 - b. unsaturated

SELF TEST 1

Write the letter of the vocabulary word that matches the correct definition (each answer, 3 points).

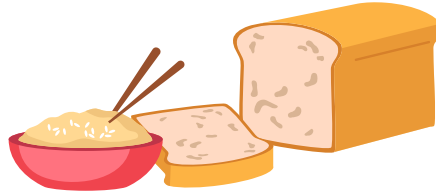
- | | | | |
|-------|-------|---|-----------------------|
| 1.01 | _____ | complex proteins in digestive tract; speed breakdown of nutrients | a. minerals |
| 1.02 | _____ | process by which the cell uses nutrients to repair or build new tissues | b. carbohydrate |
| 1.03 | _____ | scientific measurement of fuel converted to energy | c. anabolism |
| 1.04 | _____ | elements in food needed for normal development and function | d. enzyme |
| 1.05 | _____ | simple sugar that is an important energy source in living organisms | e. vitamins |
| 1.06 | _____ | sugar molecules the body breaks down into glucose | f. circulatory system |
| 1.07 | _____ | nutrient needed in small amounts to function and stay healthy | g. catabolism |
| 1.08 | _____ | conversion of nutrients into energy | h. nutrients |
| 1.09 | _____ | chemical substances absorbed by the body through digestion | i. calories |
| 1.010 | _____ | system containing the heart and blood vessels; moves blood through the body | j. glucose |

Write **T** for True or **F** for False (each answer, 2 points).

- | | | |
|-------|-------|---|
| 1.011 | _____ | The best source of hydration is soda with caffeine. |
| 1.012 | _____ | Both vitamins and minerals play an essential role in your body's health. |
| 1.013 | _____ | Food is solely composed of macronutrients such as carbohydrates, proteins, and fats. |
| 1.014 | _____ | Anabolism is the process by which cells utilize nutrients to repair or build new tissues. |
| 1.015 | _____ | Water is essential for all forms of metabolism in the body and must be replenished daily to maintain proper hydration levels. |
| 1.016 | _____ | All fats found in foods should be completely avoided for a healthy diet. |
| 1.017 | _____ | Diets high in fat tend to be high in other essential nutrients. |
| 1.018 | _____ | Calories are a scientific measurement of fuel converted to energy. |
| 1.019 | _____ | A candy bar is considered to have "empty calories" because it contains few nutrients. |
| 1.020 | _____ | Foods high in fiber are usually low in fat. |

1 serving:

1 slice of bread
 small roll or muffin
 1/2 of a bun, bagel, or English muffin
 1 to 1½ ounces cereal
 1/2 cup cooked cereal, rice or pasta
 3 or 4 small or 2 large crackers
 2 breadsticks (4½ inch)
 3 cups of popcorn
 2 medium cookies



Fruits: 2-4 Servings

The fruit group includes fresh, frozen, canned, and dried fruits and fruit juices. Fruits are rich sources of vitamins, especially Vitamin C. They are low in fat and calories. Deep yellow orange fruits are high in Vitamin A. The fruits that have the most Vitamin C are citrus fruits, strawberries, and cantaloupe. Choose fresh fruits for the fiber. Read labels to be sure that you are drinking 100 percent fruit juice and not fruit drinks. Teens need three servings from this group each day.

1 serving:

1 medium fresh fruit (apple, banana, orange, etc.) or 1/2 grapefruit
 1 medium wedge melon
 3/4 cup fruit juice
 1/2 cup cooked or canned fruit
 1/4 cup dried fruit



Vegetables: 3-5 Servings

Vegetables provide vitamins (especially A and C), are excellent sources of fiber and are naturally low in fat. For maximum nutrients select dark leafy greens, deep-yellow or orange vegetables and starchy vegetables like potatoes and yams. Different vegetables provide different nutrients. Corn and potatoes provide starch. Broccoli and green peppers are good sources of Vitamin C. Carrots and squash are high in vitamin A. Dried beans and peas provide protein.

1 serving:

1/2 cup chopped raw, cooked, or canned vegetables
 3/4 cup vegetable juice
 1 cup of raw leafy vegetables
 1 medium potato

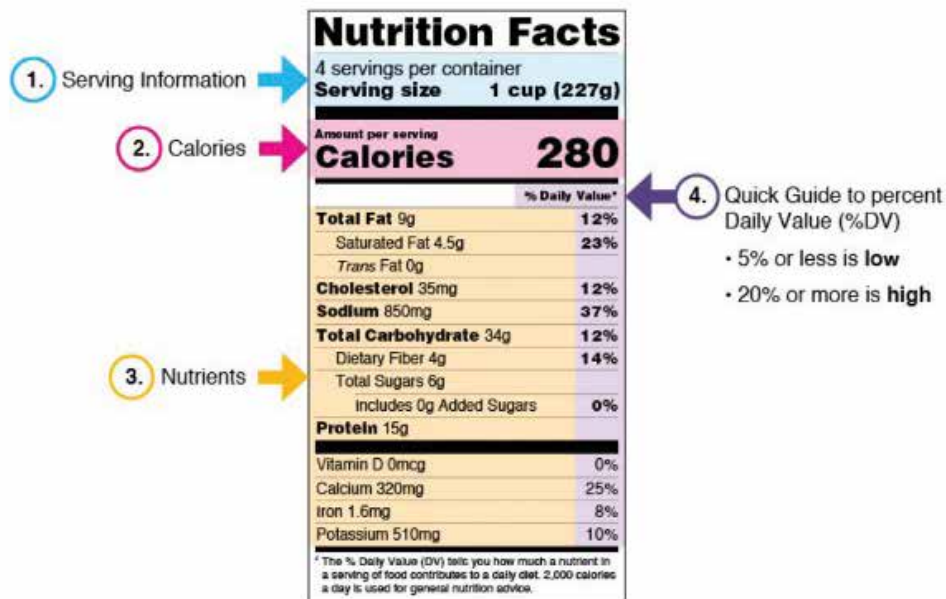


Protein: 2-3 Servings

Animal foods are excellent sources of protein, iron, zinc, and B vitamins, as are beans, nuts and seeds. Tofu (made from soybeans) and white beans also supply calcium. Some seeds, like almonds, are good sources of Vitamin E. Choose lean meat and poultry without the skin to reduce fat. Eggs are high in cholesterol and nuts are high in fat. It is better to eat them occasionally. Fish and dried beans are good low-fat choices. Teens also need 2-3 servings from this group.

Let's look at an example of a nutrition label.

Sample Label for Frozen Lasagna



Serving information. This is important to note because something may appear to be healthy, but if the serving size is small, you'll need to multiply the numbers based on how much you consume. For example, this frozen lasagna has a 1 cup serving size, but the container holds 4 servings. So, if you eat the whole container, you would be consumer 1,120 calories. Similarly, the total sugars under carbohydrates wouldn't be 6g (since that's one serving), it would be 24g.

Calories. As you know, calories provide a measure of how much energy you get from a serving of food. Assuming this frozen lasagna is a dinner for one and it's recommended you follow the general guideline of 2,000 calories per day, this one meal would be more than half your daily recommended calories. So, you can see why understanding nutrition labels is important for making decisions about the foods you eat.

Nutrients. This section shows some key ingredients, which can be used to support your dietary needs. You now know that **dietary fiber** is important, so you may look for foods high in fiber and low in sugar. Total sugars reflect sugars naturally present in foods; whereas, added sugars are those added during processing of foods. Look for foods high in dietary fiber, vitamin D, calcium, iron, and potassium and low in saturated fat, sodium, and added sugars.

Daily value percentage. This represents the percentage of the daily amount of each nutrient that should be consumed each day. Generally, 5 percent or less of the daily value of a nutrient is considered low and 20 percent or more is considered high.

You can use nutrition labels to make comparisons of the nutrient values of the foods you stock your home with, and to fact check advertising claims. You'll learn more about fact checking healthy foods advertising in Section 3 of this unit.

MAKING THE MOST OF YOUR FOOD BUDGET

Smart food shopping begins at home with careful attention to meal planning for nutritional value and a shopping list shaped to your family needs. Budget carefully and spend only what you can afford. It is important to the family's financial stability that you create a food budget and stick with it. If you must cut some food from your grocery list, make sure you cut the frills and not the necessities. Nutrients are a necessity. It is important to get all the nutrients your body needs to function from the food you eat.

The easiest way to make sure you are getting all your nutrients is to select from a variety of foods, including milk, meat, fruit, vegetables, and grain products. Cut costs by avoiding extras like junk food such as candy, salty snacks, and soft drinks which provide little more than calories.

Impulse buying can increase your grocery bill. The items you buy impulsively are probably the items you need least. Planning is the key to avoiding impulse buying. The following planning strategies can apply to shopping for any number of people.

- Make a shopping list and stick to it. Plan your shopping list around carefully planned menus.
- Check the sales at your local food stores in advance (online, print ads, and/or apps). Stock up on discounted items for future use (storage space permitting).
- Shop after eating. Hunger may tempt you to overbuy.
- Buy generic or store brand products as much as possible. These are usually cheaper, but you may need to test which products you prefer, as some brand names can be better quality.
- Shopping with family or friends can result in impulse buying as “their” selections jump into “your” cart. Saying “no” to their impulse selections may be hard at first, but it will help you stick to your budget.
- Check the **unit price**, which can tell you if buying a smaller package or portion or a larger one will be the better deal.
- Avoid ready-made items like frozen dinners as much as possible. It's often healthier and cheaper to prepare your own meals.

BUYING FRUIT AND VEGETABLE TIPS

- Buy fresh fruits and vegetables during their peak growing seasons.
- Compare the cost of fresh, dried, canned, and frozen fruits and vegetables. To determine the best buy, divide the price by the number of servings.
- Check produce for soft or brown spots, mold, or rot. Lettuce heads should be heavy and firm, fruits solid and flawless. Look at the bottom of the basket of blueberries, raspberries, strawberries. Do you see any mold? Melons should smell sweet, and you should be able to push the end in slightly. A slightly green banana will ripen at home at room temperature. Apples are ripe once they are at the store.
- It is far easier to cook frozen vegetables. Frozen vegetables won't spoil, so they're convenient and will last longer than fresh. However, fresh vegetables taste better and often retain more of their nutrients.
- Canned vegetables will also last longer than fresh, but this may also reduce the nutrient value to some extent and some canning processes increase the sodium levels.



- 3.19** What should you prioritize when making a grocery list?
- Impulse buys
 - Family preferences
 - Budget and planned menus
 - Sales at local stores
- 3.20** Which shopping companion might lead to impulse buying?
- Family or friends
 - Store employees
 - Online ads
 - Sales flyers
- 3.21** What's a common pitfall to avoid when shopping for groceries?
- Checking unit prices
 - Buying generic brands
 - Shopping while hungry
 - Making a detailed list

Deciding where to buy your groceries. There are different types of retail stores that sell food items, and knowing how they differ can help you find the best store to fit your needs. They each have advantages and disadvantages.

Type of Store	Advantages	Disadvantages
Grocery Store	Convenient Wide selection of food Many locations	Prices can vary from store to store Lack specialty items
Warehouse Food Stores	Low prices Can buy in bulk Some specialty items	Less food variety Tempting impulse buys Longer check-out lines
Co-op Food Stores	Low prices More generic items	Fewer locations
Convenience Store	Open 24-hours a day	Higher prices Limited selection
Specialty Store	Good customer service International foods and specialty items More options for people with food allergies and autoimmune diseases	Higher prices Limited general selection of foods
Farmer's Market	Fresh produce Good prices	Limited selection hours
Variety Store (sometimes called a dollar store)	Low prices	Limited supply Some prices are deceptively higher



LET'S REVIEW!

While the money you budget for food each month will depend on your income and other expenses, it's important to have a budget so you don't overspend. You can make the most of your monthly food budget by making a shopping list and sticking to it, avoiding impulse buying, and researching prices and the best food stores to meet your needs. Evaluating advertising claims made by food companies by checking food labels will help you identify which foods are the healthy choices so you can spend your money on foods with the greatest nutritional value.



Before you take this last Self Test, you may want to do one or more of these self checks.

1. _____ Read the objectives. Determine if you can do them.
2. _____ Restudy the material related to any objectives that you cannot do.
3. _____ Use the **SQ3R** study procedure to review the material:
 - a. **S**can the sections.
 - b. **Q**uestion yourself again (review the questions you wrote initially).
 - c. **R**ead to answer your questions.
 - d. **R**ecite the answers to yourself.
 - e. **R**ever areas you did not understand.
4. _____ Review all vocabulary, activities, and Self Tests, writing a correct answer for every wrong answer.

FAMILY AND CONSUMER SCIENCE UNIT 2:
LIFE PAC TEST

Write the letter of the vocabulary word that matches the correct definition (each answer 3 points).

- | | | | |
|-----|-------|---|-----------------------|
| 1. | _____ | scientific measurement of fuel converted to energy | a. enzyme |
| 2. | _____ | raw foods altered from their natural state | b. carbohydrates |
| 3. | _____ | expenses that can change | c. calories |
| 4. | _____ | plan for income and expenditures for a set period | d. fiber |
| 5. | _____ | type of carbohydrate needed for healthy digestion | e. processed foods |
| 6. | _____ | complex proteins in digestive tract; speed breakdown of nutrients | f. food preservatives |
| 7. | _____ | buying as a result of a sudden whim | g. unit price |
| 8. | _____ | product's total sales price divided by the individual units | h. budget |
| 9. | _____ | sugar molecules the body breaks down into glucose | i. variable expenses |
| 10. | _____ | chemical additives used to prevent or slow food spoilage | j. impulse buying |

Write *T* for True or *F* for False (each answer, 3 points).

- | | | |
|-----|-------|---|
| 11. | _____ | Complex carbohydrates require a long process of digestion to be broken down. |
| 12. | _____ | Both vitamins and minerals play an essential role in your body's health. |
| 13. | _____ | Fortified foods have added nutrients |
| 14. | _____ | Eating a healthy diet reduces your need to exercise. |
| 15. | _____ | You should not consider personal preferences to plan healthy meals. |
| 16. | _____ | Prepackaged convenience foods can be more expensive. |
| 17. | _____ | Grocery stores typically offer a wide selection of food items. |
| 18. | _____ | Convenience stores usually offer lower prices compared to grocery stores. |
| 19. | _____ | Food advertisers solely aim to inform consumers about their products. |
| 20. | _____ | Understanding nutrient values can help distinguish between healthy and unhealthy foods. |

Circle the correct answer (each answer, 3 points).

21. Chemical substances that are absorbed by the body through the process of digestion are called _____.
a. nutrients b. proteins c. carbohydrates
22. There are thirteen _____ used by the body to maintain health.
a. vitamins b. minerals c. enzymes
23. _____ carbohydrates do not take long to digest and cause blood sugar levels to rise quickly.
a. Simple b. Complex
24. The USDA requires food packaging to include food _____.
a. pictures b. descriptions c. labels
25. The common recommendation for daily calories consumption is _____.
a. 2,000 b. 1,500 c. 3,000
26. The general recommendation for after-tax monthly income allocated to food expenses is _____.
a. 5-8% b. 10-15% c. 20-25%
27. When creating a food budget, you should prioritize _____.
a. nutrients b. junk food c. snacks
28. Food advertisements influence our purchasing habits through _____ appeals.
a. psychological b. physical c. rational
29. Consumer should _____ advertising claims that foods are healthy.
a. evaluate b. ignore c. believe
30. Advertising's primary purpose is to _____ the product.
a. sell b. educate c. inform

