This nutrition and physical fitness curriculum kit provides a means for students, teachers, parents, and school health and food service staff to learn about the nutritional value of food and the relationship of food and physical fitness to growth, development, and health; develop food and activity habits which promote good health; and share this knowledge with family members and the community. Fifth and sixth grade class plans for nutrition instruction identify objectives for the lesson, list instructional aids, outline learning activities, and offer pertinent explanatory information on the lesson topic. Topics covered include: (1) cells and energy nutrients; (2) body composition; (3) food-energy measurement, and structural and regulatory nutrients; (4) nutrient identification, and vitamin, and mineral review; (5) metabolism and digestion; (6) body types; (7) nutrition status assessment; (8) factors which influence eating habits; (9) environmental foodways; (10) food labeling and advertising; (11) fueling body cells, pulse rate, and exercise; (12) physical fitness; (13) personal fitness test; (14) personal fitness; (15) dental health, snacks, and calories; (16) nutrient density; (17) goals for healthful eating, and school lunch; (18) nutrition-fitness case studies; and (19) nutrition information evaluation. Testing materials are included as well as selected references and instructional aids. Spirit master originals are provided for classroom use. (JD)
The contents of this publication were developed under a grant from the U. S. Department of Agriculture. However, these contents do not necessarily represent the policy of that agency, and you should not assume endorsement by the Federal Government.

[20 U.S.C. 1221e-3(a)(1)]

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Teachers, school food service staff, and school nurses, as well as parents, are in a position to influence children's food and activity choices. The Super Stars Nutrition-Physical Fitness Curriculum Kit provides a means for these team members and students to:

- Learn about the nutritional value of food and the relationship of food, and physical fitness to growth, development, and health.
- Develop food and activity habits which will help promote good health.
- Share their knowledge with family members and the community.

The Nutrition Super Stars Kit includes 5 lessons with a teacher's guide for 20 class plans plus a spirit master book which contains 44 masters.

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ACKNOWLEDGEMENTS

The development of the Nutrition Super Stars Curriculum Kit was funded by grants from the U. S. Department of Agriculture Section 18 - Child Nutrition Act and Arizona Nutrition Education and Training Program.

This curriculum was developed, field tested, and evaluated by the Department of Nutrition and Food Science at the University of Arizona, Tucson, 85721. The Nutrition Super Stars Curriculum Kit is distributed by the Food and Nutrition Division of the Arizona Department of Education, Phoenix, 85007; Carolyn Warner, Superintendent, and Dr. Jim Hartgraves, Deputy Superintendent.

This Nutrition Super Stars Curriculum Kit is the culmination of ideas, hard work, and dedication of many people. The curriculum kit contains two major items: a curriculum guide for twenty class plans and this spiritmaster book.

Developed by

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**LESSON 1**

**EVERYBODY'S A "STAR"**

Objectives

| Class 1 | - Cells - Structure and Function  
|         | Energy Nutrients - Fat, Carbohydrate, Protein |
| Class 2 | - Body Composition |
| Class 3 | - Food - Energy Measurement  
|         | Structural and Regulatory Nutrients - Minerals & Vitamins |
| Class 4 | - Nutrient Identification  
|         | Vitamin and Mineral Review |

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LESSON 1 - EVERYBODY'S A "STAR"

CONCEPT Food supplies nutrients which form dynamic body composition.

CLASSES 1-4

### OBJECTIVES

**A. BODY COMPOSITION -- NUTRIENTS AND CELLS**

1. **Identify.** The cell is the basic unit of the body.

2. **Identify.** The six major nutrients in food which are used to continually build and repair the body cells: fats, carbohydrates (simple and complex), protein, vitamins, minerals, and water.

3. **Identify.** Food which contains one or more of the six major nutrients.

4. **Identify-List.** One food which is a concentrated source of each major nutrient -- fat, carbohydrate (simple and complex), protein, vitamins, minerals, and water.

### INSTRUCTIONAL AIDS

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<th>CLASS NUMBER</th>
<th>AIDS</th>
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<tbody>
<tr>
<td>1</td>
<td>Handout #2 - FUEL BURNERS</td>
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<tr>
<td></td>
<td>Handout #3 - CELL POWER</td>
</tr>
<tr>
<td></td>
<td>Materials - Onion, Knife, Microscope, Toothpicks, Glass slides, Cover glasses, and Iodine</td>
</tr>
<tr>
<td></td>
<td>Handout #3 - FUELING UP</td>
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<tr>
<td>2</td>
<td>Handout #4 - EVERYBODY IS A STAR</td>
</tr>
<tr>
<td></td>
<td>Reference - NUTRITION CONCEPTS AND CONTROVERSIES</td>
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<tr>
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<td>Filmstrip/Cassette Projector</td>
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<tr>
<td></td>
<td>Filmstrip/Cassette WALDO LEARNS ABOUT NUTRITION - CARBOHYDRATE, FAT, PROTEIN</td>
</tr>
<tr>
<td>OBJECTIVES</td>
<td>INSTRUCTIONAL AIDS</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>5.</strong> Identify. Each person's body composition is made up of different (percentages) amounts of each nutrient.</td>
<td></td>
</tr>
<tr>
<td><strong>6.</strong> Identify-Explain. The amount (percentage) of these nutrients in the body are dependent upon an individual's age, sex, nutrient intake, and activity patterns.</td>
<td></td>
</tr>
</tbody>
</table>

**B. BODY COMPOSITION - A DYNAMIC PROCESS**

<table>
<thead>
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<tr>
<td><strong>2</strong> Reference - FOOD IS MORE THAN JUST SOMETHING TO EAT</td>
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<tr>
<td>Handout #5 - FUELING UP</td>
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</tr>
<tr>
<td><strong>3</strong> Handout #6 - WHAT IS A CALORIE</td>
<td></td>
</tr>
<tr>
<td>Reference - NUTRITION CONCEPTS AND CONTROVERSIES</td>
<td></td>
</tr>
<tr>
<td>Filmstrip/Cassette Projector</td>
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<tr>
<td>Filmstrip/Cassette WALDO LEARNS ABOUT NUTRITION - VITAMINS &amp; MINERALS</td>
<td></td>
</tr>
<tr>
<td>Reference - FOOD IS MORE THAN JUST SOMETHING TO EAT</td>
<td></td>
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<tr>
<td>Handout #7 - NUTRIENT STARS</td>
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</tr>
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<td><strong>4</strong> Poster - YOUR DIET - YOUR HEALTH</td>
<td></td>
</tr>
<tr>
<td>Mini-Poster - THE HASSLE-FREE GUIDE TO A BETTER DIET</td>
<td></td>
</tr>
<tr>
<td>Reference - FOOD HOME AND GARDEN BULLETIN NO. 228</td>
<td></td>
</tr>
<tr>
<td>Handout #8 - NUTRITION SEARCH</td>
<td></td>
</tr>
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<td><strong>5</strong> Handout #9 - VITAMIN B</td>
<td></td>
</tr>
<tr>
<td><strong>6</strong> Handout #10 - VITAMIN C</td>
<td></td>
</tr>
<tr>
<td><strong>7</strong> Handout #11 - CALCIUM</td>
<td></td>
</tr>
<tr>
<td><strong>8</strong> Handout #12 - IRON</td>
<td></td>
</tr>
<tr>
<td>Materials - Test tape and iodine</td>
<td></td>
</tr>
<tr>
<td>OBJECTIVES</td>
<td>INSTRUCTIONAL AIDS</td>
</tr>
<tr>
<td>------------</td>
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</tr>
<tr>
<td>10. <strong>Identify-Describe.</strong> The effects of imbalanced energy/nutrient intake on the nutritional status of the body.</td>
<td></td>
</tr>
<tr>
<td>11. <strong>Identify-Explain.</strong> That nutrients work as a team in the body and no single food or small group of food supplies all of the nutrients needed by the body.</td>
<td></td>
</tr>
<tr>
<td>12. <strong>Identify-Explain.</strong> That many combinations of foods can provide a nutritionally adequate diet and guidelines are available for rating diet adequacy (nutrient density, five food groups, School Lunch Pattern, Dietary Goals, RDA).</td>
<td></td>
</tr>
<tr>
<td>13. <strong>Identify-Explain.</strong> That the amount of energy/nutrients needed by an individual are dependent upon the age, sex, body size, activity level, and health status of the person.</td>
<td></td>
</tr>
</tbody>
</table>
All living things are made up of cells. The basic living unit of our body is the cell. The body contains about 75 trillion cells.

Each part of the body is actually an aggregate of many different types of cells held together by intercellular "cement". Each type of cell is specially adapted to perform one particular function. For instance, the red blood cells, 25 trillion in all, transport oxygen from the lungs to all parts of the body.
**DISCUSSION QUESTIONS:**

- **What is the body made of?**
  Nutrients that form CELLS that make up our skin, bones, hair, organs, and blood.

- **What is a car engine made of?**
  Metal, plastic, rubber that form the engine block, pistons, distributor, and spark plugs.

- **What are the two main parts of body cells?**
  Cell membrane and nucleus.

- **What are the functions of these two cell parts?**
  The nucleus directs the activities of the cell. When a cell divides, or uses food, the nucleus controls what happens.
  The cell membrane lets in nutrients from food and helps keep out harmful substances.

- **What do you think would happen if the engine or the nucleus were removed from your body cells?**
  They would not work.

Even though there are many different types of cells in the body, all cells have some common characteristics. For example, each cell contains a nucleus and a cell membrane.
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Handout #3 -CELL POWER</td>
<td>Animal and plant cells are different from one another. All cells have a nucleus and a cell membrane. Only plant cells have a cell wall. Animal cells have no cell wall.</td>
<td>2. Handout #3 CELL POWER</td>
</tr>
</tbody>
</table>

Materials
- Onion
- Knife
- Microscope
- Toothpicks
- Glass slides
- Cover glasses
- Iodine

(This activity can be done by students in small groups or as a student or teacher demonstration.)

Not all the nuclei will show up due to the thickness of the cell and the way the slide was prepared. However, some should show up. If none show up, try it again with a thinner slice of onion.)
LEARNING ACTIVITIES

DISCUSSION QUESTIONS:

- What do you think the iodine did to the cell?
  It stained the cell wall or membrane and the nucleus and made them look dark.

- Do you think cells from your bones would look different from the cells in your cheeks?
  Yes, because they are different types of cells.

INFORMATION

All cells use oxygen to help produce body energy. Oxygen, vitamins, and minerals are combined in the cell to release energy from the energy nutrients -- fat, carbohydrate (sugars or starches), or protein. This energy is required for all cells to function.

The general mechanisms for changing nutrients into energy are basically the same in all cells. All cells also deliver end-products of their chemical energy reactions into the fluid surrounding the cells. These waste products are eliminated from the body in urine or sweat.
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Handout #4 - EVERYBODY IS A STAR</td>
<td>EVERYBODY IS A STAR because everyone's body is composed of the same ingredients called nutrients. The cells in our body are made from the six major nutrients:</td>
<td>1. Handout #4 EVERYBODY IS A STAR Reference NUTRITION CONCEPTS AND CONTROVERSIES</td>
</tr>
</tbody>
</table>

- Water
- Protein
- Fats
- Carbohydrates
- Minerals
- Vitamins
Our body cells obtain these nutrients from the food and beverages we eat and drink.

AVERAGE PERCENT OF BODY WEIGHT from each major nutrient

Carbohydrates - 1/2%
Vitamins - 1/2%
Protein - 16%
Minerals - 6%
Fats - 17%
Water - 60%

The percentage of these six nutrients in your body will vary from the average. This variation depends on your body type, sex, age, nutrient intake (diet), activity patterns, physical fitness, and health status.
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<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEX ♂ ♂</td>
<td>Women usually have a higher percentage of body fat than men. 22% of the average woman's body weight is fat while 18% of an average man's body weight is fat.</td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>As the body ages, the percentage of water decreases.</td>
<td></td>
</tr>
<tr>
<td>DIET/ACTIVITY</td>
<td>We all are aware that consuming more calories than we burn up in our daily activities will increase the size of the percentage of our body weight that is made up of fat.</td>
<td></td>
</tr>
<tr>
<td>PHYSICAL FITNESS</td>
<td>A long distance runner may only have 7% of their body weight coming from fat.</td>
<td></td>
</tr>
<tr>
<td>BODY TYPE</td>
<td>The body type we inherit from our family also affects our body composition. We will study more about body types in future classes.</td>
<td></td>
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</table>
### LEARNING ACTIVITIES

<table>
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<th>Activity</th>
<th>Description</th>
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<td><strong>2.</strong></td>
<td>Filmstrip/Cassette&lt;br&gt;<strong>WALDO LEARNS ABOUT NUTRITION - CARBOHYDRATE, FAT, PROTEIN (15 minutes)</strong></td>
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</tbody>
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### INFORMATION

#### THE ENERGY NUTRIENTS

**PROTEIN**

Protein is a nitrogen-containing nutrient that has been recognized for 140 years as a substance necessary to the life of all body cells. Protein is named after the Greek work *proteios*, which means "of prime importance." Proteins are made of "building blocks" called amino acids.

Life is possible for weeds, flowers, cows, and humans because there is protein to provide amino acids. The amino acids in protein are used to make new cells in muscles, glands, bones, blood, and other tissues. Amino acids also build such body proteins as hemoglobin, enzymes, antibodies, and hormones such as insulin. Amino acids from our food also form body proteins for the transport of fats and other nutrients in our blood.

Protein also provides energy when our diet contains too little calories from fat or carbohydrate. When our diet contains more protein than our body needs for building and repairing cells, the extra protein is converted to fat and stored in the adipose tissue.

---

**AIDS**

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<th>Description</th>
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<td><strong>2.</strong></td>
<td>Filmstrip/Cassette&lt;br&gt;<strong>WALDO LEARNS ABOUT NUTRITION-CARBOHYDRATE, FAT, PROTEIN</strong></td>
</tr>
</tbody>
</table>
5. Protein can also be an energy source but its major function is to supply amino acids to build and repair body cells.

6. Examples of foods which contain a lot of fat, carbohydrate, and protein.

NOTE: A series of review questions are included in the filmstrip.

THE RECOMMENDED DIETARY ALLOWANCE (RDA) FOR PROTEIN IS:

<table>
<thead>
<tr>
<th>Age Years</th>
<th>Protein - RDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>11-14</td>
<td>46 grams</td>
</tr>
<tr>
<td>19-50</td>
<td>44 grams</td>
</tr>
<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>11-14</td>
<td>44 grams</td>
</tr>
<tr>
<td>19-50</td>
<td>56 grams</td>
</tr>
</tbody>
</table>

There are about 20 different amino acids in proteins. Proteins from animal sources, such as milk, meat, fish, eggs and cheese are called complete proteins because they supply all the 8 essential amino acids which the body cannot build for itself. Some proteins are called incomplete proteins because they do not contain the 8 essential amino acids that the body cannot make. These incomplete proteins cannot aid growth unless they are combined with foods which can supply the missing amino acids needed to form complete proteins.

CARBOHYDRATES

Carbohydrates have gotten the undeserved reputation as a fattening ingredient in food. The fact is, carbohydrate is the ideal fuel for most body functions. There are only 3 other body fuels -- fat, alcohol, and protein. Protein is expensive and, when used for energy, it has no advantage over carbohydrate. Fat is less costly, but is a more concentrated energy source and cannot be used efficiently by the brain and nerves. Alcohol has the same disadvantages, plus some other undesirable side effects when used in
excess. Thus, of all the possible alternatives, carbohydrate is the preferred calorie source for the body.

All carbohydrates are not alike. So, it is also important to distinguish between complex and simple carbohydrates.

**Complex Carbohydrates** - Starch and cellulose are two forms of complex carbohydrates. Starch is gradually digested and absorbed to supply energy to the body in the form of glucose. Cellulose cannot be digested by humans, but still serves a useful function in the body.

**Simple Carbohydrates** - found in foods such as sugar, molasses, and honey, are quickly digested and are turned into glucose and absorbed by the body.

Foods which contain the complex carbohydrate starch include cereals, rice, tortillas, breads, potatoes, macaroni, spaghetti, and other flour products.

Another form of complex carbohydrate is cellulose. Cellulose is one type of fiber which is found in whole grain cereals, fruits, and vegetables. Whole grains also contain bran which is another type of fiber. Fiber does not supply energy to the body because it cannot be digested. But fiber is very important in our diet to help regulate body processes.
### LEARNING ACTIVITIES

| Fiber provides bulk and aids in the establishment of normal bowel movements. Too little fiber in the diet results in small bowel movements which are difficult to pass. Too much fiber leads to frequent large stools. Too frequent bowel movement can also interfere with the absorption of nutrients, especially minerals, from the digestive tract.

Simple carbohydrates occur naturally in fruits, milk, grains, and vegetables. Simple carbohydrates, such as sugars and honey, are often added to foods such as cereals, catsup, beverages, and desserts. These hidden simple carbohydrates add to our calorie intake. Extra carbohydrates not needed for immediate body fuel are stored in the liver and muscles. The storage form of carbohydrates is called glycogen. Any other extra carbohydrate is turned into body fat.

**FATs**

Fats, like carbohydrates, have acquired a bad reputation. We hear a lot about the bad effects of too much dietary cholesterol and the increase in the amount of fat in the typical American diet. As a result, many people have decided that fat, also called lipids, is bad for your health.

Lipid is the general term for fats. It includes substances which generally cannot be dissolved in water. About 95 percent of the fats, or lipids, in food and in our body are a kind of fat called triglyceride. Other members of the lipid family include lecithin and cholesterol.
It may surprise you to know that fat is absolutely necessary to our body, and some fat must be present in our diet in order to maintain good health. Fat makes up part of the cell membrane in each cell in your body. It also surrounds and pads all of your vital organs such as the heart and liver.

Fat is important for still another reason. Some essential nutrients are soluble in fat and, therefore, are found mainly in food which contain fat. These nutrients are the essential fatty acid linoleic acid and the fat-soluble vitamins -- A, D, E, and K.

Fat in food includes visible fats and oils, such as butter, margarine, vegetable oil, and the fat you trim from meat. There is also hidden fat in meat, nuts, avocados, and many processed foods.

Ounce for ounce, fats contain twice as many calories as carbohydrates or proteins. Besides being a concentrated energy food, fats have many other roles. If more fats are eaten than are needed for immediate energy needs, the fat will be stored in fat paddings on various parts of the body.

Fat also carries chemicals which give foods their aroma and flavor. This accounts for the smells associated with foods that are being fried, such as bacon or french fries.

Consumption of fat in the United States is decreasing, but is still higher than earlier in this century or in developing countries. High levels of fat intake is implicated in some modern diseases, including obesity, atherosclerosis, and cancer. However, the

NOTE: Students can use "Food is More Than Just Something to Eat" as a reference to obtain basic information on protein, carbohydrates, and fat that is presented in the filmstrip.

### NUTRIENT ENERGY CONTENT

<table>
<thead>
<tr>
<th>NUTRIENT</th>
<th>ENERGY CONTENT Calories/gram</th>
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</thead>
<tbody>
<tr>
<td>FAT</td>
<td>9</td>
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<tr>
<td>CARBOHYDRATE</td>
<td>4</td>
</tr>
<tr>
<td>PROTEIN</td>
<td>4</td>
</tr>
<tr>
<td>ALCOHOL</td>
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</table>

Reference

FOOD IS MORE THAN JUST SOMETHING TO EAT
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<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
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<tbody>
<tr>
<td>3. Handout #5 - FUELING UP</td>
<td>causes for these diseases are complex. The role of fat in these disease processes has not been determined. However, until the evidence is in, limiting fat intake in your diet seems to be a prudent idea.</td>
<td>2. Handout #5 FUELING UP</td>
</tr>
</tbody>
</table>

Have students complete this handout as a review of the energy nutrients.
The energy source for our car is gasoline or diesel fuel. We purchase these fuels by the unit of measurement called a gallon or liter.

We obtain fuel for the body from the energy nutrients—fat, carbohydrate, and when necessary, protein. The energy in food is measured in calories.

One calorie (K calorie) is the amount of heat necessary to raise the temperature of a kilogram (a liter) of water 1°C. Scientists are gradually shifting to a more universal system which represents food energy in units called kilojoules (kJ). A kilojoule is the amount of energy expended when a kilogram is moved one meter by a force of one Newton. The joule will become the unit of food energy as the United States shifts to the metric system. One calorie (K calorie) equals 4.2 kJ.

**NUTRIENT** | **ENERGY CONTENT**
---|---
FAT | 9 calories/gram
CARBOHYDRATE (simple or complex) | 4 calories/gram
PROTEIN | 4 calories/gram
ALCOHOL | 7 calories/gram
The chart on the left summarizes the recommended daily calorie intake to maintain normal body weight for females and males of various ages. We will study more about our energy requirements in future classes.

**Recommended Dietary Allowance (RDA) for Sex and Age**

<table>
<thead>
<tr>
<th>SEX</th>
<th>AGE</th>
<th>ENERGY (Calories per Day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>11-14</td>
<td>2200 (1500-3000)</td>
</tr>
<tr>
<td></td>
<td>23-50</td>
<td>2100 (1200-3000)</td>
</tr>
<tr>
<td>Male</td>
<td>11-14</td>
<td>2700 (2000-3700)</td>
</tr>
<tr>
<td></td>
<td>23-50</td>
<td>2700 (2300-3100)</td>
</tr>
</tbody>
</table>

**Vitamins**

The multibillion-dollar vitamin supplement industry has been selling the general public on the idea that vitamins are the new fountain of youth. Many people also have been convinced that vitamin supplements will cure a wide variety of ailments from baldness to cancer. In reality, the only disease a vitamin will cure is one caused by a deficiency of that vitamin.

**Note:** Students can use "Food is More Than Just Something to Eat" as a reference to obtain the basic information about calories, vitamins, and minerals which is presented in the filmstrip.
### LEARNING ACTIVITIES

This filmstrip covers two of the nutrients -- vitamins and minerals. These nutrients do not supply energy to the body. They are called essential nutrients because we must get them from foods in our diet since our body cannot make enough of them to meet its needs. The KEY IDEAS in this filmstrip are:

1. Vitamins and minerals are two major kinds of nutrients.
2. Minerals make up part of your body and help keep your body working.
3. Vitamins also help keep your body working.
4. Some vitamins are water soluble and some vitamins are fat soluble.
5. Vitamins and minerals are found in a variety of foods.

![Image of a table with food items]

### INFORMATION

Nutritionists define vitamins as indispensible, noncaloric organic compounds in food -- needed in very small amounts in the diet. Vitamins perform specific functions to promote growth or to maintain health and life.

People may need several hundred grams of energy nutrients each day to maintain their weight and fuel their body activities, but they need only one-thousandth (milligram) or one-millionth (microgram) of a gram of each vitamin.

The discovery of vitamins occurred around the beginning of the 1900's. One reason why this came so late in the history of science is that vitamins are found in foods and in the body in very tiny amounts. It took the sophisticated technology developed by the science world in the past 80 years to isolate and synthesize vitamins.

Another stumbling block in vitamin research was in finding the right animals for experiments. A chemical substance that is a vitamin for one species may not be vital for another species. This happens because one species may be able to synthesize a vital substance from other chemicals in their food, whereas a second species must obtain that vital substance preformed in its food. The substance is of equal importance to both species, but is a vitamin only to the second species. Vitamin C, also called ascorbic acid, is an example. Human beings must obtain Vitamin C from their food, so for us, it is a vitamin. The rat, dog, and cat make their own Vitamin C in their body from other chemicals in their food. So for them, ascorbic acid is not a vitamin.
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
</tr>
</thead>
</table>

There are a great many vitamins, differing widely in makeup and function. Each vitamin has a very specific function in the body and no other vitamin can take its place. Many vitamins work together in teams in certain body functions such as metabolism, and a severe lack of even one can cause a deficiency disease.

Conversely, supplying large amount of vitamins to your body can be hazardous enough to cause malnutrition.

"Mal" means bad. Malnutrition means "bad" nutrition. So, malnutrition can be due to an excess or deficiency of the body's nutrient needs.

One method of classifying vitamins is to separate them on the basis of their solubility in fats or in water. These are useful categories because they give an indication of the kinds of foods in which you find particular vitamins, the way the body stores them, and the way they should be handled during food preparation in order to preserve as much of their activity as possible.
The fat-soluble vitamins -- A, D, E, and K -- are found in animal fats and plant oils. Just like fats, once these vitamins have been absorbed from the intestines into the lymph stream, they can't be excreted. Instead, they are stored in the liver and fat pads. Therefore, Vitamins A, D, E, and K can reach toxic levels in the body if ingested in large amounts.

All other vitamins -- the B vitamins and Vitamin C -- are water soluble. They can be stored for a period of a month or more and are excreted if taken in excess of body needs. So, they must be replenished on a regular basis. In contrast to the fat-soluble vitamins, the water-soluble B vitamins and Vitamin C are more easily lost by poor food storage and preparation methods.

Two vitamins children frequently consume in amounts below their Recommended Dietary Allowance guidelines are Vitamins A and C. Children who consume diets which contain a variety of foods, including dairy products, meats, dried beans, whole grains or enriched grain products, usually get enough of three well known B vitamins, Thiamine (B-1), Riboflavin (B-2), and Niacin. The B vitamins do not supply energy to the body, but they are essential in order for each cell to help release the energy from our food.
LEARNING ACTIVITIES

INFORMATION

AIDS

ESSENTIAL BODY CHEMICALS
- Carbon
- Hydrogen
- Oxygen
- Nitrogen

Major minerals
- calcium
- phosphorus
- chlorine
- potassium
- sulfur
- sodium
- magnesium

Trace minerals
- fluorine
- silicon
- vanadium
- chromium
- magnesium
- iron
- cobalt
- nickel
- copper
- zinc
- selenium
- molybdenum
- tin
- iodine

MINERALS

Minerals account for 21 of the 25 chemical elements essential to life.

Carbohydrate and fats are made from only three elements: carbon, hydrogen, and oxygen. Protein is made from these same three elements plus nitrogen. The nitrogen is what makes protein a building nutrient rather than primarily an energy source like fat and carbohydrate.

Minerals, like vitamins, are essential nutrients. They must be supplied to our body from the foods we eat. Many different minerals are needed for growth and development of tissues like bones and blood. Some minerals are needed to enable each cell in our body to function.

Minerals are classified as major minerals or trace minerals. The distinction between the major and trace minerals doesn't mean that one group is more important than the other. Rather, it refers to the quantity of that mineral that is needed by the body. The major minerals are those present in amounts larger than 5 grams (a teaspoon). The trace minerals are needed only in very tiny amounts, usually less than a fourth of a gram. (1 ounce = 28 grams).

The minerals that are most often in short supply in children diets are calcium and iron.
### Information

**WATER**

Our bodies can survive a deficiency of some major nutrients for long periods of time. However, the body can survive only a few days without water. This is due to the fact that water makes up 60 percent or more of the body's weight and performs many essential functions. Each of your billions of body cells has to have water to remain alive. The water in your body is like a river. Water in your arteries, veins, and capillaries brings each cell the nutrients it requires and carries away the waste products of the life sustaining activities that take place in each cell.

Body water is also a part of tissues, and is necessary for chemical reactions in digestion, aids in temperature regulation and performs many other vital body functions. We get water not only from the things we drink, but also from foods. Fruits and vegetables are foods which contain a lot of water.

---

### Learning Activities

3. **Handout #7 - NUTRIENT STARS**

This handout can be used by the students to review and name the functions of the major nutrients.
### Learning Activities

1. **Discuss Poster - YOUR DIET - YOUR HEALTH**

### Information

The five foods group are a guide to helping you select the kinds and amounts of foods that make up a nutritious diet.

The guide divides commonly eaten foods into five groups according to their nutrient composition. By following the guide, you'll be able to choose foods for their vitamins, minerals, and protein - as well as calorie content.

### AIDS

1. **Poster:** YOUR DIET - YOUR HEALTH

Mini Poster: THE HASSLE-FREE GUIDE TO A BETTER DIET

References

- FOOD-HOME AND GARDEN BULLETIN NO. 228

**FOOD IS MORE THAN JUST SOMETHING TO EAT**

Handout and discuss the mini-poster, THE HASSLE-FREE GUIDE TO A BETTER DIET.
**LEARNING ACTIVITIES**

**DISCUSSION QUESTIONS:**

- What are the recommended number of servings for each food group?

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Servings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable-Fruit</td>
<td>4</td>
</tr>
<tr>
<td>Bread-Cereal</td>
<td>4</td>
</tr>
<tr>
<td>Milk-Cheese</td>
<td></td>
</tr>
<tr>
<td>Children 9-12</td>
<td>3</td>
</tr>
<tr>
<td>Adults</td>
<td>2</td>
</tr>
<tr>
<td>Meat, Poultry, Fish, Beans</td>
<td>2</td>
</tr>
<tr>
<td>Fats-Sweets-Alcohol</td>
<td>?</td>
</tr>
</tbody>
</table>

- Why is eating a variety of foods important for a nutritious diet?

No one food or small group of foods contains all the nutrients necessary for good health.

**INFORMATION**

The suggested number of servings in the guide would contain an average of 1200 calories, provide adequate protein, and supply most of the vitamins and minerals you need. Plan your day's food around this foundation to keep on the right track to a better diet.

Each food group has one or more of the essential nutrients necessary for staying healthy and fit. No one food is a complete source of all nutrients. To get all of the many nutrients needed for health, a variety of foods from all of the groups needs to be eaten.

Remember, the food guide gives you only the basics. You have to choose foods which meet your special needs. But you're usually better off by eating a wide assortment of foods from the first four food groups.
There are various experiments that can be performed to determine which of the six major nutrients are present in a food.

The nutrient tests in this handout are very basic examples of the kinds of tests nutritionists and food scientists use to analyze the nutrient composition of foods. These tests are rough qualitative tests. They will tell you whether or not one or more of the energy nutrients are present in large amounts in each food your students' test. These are the kinds of tests that are used to classify foods into the five food groups.

### Materials
- Test Tape
- Iodine
### LEARNING ACTIVITIES

<table>
<thead>
<tr>
<th>Handouts:</th>
</tr>
</thead>
<tbody>
<tr>
<td>#9 - Vitamin B</td>
</tr>
<tr>
<td>#10 - Vitamin C</td>
</tr>
<tr>
<td>#11 - Calcium</td>
</tr>
<tr>
<td>#12 - Iron</td>
</tr>
</tbody>
</table>

### INFORMATION

The B vitamins, Vitamin C, calcium, and iron are vitamins and minerals which are usually in short supply in children's diets. Therefore, it is important to encourage students to eat foods that are good sources of these nutrients.

### AIDS

3. Handouts:
- #9 - Vitamin B
- #10 - Vitamin C
- #11 - Calcium
- #12 - Iron

---

**BONUS ACTIVITY:** Plan a snack tasting party with the help of your school cafeteria to try some snacks which are good sources of these key vitamins and minerals. Invite student's parents to attend your snack party!
## LESSON II

**CREATING A "STAR"**

### Objectives

<table>
<thead>
<tr>
<th>Class</th>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 5</td>
<td>Metabolism and Digestion</td>
<td>28</td>
</tr>
<tr>
<td>Class 6</td>
<td>Body Types</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Nutritional Status</td>
<td>36</td>
</tr>
<tr>
<td>Class 7</td>
<td>Nutritional Status Assessment</td>
<td>44</td>
</tr>
</tbody>
</table>
**LESSON II - CREATING A "STAR"**

**CONCEPT**
Nutrients in food are metabolized to form dynamic body composition.

**CLASSES**
5 - 7

---

### OBJECTIVES

14. **Identify-Explain.** Metabolism is a continual series of processes by which our body cells convert nutrients from food into energy, body structure, and waste.

15. **Identify-Explain.** Metabolism includes the processes of digestion, absorption, transportation, and excretion of ingested nutrients in food.

16. **Identify-Explain.** The process of digestion, absorption, transportation, and excretion and the results of these body processes on the nutrients in food.

17. **Identify-Explain.** That nutrients are soluble in water or fat and are transported to body cells in body fluid (blood-water soluble nutrients, fat-soluble nutrients, lymph-fat soluble nutrients.)

### INSTRUCTIONAL AIDS

<table>
<thead>
<tr>
<th>CLASS NUMBER</th>
<th>AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Handouts #13 and 14 - THE FOOD TUBE PUZZLE - PARTS A AND B</td>
</tr>
<tr>
<td></td>
<td>Reference - NUTRITION CONCEPTS AND CONTROVERSIES</td>
</tr>
<tr>
<td></td>
<td>Filmstrip/Cassette Projector</td>
</tr>
<tr>
<td></td>
<td>Filmstrip/Cassette DIGESTION - YOU ARE WHAT YOU EAT</td>
</tr>
<tr>
<td></td>
<td>Handout #15 - THE FOOD TUBE</td>
</tr>
<tr>
<td>6</td>
<td>Handout #16 - WHAT BODY TYPE ARE YOU?</td>
</tr>
<tr>
<td></td>
<td>Reference - NUTRITION CONCEPTS AND CONTROVERSIES</td>
</tr>
<tr>
<td>OBJECTIVES</td>
<td>INSTRUCTIONAL AIDS</td>
</tr>
<tr>
<td>------------</td>
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</tr>
<tr>
<td>19. Identify. That measurements of height, weight, arm circumference, and skinfolds give a rough estimate of the amount of fat in body composition and fat-free weight (fat-free weight reflects weight of water, minerals, and lean muscle.)</td>
<td></td>
</tr>
<tr>
<td>20. Measure, Record, and Compare to Standards. Height, weight, arm circumference, and skinfold measurements</td>
<td>Handout #17 - BODY PROFILE</td>
</tr>
<tr>
<td>21. Identify. Body measurements can help evaluate the nutritional status of the body.</td>
<td></td>
</tr>
</tbody>
</table>

**CLASS NUMBER**

**AIDS**

Handout #17 - BODY PROFILE

Materials - Height Bar, Measuring Tape, and Scale Arm Circumference Tape, Ross Calipers and Felt Tip Pen

Handout #18 - KNOW YOUR BODY
**LEARNING ACTIVITIES**

1. Handouts #13 and 14 - THE FOOD TUBE PUZZLE - PARTS A AND B

**INFORMATION**

The digestive tract or food tube is where our body starts the conversion of food into nutrients that the body can use. These handouts outline the basic anatomy of our food tubes. An understanding of the anatomy will make it easier for students to understand the complex process of digestion.

**AIDS**

1. Handouts #13 and 14 - THE FOOD TUBE PUZZLE - PARTS A AND B

Reference: NUTRITION CONCEPTS AND CONTROVERSIES
**LEARNING ACTIVITIES**

2. Filmstrip/Cassette

DIGESTION - YOU ARE WHAT YOU EAT
(11 minutes)

**INFORMATION**

Filmstrip key ideas:

a. Food is **metabolized** in order to be useful to the body for energy, building, and repairing cells.

Metabolism is a continual series of processes by which our body cells convert nutrients from food into energy, body structure, and waste. The process of metabolism includes digestion, absorption, transportation, and excretion of ingested nutrients in food.

b. Food is not moved through the digestive tract by gravity. Muscular contractions, called peristalsis, produce a wavelike muscular motion which pushes the food along the digestive tract.

Neither carrots nor beans nor cherries nor any other food can be used by the body in the form we eat it. Food must be broken down in the digestive tract and dissolved to a liquid state. Then the different nutrients can be absorbed into the blood and lymph and transported to the cells. This process is called digestion.

**AIDS**

2. Filmstrip/Cassette

Filmstrip/Cassette

DIGESTION - YOU ARE WHAT YOU EAT
In the digestion process, fats are broken down into fatty acids and glycerol; carbohydrates into simple sugars called glucose, fructose, and galactose, and protein into amino acids.

The digestive tract is a series of food processing organs which start at the mouth and end at the rectum. In the mouth, digestion is primarily mechanical. Chewing grinds food into smaller pieces and moistens them with saliva. While we chew food, the saliva in the mouth begins to chemically change some of the complex carbohydrates (such as starch) into sugar. When starch is broken down into sugar, we can detect a sweet taste.

When food is swallowed, it passes along into a long tube or the esophagus. A series of ring-like muscles squeeze the food along until it reaches the stomach. The stomach acts much like a cement mixer. It churns and mixes food with digestive juices (saliva and acid). The saliva which mixed with the food in your mouth, continues to work in your stomach to change more carbohydrate into simple sugar. The digestive juice breaks down protein into smaller units called amino acids.
Fats are not digested until they reach the small intestine. Because fats are digested very slowly, they are often called satisfying foods and delay that empty feeling in the stomach.

Meat, milk, and bread proteins are only partially digested as they move into the small intestine, so the small intestine must split the protein, fat, and carbohydrate into their smallest units.

You would not recognize your food now! Your body has turned it into a liquid that contains AMINO ACIDS from the PROTEINS, FATTY ACIDS, and GLYCEROL from FATS, and SIMPLE SUGARS from CARBOHYDRATE.

The nutrients from digested food must pass through the intestinal wall before they can be used by the body. Breakdown products of carbohydrate, protein, and fat travel through the wall into the blood or lymph system to all parts of the body.

What about vitamins and minerals? They do not have to be changed much by the body. As the other nutrients are broken down in the digestive tract, the vitamins...
and minerals dissolve and also travel through the intestinal wall. The fat-soluble vitamins (A, D, E, and K) are usually absorbed with fat. The water-soluble vitamins (the B-vitamins and Vitamin C) and minerals are easily transported through the intestinal wall.

How long does digestion take? The entire digestive process takes 48 hours. The breakfast we eat at six o'clock on Monday morning passes from the stomach into a small intestine by one o'clock. By six o'clock Tuesday morning, the food enters the large intestine. By six o'clock Wednesday morning, the last of Monday's breakfast will be ready to leave the large intestine.
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
</tr>
</thead>
</table>
| d. Our emotions can affect our digestion. | ![](image) What a person thinks or feels can put the workings of the food tube into a real tizzy! Emotions can cause minor stomach problems -- butterflies in the stomach -- to burning ulcers. Here is how: fear or anxiety can shut off the flow of pancreatic juice to part of the small intestine and can increase peristalsis. Stomach acid is then dumped into the small intestine at a time when it is unprepared for the acid. The small intestine does not have a thick mucous coating to protect itself against the acid; consequently, the lining of the small intestine wears away leaving an ulcer or hole. 

Digestion is a complex process that transforms the nutrients in food to forms which can be absorbed and metabolized by the body. How well the digestion process works is affected by our state of health, diet, and emotions. |

3. Handout #15 - THE FOOD TUBE | 3. Handout #15 THE FOOD TUBE |
### LEARNING ACTIVITIES

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Handout #16 - WHAT BODY TYPE ARE YOU?</td>
</tr>
</tbody>
</table>

This handout will help students learn what body type they are.

### INFORMATION

EVERYBODY IS A "STAR" because everyone's body is made from the same nutrients - fat, protein, minerals, carbohydrates, vitamins, and water.

Each point of the star and the center represent the nutrients which make up our body composition.

---

**Each of our "STARS" is a little different shape because of the many factors which influence our body composition. The purpose of the next two classes is to study the factors that shape our body composition "STARS".**
We all inherit a certain body type from our parents. No amount of exercise or changes in our diet will affect our body type. So, it is helpful to learn what body type we have to work with, because we cannot change it.

Body builds are classified into degrees of three extreme body types - endomorph, mesomorph, and ectomorph.

<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.png" alt="Image" /></td>
<td>We all inherit a certain body type from our parents. No amount of exercise or changes in our diet will affect our body type. So, it is helpful to learn what body type we have to work with, because we cannot change it. Body builds are classified into degrees of three extreme body types - endomorph, mesomorph, and ectomorph.</td>
<td><img src="image.png" alt="Image" /></td>
</tr>
</tbody>
</table>

The **ENDOMORPH** has a short broad skeleton. They may have a large amount of fat mostly in the abdominal area.

The **MESOMORPH** is usually of moderate height. They have an athletic build with a well developed chest and small hips and waist.

The **ECTOMORPH** has a long and slender skeleton. They are usually lean and have a small chest.
LEARNING ACTIVITIES

2. Discuss the problem of obesity.

DISCUSSION QUESTIONS:

- Why is obesity a problem?
  Obese people are more likely to have medical problems and accidents.

- What is the difference between obesity and overweight?
  Obese individuals have excess body fat. Overweight individuals have large bones and muscles with no excess body fat.

INFORMATION

It seems that because of their basic body type, some people have more trouble than others trying to maintain their ideal body weight. It has not been well established whether or not heredity affects the total body fat as well as the body type. But what we do know about heredity and its effect on body type helps us to realize the weight goal for one person may not be realistic for the next.

Obesity is a complex problem. It is a health hazard because obese people have a greater tendency than normal weight people to develop medical problems like heart disease, diabetes, arthritis, varicose veins, and gout. The greatly obese also have more accidents.

Overweight and obese are not the same thing. Two people can be the same height and weight but one can be overweight and the other obese. The overweight person has large bones and muscles with no excess body fat. The obese person has a small skeleton, little muscle development and excess body fat.

Understanding the difference between obesity and overweight is important because it helps people set realistic goals for their ideal weight. The amount of fat on the body can be changed, but the basic body build cannot be changed. This topic will be studied in more detail in future lessons.
### Learning Activities

| 3. | Handout #17 - Body Profile |

### Information

Have the student's body measurements taken:

- **a. Height**
- **b. Weight**
- **c. Skinfolds**
  - Triceps
  - Subscapular (optional)

This can be done as a demonstration with 1-2 students or as a group activity with all students.

The purpose of this activity is to help students learn about their nutritional status by interpreting their height, weight, and skinfold measurements.

### AIDS

- **Materials**
  - Height Bar
  - Measuring Tape
  - Scale
The teaching team can demonstrate how each measurement is taken. Then have students pair-up and take measurements on one another or divide class into 3 stations around the room and have team members assist with the three type of measurements.

These measurements will be recorded on the BODY PROFILE SHEET - Handout #17 and interpreted in the following class.

Handout #17 should be saved for future use in Class 12.

a. Measuring Height

Height is best measured using a fixed measuring device, such as a height bar or a measuring tape taped to the wall. Have child remove shoes. The child should stand up straight. If a measuring tape is used, the child's back should be placed snugly against the measuring tape. The feet should be close together, with heels, buttocks, and back of head pressed firmly against the back of the tape. (See illustration)

The whole body should be carefully centered, the head held erect with the gaze straight forward. A movable device should be placed firmly on the head to aid in reading the measurement. In this position, the measurement can be read and recorded on the BODY PROFILE SHEET - Handout #17
### LEARNING ACTIVITIES

<table>
<thead>
<tr>
<th>INFORMATION</th>
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</thead>
<tbody>
<tr>
<td><strong>b. Measuring Weight</strong></td>
</tr>
</tbody>
</table>

Weight is best measured using a beam balance scale. Any scale will do as long as the child is weighed on the same scale throughout the year.

As little clothing as possible should be worn or the same amount of clothing should be worn every time the measurement is taken.

1. Have child remove shoes and step onto scale.
2. Have child position body with:
   a. Feet flat on the platform.
   b. Heels touching together
   c. Posture erect.
3. Adjust weight on scale until the scale becomes balanced.
4. Record weight on BODY PROFILE SHEET - Handout #17.

### c. Measuring Skinfolds

Skinfolds are made up of the skin and a layer of subcutaneous fat pulled away from the underlying muscle (See Illustration). While there are a number of body sites where skinfolds can be measured, the tricep skinfold is easy to use and is a fairly accurate indicator of body fat.

![Diagram of a person with a tricep skinfold measurement](image)
(1) Tricep Skinfold

Triceps skinfold is taken on the left upper arm.

1. First, measure the length of the upper arm with the forearm at a right angle to the upper arm (See Illustration). Locate the bony projection at the shoulder (the tip of the acromion) and the bony projection at the elbow (olecranon). Use the measuring tape to measure the distance between these two points. Find the mid-point of the upper arm and mark with a felt tip pen.

2. Drop the arm by the side of the body. Grasp the skinfold with the thumb and index finger just above the midpoint.

3. Measure the skinfold with the calipers. Apply enough pressure to the calipers so the black lines are aligned.

4. Record the skinfold measurement in millimeters on the BODY PROFILE SHEET - Handout #17.

(2) Subscapular Skinfold (optional)

Subscapular skinfold is also an accurate measurement for determining body fat. If time permits, this measurement can also be taken either by a nurse in the nurse's office or as a classroom demonstration with student volunteers. This measurement is taken at a point just below the bottom of the shoulder blade in the line of natural cleavage.

Have the child clasp hands behind the back. Locate the bottom of the shoulder blade and mark with a felt tip pen. Grasp and measure the thickness of the skinfold just below your marked point. (See Illustration). Measure the skinfold with the calipers. Record the measurement on the BODY PROFILE SHEET - Handout #17.
4. Calculate percent body fat. (optional)

   a. FIND YOUR TRICEPS skinfold measurement on the left vertical line. MARK your measurement on the line.

   b. FIND YOUR SUBSCAPULAR skinfold measurement on the right vertical line. MARK your measurement on the line.

   c. Use your ruler to DRAW A LINE connecting the two points (your triceps and subscapular measurements).

   d. FIND YOUR PERCENT BODY FAT where your horizontal line intersects with the middle line marked %fat.

With triceps and subscapular skinfolds, the percent of the body fat can be estimated.
### LEARNING ACTIVITIES

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Handout #18 - KNOW YOUR BODY</td>
</tr>
<tr>
<td>2.</td>
<td>Discuss factors responsible for variations in people's body composition.</td>
</tr>
</tbody>
</table>

### INFORMATION

Body measurements like height, weight, and skinfolds are used to help evaluate the nutritional status of the body. Normal values for these measurements have been determined for various age groups. Using these norms, the students can compare their body composition to other adolescents their age. If their body measurements are at or within the range of these norms, the nutritional status of their body could be considered good. If their measurements were greatly different than the norm, their body's nutritional status may not be as good as it could be.

### AIDS

1. Handout #18 - KNOW YOUR BODY

There are many reasons for variations in people's body composition. Some of the factors responsible for these variations are already determined for you and...
**DISCUSSION QUESTIONS:**

- What reasons can you think of that make your body composition different from the person sitting next to you?
  - Your body type, your sex, your age, your activity level, your body weight, your diet patterns, and your health status.

- Can you change any of those factors? Which ones?
  - Changeable: age, activity level, body weight, diet patterns, health status.
  - Not Changeable: body type, sex.

- What can you do to change some of those factors?
  - Diet, activity, health status.

- What do you think would happen to your body composition if you didn't eat anything and continued doing what you normally do?
  - You could lose weight, become sick, or become weak.

---

**INFORMATION**

cannot be changed. Some can be changed by you. A change in these factors may help improve the nutritional status of your body.

Body type is a factor which was discussed in a previous class. Body type is inherited and determined genetically. Bone structure which influences your body type, cannot be changed without surgery. Muscle development, however, can change through exercise but remember, this change will not have an effect on your body type.

Your sex is also determined genetically and influences the placement of fat deposits in the body. Men and women do not put on body fat in the same places. Men tend to put on body fat in the thigh, abdomen, and chest areas, and women put on body fat in their upper arms, thighs, hips, and abdomen.

Age is a changing factor which influences your body composition. Prior to puberty, the body fat placement in boys and girls is about the same. With the onset of puberty, sex along with age affects body composition.
**Learning Activities**

| -What do you think would happen to your body composition if you ate a Thanksgiving dinner everyday? |
| You would probably gain weight; you would probably increase your risk for cardiovascular disease. |

**Information**

- Activity level can also be changed and usually does with age. On the average, children tend to be more active and have less body fat than working adults. As individuals get older, they often develop habits which lead to a sedentary lifestyle. However, an active lifestyle is a healthy habit that you can have at any age. An active lifestyle is a Nutrition Super Star lifestyle!

- Body weight is another changeable factor but not always a good indicator of body composition. A well-muscled athlete (male or female) may weigh a lot but have a small amount of body fat. An inactive individual may also weigh a lot but have small muscle development and a large amount of body fat.

- The diet patterns adopted by each individual affect body composition. Eating more calories than the body needs will result in weight gain. The excess energy, measured in calories, is stored in two forms. It can be stored in the liver and muscle as a type of carbohydrate called glycogen. About 100 grams of glycogen can be stored in the liver. Muscles can store about 15 grams of glycogen per kilogram of muscle. The glycogen can only be used for energy production by the muscles that stored it. The extra energy (from excess carbohydrate, fat, or protein) can also be converted to and stored as fat. Fat is the most efficient and economical way to store energy needed for later activity.
Your **health status** also affects your body composition. Long term illness is debilitating. The body is in a stress situation and utilizes stored energy to attempt to regain a balanced healthy state. Lack of activity associated with long term illness also affects body composition as muscles atrophy or waste away. This along with consumption of stored energy leads to the "weak-tired" feeling associated with being sick.

Eating patterns and activity level are reflective of an individual's life style, which in turn affects body composition. In order to maintain a healthy body composition without excess body fat, caloric intake must be balanced by energy expenditure through activity. Excessive caloric consumption without adequate energy expenditure results in obesity. Excessive energy expenditure with little caloric consumption often results in an undernourished state. This is not always a clear cut statement because of all the other factors which affect body composition that we have just discussed.
LESSON III

SHAPING A "STAR"

Objectives

Class 8  - Factors Which Influence Eating Habits
Class 9  - Environmental Foodways
Class 10 - Food Labeling and Advertising
Class 11 - Food Labeling and Advertising
**LESSON III - SHAPING A "STAR"**

**CONCEPT**  Many factors influence eating and activity habits.

**CLASSES**  8-11

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>INSTRUCTIONAL AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>22. Identify-List. Reasons for eating:</strong> survival; habit; sensory stimulation; emotions, ethnic; religious or cultural background; express friendship, love or hospitality; and celebrate special occasions.</td>
<td><strong>CLASS NUMBER</strong> 8  <strong>AIDS</strong>  Filmstrip/cassette - WHY WE EAT  Reference: FOOD IS MORE THAN JUST SOMETHING TO EAT  Handout #19 - FOODWAYS  Handout #20 - THE FOOD CHAIN  Handout #21 - LINK THE FOODS  Reference - NUTRITIVE VALUE OF FOOD  FOOD IS MORE THAN JUST SOMETHING TO EAT</td>
</tr>
<tr>
<td><strong>23. Identify-List. Factors which influence eating patterns:</strong>  -Life style, i.e., geographical location, activity patterns  -Food likes/dislikes  -Religious/cultural/ethnic background  -Peers, family, friends, teachers, school food service workers</td>
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<tr>
<td>OBJECTIVES</td>
<td>INSTRUCTIONAL AIDS</td>
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<td>---------------------------------------------------------------------------</td>
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<tr>
<td>- Television, radio, newspapers, books, and other advertising</td>
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<td>- Feelings/emotions</td>
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<td>- Age, sex, body type, health status</td>
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<td>- Place where foods, prepared meals, and snacks are purchased, food availability</td>
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<td>- Sources of nutrition information.</td>
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<tr>
<td>24. Identify-Explain. The amount of energy needed to produce a food is related to the position of the food in the food chain.</td>
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<thead>
<tr>
<th>CLASS NUMBER</th>
<th>AIDS</th>
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<tbody>
<tr>
<td>9</td>
<td>Handout #22 - ENVIRONMENTAL FOODWAYS</td>
</tr>
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<td>Handout #23 - FOOD LABELS</td>
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<td></td>
<td>Reference - FOOD IS MORE THAN JUST SOMETHING TO EAT</td>
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<td></td>
<td>Handout #24 - FOOD ADVERTISING</td>
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<td></td>
<td>Reference - NUTRITION CONCEPTS AND CONTROVERSIES</td>
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<tr>
<td>10</td>
<td>Handout #23 - FOOD LABELS</td>
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<td></td>
<td>Handout #24 - FOOD ADVERTISING</td>
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<tr>
<td></td>
<td>Reference - NUTRITION CONCEPTS AND CONTROVERSIES</td>
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<tr>
<td>11</td>
<td>Handout #23 - FOOD LABELS</td>
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<td></td>
<td>Handout #24 - FOOD ADVERTISING</td>
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</tbody>
</table>
# Lesson III

## Class 8

## Objectives 22-24

### Learning Activities

1. **Introduce and Show Filmstrip Cassette: WHY WE EAT**
   *(7 minutes)*

### Information

Although people eat primarily to stay alive, there are many other factors which determine our eating behavior and food choices. The filmstrip discusses some of these.

There are two other key factors not discussed in the filmstrip that influence what people eat. These are:

- **Nutrition knowledge and motivation.** How much you know about your body's nutrient needs and how motivated you are to meet those needs by the foods you select.

- **Food availability.** What foods you have available to you and that you can afford to buy.

### Discussion Questions:

- What are the things that affect why we eat and what we eat?

  1. Survival
  2. Habit
  3. Sensory stimulation - food smells, TV advertising
  4. Emotional make-up - some people eat to relieve boredom and anxiety

### AIDS

- Filmstrip/Cassette: WHY WE EAT

Reference

**Food is more than just something to eat**
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
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</thead>
<tbody>
<tr>
<td>5-Ethnic, cultural, and religious background - set rules for what can and cannot be eaten or what are acceptable foods.</td>
<td>People throughout the world eat an incredible diversity of foods. Our eating habits are greatly influenced by the foods that are available for us to buy and eat. In addition to the foods available to us, what we eat is determined by a combination of personal and cultural influences.</td>
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<td>6-Food is a symbol used as discipline and to express friendship and love,</td>
<td>People eat what their culture makes acceptable for them to eat. In the case of contemporary America, most people eat what our culture sells to us.</td>
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</table>

The standard food practices of a culture are often referred to as FOODWAYS. The FOODWAYS of a society encompass how food is acquired, which foods are eaten, how they are prepared, who eats them, with whom, when, how, and in what quantity they are eaten.
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<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
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<tr>
<td>Every culture has unique foodways. Foodways also change over time. If we look at today's patterns and contrast them with those of the past, we realize that the changes have been dramatic, reflecting many other changes in our society.</td>
<td>Few of us have gathered prickly pear pads and prepared them to put in a casserole, although they are available, edible, and tasty. Prickly pears simply are not among the foods regularly eaten in our society today. However, in the past, the prickly pear was a part of the diet for many people in this area of the country.</td>
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<td>Many of us eat dinner with our friends or family, but at lunchtime, we grab a quick bite alone or with co-workers. With whom we eat has changed greatly since the days when fewer women worked outside the home and many working people and students returned home at lunchtime to eat a meal with their family.</td>
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### LEARNING ACTIVITIES

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<tr>
<td>Carbon dioxide, water, and nitrogen combine to nourish the seed from which a plant grows. The plant utilizes these compounds to produce energy. The passage of energy through a series of living organisms occurs in steps. These steps are commonly called the food chain. At each step of the food chain, only part of the energy obtained by the eater is retained in the form of energy nutrients (fats, carbohydrates, proteins) that will be available for the next member of the food chain. The remaining energy is used by the cells of the eater to perform work or is returned to the environment in the form of heat energy. The members at the high phase of the food chain cycle get only a very small portion of useful energy that was originally trapped by the green plants at the beginning of the chain.</td>
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### DISCUSSION QUESTIONS:

- What process occurs to produce food?

**Carbon dioxide, water, and nitrogen combine to nourish the seed from which the plant grows. The plant utilizes these compounds and the sun's energy to store energy. Energy is passed through living organisms in decreasing amounts. More energy is used to produce foods high on the food chain than low on the food chain.**
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<th>LEARNING ACTIVITIES</th>
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<tbody>
<tr>
<td>-Where do people get food?</td>
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<td>4. Handout #21</td>
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<td>From plants and animals.</td>
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<td>LINK THE FOODS</td>
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<td>-Which type of food, plant or animal</td>
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<td>Reference</td>
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<td>requires the most energy?</td>
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<td>NUTRITIVE</td>
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<td>Animals.</td>
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<td>VALUE OF FOOD</td>
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<td>and</td>
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<td>THAN JUST</td>
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<td>SOMETHING TO</td>
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This handout can be used to help students locate the position of foods on the FOOD CHAIN and the nutrient content of these foods.
Recent research is demonstrating the vital interrelationship among what we eat, our physical fitness, and our health. We may be clothed in the latest fashions and our home may be filled with labor-saving appliances like microwave ovens and dishwashers, but our bodies are like cavemen or cavewomen. We still have basically the same brain our ancestors had thousands of years ago. We have come a long way from the cave dwellers in many ways: language skills, the arts, and scientific technology.

Although the body has remained the same, the technological era has resulted in tremendous advances in communication, transportation, and our food supply. But with these advances have come the undesirable side effects of smog, water pollution, and the necessity of using herbicides, pesticides, and food additives in our food supply. Our cave dweller bodies seem to have difficulty coping with these new conditions.
Thanks to modern technology, your FOODWAYS have changed. You now have the freedom to choose from a greater variety of foods than ever before. But with the freedom comes both risk and responsibility. You are responsible for the choices you make.

Many scientists believe that research shows that American FOODWAYS are contributing to some of the chronic diseases that hit people later in life. Therefore, they are recommending some changes in our FOODWAYS:

1. Balancing our calorie intake to our energy output.
2. Cutting down on fat, sugar, and salt.
3. Eating more whole grains, fruits, and vegetables.

These scientists believe that these are positive steps toward reducing heart disease, certain cancers, and strokes.

Other scientists believe just as strongly that the evidence doesn't support such conclusions.

So the choice is yours. You are the one who decides what you are going to eat. Now, let's look at some of the factors which influence our choices.
2. Handout #23, FOOD LABELS.

<table>
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<tr>
<th>Learning Activities</th>
<th>Information</th>
<th>AIDS</th>
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<tbody>
<tr>
<td>In 1938, Congress passed the Food, Drug, and Cosmetics Act requiring that labels state: the common name of the product, the name and address of the manufacturer, packer or distributor; the net contents in terms of weight, measure or count and the ingredients listed in order of descending predominance by weight.</td>
<td></td>
<td>Reference FOOD IS MORE THAN JUST SOMETHING TO EAT</td>
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<tr>
<td>As a result of the 1969 White House Conference on Food, Nutrition, and Health, the Food and Drug Administration issued new labeling regulations in 1973. Three sections of these regulations deal with nutrition labeling, nutritional quality guidelines, and &quot;imitation&quot; foods.</td>
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<td>Any nutrition information or claim given on a food label must include under the heading of nutrition information: the serving size, the number of servings per container, the number of calories per serving; protein, carbohydrate, fat, in grams per serving; and protein, vitamins and minerals per serving, as a percentage of the U.S. R.D.A.</td>
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<td>Federal guidelines for standards of identity insure that certain food items, particularly highly processed convenience foods, actually contain minimum amounts of nutrients regardless of the number of calories. It also insures that certain ingredients must be present in specific percentages before the food may use the standard name. For example, any mayonnaise product must contain 65% vegetable oil by weight and either vinegar or lemon juice and egg yolk. Enriched refers to the addition of specific nutrients to some foods, such as bread. The nutrients added to enriched foods are: three B vitamins, thiamin, riboflavin, niacin and the mineral, iron. These added nutrients must approximately be equal to those present in the original food before refinement or processing. Fortified means</td>
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the addition of specific nutrients in excessive amounts of those normally found in foods. An example of this is the fortification of milk with Vitamin D.

**Imitation** foods are those developed as substitutes for familiar foods. The government regulation states that the word imitation must be used on the label only if the product is "a substitute for and resembles another food but is nutritionally inferior to the food imitated." This occurs when the content reduction of an essential vitamin, mineral, or protein amounts to 10 percent or more of the U.S. R.D.A.

Foods labeled low calorie and reduced calorie must meet U.S. Food and Drug Administration standards if the food is transported via interstate commerce. Low calorie foods may not exceed 40 calories per serving or .4 calorie per gram. These food labels must also include amounts of calories, protein, carbohydrates, fat, vitamins and minerals in a serving. Foods labeled reduced calories must be at least one-third lower in calories than a similar food in which the calories have not been reduced. The reduced-calorie food label must state the type of food it is compared to. For example, a reduced-calorie can of peaches may say: "Artificially sweetened peaches packed in water, 38 calories per one-half cup serving, 62 percent fewer
### LEARNING ACTIVITIES

**Handout #24, FOOD ADVERTISING**

### INFORMATION

than peaches in heavy syrup. In addition, reduced calorie food labels must include per serving amounts of calories, protein, carbohydrates, fat, vitamins, and minerals.

Currently, a voluntary move is underway to disclose fat content on food labels. However, federal standards regarding fat content in foods have not been developed.

Children are taught much of what they know about nutrition by parents and teachers. Another source of exposure for them is via television and magazine ads. The average U.S. child sees more than 10,000 commercials a year, and more than one-half of those are for sugary, sticky foods. Companies spend hundreds of millions of dollars each year to sell a limited number of foods to children. As a result, children may end up with a biased and limited view of what foods are available to them. Consequently, children are being educated to develop undesirable eating habits.

Concerned parent groups have urged the Federal Trade Commission to adopt the following measures: to stop advertising sticky, sugary foods on children's TV programs, to stop unfair selling techniques, to require all advertisements to disclose the sugar contents of the products being advertised and to require the food industries to contribute part of their advertising budgets to the support of public service announcements to promote desirable eating habits as outlined in the U.S. Dietary Guidelines.

### AIDS

3. Handout #24 FOOD ADVERTISING
### Lesson III

**Class:** 10  
**Objectives:** 22-23

<table>
<thead>
<tr>
<th>Learning Activities</th>
<th>Information</th>
<th>AIDS</th>
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<tbody>
<tr>
<td>1. Work on Handouts #23, FOOD LABELING and Handout #24, FOOD ADVERTISING.</td>
<td>Do you know what the largest portion of your food dollar is used for? Some answers which may come to mind are: raw ingredients, processing, packaging, or transportation costs. Actually, the correct answer is: advertising. In 1974, for example, $118 million was spent on advertising in all media for hot and cold cereals; $105 million of that figure was for TV advertising. A study conducted by graduate students in public health nutrition at the University of Minnesota showed that 71% of the TV food commercials shown between 8:00 AM and 11:00 AM on Saturday morning were selling presweetened breakfast cereals and snacks. Cereals in which sugar provided more than 20% of total calories were advertised five times more frequently than those cereals with less sugar. Evidence shows that children exert considerable influence on parents in food product purchases. Children's requests for advertised foods have been positively related to the amount of television they watch. Younger children seem to accept food-related...</td>
<td>1. Handouts #23 and #24, FOOD LABELS and FOOD ADVERTISING.</td>
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<tr>
<td>LEARNING ACTIVITIES</td>
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<td>claims more readily than older children. Their</td>
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<td>acceptance may be reinforced by linking specific brand</td>
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<td>information, particularly for cereals with animated</td>
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<td>&quot;presenter&quot; characters and premiums.</td>
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<td>A national survey to gather food-related information</td>
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<td>was conducted using six to 14 year old children and</td>
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<td>their mothers as subjects. Results showed that of the</td>
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<td>591 mothers participating in the survey, 75% were</td>
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<td>influenced by their children's requests for brand and</td>
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<td>product selection. This was particularly true for</td>
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<td>presweetened cereals, cookies, gum, fruit drinks, and</td>
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<td>candy. In the United States, it has been shown that</td>
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<td>children requested fewer advertised foods if their</td>
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<td>mothers had more nutrition knowledge and could evaluate</td>
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<td>nutritional claims. Studies showed that parents spend</td>
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<td>an additional weekly average of $1.66 more per household</td>
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<td>on specific products and brands their children request.</td>
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<td>This adds at least $30 million weekly or $1.5 billion</td>
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<td>annually to family food bills.</td>
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<td>Teachers, Food Service Personnel and School Nurses, as</td>
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<td>well as parents, are in a position to influence</td>
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<td>students' behavior. It has become increasingly clear</td>
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<td>that if we don't teach children how to make food</td>
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<td>choices, others will. The advertising industry is</td>
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<td>actively shaping eating behavior.</td>
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### LEARNING ACTIVITIES

1. Students give class presentations on activities from FOOD LABELING and FOOD ADVERTISING Handouts.

   Invite parents in to listen to the class presentations.

### INFORMATION

None provided.

### AIDS

1. Handouts #23 and #24 FOOD LABELS and FOOD ADVERTISING.
LESSON IV  MAKING A "SUPER STAR"

Objectives

Class 12 - Fueling Body Cells
- Pulse Rate and Exercise

Class 13 - Physical Fitness

Class 14 - Personal Fitness Test

Class 15 - Personal Fitness
**LESSON IV - MAKING A "SUPER STAR"**

**CONCEPT**  Influence of eating and activity habits on health status.

**CLASSES**  12-15

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>INSTRUCTIONAL AIDS</th>
</tr>
</thead>
</table>
| 25. Explain. How eating patterns (nutrition) and activity patterns both influence level of physical fitness, nutrition-health status, and wellness (well-being). | Class 12  Handout #25 - FUELING YOUR CELLS  
Reference - NUTRITION CONCEPTS AND CONTROVERSIES   
Handout #26 - PULSE |
| 26. Explain. The benefits — (1) mental health and (2) physical health — of being physically fit. | Class 13  Handout #27 - FITNESS IS?  
Reference - Blue Cross/Blue Shield Booklet, FOOD AND FITNESS   
Handouts #28 and #29 - CLASS FITNESS SCORES  
Handout #17 - BODY PROFILE SHEET |
<p>| 27. Complete. Basic physical fitness test.                                  |                                                                                   |
| 28. Record and Compare to Standards. The results of their physical fitness test. |                                                                                   |
| 29. Explain. How to achieve and/or maintain physical fitness.              |                                                                                   |</p>
<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>INSTRUCTIONAL AIDS</th>
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<tbody>
<tr>
<td>30. Identify. Examples and causes of malnutrition (i.e., obesity, dental caries) and how malnutrition affects physical fitness, nutrition-health status, and wellness.</td>
<td>Personal Fitness Test Directions, pages 73-76</td>
</tr>
<tr>
<td>31. Explain. That malnutrition can be prevented or treated.</td>
<td>Tables, pages 77-79</td>
</tr>
<tr>
<td>32. Explain. That obesity is the result of calorie consumption in excess of body needs and can be prevented or treated.</td>
<td>14 Personal Fitness Test Directions, pages 73-76</td>
</tr>
<tr>
<td></td>
<td>Tables, pages 77-79</td>
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<tr>
<td></td>
<td>Stop watch</td>
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<td>15 Handout #30 - YOUR FITNESS</td>
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<td>Handout #31 - EXERCISE FOR FITNESS</td>
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<td></td>
<td>References - FUELS FOR MUSCLE POWER, pages 127-128</td>
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<td></td>
<td>Handout #32 - EXERCISE AND FOOD ENERGY</td>
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<tr>
<td></td>
<td>Walk-Jog-Run-Athon Poster, page 129</td>
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<td>Walk-Jog-Run-Athon Tally Sheet, page 130</td>
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</table>
**LEARNING ACTIVITIES**

1. Handout #25 - FUELING YOUR CELLS

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**INFORMATION**

The oxygen from the air you breathe and the nutrients from the food you eat are transported in the blood to the different cells of your body. This is done by way of the cardiovascular system. The cardiovascular system is made up of a set of tubes called blood vessels and a pump known as the heart. The pumping action of the heart pushes the blood through the blood vessels to the cells. The cells take up the oxygen and nutrients from the blood to make energy needed for all body activities.

The lymph system is also made up of a set of tubes called lymph vessels. These vessels carry fluid from the digestive tract to the blood. Some of the nutrients from digested food are transported in the fluid and dumped in the blood to be carried to the cells.

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**AIDS**

1. Handout #25 FUELING YOUR CELLS

Reference NUTRITION CONCEPTS AND CONTROVERSIES
The heart is a muscle made up of cells. These cells need energy to keep the heart pumping. Each time the heart pumps, it produces a sound called the heart beat.

The entire blood supply in an adult (about 6 quarts) is circulated in about 50 heartbeats, so all the blood of an adult passes through the heart in less than a minute.

Your heart beats several times a minute in order to supply blood to all your cells. When it beats, you can feel the artery in your wrist or neck jump. This is your pulse. By taking your pulse, you can determine how many times your heart beats per minute under a variety of situations. Average resting pulse rate varies with age and sex as listed in the chart below.

Resting pulse-rates:

- At birth: 130-160
- Infants: 110-130
- Children: 90-120
- Women: 70-90
- Men: 60-70
**LEARNING ACTIVITIES**

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<tr>
<td>(2) Count the number of beats for 30 seconds.</td>
<td>Exercising causes the heart to pump faster in order to supply your cells with enough nutrients. As a result, your pulse rate increases during and shortly after exercising.</td>
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<tr>
<td>(3) Multiply this number by 2 to get the pulse rate for one minute.</td>
<td>After exercising, your pulse rate could go as high as 50 beats over your resting pulse rate and still be considered normal. If your recovery rate is normal, in two minutes your pulse rate should be within 5 to 10 beats of your resting pulse rate.</td>
</tr>
<tr>
<td>(4) Record number on Handout #26, PULSE and Handout #17, BODY PROFILE.</td>
<td>Individuals with cardiovascular disease or those physically unfit have weaker heart muscles. They may feel some discomfort (shortness of breath, chest discomfort or dizziness) when exercising. This discomfort is due to the stress on a weak heart muscle that has to beat harder and faster to supply enough blood to the working muscle cells. The pulse of people with weak hearts may go over 150 after exercising. They will also have difficulty returning to normal resting pulse rate within 2 minutes. It may take as long as 6 minutes for their pulse rate to return to its normal resting rate.</td>
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**b. Take pulse rate after exercise.**

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<td>(1) Have students hop 25 times on one foot and immediately 25 times on the other foot. (Moving in place or doing jumping jacks for one minute could also be done).</td>
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<tr>
<td>(2) Immediately take pulse.</td>
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<tr>
<td>(3) Record results.</td>
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<tr>
<td>(4) (Optional). Sit for two minutes and take pulse again.</td>
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</tbody>
</table>

**DISCUSSION QUESTIONS:**

- What does your pulse rate tell you about your body?

  How fast your heart pump is working.
3. Calculate basal metabolic rate (BMR)

\[
\text{BMR} = \frac{1 \text{ calorie per kilogram of body weight}}{1 \text{ kilogram}} \times 24 \text{ hours/day}
\]

1 kilogram = 2.2 pounds

To calculate your weight in kilograms (kg), divide your weight in pounds by 2.2.

### PHYSICALLY FIT INDIVIDUALS

Physically fit individuals have very strong heart muscles and are able to pump more blood per beat. Strong hearts can therefore perform the same amount of work, either at rest or during exercise, with less beats per minute.

![Heart illustration]

![Heart illustration]

Just as the heart muscles require energy to perform work, the intestines contain muscles which require energy to help digest our food. In order to breathe, we need energy to run the muscles that help bring air in and out of the lungs. Energy is also needed to maintain body temperature, fuel the on-going activities of each cell, and send nerve impulses to direct all of the activities just mentioned. These activities are referred to as the basal metabolic processes. These processes maintain life. The rate at which calories are used to support these activities is called the basal metabolic rate (BMR). The daily BMR is surprisingly large. You can roughly calculate your BMR. Your BMR energy need must be met before any energy can be used for other activities. We will study more about your energy needs in future classes.
# Lesson IV
## Class 13
## Objectives 25-31

## Lesson Activities

1. **Handout #27 - Fitness Is?**

## Information

Physical fitness is a composite of endurance, strength, flexibility, cardiovascular fitness, and body composition. If you are physically fit, you should be able to do your normal daily physical activities without feeling fatigued. In other words, a physically fit body is able to function at its best all the time. Diet, activity, rest, and relaxation all play a role in being physically fit.

**Endurance** is the ability of muscles to sustain strenuous activity for a long continuous period of time.

**Strength** is the ability of muscles to exert a force against a resistance or object.

**Flexibility** is the ability of the muscles to stretch.

**Cardiovascular fitness** is the capacity of the heart, lungs, circulatory and respiratory systems to do work (activity) and to quickly recover when activity is over.

## Discussion Questions:

- What does fitness mean to you?

Being healthy, being at average weight for height, being strong, being energetic, and being athletic.

## AIDS

1. Handout #27 - Fitness Is?

Reference
Blue Cross/Blue Shield Booklet, Food and Fitness
### LEARNING ACTIVITIES

- **How fit do you think you are?**
  Varied responses.

- **How do you know?**
  Through measures of muscle strength and endurance, flexibility, cardiovascular endurance, and body composition.

- **What will being fit do for you?**
  Feel better, stay healthy, more energy.

### INFORMATION

**Body composition** or how much fat your body has in comparison to muscle is the fifth aspect of fitness. Body fat should be within normal limits and muscles well developed to keep a body healthy and performing at its best. Actively engaging in a physical fitness program will help accomplish this by keeping body fat in proportion to body muscle.

*Fitness is considered to be the new fountain of youth. People who are fit look and feel good. Research also shows that vigorous exercise helps prevent heart attacks, aids in weight control, and instill a feeling of well-being.

Concentration is increased, school or work performance can be improved, and more restful sleep is experienced by individuals who exercise regularly.

Regular vigorous exercise has been found to help people with diabetes, ulcers, nervous tension, high blood pressure, back pain, heart disease, depression, constipation, and insomnia.*
LEARNING ACTIVITIES

2. Prepare for Nutrition Super Stars Personal Fitness Test. This test will be completed in the following class. Have your physical education teacher help with testing.

INFORMATION

The Nutrition Super Stars Fitness Test attempts to measure the key components of fitness: Muscle Strength and Endurance (sit up); Flexibility (sit and reach); Cardiovascular Endurance (9 minute/1 mile run); and Body Composition (skinfold fat measurement).

The tests may be given in any gymnasium or out of doors. With the exception of the sit and reach apparatus and skinfold calipers, no special equipment is required. Administering the test does, however, call for careful planning to utilize both space and time to best advantage. Stations for each test should be worked out and the various test areas clearly marked ahead of time.

Arrangements must be made for timers and for recording of all scores. Organizing the group into squads is a useful technique. Sometimes it is possible for each pupil to record his own scores as the test is given on Handouts #28 and #29, CLASS FITNESS SCORES. Sometimes, scoring by an assistant, squad captain or teacher is more practical. Scores may later be transferred to Handout #17, Body Profile Sheet.

AIDS

2. Handouts #28 #29, CLASS FITNESS SCORES
   Handout #17
   BODY PROFILE SHEET
   Personal Fitness Test Directions, pages 73-76.
   Tables, pages 77a&b-79a&b
   Reference
   Blue Cross/Blue Shield Booklet
   FOOD AND FITNESS

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The students should be given reasonable warm-up prior to the testing. A test should not be given to any student whose medical status is questionable. Be certain to follow directions exactly for each test. Only in this way will it be possible to compare the scores with the national norms.

The directions for the fitness test are given in the test booklet, PERSONAL FITNESS TEST. After completion of the test, the score the student receives on each test is then compared to percentile tables attached to PERSONAL FITNESS TEST. These are very rough estimates of fitness. The student needs to be reminded of this. If, for example, a 10 year old girl successfully completed 35 sit-ups in 60 seconds, she would be at the 45th percentile, that is, 45 percent of the students who take the test would fall below her score. The 45th to 55th percentile range is considered a measure of average fitness. Likewise, if a 12 year old boy ran a mile in 7 minutes and 24 seconds (7:24), he would rank at the 75th percentile or 75 percent of all students taking the test would fall below him. He would fall in the "very fit" range. It is important to remember these are ranges not exact physical fitness scores.
NINE MINUTE/1 MILE RUN

Nine Minute Run or One Mile Run

To conduct the 1 mile or 9 minute run, you will need to have access to a measured running area (like a quarter mile or 440 yards or 400 meter track). It is essential to know the distance of the running area. You will also need to have a stop watch. As norms are given for both nine-minute run and one mile run, you have the option as to which test to run.

If you choose the one-mile run, you will need to time each student. Assign each student a number, have a recorder record time of each student as he/she completes the run.

Method of Recording

Start all students at the same time; start stop watch when you start the students. As the first student crosses the finish line, start calling out times. Recorder matches time to student's number. Knowing the distance of the track/running area allows you to record distance for the 9 minute run. Distance for the 9 minute run is whatever total distance the student covers in 9 minutes.

What Do The Scores Mean?

The score that the student receives on each test is then compared to percentile tables ranking by using TABLES 1 and 2 in this booklet. These are very rough estimates of fitness. The student needs to be reminded of this. If, for example, a 13 year old girl ran 1537 yards in 9 minutes, she would be at the 45th percentile, that is, 45 percent of the students who take the test would fall below her score. The 45th to 55th percentile range is considered a measure of average fitness. Likewise, if a 12 year old boy ran a mile in 7 minutes and 12 seconds (7:12), he would rank at the 80th percentile or 80 percent of all students taking the test would fall below him. He would just fall in the "very fit" range. After determining the percentile ranking, the student should record the result on Handout #26, THE BODY SHOP. It is important to remember these are ranges not exact physical fitness scores.
SIT-UPS

Equipment
Clean floor, mat, or dry turf and stop watch.

Description
The pupil lies on his back with his knees bent, feet on the floor with the heels between 12 and 18 inches from the buttocks. The angle at the knees should be less than 90 degrees. While lying on the floor, the pupil crosses his arms on the chest by placing his hands on the opposite shoulders. His feet are held by his partner to keep them in touch with the surface. The pupil curls to a sitting position by contracting his abdominal muscles. The arms must contact the chest at all times. The chin must remain in a tucked position. The sit up is accomplished when the elbows touch the thighs. The pupil returns to the starting position before he sits up again. The timer gives the signal "ready-go", and the sit-up performance is started on the word "go". Performance is ended on the word "stop". The number of correctly executed sit-ups performed in 60 seconds shall be the score.

Rules
1. Only one trial shall be allowed unless the teacher believes the pupil has not had a fair opportunity to perform.
2. No resting is permitted between sit-ups.

Scoring
Record the number of correctly executed sit-ups the pupil is able to do in 60 seconds. A foul nullifies the count for that sit-up. The watch is started on the word "go" and stopped on the word "stop". The student should compare the test score to the percentile rank by using TABLE 3. After determining the percentile ranking, the student should record the result on Handout #26, THE BODY SHOP.
Equipment

The test apparatus consists of a sturdy box 12 inches high with a measuring scale placed on top. The scale's 23 cm mark is placed in line with the side against which the pupil's feet will be placed. This apparatus can be improvised by using a narrow bench and a meter stick. The test apparatus should be placed against a wall to prevent the apparatus from sliding away from the pupil.

Description

First, the student removes his shoes. Then, the pupil sits down at the test apparatus with his feet shoulder-width apart and his legs fully extended. The feet are placed flat against the side of the box. The hands are placed on top of each other and the arms are extended forward. After assuming this position, the student reaches forward along the measuring scale four times. On the fourth trial, the maximum reach is held for one second.

Rules

The test must be repeated if the pupil does not a) reach with both hands evenly; or b) keep both legs straight. The tester should place one hand on the knees to prevent the knees from bending.

Scoring

The student should compare the SIT AND REACH test score to the percentile rank by using TABLE 4. After determining the percentile ranking, the student should record the result on Handout #26, THE BODY SHOP.
TRICEPS/SUBSCAPULAR SKINFOLD

Equipment

The Ross Laboratories ADIPOMETER skinfold caliper is used for obtaining the skinfold fat measurements.

Description

Skinfolds are made up of the skin and a layer of subcutaneous fat pulled away from the underlying muscle (see illustration). While there are a number of body sites where skinfolds can be measured, the triceps skinfold is easy to use and is a fairly accurate indicator of body fat.

Triceps skinfold is taken on the left upper arm.

1. First, measure the length of the upper arm with the forearm at a right angle to the upper arm (see illustration). Locate the bony projection at the shoulder (the tip of the acromium) and the body projection at the elbow (olecranon). Use the measuring tape to measure the distance between these two points. Find the mid-point of the upper arm and mark with a felt tip pen.

2. Drop the arm by the side of the body. Grasp the skinfold with the thumb and index finger just above the midpoint.

3. Measure the skinfold with the calipers. Apply enough pressure to the calipers so the black lines are aligned.

4. Record the skinfold measurement in millimeters on THE BODY SHOP - Handout #17.

Subscapular skinfold is also an accurate measurement for determining body fat. If time permits, this measurement can also be taken either by a nurse in the nurse’s office or as a classroom demonstration with student volunteers. This measurement is taken at a point just below the bottom of the shoulder blade in the line of natural cleavage. Have the child clasp hands behind the back. Locate the bottom of the shoulder blade and mark with a felt tip pen. Grasp and measure the thickness of the skinfold just below your marked point. (see illustration). Measure the skinfold with the calipers. Record the measurement on THE BODY SHOP - Handout #17.

Scoring

The skinfold measurement is registered on the caliper's scale which measures from 0-60mm in 2mm increments. Measure the skinfold three times. Then record the average of the three measurements. If the three measurements are 12, 10, and 14, the number recorded will be 12. The recommended procedure is to measure the sum of the triceps and sub-scapular skinfold. However, the triceps skinfold is recommended if only one skinfold is measured. The student should compare the skinfold test score to the percentile rank by using TABLES 5 and 6. After determining the percentile ranking, the student should record the result on Handout #26, THE BODY SHOP.
### TABLE 1

#### GIRLS

**NINE MINUTE RUN (Yards)**

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**PERCENTILE**

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#### BOYS

**NINE MINUTE RUN (Yards)**

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**PERCENTILE**

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### Percentile

- **Very Fit**: 100th
- **Very**: 95th
- **Fit**: 90th
- **Above Average**: 85th
- **Average**: 80th
- **Average**: 75th
- **Above Average**: 70th
- **AVERAGE**: 65th
- **AVERAGE**: 60th
- **NEEDS**: 55th
- **SOME WORK**: 50th
- **AVERAGE**: 45th
- **NEEDS**: 40th
- **SOME WORK**: 35th
- **SOME WORK**: 30th
- **NEEDS A LOT**: 25th
- **NEEDS A LOT**: 20th
- **NEEDS A LOT**: 15th
- **NEEDS A LOT**: 10th
- **NEEDS A LOT**: 5th
### TABLE 3

**SIT-UP FOR GIRLS (FLEXED LEG)**

**SIT-UP FOR BOYS (FLEXED LEG)**

**PERCENTILE SCORES BASED ON AGE/TEST SCORES IN NUMBER OF SIT-UPS PERFORMED IN SIXTY SECONDS**

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- Above average weight reduction should not be considered.
- Average weight reduction might be considered.
### TABLE 6

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<td><strong>SUM OF TRICEPS PLUS SUBSCAPULAR SKINFOLD (mm)</strong></td>
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LEARNING ACTIVITIES

1. Complete Personal Fitness Test.

INFORMATION

The Nutrition Super Stars Personal Fitness Test may be given again toward the end of the program to measure changes in students' levels of physical fitness.

AIDS

1. Personal Fitness Test Directions, pages 73-76
2. Tables, pages 77-79
3. Materials
   - Stop watch
2. Record student fitness test scores on Handouts #28 and #29 CLASS FITNESS SCORES under Trial 1. If the Personal Fitness Test is repeated later in the program, record the successive scores under Trial 2 and Trial 3. These additional test session scores can also be later transferred to Handout #17, BODY PROFILE SHEET.
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Handout #30 - YOUR FITNESS</td>
<td>A physically fit individual has endurance, strength, flexibility, and cardiovascular fitness. We measured these components of fitness with the personal physical fitness test in the last class. The results of this test help to determine how fit your students are. How well did your students score on the fitness test? Very fit! Above average! Average, or needs some work? Regular exercise can help improve fitness by producing beneficial changes in the condition of the heart, lungs, and muscles. Exercise can also cause a change in appetite. Increasing your activity from sedentary to a moderate level does not necessarily stimulate your appetite. It, in fact, may contribute to a reduction in food intake.</td>
<td>1. Handout #30 YOUR FITNESS</td>
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</table>

**DISCUSSION QUESTION:**

*What is the purpose of exercise?*

Exercise serves not one but many purposes. It can improve flexibility, build muscle strength and tone, relieve tension, help weight loss, and improve the body's general condition.
### Learning Activities

2. **Handout #31 - Exercise for Fitness**

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. Flexibility</td>
<td>Demonstrated exercise for improving flexibility.</td>
</tr>
<tr>
<td>2. Endurance</td>
<td>Demonstrated exercise for improving endurance.</td>
</tr>
</tbody>
</table>

You and your students can begin to shape-up right in class. Practice some exercises between class periods, or as a quick wake-up break during a sleepy afternoon.

If possible, have your physical education teacher help demonstrate some of the following exercises:

- Demonstrate exercise 1 FLEXIBILITY. Have your students do this exercise. Examples of flexibility exercises are sitting stretches, shin or achilles tendon stretch.

### Information

Heading down the road to fitness, students should choose activities they enjoy doing. Fitness should be fun, not frustrating.

Let us look at different types of exercises which develop your flexibility, strength, and cardiovascular endurance.

#### Flexibility

By the time children become teenagers, many have lost a great deal of flexibility in their joints. Boys tend to lose flexibility more than girls. This is because they often participate in sports, like football and baseball, which limit movement in their bodies through a large range of motion. Girls, however, participate in more activities which require greater flexibility, like dance, gymnastics. Loss of flexibility increases the risk of athletic injuries and pain in body areas like the back and neck. To avoid these problems, stretching exercises for improving flexibility should be worked on consistently and regularly. It should be remembered that flexibility should be increased gradually. During stretching exercises, you should never overstrecth beyond the threshold of pain or bounce. Bouncing may cause pulls or tears in muscles and muscle cramps.

### AIDS

2. **Handout #31 - Exercise for Fitness**

References

- Fuels for Muscle Power, pages 127-128
b. Demonstrate exercise 2 STRENGTH.
Have your students do this exercise.
Examples of strength exercises are push-ups, pull-ups, and sit-ups.

<table>
<thead>
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<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
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<td><strong>Strength</strong></td>
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<td>Muscle strength is very important for both boys and girls. It provides a valuable reserve for endurance sports and power for many activities. Muscle strength also helps to prevent injuries. Until a child reaches puberty, this type of fitness is hard to develop. It is better with children up to 10 years of age for girls, and about 11 or 12 for boys, to emphasize exercises which require the use of the entire body. Until they have reached puberty, systematically developing muscle strength through activities such as weight training should not be encouraged.</td>
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<td>You can improve your muscle strength by exerting force against resisting objects. For students who have reached puberty, this can be done using weights or exercise machines. Body weight can also be used as resistance for children of any age and eliminates the need for equipment. A lot of muscle power is needed to lift your body weight against gravity. Students should be encouraged to increase their muscle strength through exercises which use their body weight as resistance.</td>
<td></td>
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</table>
c. Have students name some exercises which improve cardiovascular fitness or better yet, have class join together in an activity on a regular basis.

Activities which will increase cardiovascular fitness are walking briskly, running, bicycling, swimming, jumping rope, and dancing.

Endurance

The most important factor for any physical fitness program is endurance. Endurance exercises, like walking, running, swimming, cycling and dancing use large muscle areas rhythmically for a long period of time. This type of exercising helps achieve a healthy cardiovascular system by improving the strength of the heart and improving circulation of the blood. To achieve cardiovascular fitness, you must push your heart beat to its training heart rate for at least 30 minutes three times a week. We will discuss this in more detail in future classes.

d. Demonstrate exercise 3 RELAXATION. Have your students do this exercise. An example of a relaxation exercise is muscle tensing.

Muscle tensing - have students kneel on floor, sitting back on their heels OR sitting in chairs. Have students slowly tense all of their muscles until they are completely rigid, hold for count of five, then relax. Repeat this exercise five times.

Exercises for relaxation are also very important in any physical fitness program. It is the perfect way to relieve nervous tension, and you may find yourself accomplishing more during the day if you learn to relax.
Discuss with your students ways to maintain or improve their physical fitness with exercise.

Your physical education teacher may be able to help you and your students find physical fitness programs in your community.

3. **Handout #32 - EXERCISE AND FOOD ENERGY**

This handout is used to match energy output for activities and food energy content of snacks.

**DISCUSSION QUESTIONS:**

- What is energy input?
  - Calories in the food we eat.

---

**INFOGRAPHIC:**

<table>
<thead>
<tr>
<th>ENERGY INPUT</th>
<th>ENERGY OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(As Food)</td>
<td>Basal Metabolism, Growth, Exercise</td>
</tr>
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</table>

Weight is gained when more energy is put into the body than is put out in activity. So, to gain weight you will have to eat more calories than you are using.

Weight is lost when more energy is put out than is put into your body. To lose weight, it is necessary to use more calories than are in the food you eat. This can be done by eating less and exercising more. A weight loss of 1-2 pounds a week is safest for your health. One pound of fat is equivalent to 3500 calories. To lose one pound a week without exercising more, you will have to eat 500 fewer calories each day (3500 ÷ 7 = 500).
## LEARNING ACTIVITIES

- What is energy output?
  - Calories used for basal metabolism, growth, and exercise.

- What is basal metabolism?
  - Basal Metabolism: The amount of energy needed by your body, at complete rest for breathing, blood circulation, heart beat, and body temperature.

## INFORMATION

Regular vigorous exercise can increase your BMR. However, any type of exercise - from hanging laundry and scrubbing floors to badminton or long distance running - can help you control your weight. The more you move, the more calories you burn.

As mentioned earlier, exercise causes a change in your appetite. Moderate exercise often improves the accuracy of your body's appetite control mechanism and will frequently DECREASE rather than increase appetite. This is an added benefit of exercising when weight control is needed.

Remember, to stay at a constant weight, the calories in foods eaten must equal the calories needed by the body for basal metabolism, for growth, and for muscular work or exercise.

These calories should come from a good diet based on meat, milk, fish, poultry and eggs, whole-grain cereals, beans, other legumes and nuts, leafy green vegetables, and other fruits and vegetables.

Your diet should include well-balanced proportions of CARBOHYDRATES, FATS, and PROTEIN to fuel your muscles. Eating right from the five food groups and exercising will help you become a Nutrition Super Star. In the next lesson we will learn how to fuel a Nutrition Super Star.
4. **BONUS ACTIVITY:** Your students can be encouraged to increase their physical activity by participating in **THE NUTRITION SUPER STARS WALK-JOG-RUN-ATHON**. This activity requires the students to walk, run, or jog. The miles are recorded to determine how long it takes the class to reach a recreational area in the Western U.S. or to see how far they have traveled in a weeks time. It's also fun to have other states or even other countries as destination points.

**AIDS**

- The Nutrition Super Stars Walk-Jog-Run-Athon Tally Sheet, page 130
LESSON V  FUELING A "SUPER STAR"

Objectives

Class 16 - Dental Health
   Snacks and Calories

Class 17 - Nutrient Density

Class 18 - Goals for Healthful Eating
   School Lunch

Class 19 - Nutrition - Fitness Case Studies

Class 20 - Nutrition Information Evaluation
   Community Nutrition Services
   Nutrition Super Stars Snack Party
**CONCEPT**

Help yourself to good health by applying nutrition and fitness knowledge when making food-snack and activity choices.

**CLASSES** 16-20

### OBJECTIVES

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Aids</th>
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<tbody>
<tr>
<td>16</td>
<td>Handout #33 - DETERGENT FOODS - CARIogenic foods - IT'S YOUR CHOICE</td>
</tr>
<tr>
<td></td>
<td>Handout #34 - SNACK FOOD CALORIES</td>
</tr>
<tr>
<td></td>
<td>References - NUTRITIVE VALUE OF FOODS</td>
</tr>
<tr>
<td></td>
<td>CALORIES AND WEIGHT</td>
</tr>
<tr>
<td></td>
<td>FAST FOOD NUTRIENT ANALYSIS, pg. 131</td>
</tr>
<tr>
<td></td>
<td>ARIZONA FOOD NUTRIENT ANALYSIS, pg. 133</td>
</tr>
<tr>
<td></td>
<td>FOOD MODELS</td>
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<tr>
<td></td>
<td>Poster - HAVE A HEALTHY SMILE</td>
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<td></td>
<td>Materials - Red Disclosing Tablets</td>
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</tbody>
</table>

33. **Identify-Explain.** Their eating patterns which prevent/or promote dental caries.

34. **Identify.** High nutrient-density and low nutrient-density foods/snacks definitions.

35. **Identify-Explain.** Why foods with high nutrient-density make the best snack choices.

36. **Identify-Explain.** Why foods with low nutrient-density make poor snack choices.

37. **Identify-List.** Calorie content of high or low nutrient-density snacks they like and eat.

38. **Identify.** Ways to increase intake of high nutrient-density snacks/foods and decrease intake of low nutrient-density snacks/foods.
### OBJECTIVES

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
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<tbody>
<tr>
<td>39.</td>
<td>Identify. Plan for eating and other activities which will help maintain or improve their health status.</td>
</tr>
<tr>
<td>40.</td>
<td>Evaluate. How well their plan works.</td>
</tr>
<tr>
<td>41.</td>
<td>Explain. Problems encountered in following their plan and how they try to solve those problems.</td>
</tr>
<tr>
<td>42.</td>
<td>Identify. How to evaluate reliable and unreliable nutrition information.</td>
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<tr>
<td>43.</td>
<td>Plan. Class party budget and rating nutrient-density of menu items.</td>
</tr>
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</table>

### INSTRUCTIONAL AIDS

<table>
<thead>
<tr>
<th>Class Number</th>
<th>AIDS</th>
</tr>
</thead>
</table>
| 17 | Handout #35 - SNACKING - THE CHOICE IS YOURS  
Reference - GUIDE TO GOOD EATING Poster  
YOUR DIET YOUR HEALTH Poster  
FOOD MODELS  
FOOD, Home & Garden Bulletin #228  
NUTRITION CONCEPTS AND CONTROVERSIES  
Poster - WHAT MAKES A SNACK GOOD FOR YOU?  
Poster - NUTRITION SCOREBOARD  
Handout - NUTRITION SCOREBOARD, pages 135-136  
Handout #36 - SUPER SNACKS  
Poster - SNACKS: CHOICE OR CHANCE |
| 18 | Handout #37 - EATING ON THE RIGHT TRACK  
Handout #38 - EXERCISE ENERGY  
Handout #39 - PLAN A SCHOOL LUNCH  
References - Food Models  
NUTRITION AND YOUR HEALTH - Dietary Guidelines  
NUTRITION CONCEPTS AND CONTROVERSIES |
| 19 | Handouts #40 & 41 - BE A NUTRITION SUPER STAR - THE CHOICE IS YOURS  
Handout #42 - AEROBIC SUPER STARS |
| 20 | Handout #43 - NUTRITION SUPER STARS FIND THE FACTS  
Handout #44 - FIESTA FOOD |
**LEARNING ACTIVITIES**

1. Handout #33 - DETERGENT FOODS
   CARIOGENIC FOODS - IT'S YOUR CHOICE

**INFORMATION**

Problems of dental health are widespread in America. These problems can have many harmful effects, including pain, expense, and illness.

Tooth decay or dental caries is caused by bacteria and sugar in food. Bacteria in the mouth live on the teeth and produce a sticky substance called dextran. Dextran is an important part of plaque. Plaque is the thin, transparent film composed of saliva, bacteria, and food debris that is constantly formed over the surfaces of the teeth. The dextran in plaque holds bacteria on the surfaces of the teeth. Bacteria change sugars into acid which breakdown the enamel of a tooth. Bacteria can then start spreading through the tooth destroying it. The destroyed part of the tooth is the dental carie or cavity. If plaque is not removed, it hardens into calculus and accelerates the tooth decay process.

**DISCUSSION QUESTIONS:**

- What kinds of foods are detergent foods?
  - Crisp foods, crunchy foods, foods without refined sugar, foods like celery, apples, carrots.

**AIDS**

1. Handout #33
   DETERGENT FOODS - CARIOGENIC FOODS - IT'S YOUR CHOICE

Poster
HAVE A HEALTHY SMILE
<table>
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<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
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<tbody>
<tr>
<td><strong>-What kinds of foods are cariogenic foods?</strong></td>
<td>While research indicates that dental decay is caused by bacteria, a person's diet and heredity also play an important part. If a person's diet discourages bacterial growth, there is usually little or no decay. Also, if a person has inherited a protective mechanism that will not permit decay-producing bacteria to grow or will neutralize acids, little or no decay will occur. Heredity cannot be changed, diet can.</td>
<td>2. Handout #34 SNACK FOOD CALORIES</td>
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</table>
| Foods with high sugar content, sticky sweet foods, foods like soda pop, candy, dried fruit. | Foods are basically two types: detergent and cariogenic. Detergent foods are those foods which have a cleansing quality. Examples of detergent foods include crisp, crunchy foods like celery, apples, carrots. These foods do not include foods which contain lots of simple carbohydrates. Cariogenic foods are those foods that encourage the growth of bacteria which increases the production of acid and the probability of tooth decay. Examples of cariogenic foods are foods with a high sugar content or sticky foods such as candy, soda pop, and dried fruit. These foods when eaten by themselves promote the growth of bacteria which increases the production of acid and the probability of tooth decay. You can decrease the probability of tooth decay if you immediately brush your teeth after eating cariogenic foods or if you eat cariogenic foods with meals that include detergent foods. | References

**NUTRITIVE VALUE OF FOODS**

**FAST FOOD NUTRIENT ANALYSIS, pages 131-132**

**ARIZONA FOOD NUTRIENT ANALYSIS, pages 133-134**

**FOOD MODELS**

| -What do brushing and eating detergent foods do for your teeth? | Dentists stress proper cleaning of teeth and gums. They recommend brushing or flossing at least once a day. Cleaning teeth helps remove plaque which thus removes the bacteria on the teeth. Regular visits to your dentist, brushing and flossing and infrequently eating cariogenic foods will promote healthy teeth and gums. |  |
| Help clean plaque -- saliva, bacteria, and food debris from teeth. | | |
| -What kinds of eating habits promote good dental health? | | |
| Avoid frequently eating cariogenic foods - sticky sweet foods; if cariogenic foods are eaten, brush or eat them with detergent foods; eat detergent foods. | | |

2. Handout #34 - SNACK FOOD CALORIES |
**LEARNING ACTIVITIES**

Handout #34 may be used to reinforce the concept of calories.

3. Divide the class into three groups. Have group one use disclosing tablets only. (one tablet per student)

   Have group two bring their toothbrushes to school, brush their teeth, and use disclosing tablets. Optional: Have group three bring their toothbrushes to school, floss their teeth, brush them, and use disclosing tablets. Observe and discuss the results.

**DISCUSSION QUESTIONS:**

- Which group has the least amount of red color on their teeth?
  The group that brushed and flossed their teeth.

- Which group has the greatest amount of red color on their teeth?
  The group that neither brushed nor flossed.

**INFORMATION**

The red color in disclosing tablets sticks to plaque on the teeth. The more plaque on the teeth, the more red color they will have. This experiment is a good way for students to actually see tartar on teeth and how brushing and flossing help remove the decay promoting plaque.

You may also want to have a group of students eat some detergent foods and compare the plaque on their teeth with those who brushed and flossed.

**AIDS**

References

CALORIES AND WEIGHT

3. Red disclosing tablets
## LEARNING ACTIVITIES

Handout #35 - SNACKING - THE CHOICE IS YOURS

## INFORMATION

A nutritionally adequate diet is one which supplies all of the nutrients - protein, carbohydrate, fats, vitamins, minerals, water - which our body needs and at the same time provides us with the calories necessary to maintain our ideal body weight. Nutritionists have developed a food guide which is designed to help you easily choose what to eat.

The food guide divides commonly eaten foods into five groups according to their nutritional content. By following the guide, you and your students will be able to choose a variety of foods for their vitamins, minerals, protein, carbohydrate and fat as well as calorie content.

Each group in the guide contains foods which are similar in origin and nutrient content.

1. **Meat and Meat Substitutes Group** contains beef, poultry, eggs, dried peas and beans which are especially good sources of protein, iron, thiamin, riboflavin, and niacin.

2. **Milk and Milk Products Group** contains milk, yogurt, cottage cheese and cheese which are especially good sources of calcium, protein, thiamin, and riboflavin.

3. **Fruits and Vegetables Group** contain food that are especially good sources of Vitamin A and Vitamin C as well as thiamin and riboflavin.

## AIDS

1. Handout #35 SNACKING - THE CHOICE IS YOURS

   - GUIDE TO GOOD EATING or YOUR DIET YOUR HEALTH Posters
   - FOOD MODELS
   - FOOD, Home and Garden Bulletin #228
   - NUTRITION CONCEPTS AND CONTROVERSIES

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* 1979 NUTRITION SUPER STARS
4. Grains and Grains Products Group includes whole grain and enriched flour products which are especially good sources of carbohydrate, thiamin, niacin, riboflavin, and iron.

5. Fats, Sweets and Alcohol Group is composed of low nutrient density foods which contain calories but few other nutrients.

### RDA

The five food groups are not the only guide for a balanced diet. Foods/Meals can be planned around the Recommended Dietary Allowances (RDA) - a plan that indicates how much needs to be consumed to get the necessary proportion of each essential nutrient. The RDA, compiled by the Committee on Dietary Allowance of the Food and Nutrition Board of the National Research Council, meet the known nutritional needs of practically all healthy persons for specified age and sex groupings.

The RDA do not represent requirements for an individual; rather they are average daily amounts of nutrients that population groups should consume over time. Except for energy, the RDA's are estimated to exceed the needs of most individuals, thus insuring that the needs of nearly all persons are met.
The RDA apply only to healthy populations and do not take into account special needs arising from such problems as infections, chronic disease, and the use of medication that require special measures.

The RDA are reviewed and updated periodically. It should not be surprising that the RDA changes from time to time. It would be more surprising and indeed, scientifically unsound, if they were never changed.

The U.S. RECOMMENDED DIETARY ALLOWANCES (U.S. RDA) were developed by the Food and Drug Administration (FDA) for the nutrition labeling of foods. The U.S. RDA is currently based on the 1968 RDA and replace the Minimum Daily Requirements.

The U.S. RDA is an index of the nutritive value of foods. It can be used to compare the nutritive contributions of foods to your total diet. The U.S. RDA gives the amounts of protein, selected vitamins and minerals used as standards in nutrition labeling. Separate U.S. RDAs have been established for infants, children under four, individuals four years and older, and pregnant or lactating women.
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
<th>AIDS</th>
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<tbody>
<tr>
<td><strong>Poster: WHAT MAKES A SNACK GOOD FOR YOU?</strong></td>
<td>The U.S. RDA is generally the highest level of the RDA for a few selected nutrients in each age category. It is important to realize that the nutrient information on a food label is limited. Only a few essential nutrients are there. A highly-fortified food, like some cereals, containing 100 percent of the nutrients will not necessarily provide any of the many other nutrients essential for good health.</td>
<td>2. Poster: WHAT MAKES A SNACK GOOD FOR YOU?</td>
</tr>
<tr>
<td>Discuss with students the poster: WHAT MAKES A SNACK GOOD FOR YOU?</td>
<td><strong>Nutrient Density</strong></td>
<td>3. Poster: NUTRITION SCOREBOARD</td>
</tr>
<tr>
<td>High nutrient-density foods give us the nutrients we need without giving us lots of calories. Foods from the five food groups that are low in sugar, fat, and sodium make good snack foods.</td>
<td>Another guide for selecting nutritious food is the nutrient density rating of foods. Nutrient-density (expressed as a ratio) can be used to describe the nutritional quality of a food. Nutrient-density refers to the ratio of nutrients to calories in a food. The numerator is the nutrient composition of the food supply or the diet, or the meal, or the individual food. The denominator, the other component of the ratio, is the recommended daily allowances for nutrients. Both components are expressed on a calorie basis. Our knowledge of these two components is growing, but the research base for the components is still incomplete.</td>
<td>Handout: NUTRITION SCOREBOARD, pages 135-136</td>
</tr>
<tr>
<td>Discuss with students the poster: NUTRITION SCOREBOARD.</td>
<td>The nutritional score of a food in the Nutrition Scoreboard represents one way of rating the nutrient-density of foods. It is important to realize the concept of</td>
<td></td>
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</tbody>
</table>
DISCUSSION QUESTIONS:

- Is snacking bad for you?

Yes and no. Yes, if you eat more calories than you burn up or eat foods which are loaded with sugar, salt, and fat, but low on vitamins or minerals.

No, if you eat nutritious snacks which supply your body nutrients or energy that you don't get at your regular meals.

- How can you be a good snacker?

By knowing what foods you like are nutritious snacks, having these snacks handy or knowing where to get these snacks when the munchies usually strike you.

By making sure that your snacks plus your meals give you only the calories necessary to maintain your ideal body weight.

nutrient-density is new. Because it is new, there is disagreement among nutritionists on the best way to score the nutrient-density of foods.

It is important to understand that the nutritional value of any food can only be evaluated in terms of your total food intake. The 5 food groups, nutrient density ratings, RDA's, and U.S. RDA's and the U.S. Dietary Guidelines, are all tools which can be used to help assess the nutritional adequacy of your diet.
**LEARNING ACTIVITIES**

4. ![Handout #36 - SUPER SNACKS](image)

**INFORMATION**

You may have heard someone say that snacks are bad for you. The "don't snack" rule is based on the assumption that snacks promote obesity because they represent extra calories beyond those needed for a nutritionally adequate diet, or that many "snack foods" are low-nutrient density foods which supply mainly calories.

Different people around the world have a variety of traditions relating to snacking. For example, the English afternoon teatime is a standard snack time. In some cultures, one or two meals is the custom; in others, up to six meals a day are customary. It may be that frequent snacking can be a part of a healthful way of life. Snacking seems to be a part of the American way of eating!

**AIDS**

4. Handout #36 SUPER SNACKS

Discuss the poster: **SNACKS: CHOICE OR CHANCE**

Discuss with students what they can do to make nutritious snack choices.

a. Know which snacks are the high-nutrient density foods and what foods are not loaded with sugar, fat, and sodium.

b. Plan ahead to know where to get these foods and to have them on hand when the munchies strike.
The first step to improve your diet is to approach it with a positive attitude. Too often people equate nutritious food with that old cliche, "if it tastes bad, it's got to be good for you!" Let your students discover that there are foods in the five food groups guidelines which they ENJOY EATING.

Nobody is perfect, and nobody eats a perfect diet, but there is always room to IMPROVE YOUR DIET. Remember, your diet is nutritionally adequate when you are eating the right balance of energy and nutrients that your body requires for good health. If you usually eat foods like whole-grains, legumes, lean meats, milk, cheese, fresh fruits, and vegetables, you are probably eating a very nutritious diet.

DISCUSSION QUESTION: -What is the best way to stay healthy?

Eat a variety of foods at meals and as snacks to give you the right amount
LEARNING ACTIVITIES

of calories to maintain your ideal body weight.

Try to eat foods which give you a balance of protein, carbohydrate, fats, vitamins, minerals, water, and fiber to meet your body's nutritional needs.

Keep an eye on the amount of simple carbohydrates, fat, and sodium you eat.

Try to exercise everyday and spend time relaxing. Remember, we nourish ourselves by everything we do.

INFORMATION

Personalize your diet by adjusting your calorie needs to your activity. The more energy you use up, the more calories you will need. Choose your calories wisely. There are no "good calories", but there are foods which give you little but calories. These are called low nutrient-density foods. Nutrition-wise people will choose foods which give them calories PLUS NUTRIENTS. These are called high nutrient-density foods.

Good nutrition does not have to cost an arm and a leg. Inexpensive foods can be found in EACH of the FIVE FOOD GROUPS. If you want to economize on your food bill, circle the least expensive items in each group before planning a menu or making a shopping list. Whatever your income level, selecting foods wisely will be well worth the price.

How many meals should you eat a day? This can vary depending on your lifestyle. Nutritionists recommend spacing your meals throughout the day to help you stay alert and perform at your best.

Our eating habits have changed. In the last 10 years there has been a big trend from eating basic unprocessed foods to eating highly processed, convenience foods. Processing generally removes or reduces the nutrient content of foods. Processed foods now make up over half of what we eat. As a result of these and other changes, most Americans eat too much sugar, fat, and sodium. Overconsumption of these items is linked with heart disease, cancer, diabetes, hypertension and obesity. After years of research, the USDA and DHHS have recommended the following dietary guidelines:

1. Eat a variety of foods.

Adding variety to our diets isn't difficult. Most of us vary the way we eat each day. By picking
### LEARNING ACTIVITIES

<table>
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<th>INFORMATION</th>
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<tr>
<td>different foods from the food groups, the range of nutrients in our diets is increased. Over a period of days, we should come out about right.</td>
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</tbody>
</table>

- Plan menus which increase food variety by:
  - providing more servings than usual of fruits and vegetables.
  - frequently including dark green vegetables, dry bean dishes, and starchy vegetables.
  - using more grain products especially whole grains.

2. **Maintain ideal weight.**

   To avoid becoming overweight, consume only as much energy (calories) as you use up. Twenty to thirty percent of our population is obese. Obesity is a health problem related to heart disease, stroke, diabetes and hypertension.

   To lose weight:
   - cut back on fats, sugars and alcohol in the diet.
   - cut back on serving sizes.
   - increase physical activity.

3. **Avoid too much fat, saturated fat and cholesterol.**

   Fat should provide only about 30% of the calories of the calories in your diet. Higher levels of blood cholesterol are usually associated with a greater risk of heart disease; lower levels with a lower risk. High levels of blood cholesterol may lead to atherosclerosis or hardening of the arteries, an underlying cause of many heart and blood vessel diseases.
Lower the amount of fat and cholesterol in the diet by:

- choosing lean meat trimmed of visible fat.
- draining meat drippings.
- reducing the amount of margarine or other fats used on bread and vegetables.
- purchasing low fat and skim milk and decreasing the amount of fat in other foods when whole milk or cheese is used.
- decreasing the amount of fat used in recipes, added to foods in cooking or at the table.
- limiting the number of fried foods, especially those that are breaded or batterfried.
- moderating the amounts of organ meats and egg yolks.
- using fewer creamed foods and rich desserts.

4. Eat foods with adequate amounts of starch and fiber.

Consume enough complex carbohydrates and "naturally" occurring sugars to make up 58% of your energy (calorie) intake.

Complex carbohydrates are slowly digested and provide a steady energy supply to your body. Foods high in complex carbohydrates often contribute fiber to your diet. Dietary fiber is plant material which is not digested in the gastrointestinal tract of man. There are some indications that eating fibrous foods may prevent constipation and help to prevent some chronic diseases of the large intestine. In addition, fiber is a plus in weight reduction because bulky foods fill you up. The types or amounts of fiber in foods which are the most beneficial to health are not known.
<table>
<thead>
<tr>
<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
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<tbody>
<tr>
<td>To get enough starch and fiber in your diet:</td>
<td>- eat more fruits and vegetables.</td>
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<tr>
<td></td>
<td>- choose potatoes, sweet potatoes, yams, corn, peas, and dried beans more often.</td>
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<tr>
<td></td>
<td>- select whole grain cereal products such as brown rice, oatmeal, and whole wheat bread.</td>
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<tr>
<td>5. Avoid too much sugar.</td>
<td>Only 10% of your calories should come from refined and processed sugars. There are many types of sugars. These include: sucrose, corn or glucose syrups; and sugars which occur naturally in foods—lactose in milk and fructose in fruit. The most common sweetener is table sugar (sucrose).</td>
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<td></td>
<td>Commonly eaten sugars and sweeteners offer little nutritionally except calories. They are low nutrient density foods. When sugars and sweeteners make up a substantial share of your calories, they may replace other foods which offer vitamins, minerals, and protein in addition to calories. Because sweets are well liked, and contribute calories without bulk or fiber, it is easy to eat more of them—and more calories—than you realize. More calories than you need make you fat. It doesn't matter where they come from carbohydrate (sugar or starch), fat, or protein.</td>
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<td>Limit sugar intake by:</td>
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<td>- cutting down on or avoiding very sweet foods.</td>
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<td>- decreasing the amount of sugar in recipes for baked goods and desserts.</td>
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<td>- serving more fresh fruit and canned fruits packed in juice or light syrup.</td>
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</table>
6. **Avoid too much sodium and salt.**

Reduce salt use to about 3 to 5 grams per day. This would give you about 1.2 to 2 grams of sodium. The American diet averages 25 times more sodium than the body needs. A high sodium diet may be related to the development of hypertension (high blood pressure) and strokes in some people.

Besides the salt added in cooking and at the table, much of the sodium people consume comes from salt and other sodium compounds added to commercially prepared foods.

To limit the amount of salt and sodium in your diet:

- use few processed foods which contain sodium.
- taste food before adding salt.
- keep the salt shaker off the table.
- sparingly use commercially prepared sauces and condiments such as catsup, barbecue sauce, mustard or soy sauce.
Have students use the Dairy Council Food Models to help them plan a nutritious lunch that could be served in the school lunch program.

(Students may be divided into groups to choose 2 or 3 food items to be served from each of the FIVE FOOD GROUPS.)

- Use more fresh and frozen vegetables than canned or seasoned frozen vegetables which have salt added.
- Limit the use of salty snack foods such as chips, pretzels, and crackers.
Some helpful tools they can use in meal planning are:

- The Basic Five Food Groups
- School lunch food pattern
- Recipe books

Invite parents to eat school lunch on the day your menu is served in the cafeteria.
**Lesson V**

**Class 19**

**Objectives** 34-36, 37-43

### Learning Activities

1. Handouts #40 & #41 - BE A NUTRITION SUPER STAR - THE CHOICE IS YOURS

### Information

The Nutrition Super Stars project has provided information to help you learn about nutrition and health, and to aid you in making food and exercise choices. As a consumer, you are constantly facing choices which affect your health. How often should I choose the convenience of fast food restaurants with limited food selections and many high fat foods versus restaurants with a variety of food choices? How frequently should I use energy expensive processed/packaged foods? And what about finding time to exercise? Should I ride my bike to school or take my car?

Habit changes occur gradually. The Nutrition Super Stars guidelines are a sensible approach to gradually changing your health habits. The best health tool available to you as a consumer is to continually stay abreast of information on health and fitness. Only you can identify what will work best to help you be healthy.

### AIDS

1. Handouts #40 & #41 - BE A NUTRITION SUPER STAR - THE CHOICE IS YOURS
The CASE STUDIES listed in Handout #40 and #41 - BE A NUTRITION SUPER STAR - THE CHOICE IS YOURS is a way your students can incorporate the Super Stars guidelines in making healthy food and nutrition exercise choices.

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<th>LEARNING ACTIVITIES</th>
<th>INFORMATION</th>
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<tr>
<td>Handout #42 - AEROBIC SUPER STARS</td>
<td>To help you make wise exercise choices, it is important to discuss in more detail cardiovascular fitness through aerobic conditioning. If you recall in class 15, it was through endurance type exercises—brisk walking, running, bicycling, swimming, jumping rope, and dancing—that you can improve the fitness of your cardiovascular system. This type of fitness improves your cardiovascular endurance. Cardiovascular endurance is obtained through aerobic conditioning. Cardiovascular endurance means that your body is able to keep going during strenuous activity and quickly return to normal after the activity is over. This is because your heart has become stronger and the circulation of your blood has improved. With improved circulation, more oxygen and nutrients can be carried...</td>
<td>2. Handout #42 AEROBIC SUPER STARS</td>
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## Learning Activities

### Information

To your cells for energy production. This energy can then be used to fuel body activities.

Some activities require a sudden burst of energy. This includes activities like running or swimming sprints, shot put, pole vaulting and any other form of exercise which requires you to dash and dart around or stop and go.

You must be able to rapidly replace your energy supply in order to continue the exercise longer. Unfortunately with these types of activities, your cells can not obtain enough oxygen and as a result, sufficient energy is not produced. You become fatigued quicker and must stop the activity sooner. Exercising without enough cellular oxygen is *anaerobic conditioning*.

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### DURATION

30 MINUTES DURATION RECOMMENDED

To improve your cardiovascular endurance through *aerobic conditioning*, you must exercise for at least 30 minutes 3 times a week at a high energy level. This level is determined by your maximum heart rate.

Maximum heart rate is the fastest your heart can beat and still pump blood to your body cells. Your pulse rate reflects your heart rate.
Although it varies from person to person, your maximum heart rate is roughly 220 beats per minute minus your age.

\[
\text{maximum heart rate} = 220 \text{ beats per minute} - \text{age}
\]

If you are 12 years old, it is about 208; if you are 30 years old, it is about 190.

Using your maximum heart rate, you can figure your training heart rate range. Your training heart rate is between 75 to 85 percent of your maximum heart rate. Your pulse should be pushed to within this range to improve your cardiovascular endurance.

\[
\text{Minimum training heart rate} = \text{maximum heart rate} \times 0.75
\]
\[
\text{Maximum training heart rate} = \text{maximum heart rate} \times 0.80
\]

Here is an example of how to find the training heart rate for a 12 year old.

Maximum heart rate = 220 beats per minute minus 12 (yrs. old).

Minimum heart rate = 75% of 208 beats per minute.
\[
208 \times 0.75 = 156 \text{ beats per minute.}
\]

Maximum heart rate = 80% of 208 beats per minute.
\[
208 \times 0.80 = 166 \text{ beats per minute.}
\]

When you exercise, try testing yourself. Exercise for 3 to 5 minutes. Take your pulse for 30 seconds and multiply by 2. If you do not reach your training heart rate range, you are not working hard enough, and you must exercise at a faster rate to achieve aerobic conditioning.
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<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>But remember, start off any type of exercise program slowly. Then work up to this level. <em>AS A GUIDE, IF YOU CANNOT CARRY ON A NORMAL CONVERSATION WHILE PARTICIPATING IN AN ENDURANCE ACTIVITY, YOU MOST LIKELY ARE WORKING HARDER THAN YOU SHOULD - SLOW DOWN!</em> Exercising should be fun because the benefits you will derive occur when exercise is done on a regular and consistent basis. Everyone is different so find activities which you enjoy and fit into your lifestyle.</td>
<td></td>
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</tbody>
</table>
LEARNING ACTIVITIES

1. Handout #43 - NUTRITION SUPER STARS FIND THE FACTS

INFORMATION

Knowing the facts about nutrition and fitness is very important. Finding the facts is often a difficult job. Some people are more interested in selling you a special diet plan, alleged "miracle" foods, or special gadgets than in helping you help yourself to balanced nourishment from food, exercise, and relaxation. Therefore, you as a consumer must use your own judgment or the help of dependable experts when determining the reliability of nutrition and other health information or sources of this information.

Once you know the facts about nutrition and health or where to go for help in finding the facts, you are on the road to becoming a Nutrition Super Star.

AIDS

1. Handout #43 - NUTRITION SUPER STARS FIND THE FACTS

IT DOES IT ALL!
ONLY 98c
<table>
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<td><strong>2.</strong> <a href="#">Handout #44 - FIESTA FOODS</a></td>
<td>Knowing the facts is only part of the game plan. The next step is to use this information everyday when you make food and recreation choices. Choices form our habits. Habits shape the way we live and influence our health</td>
<td>2. Handout #44 FIESTA FOOD</td>
</tr>
</tbody>
</table>

Check with your school food services department to see if they can help your students with their fiesta plans.

Gee, we've never tried asparagus before...

The process of nutrition education must help us learn to evaluate and develop healthful living habits. It must also help us see that others may need help to meet their nutritional needs. The process of nutritional education must prepare students to understand that the economic resources of the individual, the family, the nation, and the world determine the opportunity for individuals to nourish themselves healthfully.

Nutrition education is an integral part of many disciplines. It forms part of the subject matter of science, health, social studies, physical education, math, and language arts. It includes not only classroom learning, but what students learn at home, in the school cafeteria, and on television.
Nutrition education merely begins with teaching students the facts about food, nutrients, physical fitness and their relationship to good health.

The challenge for nutrition education is to enable students and teachers alike to live what they have learned. The choice is yours -- to make good health happen or to let health happen to you!

Nutrition is a complex new scientific field with continual ongoing research. It is a social action field with issues to be investigated and resolved. Nutrition education is a new frontier which will grow more important and significant with every passing day.
SECTION 1 Directions: Answer each question by blackening the appropriate bracket.
Blacken 'A' if you strongly agree  blacken 'B' if you agree  blacken 'C' if you disagree  blacken 'D' if you strongly disagree. There is no right or wrong answer to this section. Fill in the bracket completely. DO NOT WRITE ON YOUR TEST BOOKLET.

1. I like trying new foods.
   - A) I strongly agree
   - B) I agree
   - C) I disagree
   - D) I strongly disagree

2. I like foods cooked at home better than foods from fast-food restaurants like Jack-In-The-Box, McDonalds, or Taco Bell.
   - A) I strongly agree
   - B) I agree
   - C) I disagree
   - D) I strongly disagree

3. I eat more when I am unhappy than when I am happy.
   - A) I strongly agree
   - B) I agree
   - C) I disagree
   - D) I strongly disagree

4. I like some foods now that I didn't like when I first tried them.
   - A) I strongly agree
   - B) I agree
   - C) I disagree
   - D) I strongly disagree

5. I am healthy most of the time.
   - A) I strongly agree
   - B) I agree
   - C) I disagree
   - D) I strongly disagree

6. Being active helps me be healthy.
   - A) I strongly agree
   - B) I agree
   - C) I disagree
   - D) I strongly disagree

7. What I eat affects how healthy I am.
   - A) I strongly agree
   - B) I agree
   - C) I disagree
   - D) I strongly disagree
8. I try to choose foods that will help keep my body healthy.

   __A) I strongly agree  
   __B) I agree  
   __C) I disagree  
   __D) I strongly disagree  

9. I like the way I am growing.

   __A) I strongly agree  
   __B) I agree  
   __C) I disagree  
   __D) I strongly disagree  

10. I normally need to take a vitamin pill in order to be healthy.

    __A) I strongly agree  
    __B) I agree  
    __C) I disagree  
    __D) I strongly disagree  

11. I don't like to try new foods.

    __A) I strongly agree  
    __B) I agree  
    __C) I disagree  
    __D) I strongly disagree  

12. What I eat really does not affect my health.

    __A) I strongly agree  
    __B) I agree  
    __C) I disagree  
    __D) I strongly disagree  

13. I eat food I like regardless of whether it will help keep my body healthy or not.

    __A) I strongly agree  
    __B) I agree  
    __C) I disagree  
    __D) I strongly disagree  

14. I eat more when I am bored than when I am busy.

    __A) I strongly agree  
    __B) I agree  
    __C) I disagree  
    __D) I strongly disagree  

15. If I don't like a food when I first taste it, I'll never like it.

    __A) I strongly agree  
    __B) I agree  
    __C) I disagree  
    __D) I strongly disagree  

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16. I am not healthy most of the time.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree

17. Being active does not help me be healthy.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree

18. I like foods from fast-food restaurants better than foods cooked at home.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree

19. Normally I do not need a vitamin pill to be healthy.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree

20. Nearly anyone can stay at a healthy weight level.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree

21. Overweight people will probably always be overweight, no matter what they do.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree

22. Between meal snacks can be a good way to help get a nutritious diet.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree

23. Taking lots of vitamins can make up for eating low-nutrient density food.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree
24. I know a lot about nutrition.
   A) I strongly agree
   B) I agree
   C) I disagree
   D) I strongly disagree
SECTION II  Directions: Fill in the bracket of letter for the one best answer for each question. Fill in the bracket completely. There is only one best answer. If you don't know an answer leave it blank.

25. Three of the six major nutrients in food are
   ____ A) photosynthesis, salt, water
   ____ B) cellulose, water, vitamins
   ____ C) carbohydrates, fat, minerals
   ____ D) vitamins, protein, chlorophyll

26. Your body cells are made of
   ____ A) cellulose
   ____ B) chlorophyll
   ____ C) nutrients
   ____ D) photosynthesis

27. The amount of nutrients present in the body
   ____ A) is always the same
   ____ B) can change with the color of your eyes
   ____ C) can change with your activity level
   ____ D) changes only when you are an infant

28. Measuring your height, weight, and skin fold thicknesses can roughly tell you
   ____ A) how strong your body is
   ____ B) the amount of fat in your body
   ____ C) how flexible your body is
   ____ D) the amount of energy in your body

29. Which is not an example of a simple carbohydrate
   ____ A) honey
   ____ B) molasses
   ____ C) sugar
   ____ D) flour

30. Milk is an important food because
   ____ A) it has a lot of iron
   ____ B) it has vitamin C
   ____ C) it has all the nutrients I need
   ____ D) calcium in it helps build strong bones and teeth

31. Mexican or Pinto beans contain
   ____ A) fats, vitamin C, vitamin K
   ____ B) carbohydrates, protein, vitamin B
   ____ C) vitamin C, vitamin K, vitamin D
   ____ D) vitamin C, protein, vitamin K

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32. The body has the least amount of which nutrient?
   ___ A) minerals
   ___ B) vitamins
   ___ C) protein
   ___ D) fats

33. You need B vitamins in your diet because
   ___ A) they help you get energy from food
   ___ B) they help you to see well at night
   ___ C) they help make strong bones
   ___ D) they help heal cuts

34. Calories are a measurement of
   ___ A) the temperature of the air
   ___ B) the body's weight
   ___ C) the body's length
   ___ D) energy given off by foods

35. I get all the nutrients my body normally needs to be healthy if I
   ___ A) drink milk
   ___ B) eat breakfast
   ___ C) take vitamins
   ___ D) eat a variety of foods

36. José is writing a report on nutrients that do not give energy to the body. Which group of nutrients did he write about?
   ___ A) protein, fat, minerals
   ___ B) carbohydrate, fat, water
   ___ C) vitamins, carbohydrate, protein
   ___ D) vitamin, minerals, water

37. A food can contain
   ___ A) no more than one nutrient
   ___ B) no nutrients
   ___ C) every nutrient that your body needs
   ___ D) several nutrients

38. A gram of fat has
   ___ A) the same number of calories as a gram of protein
   ___ B) less calories than a gram of protein
   ___ C) less calories than a gram of carbohydrate
   ___ D) more than twice as many calories as a gram of carbohydrate
39. The position of a food on the food chain is determined by the
   A) the number of calories in a standard amount of the food
   B) amount of energy it takes to produce the food
   C) the area of the country where the food is produced
   D) its vitamin content per gram

40. In order for your cells to use nutrients
   A) they must be absorbed into your blood or lymph
   B) they must be inhaled through your lungs
   C) you must eat oranges
   D) you must take vitamin pills three times a day

41. Digestion is a process that
   A) carries nutrients in the blood
   B) carries nutrients to cells in the body
   C) removes wastes from the body
   D) breaks down food to smaller parts

42. Metabolism is the process by which
   A) your body uses food
   B) your body is hydrolized
   C) your body breathes
   D) your body is homogenized

43. What you eat is influenced by
   A) habit and how you feel
   B) your family
   C) advertisements
   D) all of the above

44. A special diet is nutritionally reliable when
   A) it promises "a miracle"
   B) there is scientific proof that it works.
   C) you see ads for it
   D) it promises to make you look like a TV star

45. Diane and Rudy want to be more healthy. They decided to try to improve their
    snack choices and activity patterns. What could they do to reach their goal?
   A) Nothing. They can wait a month and see what happens.
   B) They can make a food and exercise plan and follow it.
   C) They can make a food and exercise plan.
   D) They cannot change the way they eat and exercise.
46. Sit ups, pull ups, and a 9 minute run help measure
   ______ A) your body's growth
   ______ B) your body's weight
   ______ C) your physical fitness
   ______ D) your ability to breathe

47. When you are physically fit you usually have
   ______ A) more energy
   ______ B) curly hair
   ______ C) sharp teeth
   ______ D) less strength

48. Which of the following are common examples of malnutrition in America?
   ______ A) crushed bones and dirty fingernails
   ______ B) oily hair and bow legs
   ______ C) obesity and cavities
   ______ D) cross eyes and soft fingernails

49. How healthy you are is affected by
   ______ A) your activity level and your eye color
   ______ B) your sex and your activity level
   ______ C) what you eat and your activity level
   ______ D) your activity level and your hair color

50. After school Terry and Rosa ride home on the bus, watch TV, eat dinner, watch
    more TV and go to bed. They complain that they always feel tired. They might feel
    this way because
   ______ A) they are lazy
   ______ B) they are not getting enough exercise
   ______ C) they are growing
   ______ D) they do not eat a bedtime snack

51. A low nutrient-density food is one that
   ______ A) contains very few nutrients in comparison to its energy content
   ______ B) contains lots of nutrients in comparison to its energy content
   ______ C) is very light weight in comparison to its size
   ______ D) is very heavy in comparison to its size

52. Which food is a high nutrient-density food?
   ______ A) lemonade
   ______ B) milk
   ______ C) orange drink
   ______ D) cola (soda)
53. Which food is a low nutrient-density food?
   A) corn bread
   B) whole wheat bread
   C) frosted cupcake
   D) tortilla

54. Which activity uses the least energy?
   A) playing frisbee
   B) running
   C) roller skating
   D) watching TV
SECTION III Directions: Fill in the bracket of the letter for the answer that best describes what you do or would do in each question. There is no right or wrong answer. Fill in the bracket completely.

55. I choose the snacks I eat because
   __________ A) my friends eat them
   __________ B) I know they supply nutrients I need for my body
   __________ C) that is what my family has in the house
   __________ D) I see them advertised on TV
   __________ E) that is what is available at school

56. What I eat before school is prepared by
   __________ A) me
   __________ B) family member
   __________ C) school breakfast program
   __________ D) cafe, restaurant, or convenience market like Circle K, or 7-11
   __________ E) no one - I don't eat breakfast

57. I would choose more nutritious snacks if
   __________ A) they were in the house
   __________ B) I had more money to buy them
   __________ C) my friends didn't put pressure on me to eat certain snacks
   __________ D) I knew what snacks were the most nutritious
   __________ E) they were available at school

58. Where does your family get most of your food?
   __________ A) large supermarket
   __________ B) small store
   __________ C) farmers market or fruit and vegetable stand
   __________ D) home garden

59. Where does your family eat out most?
   __________ A) delicatessen
   __________ B) fast-food restaurants
   __________ C) other restaurants

60. How often does your whole family eat together?
   __________ A) never
   __________ B) rarely
   __________ C) once a day
   __________ D) twice a day
   __________ E) three times a day

61. I eat something before school
   __________ A) once or twice a week
   __________ B) three times a week
   __________ C) four times a week
   __________ D) everyday
   __________ E) never
62. The time of day I snack most is
   _____ A) before school
   _____ B) right after school
   _____ C) before bed
   _____ D) during lunch break
   _____ E) I don't snack

63. I get most of my information about nutrition from:
   _____ A) parents
   _____ B) teacher
   _____ C) school nurse
   _____ D) school foodservice people
   _____ E) friends

64. I also get information about nutrition from
   _____ A) TV
   _____ B) newspapers
   _____ C) radio
   _____ D) magazines
   _____ E) books

65. How much money do you spend on snacks each day?
   _____ A) less than $1.00
   _____ B) more than $1.00
   _____ C) none

66. At lunch time I usually
   _____ A) eat at home
   _____ B) eat school lunch
   _____ C) eat a sack lunch
   _____ D) other
   _____ E) don't eat

67. I take a vitamin-mineral pill
   _____ A) daily
   _____ B) occasionally
   _____ C) never

68. When I am with my friends, if I had a snack choice I would choose
   _____ A) peanut butter and crackers
   _____ B) carrots
   _____ C) apple
   _____ D) potato chips
   _____ E) chocolate chip cookies
69. When I am with my friends, if I had a snack choice I would choose

   ____ A) soda pop
   ____ B) juice
   ____ C) milk
   ____ D) fruit drink or koolaid

70. If I had my choice I prefer to

   ____ A) play a game like softball, soccer, or similar activity
   ____ B) ride a bike, swim, or similar activity
   ____ C) watch TV alone, with my family or friends
   ____ D) read or play a game like chess, cards, or similar game

STOP. THIS IS THE END OF THE TEST.
GIVE YOUR TEST TO THE TEACHER,
TAKE YOUR TICKET AND GO TO THE SNACK BAR.
SELECTED REFERENCES

for

NUTRITION SUPER STARS CURRICULUM CLASS PLANS

Class 1


Class 2

Cooperative Extension, New York State College of Agriculture and Life Sciences. What is a Calorie? (Handout adapted from material originally prepared by Mildred Bradsher, State Extension Specialist, Food and Nutrition; Charline Lindsay, State Extension Youth Specialist; and Nancy Lysen, University of Missouri - Columbia). Ithaca, N.Y.


Class 3


Class 4


Selected References and Instructional AIDS

4/17/81


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Classes 8 and 9


Classes 10 and 11


**Class 12**


Cooperative Extension, New York State College of Agriculture and Life Sciences. *What is a Calorie?* (Handout adapted from material originally prepared by Mildred Bradsher, State Extension Specialist, Food and Nutrition; Charline Lindsay, State Extension Youth Specialist; and Nancy Lysen, University of Missouri, Columbia). Ithaca, N.Y.


**Classes 13 and 14**

Bussard, Marie. *Tantalizing Tidbits for Teens.* Cooperative Extension Service, Oregon State University. Publication 4-H 7374L.


**Class 15**


**Class 16**


**Class 17**


Class 18


Class 19


Classes 1-20

ITEMS

TEXTBOOK

Nutrition: Concepts and Controversies
Eva May Hamilton and Eleanor Whitney
Price: $14.95

FILMSTRIP/CASSETTE

"Waldo Learns About Nutrition - Carbohydrate, Fat, Protein" and "Waldo Learns About Nutrition - Vitamins and Minerals"
Price: $24.00 each

BOOKLETS

Food is More Than Just Something to Eat
U.S. Department of Agriculture, Home and Garden Bulletin #216.
Price: $1.00

Food, U.S. Department of Agriculture
Home and Garden Bulletin #228.
Price: $3.25

LEAFLET

Hassle Free Guide to a Better Diet,
USDA Leaflet #567.
Price: $.07

MISCELLANEOUS

Iodine, toothpicks, testape

Glass slides, cover slips
Price: Glass slide -- $.06
Cover slip -- $.05

ADDRESSES

West Publishing Company
P.O. Box 3526
St. Paul, MN 55165

McGraw Hill Films
1221 Avenue of Americans
New York, NY 10020

Arizona Department of Education
Food and Nutrition Division
Regional Resource Centers

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Arizona Department of Education
Food and Nutrition Division
Regional Resource Centers

Publications, Requests, and Distribution
SEA Information Staff
Room 6007 South Building
USDA
Washington, D.C. 20250

Local drug store

Merchandise Research Co., Inc.
4500 Speedway Blvd.
Tucson, AZ
POSTER
Your Diet Your Health
Price: Free

Publications, Requests and Distribution
SEA Information Staff
Room 6007, South Building
USDA
Washington, D.C. 20250

FILMSTRIP/CASSETTE
"You Are What You Eat"
Price: $24.00

McGraw Hill Films
1221 Avenue of Americas
New York, NY 10020
or
*Arizona Department of Education
Food and Nutrition Division
Regional Resource Centers

ADIPOMETER
Skinfold calipers and arm circumference tape.
Price: Box of 5 calipers -- $15.00 or
one kit with directions, tape and calipers -- $4.00

Ross Laboratories
585 Cleveland Avenue
Columbus, Ohio 43216

FILMSTRIP/CASSETTE
"Why We Eat"
Price: $24.00

McGraw Hill Films
1221 Avenue of Americas
New York, NY 10020
or
*Arizona Department of Education
Food and Nutrition Division
Regional Resource Centers

BOOKLET
Nutritive Value of Foods
U.S. Department of Agriculture,
Home and Garden Bulletin #72.
Price: $1.80

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

BOOKLET
Food and Fitness
Blue Cross/Blue Shield
Price: Free

Blue Cross Association
Editorial Office
840 N. Lake Shore Drive
Chicago, Illinois 60611
HANDOUT

Fuels for Muscle Power

POSTER

Walk-Jog-Run-Athon

LESSON V

POSTER

Arizona Foods Nutrient Analysis
Cooperative Extension Service, University of Arizona

FOOD MODELS
Price: $4.50/set (Free in Arizona)

MISCELLANEOUS

Red Disclosing Tablets
Price: $1.59 for 30 tablets

POSTERS

Guide to Good Eating
Price: $.75 (Free in Arizona)

What Makes a Snack Good for You
Price: $.75 (Free in Arizona)

Snacks: Choice or Chance
Replaceable only for junior high school
Price: Large -- $.07/Small -- $.04) (Free in Arizona)

Nutrition Scoreboard
Price: $1.75

POSTER

Nutrition Scoreboard Handout

Dairy Council of Arizona
4625 E. Ft. Lowell Road
Tucson, AZ 85712

Dairy Council of Arizona
2008 S. Hardy Drive
Tempe, AZ 85282

National Dairy Council
6300 N. River Road
Rosemont, Illinois 60018

Local drug store

Center for Science in the Public Interest
1755 S. Street, N.W.
Washington, D.C. 20009

Nutrition Super Stars Curriculum

Nutrition Super Stars Curriculum

Nutrition Super Stars Curriculum

Nutrition Super Stars Curriculum
MISCELLANEOUS

SLIDE RULE
Fitness Finders Calorie Counter
Supplemental item for Lesson IV
Price: $ .40

BOOKLET
Information Bulletin #364.
Price: $1.00

POSTER
Have a Happy Healthy Smile
Price: $ .20 (Free in Arizona)

PAMPHLETS
Food and Nutrition Terms
Price: $ .03

Nutrition and Your Health - Dietary Guidelines, USDA-HEW Publication,
Home and Garden Bulletin #232.
Price: 1 copy free

FILMS
"Look Before You Eat"
Good film to introduce the Nutrition Super J.ars Curriculum
Price: $355.00

Fitness Finders
178 E. Harmony Drive
Spring Arbor, MI 49283

Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

Dairy Council of Arizona
4625 E. Ft. Lowell Road
Tucson, AZ 85712
or
Dairy Council of Arizona
2008 S. Hardy Drive
Tempe, AZ 85282
or
National Dairy Council
6300 N. River Road
Rosemont, Illinois 60018

Kraft
Consumer Relations Department
P.O. Box 730
Chicago, Illinois 60677

Consumer Information Center
Pueblo, CO 81009

Churchill Films
662 N. Robertson Blvd.
Los Angeles, CA 90069
or
*Arizona Department of Education
Food and Nutrition Division
Regional Resource Centers
"The Real Talking-Singing Action Movie About Nutrition". Recommended as a final activity for the curriculum. Price: $235.00

"Shaping Up", Parts 1 and 2. Recommended as good summary for Lesson IV - Making a Super Star. Price: $69.75
Fuels For Muscle Power

What fuels the muscles? The body needs energy for every activity whether it is digesting food or climbing trees. FOOD ENERGY supplies our bodies with power, just as a gallon of gas powers our car. Our bodies use three different types of fuel when we exercise. These are: ATP - energy, glycogen (the storage form of carbohydrate), and fat. The type of fuel the muscles will use for exercise depends on: 1. HOW SOON the energy is needed by the body, 2. HOW HARD the muscles must work, 3. HOW LONG the activity lasts.

When a sprinter tears down the track during a 60-yard dash, he needs his energy IMMEDIATELY for a short period of time because he is working his muscles at their MAXIMUM. The sprinter is relying on ATP (adenosine triphosphate) for his energy. You have already learned that the end products of digestion - fatty acids, amino acids, and sugar - can be burned for energy. The liberated energy, in turn, is stored in the magical ATP molecule. ATP, a chemical compound, is stored in the muscles for instant power. ATP is also the ultimate fuel which ALL muscle cells need in order to do their work. OUR bodies use ATP to supply energy for SUDDEN BURSTS of activity in intensive, short-term exercise, such as shot-putting, pole vaulting, or track and swimming sprints. ATP is stored only in very small amounts and is used by our muscles in a matter of minutes. When the energy demands last for more than brief spurts the muscle must rely on a second source of energy. The second source of energy is GLYCOGEN, the storage form of carbohydrate. The body makes glycogen from glucose (a simple sugar) and stores it in LIMITED amounts, about 350 grams, in the liver and muscles. When our supplies of ATP - energy has been exhausted through exercise, our muscles use GLYCOGEN to restore ATP. Maximum glycogen stores are most important for athletes like middle and long distance runners, since glycogen is...
a major source of energy for heavy exertion lasting more than a few minutes. Glycogen stores also seem to be the KEY to ATHLETIC PERFORMANCE and determines how long our muscles are able to perform. What happens when a muscle runs out of glycogen? That muscle will become uncoordinated and begin to hurt. It is called "HITTING THE WALL", a very common phenomenon during endurance competition. With will-power you can keep on going after "hitting the wall", and your muscles will burn FAT, blood sugar, and finally, their own tissue. When this happens every movement becomes extremely painful. A large portion of our glycogen stores will be used up within the first twenty minutes. Then our bodies will start to use FAT as well as glycogen for muscle fuel. Even the thinnest athlete cannot run out of fat to burn for muscle fuel.

**EAT TO BUILD UP MUSCLE FUEL** -- A good diet - one based on meat, milk, fish, poultry and eggs, whole-grain cereals, legumes and nuts, leafy green vegetables, and other fruits and vegetables - will meet all the nutritional requirements of athletes and persons engaged in hard physical labor. Vitamin pills and special supplements are not needed in super-normal doses and have not been proven to increase athletic performance. Your diet should include well-balanced proportions of CARBOHYDRATES, FATS, and PROTEIN to fuel your muscles. **REMEMBER** -- Carbohydrate is stored in the liver and muscles in the form of glycogen. GLYCOGEN STORES seem to be the KEY fuel for endurance. FATS are also an important part of the winning food line-up. It is a secondary source of energy especially during the latter stage of endurance sports. Fat is stored in the muscles under the skin and around the inner organs. Although PROTEIN is never a source of immediate energy and a poor source of energy during exercise, don't pass it up! PROTEIN is needed to build muscle tissue. Protein supplements or large quantities of protein are NOT needed to build muscle and strength in an athlete. An athlete will be supplied with plenty of protein when he increases his overall food intake to supply extra calories for exercise.


Lately, everybody's catching fitness fever and there's never been a healthier trend! America is being overrun by nearly eight million joggers. Many people—from inner-city youths to factory workers and suburban homemakers—are also taking a closer look at what they are eating.

A recent Harris poll revealed that a vast majority of people think that more nutritious food plus regular exercise would do more to improve America's health than anything doctors or medicine could do for us.

THE NEWS IS OUT: Fitness and good nutrition has helped millions create a new fountain of youth! It is a way of revitalizing yourself from a life of fast foods, six o'clock cocktails and evenings in the easy chair. Most important, staying active and eating well makes you LOOK AND FEEL GREAT.

Being physically active and nutritionally wise will affect your looks, your health, and your outlook on life. Research shows vigorous exercise and proper nutrition helps prevent heart attacks, aids in weight control, and instills a feeling of well-being. (1) Signs of food and fitness consciousness are everywhere and Madison Avenue has picked up on the trend. Organic and health food stores are spreading like wild fire. Advertisers have stuck "natural" on everything from potato chips to shampoo. Publishers are pitching food and fitness books faster than Superman. This whirlwind of advertising for pills, potions, and muscle pumpers has put us in a spin about what is actually good for our health. What are the real facts?

NUTRICIÓN Y BUENA SALUD

Ultimamente todos nosotros estamos muy conscientes acerca de nuestra salud. En América hay 8 millones de personas que corren todos los días. Muchos de ellos son jóvenes que viven en las ciudades, trabajadores de fábricas y amas de casa quienes se están cuidando mucho de lo que comen.

Es estudio Harris reveló que la mayoría de las personas piensan que una dieta más nutritiva y un ejercicio constante hará más por la salud que cualquier doctor o medicamento habrian por ellos.

¡EXTRA, EXTRA! La buena salud y nutrición han ayudado a millones de personas a desarrollar una nueva fuente de juventud. Es una manera de cambiarse así mismo de una vida de comidas rápidas, cockteles a las seis de la tarde sentado en un sillón. Aún más importante es el permanecer activo y comer bien lo cual lo hace a uno verse y sentirse mejor.

El mantenerte físicamente activo y nutricionalmente inteligente afecta nuestra apariencia, salud y el modo de confrontar a la vida. Investigaciones han demostrado que el ejercicio vigoroso y una nutrición adecuada previenen ataques del corazón, ayudan a controlar el peso e infunden una satisfacción de bienestar. Tiendas de comidas orgánicas y saludables se están extendiendo a grandes pasos. Los publicistas han puesto la palabra "natural" a todo, desde las papitas hasta el champú. Editores están publicando libros de comidas y buena salud más rápido que Superman. Este torbellino de anuncios de píldoras, remedios y fortalecedores de músculos nos han puesto en duda acerca de la veracidad de los productos y acerca de nuestra salud. ¿Cúal es la realidad?
IT'S A FACT: A major health problem in this country is obesity. More than 10 percent of school-aged children in the U.S. are obese. Among adults, a third of the men and one-half of the women are obese. (2) A lack of exercise has been cited as the most important cause of the "creeping" obesity found in today's modern society. (3) Few occupations now require vigorous physical activity. Even though we now have more time available for recreation, we fail to fill the gap with exercise.

IT'S A FACT: A daily exercise session does not bring about a corresponding increase in appetite and food intake. (3) Appetite is a fairly good guide to the amount of food needed by active people, but it is not a reliable measure for inactive people. So, if you exercise more, you will not necessarily eat more. In fact, you may eat less.

IT'S A FACT: Protein and amino acid supplements are NOT needed for muscle building. The quality of protein provided by such foods as meat, fish, poultry, beans, milk, cheese, and eggs is the best source of tissue building material. Protein supplements are expensive and unnecessary. (4)

IT'S A FACT: You must walk 35 miles to lose one pound of fat, but the 35 miles need not be walked at one time. Walking an additional mile each day for 35 days also will take off the pound. This means you can lose 10 pounds in one year by walking an extra mile a day -- providing that food intake and other physical activity remain the same. This really is not an impractical amount of time or effort! To lose more or faster, one needs only to increase the extent of activity.

ES UN HECHO: Uno de los problemas mayores en este país es la obesidad. Más del 10% de los niños de edad escolar en los Estados Unidos sufren de obesidad. Entre personas adultas, una tercera parte de los hombres y la mitad de las mujeres están obesas. (2) La falta de ejercicio ha sido citada como la causa más importante de la obesidad encontrada en la actual sociedad moderna. Pocos empleos requieren ahora una fuerte actividad física. Aunque ahora disfrutamos de más tiempo para la diversión, no nos damos el tiempo suficiente para hacer ejercicio.

ES UN HECHO: Una sección de ejercicio diario no nos proporciona un aumento respectivo en apetito y comida. (3) El apetito es una buena guía para la cantidad de comida necesitada por la gente activa, pero no es buena para una persona inactiva. Así es que si usted hace mucho ejercicio no significa necesariamente que debe de comer más. Al contrario, en realidad, debe de comer menos.

ES UN HECHO: Las proteínas y los aminoácidos no se necesitan para el fortalecimiento de los músculos. La calidad de las proteínas que se encuentran en ciertas comidas como la carne, el pescado, las aves, frijoles, leche, queso y huevos, son la mejor fuente para el desarrollo del cuerpo. Los suplementos proteínicos son caros y no hacen falta.

ES UN HECHO: Una persona debe de caminar 35 millas para perder una libra de peso, pero las 35 millas no son necesarias que se caminen en un solo día. Cominando una milla diaria por 35 días también le harán perder una libra. Esto significa que puede perder 10 libras, en un año si camina una milla extra diaria -- tomando en consideración que el consumo de la comida y otra actividad física permanezca igual. Esto verdaderamente no significa una impráctica cantidad de tiempo y esfuerzo. Para perder peso rápido se necesita solamente aumento de actividad.
IT'S A FACT: Because the athlete's heart is so muscular, it can pump the same amount of blood with 50 beats per minute that the average heart pumps with 75 beats per minute. It works less, rests more, and consequently, takes a much longer time to wear out. (1)

IT'S A FACT: Exercise and good nutrition leads to fitness of the body and mind. Fitness helps alleviate signs of depression such as indecision and lack of zest for daily activities. Active and well nourished people are able to concentrate harder, perform better at work or school, and sleep more deeply at night. (5)

These are just some of the topics that the Nutrition 'Super Stars' program will focus on throughout the school year. Teachers, food service personnel, and school nurses are in the perfect position to help shape children's behavior while their eating and exercise patterns are being formed. The 'Super Stars' staff looks forward to working with you to make nutrition education a real TEAM EFFORT.

Flexibility exercises stretch muscles and help prevent injury. Never bound or overstretch beyond the threshold of pain.

SITTING STRETCHES: Sit on floor, legs outstretched with feet about 6 inches apart. Slowly reach toward your foot and grasp your leg as far down as possible, moving your head as close to your knee as you can. Hold the stretch for 20-30 seconds. Relax and then repeat, alternating between left and right leg.

ES UN HECHO: Debido a que el corazón de los atletas es sumamente muscular, puede bombear la misma cantidad de sangre con 50 palpaciones por minuto a comparación de un corazón normal el cual palpa 75 veces por minuto. Por lo tanto, dicho corazón trabaja menos, descansa más y consecuentemente durará más. (1)

ES UN HECHO: El ejercicio y una buena nutrición nos proporciona una buena salud, mental y física. La buena salud nos ayuda a aliviar los síntomas de depresión tales como la indecisión y la carencia de entusiasmo para las actividades cotidianas. Personas activas y bien nutridas son capaces de concentrarse mejor, desarrollarse mejor en el trabajo o en la escuela y pueden dormir más profundamente por las noches. (5)

Estos son exactamente algunos de los temas que el programa de nutrición 'Super-Estrellas' enfocará a través del año escolar. Maestros, personal del servicio de comidas y enfermeros escolares están dispuestos para ayudar a acondicionar el comportamiento de los niños durante sus comidas y al mismo tiempo el formar buenos hábitos de ejercicio. El personal de 'Super-estrellas' están ansiosos de trabajar con usted para hacer la educación nutritiva un verdadero éxito colectivo.

Ejercicios para la flexibilidad estiran los musculos y ayudan en impedir daño. Nunca salte o estire tras el principio de dolor.

ESTIRONES SENTADOS: Síntense en el piso, las piernas extendidas, los pies como seis pulgadas aparte. Lentamente extienda la mano hasta el pie y apriete la pierna lo más bajo posible, moviendo la cabeza lo más cerca posible a la rodilla. Mantenga el estirón por 20-30 segundos. Relaje y repita, tomando turnos entre la pierna izquierda y la derecha.
STRAWBERRY-YOGURT POPSICLES

Frozen strawberries, thawed, two cartons, 10 oz. each
Unflavored gelatin, one tablespoon
Yogurt, plain, 16 oz.
Paper cups, three oz., 12
Wooden sticks, 12

Drain strawberries. Place drained liquid in a saucepan and sprinkle with gelatin. Cook over low heat stirring constantly, until gelatin dissolves. Mix strawberries, yogurt, and gelatin mixture in a blender until smooth. Place cups on a tray or in a baking pan. Fill with blended mixture and cover cups with a sheet of aluminum foil. Insert a stick for each popsicle by making a slit in the foil over the center of each cup. Freeze popsicles until firm. Run warm water on outside of cup to loosen each popsicle from the cup. Makes 12 popsicles, about 70 calories per popsicle.

References/Referencias:


The next Nutrition "Super Stars" Newsletter will be coming your way in March.

La siguiente carta de las "Super Estrellas" les llegará en Marzo.
EATING-SUPER STARS STYLE

Our eating habits have changed. In the last 10 years there has been an increasing trend away from eating basic foods to eating highly processed, convenience foods. As a result of these and other changes, most Americans eat too much sugar, fat, and salt.

After years of research, the United States Department of Agriculture (USDA) and the Department of Health and Human Services (DHHS) have come up with recommendations to put the nation back on a more healthful eating track. These recommendations are called the USDA-DHHS Dietary Guidelines and include the following recommendations:

- Eat a variety of foods.
- Maintain ideal weight.
- Avoid too much fat, saturated fat and cholesterol.
- Eat foods with adequate starch and fiber such as fruits, vegetables, and whole grains.
- Avoid too much sugar.
- Avoid too much sodium.
- If you drink alcohol, do so in moderation.

SUGAR

Sugar is the nation's most popular food additive with the average American eating more than 100 pounds of sugar a year (2). Much of the sugar we eat is hidden in processed foods. Sugar is not the only word to look for on labels. Watch for such words as sucrose, glucose, dextrose, fructose, corn syrups, corn sweeteners, natural sweeteners, invert sugar and honey. Remember that ingredients are listed on the label in decreasing order of contents. The ingredients used in largest amounts are listed first.
Use caution when choosing all treats made with refined sugar. Sugar is a low nutrient density food -- it contains calories but no other nutrients. When sugars and sweeteners make up a large part of your calories, you may be missing out on your share of other needed nutrients found in foods - vitamins, minerals, and protein.

Sweet foods, especially sticky sweets, are a major cause of dental cavities (3). For cavity development, total amount of sugar eaten is not as important as how many times, how long, and the form of sugary food to which your teeth are exposed, and whether or not you clean your teeth after eating sugary foods.

If it is energy you need, eat a variety of foods evenly spaced throughout the day. Fats and carbohydrates in food provide needed calories to keep you ENERGIZED all day long.

SODIUM

Excess sodium in the diet may contribute to high blood pressure (hypertension) and stroke in some people (3). If you want to limit sodium intake, limit the use of table salt (sodium chloride) and foods which contain a lot of sodium.

To avoid too much sodium:
- Learn to enjoy the unsalted flavors of foods.
- Cook with only small amounts of added salt.
- Add little or no salt to foods at the table.
- Limit your intake of salty foods, such as potato chips, pretzels, salted nuts and popcorn, condiments (soy sauce, steak sauce, garlic salt), cheese, pickled foods and cured meats.
- Read food labels carefully to determine the amounts of sodium in processed foods and snack items. You may be surprised to learn that some processed foods which contain no table salt and don't taste salty have lots of sodium. Look for the word "soda" or "sodium" or the symbol "Na" on labels.

nutrición -- tiene calorías pero ningunos otros nutrientes. Cuando los azúcares y sacarinas forman una gran parte de sus calorías, pierde la oportunidad de recibir nutrientes encontrados en comidas - vitaminas, minerales y proteínas.

Comidas dulces, especialmente chiclosas, son las mayores causas de cavidades dentales (3). Para el desarrollo de las cavidades, la cantidad de comida consumida no es tan importante como cuantas veces, por cuanto tiempo, y la forma de alimentos azucarados a la cual sus dientes están expuestos, y si son o no son lavados después de comer alimentos azucarados.

Si es energía lo que necesitas, come una variedad le comidas eventualmente espaciadas durante el día. Las grasas y los carbohidratos en comida nos proveen las calorías necesitadas para mantenerse con ENERGÍA durante todo el día.

EL SODIO

El exceso de sodio en la dieta es lo que causa alta presión y ataques al corazón que paralizan el cuerpo (3). Si usted quiere limitar el consumo de sodio (3). Si usted quiere limitar el consumo de sodio, limite la sal de mesa (cloruro de sodio) y comidas que tienen mucha sal.

Evitar demasiado sodio:
- Aprende a comer comidas con el sabor natural sin sal.
- Cocine con limitada cantidad de sal.
- No agrega sal a la comida en la mesa.
- Limitese a comer comidas saladas como papitas, "pretzels", nueces y palomitas de maíz saladas, condimentos (salsa para bisteck, sal de ajo), queso, comidas curtidas.
- Lea las etiquetas en las comidas procesadas y se sorprenderá de la cantidad de sodio que contienen. También se dará cuenta que comidas procesadas que no saben saladas tienen un contenido muy alto de sodio. Busque la palabra "soda" y "sodio" o el símbolo "Na" en la etiqueta.
FAT

Fats in the diet come from fats occurring naturally in foods plus fats and oils added in preparing foods.

All fats, no matter what the source -- whether liquid oils, shortening, margarine, the marbling in meats, or the fat in milk and cheese -- have the same calorie value. However, saturated and polyunsaturated fats in diets differ in their effect on blood cholesterol.

High levels of cholesterol -- a fat like substance -- in the blood are linked to formation of fat deposits in the linings of arteries, a condition associated with heart disease. Cholesterol is present in our diet only in foods of animal origin. People who eat a high-fat diet, especially a high saturated-fat diet, often have higher levels of blood cholesterol. Diets with lower levels of fat and more polyunsaturated fat -- most vegetable oils -- are linked to lower levels of blood cholesterol and possibly less risk of heart disease.

Here are some suggestions to trim fat in your diet.

- Choose lean meat, fish, poultry, dry beans and peas as your protein sources.
- Include more of these foods in your meals: fruits, vegetables, breads, cereals, dry beans and peas.
- Limit your intake of butter, cream, hydrogenated margarines, shortenings and coconut oil, and foods made from such products.
- Trim excess fat from meats.
- Broil, bake, or boil rather than fry.
- Read labels carefully to determine both amounts and types of fat contained in foods.

There is controversy about what recommendations are appropriate for healthy Americans. But for the U.S. population as a whole reduction in our current intake of total fat, saturated fat, and cholesterol is sensible.

So the choice is yours. You can make changes in the way you eat -- or not! We think it's worth it.

LAS GRASAS

Las grasas en las comidas vienen de las grasas que ocurren naturalmente en comidas y las grasas y aceites que añadimos en preparar comida.

Todas las grasas no importa de donde provengan -- sean aceites líquidos, manteca, margarina, manteca en la carne, la grasa en la leche y en el queso -- tienen el mismo valor calórico. De todos modos saturadas y poliinsaturadas, grasas en dietas difieren en su efecto en el colesterol en la sangre.

Alto nivel de colesterol -- una sustancia similar a las grasas -- en la sangre están relacionadas con la formación de depósitos de grasas en las arterias, una condición asociada con enfermedades del corazón. Colesterol está presente en comidas de origen animal. Personas que comen comidas muy grasosas especialmente grasas saturadas, seguido tienen un nivel muy alto de colesterol en la sangre. En contraste, dietas que contienen grasas poliinsaturadas -- casi todas aceites vegetales -- tienen un nivel muy bajo de colesterol y menos riesgo de enfermedades del corazón.

Si usted quiere reducir grasas en su dieta aquí están unas sugerencias:

- Escoja carnes sin grasa, pescado, pollo, semillas secas que son altas en proteínas.
- Incluya en su dieta frutas, verduras, pan, cereales, frijoles y chicharos.
- Reduzca en su dieta manteca, crema, margarina hidrogenada, mantecas, aceite de coco y comidas que contengan estas grasas.
- Recorte las grasas en la carne.
- Ase, hornee o hierva en lugar de freír.
- Lea etiquetas para determinar la clase y el to de grasa en la comida.

Hay una diferencia de opiniones en lo que es apropiado para un Americano saludable. Pero para la mayoría de los Estadosunidenses una reducción en las grasas, grasas saturadas y colesterol es lo apropiado.

La decisión es suya. Usted puede hacer cambios en su dieta -- o no. Creemos que vale la pena.
EXERCISE

Strength exercises develop strong, powerful muscles. They can be done using body weight as resistance.

STEP-UPS

Place your left foot on the seat of a chair and raise your body up until your left leg is straight. Do not rest on right leg. Step back down. Do this 10 times.

Begin again with right leg. Exercise each leg 3 times.

RECIPE OF THE MONTH

Quick Snack Mix
4 cups mini shredded wheats
1 cup unsalted peanuts
1 cup raisins
½ cup dried unsweetened coconut

Mix ingredients and serve. Makes 6½ cups.
A delicious, nutritious snack!

LA RECETA DEL MES

Bocado Sencillo
4 tazas de trigo raído "mini"
1 taza de cacahuetes sin sal
1 taza de pasas
1/2 taza de coco seco, no endulzado

Mezcle los ingredientes y sirva. Hace 6 1/2 tazas. Un bocado delicioso y nutritivo.

References/Referencias:

The next Nutrition "Super Stars" Newsletter will be coming your way in April.
PROUD TO BE ME

Remember back when you were twelve years old? There is a good chance you were experiencing the same growing pains your child is having right now.

Does this sound familiar?
Jane is 12 years old and entering the world of adolescence. She wants to be a part of the in-crowd. All of the popular girls are pretty and early bloomers, and Jane wants to be like them. But when she looks in the mirror, she is not happy with what she sees.

Jane decides to diet. After two weeks of living on diet pop and lettuce, she looks in the mirror and Wonder Woman still isn’t staring back. Jane figures she is always going to be "fat" and goes into hiding.

Young people are often dissatisfied with the way they look. One study of U.S. teenagers revealed that 59% of young men wanted to gain weight, although only 25% actually needed to do so. Similarly, 70% of the girls wanted to lose weight, but no more than 15% were obese.(1)

If you have a poor body image, you may see yourself as "fat", when actually you are broadly built, or as "skinny" because you have a lean build.

Why are you short? Tall? Fat? or Skinny? Those things depend on many factors, but a very important one is heredity. Were your parents tall? Chances are you will be too. Were they short? Then it is doubtful you will ever be 6 feet 3 inches. Your basic body type is also determined by heredity.

ORGULLOSO DE SER YO

¿Recuerdas cuando tenías doce años? Es muy probable que hayas experimentado los mismos problemas de crecimiento que tu hijo tiene ahora.

Los jóvenes con frecuencia están insatisfechos de su apariencia. Un estudio de la juventud Americana reveló que el 59% de los muchachos querían ganar peso, a pensar de que sólo el 25% lo necesitaba. Igualmente, el 70% de las muchachas querían perder peso, aunque sólo el 15% estaban obesas.

¿Por qué eres chaparro: ¡alto? ¡gordo? o ¡delgado? Estas cosas dependen de muchos factores, pero el más importante es la herencia. ¿Eran tus padres altos? Hay posibilidades de que tú seas alto también. ¿Eran chaparros? Entonces es poco probable que algún día midas 6 pies 3 pulgadas. Tu tipo básico de cuerpo es también determinado por herencia.
You inherit one or a combination of three basic body types.

**ENDOMORPHS** are short with narrow shoulders, wide hips, short fingers, and a short neck. (2)

**ECTOMORPHS** have long fingers and neck, sharp features and small skeletal muscles and bones, narrow wrists, and very little fat. (2)

**MESOMORPHS** have wide shoulders, narrow hips, large bones, and well-defined muscles. (2)

These builds are extremes and most of us are a combination of types. But those who are mostly endomorph will usually be on the stout side, ectomorphic will have trouble putting on weight, and mesomorphic will look muscular. But, does this mean that if your family tends toward plumpness, you Must resign yourself to spending the rest of your life in a tent dress or with your belt in its last notch? **NO!** When it comes to weight, there are other factors just as important as heredity. Two key factors are diet and exercise.

You can improve your appearance and performance with exercise and a nutritious **ENERGY EFFICIENT** diet. When the number of calories you get in food each day balances the energy you use, your diet is **ENERGY EFFICIENT**. If you eat food which supplies more calories than you need for energy and growth, the extra amount will be stored as fat.

You inherits uno o una combinación de tres tipos básicos.

**ENDOMORFOS** son chuparros con hombros estrechos, cadera ancha, dedos cortos y un cuello corto. (2)

**ECTOMORFOS** tienen dedos y cuello largos, facciones marcadas, músculos y huesos pequeños, muñecas estrechas y muy poca grasa. (2)

**MESOMORFOS** tienen hombros amplios, cadera estrecha, huesos largos y músculos bien definidos.

Estas complecciones son extremas y la mayoría de nosotros somos una combinación de tipos. Sin embargo quienes son principalmente endomórficos serán por lo regular robustos, los ectomórficos tendrán problemas en ganar peso, y los mesomórficos lucirán musculosos. Pero, ¿significa esto que si en tu familia tienden a gordos, tienes que resignarte a pasar el resto de tu vida con vestidos anchos con cintos en el último agujero? **¡NO!** Cuando se trata de peso, hay otros factores tan importantes como la herencia. Dos factores clave son dieta y ejercicio.

Tú puedes mejorar tu apariencia y actividad a base de ejercicio y una dieta nutritiva y **ENERGICO-EFICIENTE**. Cuando las calorías que ingieres de los alimentos balancea la energía que usas, tu dieta es **ENERGICO-EFICIENTE**. Si consumes alimentos que suplen más calorías de las necesarias para energía y crecimiento, las extra calorías se almacenarán como grasa.
How active you are can influence your body shape too. Exercise can actually help reduce those urges to eat. Not only that, physical activity improves the body's overall condition, and builds muscles tone and strength. Increasing the amount of time spent in sports or recreation takes planning, but the results can be seen in just a few weeks. Families can really benefit from the time they spend together swimming, bicycling, or walking. Remember, families who actively play together, stay fit together.

The NUTRITION SUPER STARS program teaches students how an energy efficient diet and exercise will help them and their families become fit.

STEP RIGHT UP AND SHOUT IT LOUD,
MY BODY'S GREAT AND I AM PROUD!
THERE'S NO ONE ELSE I'D RATHER BE,
I TREASURE THE PLEASURE OF BEING ME!

El programa de NUTRICIÓN PARA LAS SUPER ESTRELLAS enseña a los estudiantes como una dieta energico-eficiente y el ejercicio los ayudará a ellos y a sus familias a estar en forma.

LEVÁNTATE Y GRITA,
MI CUERPO ES GRANDIOSO Y ESTOY ORGULLOSO DE EL!
NO HAY ALGUIÉN QUE QUISIERA SER,
ATESORO EL PLACER DE SER ME!

280
SRAIA 25
EXERCISE

Endurance exercises use the large muscles rhythmically. Running, swimming, cycling, roller skating, or cross-country skiing are examples of endurance exercises. Start these activities gradually. Work up to doing these activities at least 30 minutes, 3 to 5 times a week.

RECIPE OF THE MONTH

Banana Bits

Peel 2 bananas. Place whole bananas on aluminum foil or wax paper. Freeze bananas until completely frozen. Makes 2 servings. A great hot weather treat!

Peel 2 bananas and cut into bite-size chunks. Roll each piece in crushed dry-roasted unsalted peanuts. Makes 2 servings.

References/Referencias:


The next Nutrition "Super Stars" Newsletter will be coming your way in May.

La siguiente carta de las "Super Estrellas" les llegará en Mayo.
EATING ON THE RUN

People on the move know the importance of what they eat on their performance. They are sure to eat regularly throughout the day and make snacks count for extra energy and good nutrition. Most foods give you energy. Eating the right combination of foods at the right time will keep your energy level at its peak.

In some cultures, one or two meals a day is the custom; in others, up to six meals is traditional. Whether your meals total 2 or 6, they should add up to a well-balanced assortment of nutrients and calories. The recommendation to eat three meals a day is based on the finding that people who skip breakfast and/or lunch often overeat or make poor food choices when they finally do eat. Meal skippers are more likely to become obese or poorly nourished.(1)

Americans are busy people! Eating on the run is a way of life. Here are some foods you can eat on-the-go for breakfast.

- Fresh fruits such as apples, bananas, oranges, strawberries, or tangerines.
- Celery stuffed with peanut butter, meat or cheese spread.
- Bagel or a hard roll and cream cheese.
- Fruit or vegetable juices.
- Tortillas and beans.
- Yogurt.
- Cheese and crackers.

COMIENDO A LA CARRERA

La gente ocupada conoce la importancia de lo que come para su funcionamiento. Se asegura de comer regularmente durante el día y tomar bocadillos que valgan por extra energía y buena nutrición. La mayoría de los alimentos te proporcionan energía. Comer la combinación apropiada de alimentos a su hora te ayudará a mantener tu nivel energético a su máximo.

En algunas culturas se acostumbran una o dos comidas al día; en otras, hasta seis comidas es lo tradicional. Ya sea que tus comidas totalizan 2 o 6, estas deben sumar un surtido de nutrientes y calorías bien balanceados. La recomendación de comer tres veces al día es basada en el descubrimiento de que la gente que no desayuna y/o no almuerza muchas veces se sobreaílenta o elige mal sus alimentos cuando finalmente come. Estas personas son más propensas a volverse obesas o malnutridas.(1)
There’s no rule which says you must eat something as soon as you get up. If breakfast isn’t your style...how about a mid-morning brunch? You will be more productive if you eat something during the course of your morning.

If your schedule does not permit time for full meals, your body need not be shortchanged of nutrients. It’s WHAT you eat that counts. Keeping an eye on your main goal -- a NUTRITIOUS-BALANCED diet -- is most important.

A nutritious-balanced diet starts with eating a VARIETY of foods which includes FRUIT-VEGETABLES, BREAD-CEREAL, MILK-CHEESE, AND MEAT-FISH-POULTRY-BEANS-NUTS. So it makes sense to eat food from these four groups for meals and snacks.

It takes skill and planning to make the best snack choices. The trick to smart snacking is to have tasty nutritious foods handy. You can’t go wrong stocking up with foods like fresh fruits, juices, vegetables, yogurt, milk, cheese, nuts and whole-grain or enriched crackers. These foods make great snacks and contribute to your nutrient needs for protein, carbohydrate, fat, minerals, vitamins, and water.

Americans eat almost half their meals outside the home. A variety of foods are served in many restaurants, school cafeterias, and airlines. However, some fast food restaurants offer a limited number of foods which are also high in calories, salt, sugar, and fat. This can make selecting a nutritious balanced diet a real problem.

If you eat most of your food at restaurants and want what you eat to be nutritionally-balanced, try some of these suggestions.
To cut down calories and sugar:

- Look for soup and salad restaurants.
- Leave food on the plate! Cut portions in half, eat half, and take the other half home to enjoy for lunch or supper the next day.
- Pick a burger or sandwich without all the high calorie trimmings.
- Avoid soda. It's full of calories, but has no other nutrients. Opt for milk or juice instead.
- Skip rich desserts.

To cut down fat:

- Order lean meat or fish, and ask that it be baked or broiled, not fried.
- Skip the french fries, and order a baked potato - without sour cream.
- Try a salad topped with lemon juice instead of dressing.
- Ask for dishes without gravy or other sauces.

To improve the nutrient quality of your diet:

- Order fruits, juices, vegetables, and salads whenever available or bring your own.
- Request whole-wheat or other whole grain bread.
- Taste your food before adding salt.

Eating on the run doesn't have to be a trade-off between convenience and your health. If you follow these suggestions, you will be helping yourself to better health. (2)(3)

The Nutrition Super Stars program is over for the year. Our staff hopes you have learned how food, nutrition and physical fitness affect your health. Now the challenge is to use your knowledge to become a Nutrition Super Star. You owe it to yourself. We think it's worth it, don't you?

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Para reducir calorías y azúcar:

- Busca restaurantes de sopas y ensaladas.
- ¡Deja comida en tu plato! Divide los porciones a la mitad, come una mitad, y llévate la otra mitad a la casa para gozarla en el almuerzo o en la cena del día siguiente.
- Escoge una hamburguesa o emparedado sin todos los aderezos altos en calorías.
- Evita las sodas. Contienen mucha calorías, pero carecen de otros nutrientes. En su lugar opta por leche o jugos.
- Evita postres muy dulces.

Para reducir las grasas:

- Ordena carne magra o pescado, y pide que sea horneada o cocida, no frita.
- Evita las papas fritas, y ordena una papa horneada - sin crema agria.
- Trata una ensalada coronada con jugo de limón en lugar de aderezo.
- Pide los platillos sin gravy u otras salsas.

Para mejorar la calidad de nutrientes en tu dieta:

- Ordena frutas, jugos, vegetales y ensaladas siempre que sean disponibles o trae la tuya propia.
- Pide pan de trigo entero u otro grano entero.
- Prueba la comida antes de añadir sal.

Comer a la carrera no tiene que ser un trueque entre conveniencia y tu salud. Si sigues éstas sugerencias estás ayudándote tú mismo a mejorar tu salud.

El Programa de Nutrición para las Super Estrellas está terminado por el año. Nuestro grupo espera que hayas aprendido cómo los alimentos, nutrición y condición física afectan tu salud. Ahora el reto es usar tus conocimientos para convertirte en una Super Estrella en Nutrición. Te lo debes a ti mismo. Nosotros creemos que lo vales, ¿tú no?

---

EXERCISE

Cardiovascular fitness is the capacity of the heart, lungs, circulatory and respiratory systems to do work and to quickly

EJERCICIO

Condicón cardiovascular es la capacidad del corazón, pulmones y sistemas circulatorio y respiratorio de trabajar y recobrarse
recover when activity is over. This can be accomplished through regular endurance-type exercises such as swimming, cycling, running or roller skating.

Remember, heading down the road to fitness should be started slowly and then worked up to a higher level. As a guide, if you cannot carry on a normal conversation during endurance activities, you most likely are working harder than you should - SLOW DOWN! Exercising should be fun so find the type of activities that you enjoy and that fit into your lifestyle. The benefits you will derive occur when exercise is done regularly and consistently.

RECIPE OF THE MONTH

Fruit Juice Popsicles
Use your favorite FRUIT JUICE. Fill 6 oz. paper cups with the juice and put in freezer until the juice is partially frozen. Remove and insert a stick in the center of the cup. Return to freezer until the juice is frozen.

Suggestion: Run warm water over paper cup for a few seconds to loosen popsicle.

Calorie Content in 6 oz of juice:
- Pineapple - 95
- Orange - 90
- Apricot Nectar - 105
- Grape - 120

References:
NUTRITION
SuperStars
SPIRIT MASTERS
SCHOOL LUNCH
The contents of this publication were developed under a grant from the U.S. Department of Agriculture. However, these contents do not necessarily represent the policy of that agency, and you should not assume endorsement by the Federal Government.
[20 U.S.C. 1221e-3(a)(1)]

The Arizona Department of Education is an equal opportunity employer and educational agency and affirms that it does not discriminate on the basis of race, color, national origin, age, sex or handicapping condition.
Diet and physical fitness directly affect our health and our ability to learn and achieve our potential. Habits are formed at an early age. It is essential children learn to make food and activity choices that promote optimal health.

Teachers, school food service staff, and school nurses, as well as parents, are in a position to influence children's food and activity choices. The SUPE% STARS Nutrition-Physical Fitness Kit provides a means for these 'team' members and students to:

Learn about the nutritional value of food and the relationship of food, nutrition, and physical fitness to growth, development, and health.

Develop food and activity habits that will help promote good health.

Share their knowledge with family members and the community.

CONTENT
The Nutrition "Super Stars" Kit includes 5 lessons with a teachers guide for 20 class plans plus the 44 spirit masters in this book.

LESSON I Everybody's a "Star" (Body Composition)
LESSON II Creating a "Star" (How Food Becomes You)
LESSON III Shaping a "Star" (How Genetics and Lifestyle Affect Health Status)
LESSON IV Making a "Super Star" (Health - How to Make it Happen)
LESSON V Fueling a "Super Star" (Helping Yourself to Good Health)

TABLE OF CONTENTS

NUTRITION SUPER STARS CURRICULUM CLASS PLANS - SPIRIT MASTERS

CLASS PLAN TOPICS

LESSON I - EVERYBODY IS A STAR
Class I -The Cell - basic unit in body
- parts and functions

Class II -Everybody is a "Star" - body composition
- Energy Nutrients - Fat, Carbohydrate, Protein

Class III -Food - energy measurement
- Structural and Regulation Nutrients - Minerals and Vitamins

Class IV -Food Nutrient Identification

LESSON II - CREATING A STAR
Class V - Digestion

SPIRIT MASTERS
Parent Letter #1
Fuel Burners #2
Cell Power #3
Everybody is a Star #4
Fueling Up #5

What is a Calorie? #6
Nutrient Stars #7

Nutrition Search #8
Vitamin B #9
Vitamin C #10
Calcium #11
Iron #12

The Food Tube Puzzle
Part A #13
Part B #14
EVALUATION

Teaching "teams" have field tested the SUPER STARS curriculum kit with successful results. The change scores on the pretest/posttest for knowledge, attitudes, and behavior practices in nutrition and physical fitness showed that students in classes that used the curriculum kit had significantly different scores (p = .001) that were higher than students in control groups. We hope you and your students will enjoy using this kit and learning how to become Nutrition SUPER STARS!
DIRECTIONS FOR Duplicating

These spirit masters must be used on a spirit or liquid-type process duplicator. Do not use on a gelatin-type duplicator.

Remove the spirit master from the book by carefully tearing along the perforated left edge.

To duplicate, place the spirit master with the ink side up on your machine. Place the top of the page under the clamp of the drum. Run off as many copies as you need for your class.

Many copies may be made from the spirit master if it is properly used. Heavier pressures and more fluid will result in sharper copies, but will decrease the number of copies you can make with each spirit master. Adjust the pressure according to your needs.

Save the spirit master for reuse. Remove it carefully from the machine and store it between the backing sheets in the book. Store the book in a cool, dry place.
Dear Parent:

Our class is participating in a nutrition and physical fitness education program called NUTRITION SUPER STARS. This program is part of our class's science, health, and physical education curriculum. Through activities in the program, your child will learn about food, nutrition, fitness, and how they affect their health.

Activities in the program will be taught by a team of teachers. In addition to myself, the team members will include a food service staff member and our school nurse.

Newsletters will be sent home with your child to help keep you posted on the program. If you have any questions about the project, please contact me.

Sincerely,
Cells make up all living things. They are the basic living unit in our body. Just as the engine makes the car run, our cells are tiny engines that keep our body moving. Cells in different parts of the body look differently and perform different jobs. Some cells form our skin, bones, nerves, teeth, heart, and other organs just like metal, plastic, and rubber form the parts of an engine in a car. All cells have a nucleus and a cell membrane. The nucleus directs the activities of the cell. When a cell divides or uses food, the nucleus controls what happens. The cell membrane lets in nutrients from food and helps keep out harmful substances.
1. Cut an onion in half.
2. Peel off an inside layer. On the outside of this layer you will find a transparent skin as thin as tissue paper. Pull off a small piece of this skin and place it in a drop of water on a glass slide.
3. Place one drop of iodine on the onion skin slice on the slide.
4. Flatten the onion slice with another glass slide.
5. Cover the flattened tissue with a cover glass. Look at the onion cells through the low power lens. The cells will look like bricks in a wall. Each brick is one cell. Draw and label what you see.
6. Now look through the high power lens. You will see that each cell contains a dark spot inside it. This is the nucleus. Draw and label what you see.

1. Gently scrape the inside of your cheek with a toothpick.
2. Scrape some of the white material on the toothpick into a drop of water on a glass slide.
3. Spread the material out in the water, add a drop of iodine, and lay a cover glass over it.
4. Examine the material under the low power lens and the high power lens of the microscope. Draw and label what you see.
Everybody is a "star" because the body is made of six nutrients: Fats, Carbohydrates, Protein, Minerals, Vitamins and Water. Since we are made of the same things, why are we shaped so differently? Your body composition is affected by your body type, sex, age, physical fitness, body weight, the way you eat and how healthy you are.

Your age is a factor that can change your body composition. Before puberty, both boys and girls have about the same amount of body fat. Now that you are becoming young men and women your sex hormones will start changing your body composition.

What you eat and how you exercise can affect your body composition. When you balance your food intake with exercise you can keep your body fat and weight at their best level.

If you want to be a SUPERSTAR eat a nutrient rich, energy efficient diet and keep your body physically fit.
FUELING UP

What does your car need for energy? If you answered "gasoline", you were right. Just as a car must have gasoline for energy, the human body must have food. Your body gets energy from three nutrients in food.

Work the three puzzles below to find the ENERGY NUTRIENTS. The answers will appear in the outlined boxes.

A car gets its energy from gasoline. My body gets its energy from FATS, CARBOHYDRATES and PROTEINS.
What does your car need for energy? If you answered "gasoline", you were right. Just as a car must have gasoline for energy, the human body must have food. Your body gets energy from three nutrients in food.

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A car gets its energy from gasoline. My body gets its energy from ______ , _______ and _______.
Energy comes in many forms. Gasoline provides energy for a car. Gasoline energy is purchased by the liter or gallon. Fat, carbohydrate, and protein in food provide energy for people. Nutrient energy is measured as calories.

### Nutrient Calories

<table>
<thead>
<tr>
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<th>How many Calories are in 1 Corn Tortilla?</th>
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<tr>
<td><strong>FAT</strong></td>
<td>Each gram has nine calories</td>
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<td>1 gram ( \times 9 \text{ calories per gram} = 9 \text{ Calories} )</td>
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<td><strong>CARBOHYDRATE</strong></td>
<td>Each gram has four calories</td>
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<td><strong>PROTEIN</strong></td>
<td>Each gram has four calories</td>
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<td>2 grams ( \times 4 \text{ calories per gram} = 8 \text{ Calories} )</td>
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<td><strong>WATER</strong></td>
<td>Each gram has zero calories</td>
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<td>1 gram ( \times 0 \text{ calories per gram} = 0 \text{ Calories} )</td>
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<td><strong>TOTAL</strong></td>
<td><strong>CALORIES IN ONE CORN TORTILLA</strong> = 73 Calories</td>
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### How to Tell High Calorie from Low Calorie Foods

**HIGH CALORIE FOODS**

- Thick, oily or greasy-crisp
- Slick, smooth or gooey
- Sweet or sticky
- Compact or concentrated
- Alcoholic

**LOW CALORIE FOODS**

- Thin, watery or diluted
- Bulky or have lots of fiber or coarseness
- Watery-crisp instead of greasy-crisp

© 1979 NUTRITION SUPER STARS
**WHAT IS A CALORIE?**

Energy in food is measured in calories.

Energy comes in many forms.

Gasoline provides energy for a car. Gasoline energy is purchased by the liter or gallon.

Fat, carbohydrate & protein in food provide energy for people. Nutrient energy is measured as calories.

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**How many Calories are in 1 Corn Tortilla?**

- **Fat:** Each gram has 9 calories
- **Carbohydrate:** Each gram has 4 calories
- **Protein:** Each gram has 4 calories
- **Water:** Each gram has 0 calories

**Total Calories in One Corn Tortilla:**

1 gram x 9 calories/gram + 14 grams x 4 calories/gram = 64 calories

- **High Calorie Foods:** Thick, oily or greasy-crisp
- **Low Calorie Foods:** Thin, watery or diluted

**How to Tell High Calorie from Low Calorie Foods**

- **High Calorie Foods:** Thick, oily or greasy-crisp
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**How to Tell High Calorie from Low Calorie Foods**

**HIGH CALORIE FOODS**
- Thick, Oily or Greasy-Crisp
- Slick, Smooth or Gooey
- Sweet or Sticky
- Compact or Concentrated
- Alcoholic

**LOW CALORIE FOODS**
- Thin, Watery or Diluted
- Bulky or have lots of Fiber or Coarseness
- Watery-Crisp instead of greasy-crisp
Food contains nutrients. Each nutrient has a star role in meeting your body needs for energy, growth and health.

**ENERGY NUTRIENTS**

Two nutrients, fat and carbohydrate, are high-powered fuels that give you ENERGY. Another nutrient, protein, can give your body energy if there is not enough fat or carbohydrate in your diet to supply your energy needs.

### Fats

Fats supply a large amount of energy in a small amount of food. Your body fat cushions your organs against injury. Fats also carry vitamins A, D, E, and K in the blood to your cells. Foods high in fat are butter, margarine, shortening, salad oils, cream, most cheeses, mayonnaise, salad dressing, nuts and bacon.

### Carbohydrates

Carbohydrates are the major source of energy in our diet. Carbohydrates are starches and sugars found in cereal grains, fruits, vegetables and sweet foods. Candy, jelly and jam all contain sugar. Starch is a long chain of sugars which the body breaks down to simple sugar. Foods with starch come from plants. Starchy foods are potatoes, dried beans, corn and foods made from grain, like cereal and bread.

### Protein

Nearly everything in your body is made of protein. This includes your hair, bones, muscles, teeth and even your brain. The protein you eat gets broken down and built back up into all of these parts of your body. You need protein to build cells and repair them. What foods have protein? Most people think first of meat, fish and chicken. But milk, nuts, cheese, peanut butter, eggs, beans and grains also have protein.

**ENERGY REGULATORS**

**Vitamins & Minerals**

Vitamins and minerals are necessary fuel extras. They must be supplied to our body from the food we eat. Vitamins and minerals do not supply energy, but do help your body use the nutrients in food. The "vita" in vitamins means "life" because vitamins are essential to health, growth and life itself. Many different minerals are needed for growth and development of tissues like bone and blood.
### NUTRITION SEARCH

#### FOODS TO TEST

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#### FAT FINDER

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<td>1.</td>
<td>Cut up paper squares</td>
<td>3.</td>
<td>If fat is present, the light will show through</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Rub food on paper. Let it dry</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PROTEIN HUNT

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lay down a piece of aluminum foil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Holding food with a toothpick, burn with lighter or oil lamp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>If protein is present, you will smell a strong unpleasant odor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SUGAR SEARCH

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Moisten food with water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Lay strip of test tape on food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Compare color of test tape to color chart</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### STARCH SEARCH

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Put a drop of iodine on food</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>If starch is present, the iodine will turn blue - black</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As you perform each test, put a check next to the foods that contain the nutrient tested for.
# NUTRITION SEARCH

## FOODS TO TEST

1. Egg White
2. Onion slice
3. Bread or Taco Shell
4. Candy
5. Hot dog or bologna
6. Cheese
7. Hair or Feather
8. Potato
9. Orange slice
10. Tomato

## FAT FINDER

1. Cut up paper squares.
2. Rub food on paper. Let it dry.
3. If fat is present, the light will show through.

## PROTEIN HUNT

1. Lay down a piece of aluminum foil.
2. Holding food with a toothpick, burn with lighter or oil lamp.
3. If protein is present, you will smell a strong unpleasant odor.

## SUGAR SEARCH

1. Moisten food with water.
2. Lay strip of test tape on food.
3. Compare color of test tape to color chart.

## STARCH SEARCH

1. Put a drop of iodine on food.
2. If starch is present, the iodine will turn blue-black.

As you perform each test, put a check next to the foods that contain the nutrient tested for.

<table>
<thead>
<tr>
<th></th>
<th>FAT</th>
<th>PROTEIN</th>
<th>SUGAR</th>
<th>STARCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Egg White</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Onion Slice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Bread or Taco</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Candy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Hot Dog</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Cheese</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Hair or Feather</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Potato</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Orange</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Tomato</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Each of these scrambled words is the name of a food that is a good source of Vitamin B. Unscramble them to find the foods.

(Hint: The first letter of each word is capitalized.)

ANSWERS: Livestock, Milk, Whole Grains, Enriched Breads, Enriched Cereals, Pork, Beans, Peas, Liver, Kidney, Organ Meats
Each of these scrambled words is the name of a food that is a good source of Vitamin B. Unscramble them to find the foods.

(Hint: The first letter of each word is capitalized.)

VITAMIN B
HELPS NERVES WORK
HELPS RELEASE ENERGY FROM FOOD

| atsMe       | M____ |
| kilM        | M____ |
| leoWh Grinas| W____ G____ |
| richEned dreaBs | E____ B____ |
| ridichnEe alsreCe | E____ C____ |
| kroP        | P____ |
| sneaB       | B____ |
| saPe        | P____ |
| Livre       | L____ |
| neyKid      | K____ |
| ganOr Mesat | O____ M____ |
Fill in the puzzle below to find the names of fruits and vegetables that are high in vitamin C. (If you need help, look in 'Food-A Key to Better Health' or 'Food is More than Just Something to Eat').

VITAMIN C:

- Forms Collagen (a cement-like substance that holds body cells together)
- Helps make strong blood vessels and gums
- Helps make strong bones and teeth
- Helps wounds heal

Fruits and Vegetables High in Vitamin C:

- Cantaloupe
- Tomato
- Watermelon
- Peppers
- Cabbage
- Tangerines
- Kale
- Squash
- Potato
- Apricot
Fill in the puzzle below to find the names of fruits and vegetables that are high in vitamin C. (If you need help, look in 'Food-A Key to Better Health' or 'Food Is More than Just Something to Eat').

```
s                  l
  c a n t a t e
  r a t t m o
t
  w a t e r o n r
  p e p p e r s c b a g e
  t a n g e s
  q o n
  i n i
  t i t o
  p i t t i
  a c o t
```
There are about 11 food words hidden in the scramble. All of the foods are good sources of calcium. Find the words and circle them. Some are straight across and some are straight down. Circles may overlap.
There are about 11 food words hidden in the scramble. All of the foods are good sources of calcium. Find the words and circle them. Some are straight across and some are straight down. Circles may overlap.

SCRAMBLE FOR CALCIUM

ICECREAM
UEGGNOGU
YOGURTBS
MIOKSRUT
TSXABCTA
DIFLWUTR
SCHEESED
HEBZCTRGR
AMEJFAMR
KIARARIE
ELNEPDLE
UKSMLKN
Iron helps carry oxygen to all the different cells of the body.

Can you find the way oxygen must travel to reach the cell?
Following the foods that are a good source of iron should help oxygen get there quicker.

Can you identify some of the food sources of iron?

- Dried apricots
- Enriched bran flakes
- Liver
- Lean roast beef
- Whole wheat bread
- Cheese
- Nuts
- Tuna
- Green peas
- Carrots
- Mona
- Eggs
- Milk
- Oranges
- Apples
- Bananas
Iron helps carry oxygen to all the different cells of the body.

Can you find the way oxygen must travel to reach the cell?
Following the foods that are a good source of iron should help oxygen get there quicker.

Can you identify some of the food sources of iron?

- Dried apricots
- Lima beans
- Liver
- Bean burrito
- Tuna
- Lean roast beef
- Whole wheat bread
- Yogurt
- Cheese
- Milk
- Apple
- Orange
- Carrots
- Raisins
- Nutrition Super Stars
DIRECTIONS
Cut out the parts of the digestive tract from part B. Place the parts in the proper place inside the body outline. Label the parts using the names provided from part B.
THE FOOD TUBE PUZZLE

small intestine
mouth
esophagus

stomach
large intestine
salivary gland
Digestion takes place in a tube called the digestive tract. It consists of:

(1) mouth and throat
(2) esophagus
(3) stomach
(4) small intestine
(5) large intestine

Look at the diagram and number the parts of the digestive tract. Notice the location of the stomach. It lies mostly above the waist. Many pains called stomach aches are farther down the digestive tract, in the intestines. Your digestive tract is about five times as long as your body!

Think for a minute. How tall are you? _____ feet _____ inches or _____ cm. How long is your digestive tract? _____ feet _____ inches _____ cm. Look at the diagram again. Which part of the digestive tract is the longest? ___ small intestine (4) __

The process of metabolism is made up of digestion, absorption, transportation, and excretion.

Digestion involves a series of steps. These steps are:

**Chewing** is the physical break down of food in the mouth.

When we chew, we mix our food with _saliva_ from the _salivary glands_.

Try this experiment: Touch the tip of your tongue to the roof of your mouth. Leave it there for about one minute. Do you feel the saliva gathering in your mouth?

Swallowing moves food from the mouth and esophagus to the _stomach_.

Foods are prepared for absorption in the _stomach_ and _small intestine_.

Absorption is the process by which some of the liquified food is taken into the _blood_ and _lymph_ through the wall of the small intestine.

Excretion is the process which eliminates the waste products of digestion from the large intestines.

Adapted from Take Joy; American Cancer Society, 1973.
Digestion takes place in a tube called the digestive tract. It consists of:

1. mouth and throat
2. esophagus
3. stomach
4. small intestine
5. large intestine

Look at the diagram and number the parts of the digestive tract. Notice the location of the stomach. It lies mostly above the waist. Many pains called stomach aches are farther down the digestive tract, in the intestines. Your digestive tract is about five times as long as your body!

Think for a minute. How tall are you? _____ feet _____ inches or _____ cm. How long is your digestive tract? _____ feet _____ inches _____ cm. Look at the diagram again. Which part of the digestive tract is the longest?

The process of metabolism is made up of digestion, absorption, transportation, and excretion.

Digestion involves a series of steps. These steps are:

__________ is the physical break down of food in the mouth.

When we chew, we mix our food with ________________ from the ________________.

Try this experiment: Touch the tip of your tongue to the roof of your mouth. Leave it there for about one minute. Do you feel the saliva gathering in your mouth?

Swallowing moves food from the mouth and esophagus to the ________________.

Foods are prepared for absorption in the ________________ and ________________.

Absorption is the process by which some of the liquified food is taken into the ________________ and ________________ through the wall of the small intestine.

Excretion is the process which eliminates the waste products of digestion from the large intestines.

Adapted from Take Joy; American Cancer Society, 1973.
You get your basic body type from your parents. How you eat and exercise will make a difference in what shape your body is in.

**Perhaps you're an Endomorph...**

The endomorph has a short, broad skeleton. The endomorph may have a large amount of fat, especially in the abdominal area. If you are an endomorph, you may have trouble staying slim.

**Maybe you're a Mesomorph...**

The mesomorph is usually of moderate height. Mesomorphs have an athletic build with a well-developed chest and small hips and waist.

**...Or are you an Ectomorph?**

The ectomorph has a long and slender skeleton. Ectomorphs are usually lean and have a small chest. If you are an ectomorph, it is unlikely that you will ever be overweight.

I am basically a ________ type. Who else in my family is built like me? ________

Most of us are not just endomorphs or mesomorphs or ectomorphs, but some combination of these three types. Knowing your general body type should help you set realistic goals for the figure or shape that's possible for you.
This year you will learn more about your body and how to keep it healthy and fit. RECORD your measurements and scores as you complete each test.

**What body type are you? Check 1 box.**

Are you a combination of two types? Check two boxes.

(Class 6)

**BODY MEASUREMENTS (Class 6)**

<table>
<thead>
<tr>
<th></th>
<th>TEST 1</th>
<th>TEST 2</th>
<th>TEST 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SKINFOLD TEST (Class 6)**

<table>
<thead>
<tr>
<th></th>
<th>TEST 1</th>
<th>TEST 2</th>
<th>TEST 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triceps</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subscapular</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent Body Fat</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PULSE RATE (Class 12)**

<table>
<thead>
<tr>
<th></th>
<th>TEST 1</th>
<th>TEST 2</th>
<th>TEST 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resting Pulse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulse after Exercise</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PHYSICAL FITNESS TEST (Class 12)**

<table>
<thead>
<tr>
<th></th>
<th>TEST 1</th>
<th>TEST 2</th>
<th>TEST 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility</td>
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<td></td>
<td></td>
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<tr>
<td>Endurance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
KNOW YOUR BODY

HEIGHT & WEIGHT

The shaded areas show the range of actual heights and weights for most adolescents in the United States.

1. Find your age along the bottom of the chart. Draw a vertical line up from your age to the top of the chart. What is the range of heights for most persons your age?

2. Find your height on the top of the chart and draw a horizontal line. Mark an X where your height line crosses your age line. Are you tall, average or short compared with others your own age?

3. Find your weight on the bottom of the chart and draw a horizontal line. The weight range for most tall adolescents is shown by the shaded area; for most average adolescents by the shaded area; for most short adolescents by the shaded area.

What is the range of weights for most persons your own age? Does your weight fall in this range? If not, what are some reasons why?

If you are concerned about your weight, a health professional can help you decide if you need to gain or lose weight.

MY HEIGHT IS: TALL AVERAGE SHORT

MOST ADOLESCENTS MY AGE AND HEIGHT WEIGH _____ TO _____ POUNDS.

TRICEPS SKINFOLD

How does your tricep skinfold measure up? Use this chart to find out. My tricep measurement was _____ mm.

1. Find your AGE in the left column.

2. Look directly opposite your age in the column under your sex. What number is in the column? _____ mm.

If your skinfold measurement is less than the number on the chart for your age and sex, the amount of fat in your body is NORMAL.

If your skinfold measurement is greater than that number, you have an abnormally large amount of fat in your body. How can you make it smaller?

Answer: Increase your physical activity and watch your diet.
Every culture has its own unique food traditions, or FOODWAYS. Which foods are available, how they are prepared, and how they are served are all part of a culture's FOODWAYS.

For example: One basic food can be prepared and served in different ways:

<table>
<thead>
<tr>
<th>CULTURE</th>
<th>NAME OF DISH</th>
<th>HOW PREPARED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>Kasha</td>
<td>Wheat is coarsely ground &amp; boiled with cabbage</td>
</tr>
<tr>
<td>Italy</td>
<td>Pasta</td>
<td>Wheat is ground into flour, made into noodles</td>
</tr>
<tr>
<td>Mexico</td>
<td>Tortilla</td>
<td>Wheat is ground into flour &amp; made into flat breads</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>Bread</td>
<td>Wheat is ground into flour &amp; made into leavened bread</td>
</tr>
</tbody>
</table>

People around the world eat many different foods. Few Americans eat horsemeat, dogmeat or insects, yet these foods are nutritious and are eaten in other countries.

WHY DO WE EAT FOOD?

The main reason for eating is survival. Without food we cannot live. In the United States, few of us know real hunger. In the rest of the world some 12,000 people die each day from lack of food.

HOW ARE YOUR FOODWAYS FORMED?

FOOD AVAILABILITY

In the past, local crops determined a culture's foodways. This is still true in some cultures. In the U.S.A. we enjoy a variety of food as never before, due to new food technologies in the areas of farming, shipping, refrigerating and processing of food.

FOOD TRADITIONS

Your family and your culture determine which foods are acceptable to eat. These might be called 'traditional foods'.

LIFESTYLE

In our country both our mothers and fathers often work away from home. This means that there is less time for preparing foods. It can also mean that you have more money to buy processed foods that are quick and easy to use.

A lot of energy is needed to produce processed foods. Highly processed food is energy-expensive. Unprocessed food is usually energy-cheap.

FOOD ADVERTISING

Our foodways are influenced by advertising. Advertising calls our attention to a product so that we may be more likely to buy it.

HABITS

What, when, where and how you eat form your food habits. Your food habits are learned. There are many reasons why we learn to eat the way we do. Some reasons are listed below. Can you think of other reasons?

Check the box in front of your reasons for choosing the food you eat. Your food habits make you unique. Did your friends check the same reasons?

SOME REASONS FOR FOOD CHOICES

- I need food to live
- Food grows in my garden
- My family always eats this food
- It is easy to prepare
- I liked the T.V. commercial
Foods that take little energy to produce are low on the Food Chain.
Foods that take a lot of energy to make are high on the Food Chain.

Because plants do not need much energy to grow, they are low on the Food Chain. Plants use energy from the sun combined with carbon dioxide from the air and water, and nitrogen from the earth. Plant life provides food for insects, birds, larger animals and man.

Higher up the Food Chain you will find animals of all sizes and shapes. Many animals eat plants for their food. They are called herbivores. Some animals prefer to eat other animals. They are called carnivores.

Man is by far the largest consumer of energy and is at the top of the Food Chain. Humans depend on plant and animal life for energy. Plant life gives us grain for breads and cereals and also provides the fruit and vegetables we need to be healthy. From animals we get meat and dairy products for our diet.

Plant and animal wastes decay, their nutrients are recycled back into the earth. The Food Chain can then continue on its never-ending cycle.
DIRECTIONS: List as many nutrients as you can that are found in the following foods. Some of the foods have a clue already listed.

<table>
<thead>
<tr>
<th>MILK</th>
<th>CARROT</th>
<th>EGGS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Vitamins</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PINTO BEANS (MEXICAN)</th>
<th>CHICKEN</th>
<th>FISH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1. Protein</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>APPLE</th>
<th>CORN</th>
<th>ORANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now put each food that is part of the FOOD CHAIN in its approximate place.
LINK THE FOODS
(ON THE FOOD CHAIN)

DIRECTIONS: List as many nutrients as you can that are found in the following foods. Some of the foods have a clue already listed.

<table>
<thead>
<tr>
<th>MILK</th>
<th>CARROT</th>
<th>EGGS</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Milk" /></td>
<td><img src="image" alt="Carrot" /></td>
<td><img src="image" alt="Eggs" /></td>
</tr>
<tr>
<td>1. Vitamins</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<tr>
<th>PINTO BEANS (MEXICAN)</th>
<th>CHICKEN</th>
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<tr>
<td><img src="image" alt="Pinto Beans" /></td>
<td><img src="image" alt="Chicken" /></td>
<td><img src="image" alt="Fish" /></td>
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<tr>
<td></td>
<td>1. Protein</td>
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<th>ORANGE</th>
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<tr>
<td><img src="image" alt="Apple" /></td>
<td><img src="image" alt="Corn" /></td>
<td><img src="image" alt="Orange" /></td>
</tr>
<tr>
<td>1. Water</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Now put each food that is part of the FOOD CHAIN in its approximate place.

**HIGH**

**MEDIUM**

**LOW**

---

* 1979 NUTRITION SUPER STARS
In recent years, food technology has changed our country's foodways. America's food is grown, processed and packaged in an energy-expensive way that can be harmful for our environment. Many Americans are trying to help clean up the environment by recycling cans and bottles, using less highly-processed food, and less energy-expensive food.

American agriculture is very productive and gives us a wide variety of food to enjoy. But pesticides, fertilizers and large amounts of water used to grow our food create environmental problems. On the other hand, crops would be less abundant without them.

How do you think the use of pesticides, fertilizers and large amounts of water to grow crops affects our environment?

Do you think highly-processed and energy-expensive foods can upset the environmental balance?

Why does recycling cans, bottles and paper help our environment?

Many people in the world don't have enough to eat, and the world's population is increasing. We will need new ideas to produce food in the future. We will also have to find solutions to our energy and environmental problems, so we all can live in a cleaner, healthier world.
FOOD LABELS

To help in choosing nutritious, economical and wholesome foods, use the information provided on FOOD LABELS.

The ingredients on a food label are listed in order by weight. The first ingredient is the major ingredient.

Examine this label from a can of tomato soup and answer the questions that follow:

TOMATO SOUP

INGREDIENTS: Tomatoes, water, tomato paste, wheat flour, sugar, salt, partially hydrogenated vegetable oils, natural flavoring, ascorbic acid and citric acid.

SERVING SIZE: 5 oz. condensed (10 oz. prepared)
SERVINGS PER CONTAINER: 2
NT. WT. 12 oz. (360 grams)

<table>
<thead>
<tr>
<th></th>
<th>Condensed</th>
<th>With Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories.........</td>
<td>110</td>
<td>210</td>
</tr>
<tr>
<td>Protein (grams)</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Carbohydrate (grams)</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>Fat (grams)</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

PRICE: 24¢

1. In this tomato soup what is the major ingredient? Tomatoes
2. This soup offers 50% of the Recommended Daily Allowance for which nutrient? Vitamin C
3. Is this soup a good source of iron? yes ☑ no ☐ why?
4. What are Thiamin, Riboflavin and Niacin? B vitamins
5. How many servings are in 1 can? 2 How many calories are in 1 serving? 110/210
6. What is the cost per serving? 12¢

BRAND COMPARISON

Compare the price of a highly advertised food with an un-advertised store brand of the same size (or weight).

<table>
<thead>
<tr>
<th>ADVERTISED PRODUCT</th>
<th>UN-ADVERTISED STORE BRAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Size</td>
</tr>
<tr>
<td>Cost</td>
<td>Cost</td>
</tr>
<tr>
<td>Cost per serving</td>
<td>Cost per serving</td>
</tr>
</tbody>
</table>

If there is a cost difference between the two brands, What do you think the reason is?
FOOD LABELS

To help in choosing nutritious, economical and wholesome foods, use the information provided on FOOD LABELS.

The ingredients on a food label are listed in order by weight. The first ingredient is the major ingredient.

Examine this label from a can of tomato soup and answer the questions that follow:

**TOMATO SOUP**

**INGREDIENTS:** Tomatoes, water, tomato paste, wheat flour, sugar, salt, partially hydrogenated vegetable oils, natural flavoring, ascorbic acid and citric acid.

**SERVING SIZE:** 5 oz. condensed (10 oz. prepared)

**SERVINGS PER CONTAINER:** 2

**NT. WT.:** 12 oz. (360 grams)

| Preparations with Condensed Milk | Condensed R.D.A.
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
<td>110</td>
</tr>
<tr>
<td>Protein (grams)</td>
<td>2</td>
</tr>
<tr>
<td>Carbohydrate (grams)</td>
<td>20</td>
</tr>
<tr>
<td>Fat (grams)</td>
<td>2</td>
</tr>
</tbody>
</table>

**Prepared with Milk**

| Preparations with Condensed Milk | Condensed R.D.A.
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories</td>
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</tr>
<tr>
<td>Protein (grams)</td>
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</tr>
<tr>
<td>Carbohydrate (grams)</td>
<td>27</td>
</tr>
<tr>
<td>Fat (grams)</td>
<td>7</td>
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</tbody>
</table>

**PERCENT OF U.S. R.D.A.:**

<table>
<thead>
<tr>
<th></th>
<th>Condensed</th>
<th>With Milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Thiamin</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>-</td>
<td>10</td>
</tr>
<tr>
<td>Niacin</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Calcium</td>
<td>-</td>
<td>15</td>
</tr>
<tr>
<td>Iron</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

**PRICE:** 24¢

1. In this tomato soup what is the major ingredient? ________________________________

2. This soup offers 50% of the Recommended Daily Allowance for which nutrient? ________________________________

3. Is this soup a good source of iron? yes no why? ________________________________

4. What are Thiamin, Riboflavin and Niacin? ________________________________

5. How many servings are in 1 can? ____ How many calories are in 1 serving? ____

6. What is the cost per serving? ________________________________

**BRAND COMPARISON**

Compare the price of a highly advertised food with an un-advertised store brand of the same size (or weight).

<table>
<thead>
<tr>
<th>ADVERTISED PRODUCT</th>
<th>UN-ADVERTISED STORE BRAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Size</td>
</tr>
<tr>
<td>Cost</td>
<td>Cost</td>
</tr>
<tr>
<td>Cost per serving</td>
<td>Cost per serving</td>
</tr>
</tbody>
</table>

If there is a cost difference between the two brands, What do you think the reason is? ________________
The purpose of food advertising is to persuade people to buy something. Companies spend enormous amounts of money just to advertise their products. In one year, Coca-Cola spent 91 million dollars ($91,000,000.00) on advertising alone!

It has been found that the poorer a food is nutritionally, the more it is advertised. This is because there is no one major company that profits from the sales of basic, nutritious foods like fruits and vegetables. Individual farmers cannot afford the high cost of television commercials and magazine advertisements.

There are many different ways commercials try to persuade us:

TESTIMONIAL: A well-known person or character tells us to buy the product.
example: Tony the Tiger for Sugar Frosted Flakes

ONE-SIDED STORY: Distorts facts to favor the product.
example: Tang has as much vitamin C as an orange.
fact: Tang also has sugar, artificial color and none of the minerals found in an orange.

CATCHY PHRASE: Broad, nonspecific sentences that sound good.
example: America is Turning 7-UP!

ADVERTISING DETECTIVE
Investigate two television or magazine advertisements. Write down a description of the ad, and some of the important phrases used. Decide whether your ads used any of the methods described above or whether they stuck to basic nutritional facts.

<table>
<thead>
<tr>
<th>ADVERTISEMENT #1 (PRODUCT):</th>
<th>Advertising Method Used:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ONE-SIDED STORY</td>
</tr>
<tr>
<td></td>
<td>TESTIMONIAL</td>
</tr>
<tr>
<td></td>
<td>CATCHY PHRASE</td>
</tr>
<tr>
<td></td>
<td>NUTRITIONAL FACT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADVERTISEMENT #2 (PRODUCT):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ONE-SIDED STORY</td>
</tr>
<tr>
<td></td>
<td>TESTIMONIAL</td>
</tr>
<tr>
<td></td>
<td>CATCHY PHRASE</td>
</tr>
<tr>
<td></td>
<td>NUTRITIONAL FACT</td>
</tr>
</tbody>
</table>

CREATE YOUR OWN AD
Divide into small groups. Choose a vegetable or fruit snack. Make up an advertisement using sound, nutritional facts. You can invent songs, funny characters or cartoons for your advertisement. Act out your ad for the rest of the class.
Your body is made of millions and millions of tiny-cells. There are many different kinds of cells. Each cell has a special job. All cells need food and oxygen to do their work. The food you eat feeds your cells. Oxygen for your cells comes from the air you breathe.

How do food and oxygen get into the cells?

Your blood and lymph brings digested food to your cells. Your blood also carries oxygen to your cells.

Muscles are made of cells. Your heart is a muscle that works all the time. You can find out how big it is by putting your two fists together. Your heart lies in the middle of your chest, a little to the left.

Your heart keeps blood flowing. Your heart is really a pump. It pumps the blood through the blood vessels. Each time your heart pumps, it makes a sound. This sound is called your heartbeat.

Can you feel your heart beating now? Probably you can't if you are sitting still. If you run or jump up and down, you will soon notice how hard and fast your heart can beat.
HOW FAST DOES THE HEART BEAT TO PUMP BLOOD?

Your heart beats about 90 to 120 times a minute. In grown people, it beats about 70 to 90 times a minute. usually, small hearts beat faster than larger ones. An elephant's heart beats only 25 times a minute, but a mouse's heart beats 700 times a minute.

YOU CAN COUNT YOUR HEARTBEATS

1. Place the first two fingers of your right hand on the inner side of your left wrist or on your neck, a little below your earlobe. You can feel the artery in your wrist or neck give a jump every time your heart beats. The pressure you feel is your pulse.

TAKING YOUR PULSE

2. Count number of beats for 30 seconds.
3. Multiply this number by 2 to get your pulse rate for one minute.
4. Record your pulse in the blank.

MY PULSE RATE ______

EXERCISE AND YOUR PULSE

Exercise requires energy. When you exercise your heart must work harder to supply the needed fuel to your body cells. When your heart works harder it beats faster and your pulse rate increases. After exercising, measure your pulse rate again.

MY PULSE RATE AFTER EXERCISE ______

FITNESS AND PULSE RATE

If you are physically fit, you may have a slower heartbeat than an unfit person. A strong heart is able to pump out more blood each time it beats. So, a strong heart does not need to pump as many times as a weak heart!

Now you have learned some important things about your heart and your bloodstream. It took scientists many years to find out what you know. They are still studying the heart and making new discoveries about it all the time.
**FITNESS IS????????????**

What do you think fitness is? (Write your answer here):

How does what you wrote compare with this definition?

*Fitness is the body's ability to function at its best at all times. Your fitness is the result of your diet, physical activity, rest and relaxation.*

**PHYSICAL FITNESS IS MEASURED BY TESTS OF:**

<table>
<thead>
<tr>
<th>MUSCLE STRENGTH AND ENDURANCE</th>
<th>FLEXIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Muscular strength</strong>: The ability of muscles to exert a force against a resistance or an object</td>
<td><strong>Flexibility</strong>: The ability to stretch.</td>
</tr>
<tr>
<td><strong>Muscular Endurance</strong>: The ability of muscles to sustain a strenuous activity for a period of time</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARDIO-VASCULAR ENDURANCE</th>
<th>BODY COMPOSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardio-vascular Endurance</strong>: The ability of the body (heart, lungs, circulatory system) to maintain strenuous activity and to recover quickly when activity is over</td>
<td><strong>Body Composition</strong>: The amount of Fat in comparison to the amount of muscle in the body.</td>
</tr>
</tbody>
</table>

**BENEFITS OF FITNESS**

<table>
<thead>
<tr>
<th><strong>IN SHAPE</strong></th>
<th><strong>OUT OF SHAPE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>YOU LOOK:</td>
<td>Pale &amp; Unhealthy</td>
</tr>
<tr>
<td>YOU FEEL:</td>
<td>Tired &amp; Anxious</td>
</tr>
<tr>
<td>YOU HAVE:</td>
<td>More Illnesses</td>
</tr>
<tr>
<td>YOU SLEEP:</td>
<td>Worse</td>
</tr>
<tr>
<td>YOU ARE:</td>
<td>Probably overweight, Less Active</td>
</tr>
<tr>
<td>YOUR BODY HAS:</td>
<td>More Heart Attacks</td>
</tr>
<tr>
<td>YOU CAN:</td>
<td>Lose Concentration</td>
</tr>
<tr>
<td></td>
<td>Slim &amp; More Active</td>
</tr>
<tr>
<td></td>
<td>Fewer Heart Attacks</td>
</tr>
<tr>
<td></td>
<td>Concentrate Better</td>
</tr>
<tr>
<td>NAME:</td>
<td>AGE:</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
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</tbody>
</table>
YOUR FITNESS

What test(s) did you do to measure cardiovascular endurance?

What tests did you do to measure muscle strength?

What tests did you do to measure muscular endurance?

What tests did you do to measure flexibility?

What tests did you do to measure body composition?

How fit are you? Circle the number.

1 2 3 4 5 6 7 8 9 10

Not fit Very fit

What can you do to increase your fitness?

WHAT WILL EXERCISE DO FOR YOU?

Regular exercise produces changes in your heart, your muscles and your appetite.

Regular physical activity:

1. Makes your heart stronger and able to pump blood more efficiently. Your body can do MORE with LESS work.

2. Makes your lungs stronger so you can breathe more easily.

3. Improves your muscle tone.

4. Can help you control your weight by burning energy. Moderate exercise often improves the body's appetite control center: Your appetite may actually decrease rather than increase.

If you exercised regularly, would you expect changes in how you feel? _____ yes _____ no. WHY?
## Exercise for Fitness

### Flexibility

Improve flexibility by doing stretching exercises.

**Toe-touching to stretch the hamstrings:** With your heels together and knees straight, try to touch the ground or floor with your fingers. Do not bounce. Hold the position to the count of ten. Release, then repeat at least five times.

### Strength

Improve your strength by exerting force against an object. In the Body Lift you are exerting force against the chair.

**The Body Lift:** Sitting in a strong, firm chair, place hands on seat (or chair arms), lift your body up a few inches and hold as long as possible. This exercise firms up the arms and stomach.

### Relaxation

Exercise to Relax......

**Deep Breathing:** Inhale slowly to the count of five, hold to the count of four, exhale to the count of five. Repeat this exercise four times.

### Endurance

Exercise to increase cardiovascular endurance....

**Walking, Running, Bicycling:** all are activities that can improve the strength of your heart and blood vessels.

Do one of these activities for thirty minutes three times a week.

Name some activity that you are doing now to improve your cardiovascular fitness.
EXERCISE AND FOOD ENERGY

In addition to the calories you need just to keep your body working, you need energy for all physical activities. You get your ENERGY or CALORIES from the foods you eat. Look at this chart to see how the energy in the snacks you eat compares to the energy you burn up when you are active. Use your booklet "Nutritive Value of Foods" to fill in the missing calories for the foods below.

30 MINUTES OF ACTIVITY

SLEEPING 30 Calories or 1 carrot

WATCHING T.V. 45 Calories or 1 cup of tomato juice

CLASSROOM WORK 65 Calories or 1 orange

WASHING & DRESSING 100 Calories or 1 medium apple

BICYCLING 150 Calories or 13 Potato chips

WALKING 160 Calories or 1 cup of lowfat (1%) Chocolate Milk

TOUCH FOOTBALL 250 Calories or 6 cheese-peanut butter crackers

RUNNING 585 Calories or 3 giant chocolate-chip cookies
EXERCISE AND FOOD ENERGY

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WALKING ________ Calories or 1 cup of lowfat (1%) Chocolate Milk

TOUCH FOOTBALL 250 Calories or 6 cheese-peanut butter crackers

RUNNING 585 Calories or 3 giant chocolate-chip cookies

CALORIES
DETERGENT FOODS...CARIOGENIC FOODS-IT'S YOUR CHOICE!

Sweet, sticky foods are a major cause of dental cavities. Between-meal sweets (even cough drops) can do more harm than the same sweets eaten with meals. When sweets are eaten with meals, the other food helps 'wash away' the sugar from your teeth. For cavity prevention, the total amount of sugar you eat is not as important as 1. how many times a day you eat sugary food, 2. how long you eat it, 3. whether the sugary food is liquid or solid, and 4. whether or not you clean your teeth after eating sugary food.

THE ROUTE TO DECAY

Cariogenic Food

Bacteria

30 Seconds

Acid

Healthy Tooth

30 Minutes

TOOTH DECAY

DETERGENT FOODS

Foods that are crisp, crunchy -- self-cleaners

carrots
apples
celery
tomatoes
and any food that leaves your mouth slick and shiny is good for your teeth.

CARIODGENIC FOODS

Foods that are sticky gooey sweets. Acid foods with sugar -- Enamel assassins

candy
soda pop
fruit juice
pastry
dried fruit
gum
and any food that leaves your mouth sticky and mossy is bad for your teeth.

FOR GOOD DENTAL HEALTH

1. Eat less sugary, sweet or sticky food.

2. Brush or floss teeth or rinse mouth with water after meals or snacks -- especially after eating or drinking sweet or sticky foods.
List snack foods next to their proper food group. Find the number of calories per serving. Put a star by snacks that are detergent foods.

<table>
<thead>
<tr>
<th>SNACK FOOD</th>
<th>CALORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRUITS</td>
<td></td>
</tr>
<tr>
<td>VEGETABLES</td>
<td></td>
</tr>
<tr>
<td>GRAINS</td>
<td></td>
</tr>
<tr>
<td>MEATS OR MEAT ALTERNATES</td>
<td></td>
</tr>
<tr>
<td>DAIRY</td>
<td></td>
</tr>
<tr>
<td>COMBOS</td>
<td></td>
</tr>
<tr>
<td>SWEETS FATS ALCOHOL</td>
<td></td>
</tr>
</tbody>
</table>

**SNACK FOOD CALORIES**

**E 1919 NUTRITION SUPER STARS**
SNACKING - THE CHOICE IS YOURS

WHEN YOU ARE HUNGRY OR THIRSTY WHAT SNACKS DO YOU EAT?

There are many foods and drinks to choose from. The trick to good
snacking is to know what foods are nutritious and to have these
foods handy when the munchies strike!

HOW CAN YOU TELL WHICH SNACK FOODS GIVE YOU THE MOST NUTRIENTS?

Nutrient density is one way to rate the nutritional value of food.
High Nutrient Density foods make good snack choices. High Nutrient
Density foods are ones that have lots of nutrients, like vitamins
and minerals, in comparison to the amount of calories they have.
SUPER SNACK foods are not loaded with added sugar, fat or salt.

When you eat a SUPER SNACK food you can say: "WOW! I'M GLAD I
HAD A SUPER SNACK!"

Name some SUPER SNACK foods you like to snack on:

Foods that do not make good snack choices are Low Nutrient Density
foods. These foods contain lots of calories from simple carbohydrates
(sugar) or fat, but have very few other nutrients. These foods are
usually found in the SWEETS-FAT-ALCOHOL food group. These foods will
make you say: "WOW! I COULD HAVE HAD A SUPER SNACK!"

Name some Low Nutrient Density foods:

THINK BEFORE YOU REACH!

The next time you reach for a snack...think about its NUTRIENT DENSITY. How does the
Nutrient Density of the snack you picked compare with the Nutrient Density of other
snack foods you could eat?
**SUPER SNACKS**

---

**VEGETABLE GROUP**

- Apples, peaches, pears, grapes, etc.
- Raw vegetable sticks or pieces (radishes, celery, cauliflower, green onions, zucchini, green pepper, carrots, cucumbers— even parsnips!)
- Dried apricots, raisins, prunes.
- Canned fruits or fruit juices, kept chilled in the refrigerator.
- Ripe tomatoes—eat ‘em right out of your hand!
- Mini-kebabs of bite-sized fruit chunks, strung on a toothpick.
- Banana chunks dipped in orange juice. Shake in a bag with chopped peanuts. Spear with toothpicks.
- Celery stuffed with cottage cheese, cheese spread, or peanut butter.
- Juice cubes you make by freezing fruit juice in an ice cube tray. Chill other fruit drinks with them.
- Chilled cranberry juice mixed with club soda.
- Grapefruit half, sprinkled with brown sugar and broiled.
- Tomato half, sprinkled with breadcrumbs, Parmesan or grated Cheddar cheese, and broiled.
- Creative salads of lettuce, raw spinach and other fresh vegetables, fruits, meats, eggs, or seafood.

---

**FRUIT GROUP**

- Raisin bread, toasted and spread with peanut butter.
- Sandwiches using a variety of breads—raisin, cracked-wheat, pumpernickel, rye, black.
- Date-nut roll or brown bread, spread with cream cheese.
- English muffins, served open-faced for sandwiches such as hot roast beef or turkey, chicken salad, sloppy joes.
- Individual pizzas. Top English muffin halves with cheese slices, tomato sauce, and oregano, and broil.
- Waffles topped with whipped topping and strawberries.
- Wheat or rye crackers, topped with herb-seasoned cottage cheese, cheese or meat spread, or peanut butter.
- Graham crackers and milk.
- Ready-to-eat cereals—right out of the box!
- Ice cream or pudding, sprinkled with crisp cereals or wheat germ.

---

**MEAT, POULTRY, FISH, AND BEANS GROUP**

- Nuts, sesame seeds, or toasted sunflower seeds.
- Sandwich spread of peanut butter combined with raisins or chopped dates.
- Peanut butter and honey spread on an English muffin, sprinkled with chopped walnuts, and heated under broiler.
- Grilled open-faced peanut butter and mashed banana sandwich.
- Tomatoes stuffed with egg salad.
- Melon wedges topped with thinly sliced ham.
- Sandwich of cheese, meat, tomato, onion, and lettuce.
- Antipasto of tuna, shrimp, anchovies, hard-cooked eggs, and assorted vegetables.
- Leftover poultry or meat—as is, or chopped into a sandwich spread.
- Bite-sized cubes of broiled beef, served on a toothpick.

---

**BREAD CEREAL GROUP**

- Milkshakes with mashed fresh berries or bananas.
- Parfait of cottage cheese, yogurt, or ice milk combined with fruit, sprinkled with chopped nuts, wheat germ, or crisp cereal.
- Dips for vegetable sticks. For fewer calories, substitute cottage cheese or plain yogurt for sour cream and mayonnaise in preparing dips.
- Fruit-flavored yogurt.
- Cheese cubes, au naturale, or speared with pretzel sticks, or alternated with mandarin orange sections on a toothpick.
- Assorted cheeses with crackers or chilled fresh fruits.
- Custard or pudding.
- Ice milk sundae, topped with fresh, canned, or frozen fruits.

---

**MILK CHEESE GROUP**

- Raisin bread, toasted and spread with peanut butter.
- Sandwiches using a variety of breads—raisin, cracked-wheat, pumpernickel, rye, black.
- Date-nut roll or brown bread, spread with cream cheese.
- English muffins, served open-faced for sandwiches such as hot roast beef or turkey, chicken salad, sloppy joes.
- Individual pizzas. Top English muffin halves with cheese slices, tomato sauce, and oregano, and broil.
- Waffles topped with whipped topping and strawberries.
- Wheat or rye crackers, topped with herb-seasoned cottage cheese, cheese or meat spread, or peanut butter.
- Graham crackers and milk.
- Ready-to-eat cereals—right out of the box!
- Ice cream or pudding, sprinkled with crisp cereals or wheat germ.

---

*1979 NUTRITION SUPER STARS*
EATING ON THE RIGHT TRACK

TRY TO EAT LESS REFINED AND PROCESSED SUGARS

1. Check the ingredient label for sweeteners and sugars in products. Sugar is not the only word to look for on labels. Watch for such words as: SUCROSE, GLUCOSE, DEXTROSE, FRUCTOSE, CORN SYRUPS, CORN SWEETENERS, NATURAL SWEETENERS and HONEY. Remember that on the label ingredients used in the largest amounts are listed first.

2. Substitute fruit juices or water for soft drinks, punches, fruit drinks and ades which contain large amounts of sugar.

3. Go easy on candy, pies, cakes, pastries and cookies.

4. Buy fruit canned in its own juice, other fruit juice or light syrup.

5. Buy unsweetened cereal, so YOU can control the amount of sugar added.

6. Experiment with reducing sugar in recipes. Be prepared for foods that may look and taste different.

SHAKE THE SALT HABIT

Taste food before you salt it. Try cutting down on the following:

1. Processed foods that have these words on the label: SALT, words with SODIUM in them like SODIUM BENZOATE, SODIUM PROPIONATE or SODIUM SACCHARIN.

2. Foods prepared in brine, like pickles, olives or sauerkraut.

3. Salty or smoked meats like bologna, corned or chipped beef, salt pork, frankfurters, ham, luncheon meats, and sausage.

4. Salty or smoked fish, like anchovies, caviar, salted and dried cod, herring, sardines and smoked salmon.

5. Highly salted snack foods like pretzels, potato chips, tortilla chips.

TRIM THE FAT

Include more of these foods in your diet:

1. Fruits (except avocado and olives), vegetables, breads, cereals, dry beans and peas.

2. Broiled, baked or boiled chicken, turkey, fish or shellfish. Leaner cuts of meat like beef, lamb, veal or pork.

3. Skim or lowfat milk and their products, like uncreamed cottage cheese.

Try to cut down on the following:

1. Regular ground beef, corned beef, spareribs, sausage, and other meats that have a lot of fat.

2. Fried foods.

EAT MORE COMPLEX CARBOHYDRATES AND NATURALLY OCCURING SUGARS

To increase complex carbohydrates in your diet, eat more whole grains, fresh and frozen fruits and vegetables, seeds and nuts. Naturally occurring sugars are found in most fruits.

KEEP UP YOUR GOOD HEALTH BY KEEPING YOUR WEIGHT DOWN

If you have a weight problem, reduce the amount of calories you take in. You can begin this by watching how much you eat or how large your portions are. To burn off more calories, EXERCISE!!!!
EXERCISE ENERGY

Use this sheet to help you find out the amount of energy you use in one day.

DIRECTIONS: Multiply the time you spend doing different activities by the energy need for each activity.

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>TIME YOU SPENT (Minutes)</th>
<th>ENERGY NEED PER MINUTE</th>
<th>ENERGY OUTPUT (Calories)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLEEPING</td>
<td></td>
<td>x 1 =</td>
<td></td>
</tr>
<tr>
<td>READING</td>
<td></td>
<td>x 2 =</td>
<td></td>
</tr>
<tr>
<td>EATING</td>
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<td>x 2 =</td>
<td></td>
</tr>
<tr>
<td>WATCHING TELEVISION</td>
<td></td>
<td>x 2 =</td>
<td></td>
</tr>
<tr>
<td>SCHOOLWORK/HOMEWORK</td>
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<tr>
<td>HORSEBACK RIDING</td>
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<td>PRACTICING AN INSTRUMENT</td>
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<td>HOUSEHOLD CHORES</td>
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<td>WASHING &amp; DRESSING</td>
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<td>BASEBALL</td>
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<td>VOLLEYBALL</td>
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<tr>
<td>TOUCH FOOTBALL</td>
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<td>TAG</td>
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<td>DODGEBALL</td>
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<td>DANCING FAST</td>
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<td>x 10 =</td>
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<tr>
<td>RUNNING</td>
<td></td>
<td>x 20 =</td>
<td></td>
</tr>
<tr>
<td>CLIMBING STAIRS OR HILLS</td>
<td></td>
<td>x 20 =</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the energy you use for activities, your body uses energy just to stay alive. The amount of energy needed by your body at complete rest for breathing, blood circulation, heartbeat and body temperature is called your BASAL METABOLIC RATE (BMR).

Use the following guideline to find your BMR:

\[
\text{BMR} = \text{CALORIE} \times \frac{\text{YOUR WEIGHT IN KG}}{2.2} \times 24 \text{ HOURS/DAY}
\]

To find out the amount of energy you used in one day, add the calories you used for activities to the calories used for your BMR:

\[
\text{TOTAL ENERGY OUTPUT (CALORIES) = ACTIVITIES CALORIES FOR + CALORIES FOR BMR = TOTAL CALORIES USED IN ONE DAY}
\]

YOUR RECOMMENDED DAILY ALLOWANCE FOR CALORIES:

- FEMALES 11-14 YEARS OLD, 2200 CALORIES PER DAY
- MALES 11-14 YEARS OLD, 2700 CALORIES PER DAY

© 1979 NUTRITION SUPER STARS
With the help of food service people in your school, select foods that you would like to have for lunch. Choose from the food groups shown below. Use the food models to help you and your classmates plan a school lunch menu.

<table>
<thead>
<tr>
<th>Basic Five Food Groups</th>
<th>YOUR FOOD CHOICES</th>
<th>Required Size of Serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>VEGETABLE FRUIT Group</td>
<td></td>
<td>3/4 cup of two or more vegetables or fruit or both.</td>
</tr>
<tr>
<td>BREAD CEREAL Group</td>
<td></td>
<td>8 servings per week. One serving is: one slice whole-grain or enriched bread; or a serving of other bread such as corn bread, biscuits, rolls, muffins, pasta, rice, made of whole-grain or enriched meal or flour.</td>
</tr>
<tr>
<td>MILK CHEESE Group</td>
<td></td>
<td>1/2 pint milk (8 oz.)</td>
</tr>
<tr>
<td>MEAT and Poultry Fish BEANS Group</td>
<td></td>
<td>2 ounces lean meat, poultry or fish; or 2 ounces cheese; or 2 eggs; or 1 cup cooked dried beans or peas or 4 tablespoons peanut butter.</td>
</tr>
<tr>
<td>FATS SWEETS ALCOHOL Group</td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>
CASE STUDY I THE SNACK CHOICE
Jose wants to buy an after school snack from the vending machine. He is undecided about which vending machine to choose. What would you choose? Why did you make that choice? What do you know about the nutrient density of the foods in each vending machine?

CASE STUDY II THE WORKING FAMILY
Both your parents work. You are never sure when they will be home because their work hours change. You often eat after your parents leave for work or before they get home. You and your younger sister like a snack after school. What would you choose for snacks? Are snacks good for you? What else would you eat the rest of the day?

CASE STUDY III THE DESSERT CHOICE
Rosa's aunt is offering her a big piece of cake for a snack. It is Rosa's favorite cake. Right now she feels she cannot afford to eat all those calories! How can Rosa turn down the piece of cake and not hurt her aunt's feelings? What would you do if you were Rosa?
BE A NUTRITION SUPER STAR - THE CHOICE IS YOURS

CASE STUDY IV  FAST FOOD DILEMMA

After sports practice your friend's parents often take you to a fast food restaurant like McDonald's. You are concerned about controlling your weight. What foods would you order?

CASE STUDY V  OLYMPIC DREAMS

Jefferson thinks that being on an Olympic team would be the greatest thing in the world. Look at the picture and decide what things Jefferson could do to be on an Olympic team.

CASE STUDY VI  BREAKFAST ON THE RUN

You must catch the bus by 7:00 a.m. in order to get to school on time. You have little time for breakfast. What can you do to make sure you don't get the mid-morning doldrums?
Do you know what makes Superman and Wonder Woman faster than a speeding bullet or able to leap tall buildings in a single bound? They have super cardiovascular endurance. Remember that cardiovascular endurance is the ability of the body to keep going during strenuous activity and quickly get back to normal after the activity is over. Improving your cardiovascular endurance can improve the strength of your heart and improve the circulation of your blood. This allows more oxygen to be carried by iron, in your red blood cells, to the 75 trillion cells in your body.

Nutrients in food are broken down by digestion. These broken down nutrients are absorbed and carried to your cells by your blood and lymph systems. Oxygen from the air you breathe is also carried in your blood. Once oxygen and B vitamins are in your cells, they help convert the broken down carbohydrates, fat, and protein to energy. This energy fuels all the activities you do each day.

If your cells get enough oxygen for a particular activity, you can continue this activity for a long time without feeling tired. Exercising while breathing enough oxygen is called aerobic conditioning. Anaerobic conditioning is exercising when you do not breathe enough oxygen. You become fatigued quicker and stop the activity sooner because your cells do not have the oxygen needed to produce energy. Like a car without gasoline, the cell cannot run without the fuel from nutrients and oxygen.

To improve your cardiovascular endurance by aerobic conditioning, you must push your heart rate to your training heart rate range for 30 minutes 3 times a week.

Maximum heart rate is the fastest your heart can beat and still pump blood to your body cells. You can figure out your maximum heart rate by subtracting your age from 220. WHAT IS YOUR MAXIMUM HEART RATE? 220 beats/min. - (your age) = beats/min.

USE YOUR MAXIMUM HEART RATE TO FIGURE YOUR TRAINING HEART RATE RANGE.  

\[
\frac{(\text{max. heart rate})}{(\text{beats/min.})} \times 0.75 = \text{beats/min.} \\
\frac{(\text{max. heart rate})}{(\text{beats/min.})} \times 0.80 = \text{beats/min.}
\]

This is the minimum for your training heart rate range.

This is the maximum for your training heart rate range.

When you exercise aerobically for cardiovascular endurance, your heart rate should be within your training heart rate range.

To find out if you are reaching your training heart rate range, exercise for 3 to 5 minutes. Try running in place, jogging, swimming, bicycling or walking. Take your pulse for 30 seconds. Multiply by 2. If your pulse rate is not within your training heart rate range, then exercise at a faster rate and take your pulse again.

To be a pace ahead of the race, keep your weight at its best. Exercise 5-6 times a week to be aerobically fit and burn more calories.
There are many books, pamphlets, magazines and articles written on nutrition. TV and radio ads encourage us to buy many kinds of food products. Some are written or produced by people with impressive names and are used to SELL fad diets or products. Fad diets and products are often expensive and may even be harmful to your health if used over a long period of time.

All of this is confusing. How can you tell the difference between reliable and unreliable information? Here are some clues to help you. Match each statement below with the correct picture.

**RELIABLE INFORMATION**

- States fact backed by recent scientific research.
- Encourages a diet of nutritious foods and regular exercise for good health.
- Urges medical treatment for illness.
- Documents all claims.

**UNRELIABLE INFORMATION**

- Uses statements backed by testimonials.
- States that certain foods or vitamins have magical healing powers.
- Claims that a majority of people suffer from something doctors cannot diagnose.
- Uses statements like "famous" or "well-known" without documentation.

If you have any questions about nutrition, talk to your teacher, school nurse, or school food service director. They may be able to tell you the types of services in your community that can help you.
NUTRITION SUPER STARS FIND THE FACTS

There are many books, pamphlets, magazines and articles written on nutrition. TV and radio ads encourage us to buy many kinds of food products. Some are written or produced by people with impressive names and are used to SELL fad diets or products. Fad diets and products are often expensive and may even be harmful to your health if used over a long period of time.

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3. Urges medical treatment for illness.
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1. Uses statements backed by testimonials.
2. States that certain foods or vitamins have magical healing powers.
3. Claims that a majority of people suffer from something doctors cannot diagnose.
4. Uses statements like "famous" or "well-known" without documentation.

If you have any questions about nutrition, talk to your teacher, school nurse, or school food service director. They may be able to tell you the types of services in your community that can help you.
Plan a class party for Nutrition Super Stars. You have $20.00 to spend. Figure out what you can afford to buy .... include something to wash it all down with. After you have made the list of snacks and drinks, find the nutrient density of the foods you have chosen. Compute cost of the food by checking newspaper ads or prices at the supermarket.
Arizona Nutrition Education & Training

NET PROGRAM

NUTRITION Super Stars
Arizona Basic Skills Competencies
Cross Reference Matrix

ARIZONA DEPARTMENT OF EDUCATION
Carolyn Warner, Superintendent
Dr. Jim Hartgraves, Deputy Superintendent
Dr. Ray Ryan, Deputy Superintendent
<table>
<thead>
<tr>
<th>Lesson</th>
<th>Concept</th>
<th>Grade 5</th>
<th>Grade 6</th>
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<td>I</td>
<td>Everybody's a &quot;Star&quot;</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>II</td>
<td>Creating a &quot;Star&quot;</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>III</td>
<td>Shaping a &quot;Star&quot;</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>IV</td>
<td>Making a &quot;Super Star&quot;</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>V</td>
<td>Fueling a &quot;Super Star&quot;</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>
HOW TO USE THE CROSS REFERENCE INDEX

The cross reference index for the Nutrition Super Stars Curriculum and Arizona F'sic Skills Competencies Chart is contained on pages 1-10. The learning activities in the five lessons/twenty class plans of the Super Stars Curriculum Kit for fifth and sixth grade are identified on separate pages (see table of contents). Basic skills utilized in conducting the learning activities in each class are numerically identified in the index. The numbers for each learning activity in the index on pages 1-10 are translated into the Arizona Basic Skills Competencies by using the lists on pages v-viii.
COMMUNICATION SKILLS CHART - SPEAKING/WRITING

Fifth Grade Competencies

59. Asks essential questions to get information.
60. Takes part in panel discussions.
61. Takes notes.
62. Writes a report from an outline.
63. Uses a variety of sentence patterns. For example: questions and commands.
64. Selects action verbs. For example: dance, paint, swallow.
65. Identifies common and proper nouns. For example: boy-Roberto, city-Tucson.
66. Capitalizes titles of respect. For example: Mr., Dr., and Ms.
67. Capitalizes the first and important words of books and titles.
68. Spells correctly.
69. Shows increasing penmanship skills with pencil and ball-point pen.

Sixth Grade Competencies

70. Interprets and gives news reports and announcements.
71. Knows and observes proper conduct during meetings.
72. Writes and identifies the parts of a friendly letter.
73. Selects correct noun for a sentence. For example: the boy/boys runs.
74. Recognizes pronouns. For example: The dog saw him.
75. Capitalizes the first word of a quote. For example: Nancy said, "Let's go!"
76. Adds new words to spelling vocabulary in all classes. For example: math, art.
77. Prints and writes legibly.
COMMUNICATION SKILLS CHART - LISTENING/READING

Fifth Grade Competencies

56. Recognizes exaggeration in advertising.
57. Reports events in correct order.
58. Uses phonics in reading. For example: sports, comic strips, ads in the newspaper.
59. Summarizes a story.
60. Gathers information to solve problems.
61. Identifies cause and effect in reading selections.
62. Uses maps to locate information.
63. Uses dictionary to check pronunciation.
64. Uses dictionary to find the meaning of words.
65. Uses picture and punctuation clues to help understand the meaning of a sentence.
66. Alphabetizes words to the third letter. For example: mailman, maybe.
67. Identifies and names the root word in a larger word. For example: looking, dogs.

Sixth Grade Competencies

68. Takes messages.
69. Reads and follows directions in all classes.
   For example: mathematics, social studies.
70. Identifies meaning of different forms of verbs.
   For example: sing, sings, singing.
71. Identifies meaning of different forms of nouns.
   For example: cat, cats; lunch, lunches.
72. Identifies, spells, and knows the meaning of prefixes and suffixes.
   For example: unknown, happiness.
73. Interprets a comparison using "like" or "as".
74. Puts facts from a paragraph into a logical order.
75. Notes details from graphs, maps, charts, and diagrams.
76. Locates and uses index, table of contents, and title page of book.
77. Skims when reading to locate specific information.
78. Uses picture and punctuation clues to help understand a sentence or a word in the sentence.
79. Uses a variety of comprehension skills.
   For example: main idea, cause and effect, draws conclusions.
Fifth Grade Competencies

59. Memorizes multiplication facts to 100 (1 x 0 through 10 x 10).
60. Identifies place value of each digit in a seven-digit number.
   For example: \(3,678,451 = 3 \times 1,000,000 + 6 \times 100,000 + 7 \times 10,000 + 8 \times 1,000 + 4 \times 100 + 5 \times 10 + 1\)
61. Multiplies a two-digit number by a two-digit number with carrying.
62. Subtracts a three-digit number from a four-digit number with borrowing.
63. Divides a four-digit number by a one-digit number with a remainder.
64. Adds any whole number problem.
65. Rounds a given number 0 through 1,000,000 to the nearest thousand or below.
   For example: 987 rounds to 1,000.
66. Understands the use of decimal in fractions.
67. Computes perimeter and area using standard and metric measurement units.
68. Reads and writes a given number through one billion.
69. Understands the concept of "parallel (\(\|\))", "perpendicular (\(\perp\))", and "intersecting (\(\cap\))" lines.
70. Reads simple graphs, tables, and charts.

Sixth Grade Competencies

71. Multiplies a three-digit number by a three-digit number with carrying (regrouping).
72. Divides a four-digit number by a two-digit number with remainders.
73. Adds and subtracts fractions with unlike denominators. Finds the least common denominator. For example:
   \[
   \frac{2}{5} + \frac{1}{3} = \frac{6}{15} + \frac{5}{15} = \frac{11}{15}
   \]
74. Adds and subtracts mixed numbers with or without regrouping.
   For example:
   \[
   5 \frac{3}{4} + 3 \frac{3}{4} = 8 \frac{6}{4} = 9 \frac{1}{2}
   \]
75. Adds and subtracts mixed numbers with unlike denominators.
   For example:
   \[
   2 \frac{1}{2} = 2 \frac{3}{6} - 1 \frac{1}{3} = 1 \frac{2}{6} = 1 \frac{1}{6}
   \]
76. Multiplies simple fractions. For example:
   \[
   \frac{5}{7} \times \frac{3}{8} = \frac{15}{56}
   \]
77. Divides simple fractions. For example:
   \[
   \frac{1}{3} \div \frac{6}{7} = \frac{7}{6} = \frac{7}{18}
   \]
78. Adds and subtracts any decimal fractions. For example: \(.25 + .37 = .62\)
79. Multiplies any decimal fractions.
80. Divides any four-digit decimal fraction by any two-digit decimal fraction.
81. Compares decimal fractions for size. For example: \(4.02 > 3.85\)
82. Uses tables and charts to read a road map.
**CITIZENSHIP SKILLS CHART**

**Fifth Grade Competencies**

<table>
<thead>
<tr>
<th>Competency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>61.</td>
<td>Completes and turns in homework on time.</td>
</tr>
<tr>
<td>62.</td>
<td>Displays proper and lawful behavior.</td>
</tr>
<tr>
<td>63.</td>
<td>Defends rights of others.</td>
</tr>
<tr>
<td>64.</td>
<td>Displays courtesy toward teacher and others.</td>
</tr>
<tr>
<td>65.</td>
<td>Helps maintain a clean school and community environment.</td>
</tr>
<tr>
<td>66.</td>
<td>Identifies the rights granted to all U.S. citizens.</td>
</tr>
<tr>
<td>67.</td>
<td>Relates state's history to that of nation.</td>
</tr>
<tr>
<td>68.</td>
<td>Identifies the contributions of various cultures in our nation's history.</td>
</tr>
<tr>
<td>69.</td>
<td>Works with others to make changes in rules.</td>
</tr>
<tr>
<td>70.</td>
<td>Shows flexibility (changes in scheduling, rules in games).</td>
</tr>
<tr>
<td>71.</td>
<td>Recognizes the difference between personal needs and wants.</td>
</tr>
<tr>
<td>72.</td>
<td>Shows knowledge of important people in history.</td>
</tr>
</tbody>
</table>

**Sixth Grade Competencies**

<table>
<thead>
<tr>
<th>Competency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>73.</td>
<td>Organizes available time to complete tasks.</td>
</tr>
<tr>
<td>74.</td>
<td>Challenges self to perform better.</td>
</tr>
<tr>
<td>75.</td>
<td>Works well with people from various backgrounds and cultures.</td>
</tr>
<tr>
<td>76.</td>
<td>Interprets information from charts, tables, and graphs.</td>
</tr>
<tr>
<td>77.</td>
<td>Provides a positive example of cooperation to others.</td>
</tr>
<tr>
<td>78.</td>
<td>Understands current affairs and global concerns.</td>
</tr>
<tr>
<td>79.</td>
<td>Participates in classroom and school elections.</td>
</tr>
<tr>
<td>80.</td>
<td>Shows understanding of rules and laws when participating in school activities.</td>
</tr>
<tr>
<td>81.</td>
<td>Describes ways people are interrelated.</td>
</tr>
<tr>
<td>82.</td>
<td>Identifies impact of technology on personal life.</td>
</tr>
<tr>
<td>83.</td>
<td>Identifies where U.S. and other countries have common concerns.</td>
</tr>
<tr>
<td>84.</td>
<td>Identifies alternative ways for achieving goals.</td>
</tr>
</tbody>
</table>
**EVERYBODY'S A "STAR"**

Concept: Food supplies nutrients which form dynamic body composition.

---

**5th GRADE**

**ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX**

<table>
<thead>
<tr>
<th>CURRICULUM</th>
<th>COMMUNICATION</th>
<th>COMPUTATION</th>
<th>CITIZENSHIP</th>
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<td>Listening/Reading</td>
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LESSON 1
(Classes 1-4)

EVERYBODY'S A "STAR"

Concept: Food supplies nutrients which form dynamic body composition.

6th GRADE

ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX

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LESSON 2  
(Classes 5-7)

CREATING A "STAR"

Concept: Nutrients in food are metabolized to form dynamic body composition.

5th GRADE

ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX

<table>
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<tr>
<th>CURRICULUM</th>
<th>COMMUNICATION</th>
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LESSON 2
(Class 5-7)

CREATING A "STAR"

Concept: Nutrients in food are metabolized to form dynamic body composition.

6th GRADE

ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX

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Lesson 3
(Classes 8-11)

**SHAPING A "STAR"**

Concept: Many factors influence eating and activity habits.

## 5th GRADE

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Concept: Many factors influence eating and activity habits.

6th GRADE

ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX

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**LESSON 4**  
*(Classes 12-15)*

**MAKING A "SUPER STAR"**

Concept: Influence of eating and activity habits on health status.

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**5th GRADE**

**ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX**

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MAKING A "SUPER STAR"

Concept: Influence of eating and activity habits on health status.

6th GRADE

ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX

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LESSON 5
(Classes 16-20)

FUELING A "SUPER STAR"

Concept: Help yourself to good health by applying nutrition and fitness knowledge when making food-snack and activity choices.

5th GRADE

ARIZONA BASIC SKILLS COMPETENCIES - CROSS REFERENCE INDEX

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**LESSON 5**  
*(Classes 16-20)*

**FUELING A “SUPER STAR”**

Concept: Help yourself to good health by applying nutrition and fitness knowledge when making food-snack and activity choices.

### 6th GRADE

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