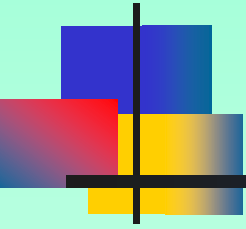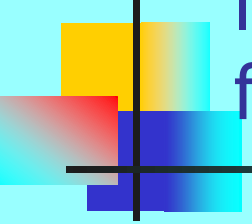# Importance of Agriculture to Society
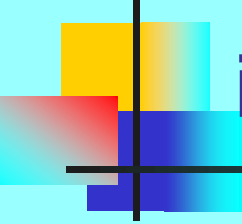
Interest Approach

- Before class, mass 55 grams, 39 grams, 22 grams, and 12 grams of a solid fat, such as Crisco, onto separate dark-colored paper plates. Set the plates out of sight. These amounts represent the fat in each of the food items listed below. When the class arrives, talk about fast food. Have the students pick their favorite food item from the four choices listed below.

1. A bacon cheeseburger from Burger King
2. A hamburger from Burger King
3. A chocolate shake from Dairy Queen
4. A baked fish from Long John Silver's

After they have picked their favorite, bring out the plates to show the grams of fat. Use this as a basis for introducing human nutrition and agriculture's role in it.

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. **Identify the basic needs of humans and define quality of life.**

2. **Discuss the role of modern agriculture in basic human nutrition.**

3. **Identify agricultural products used to provide food, clothing, and human shelter.**

4. **Describe factors that influence what people eat and use for clothing and shelter.**

Terms. The following terms are presented in this lesson (shown in bold italics):

- aquaculture
- beef
- carbohydrates
- climate
- conifer
- consumers
- customs
- deciduous tree
- enriched
- exports
- fats
- fiber

Terms cont.

- food
- Food Guide Pyramid
- forestry
- imports
- international trade
- lamb
- minerals
- mutton
- natural fibers
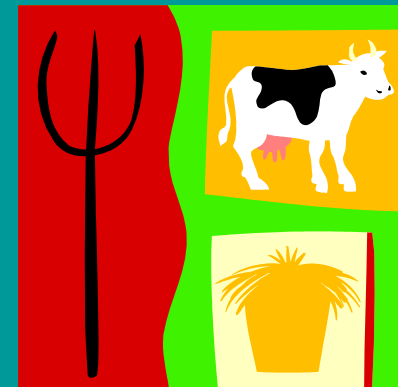- nutrients
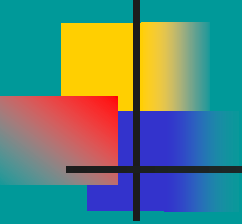- nutritional groups
- pork

Terms cont.

- poultry
- preferences
- proteins
- pulp
- quality of life
- seasoning
- shelter
- standard of living
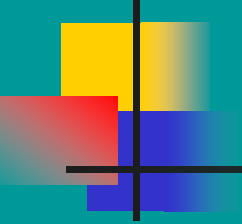- swine
- synthetic fibers
- vitamins

Objective 1: Identify the basic needs of humans and define quality of life.

- Anticipated Problem: What are the basic needs for humans, and what is meant by quality of life?
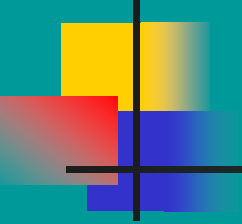
I. The basic human needs are food, fiber, and shelter.

■ A. The meeting of basic needs supports human life. It provides the nutrition that helps the body grow, repair itself, and reproduce. It also provides protection from the weather, dangerous animals, and other hazards of life. Most food and fiber are carefully produced to meet human needs.

■ B. **Food** is the solid and liquid material humans consume that provides essential nutrients.

1. **Nutrients** are substances necessary for an organism to live and grow. Humans receive nutrients from food in the form of carbohydrates, proteins, fats, vitamins, minerals, and water.
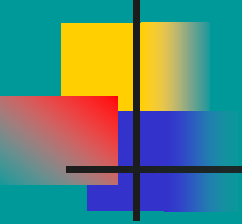
a. *Carbohydrates* are macromolecules containing carbon, hydrogen, and oxygen. They provide short-term energy storage and mid-term energy reserves. Starches and sugars are carbohydrates.

b. *Proteins* are macromolecules consisting of amino acids held together by peptide bonds. They carry out most of a cell's activities and are important in growth and repair.
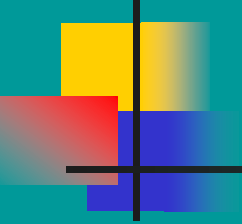
c. **Fats** are oily compounds consisting of carbon, hydrogen, and oxygen. They are insoluble in water and provide energy for the body.

d. **Vitamins** are organic compounds used by the body to carry out specific functions. They are needed for good health.

e. **Minerals** are inorganic elements. They are needed for the body to function properly.

f. Water is needed to transport food substances in the body.

C. *Fiber* is a long, threadlike structure used to make clothing and shelter. Fibers may be natural or synthetic.

1. Natural fibers are produced by plants and animals. For example, trees have abundant fibers in their wood and bark.

2. Synthetic fibers are made in mills from various products, such as petroleum.

- D. ***Shelter*** is housing for humans. Many products used in providing shelter are produced through forestry.

- E. Agriculture is important in the quality of life people enjoy. ***Quality of life*** includes adequate food, clothing, and shelter.

1. The United States produces an abundance of nutritional food, an ample supply of fiber for clothing, and material for the construction of homes.

2. Americans spend less than 10 percent of their total income for food. That allows Americans to spend more than 90 percent of their income for clothing, housing, automobiles, recreation, and other purposes.

■ F. Agriculture helps meet our needs and the needs of millions of people in other countries. *International trade* is the buying and selling of commodities by two or more nations.
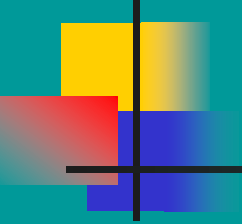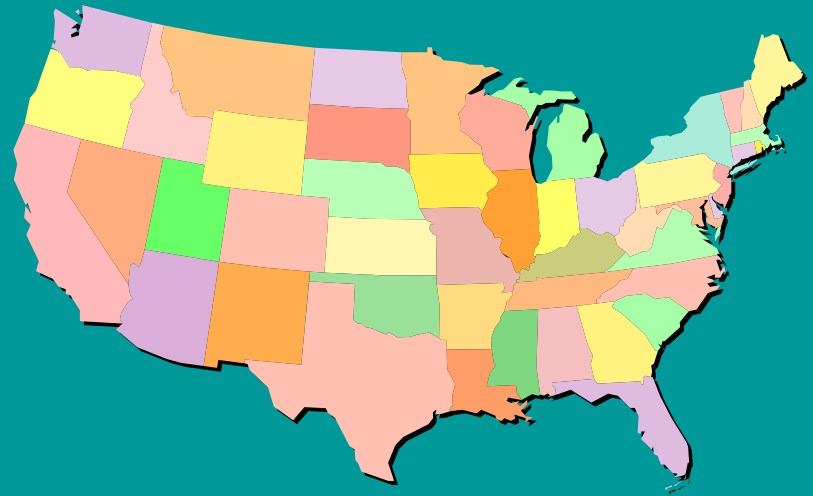
1. Goods sold to or in another country are *exports*. Examples of agricultural exports are corn, rice, soybeans, wheat, poultry, and cotton.

2. *Imports* are products bought from another nation. Imports include bananas, cocoa, vanilla, shrimp, and coffee.

G. Agriculture provides jobs for more people than any other industry in the United States. Approximately 16 out of every 100 people in the United States work in agriculture.
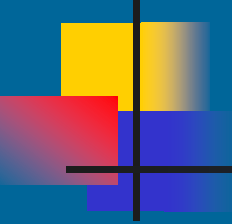
Objective 2: Discuss the role of modern agriculture in basic human nutrition.

- Anticipated Problem: What role does modern agriculture play in basic human nutrition?

II. Advancements in fertilizers, crops, and technology have resulted in the production of more food. Today, one American farmer produces enough food to feed more than 130 people. American consumers have a wide selection of agricultural products available year-round at the local grocery store.

A. The *Food Guide Pyramid* is a tool people can use to help them make healthy eating choices. The Food Guide Pyramid was developed by the U.S. Department of Agriculture and the U.S. Department of Health and Human Services. It is made up of *nutritional groups*, which are the main types of food recommended for consumption. The nutritional groups include grains, vegetables, fruits, milk, meat and beans, and oils.
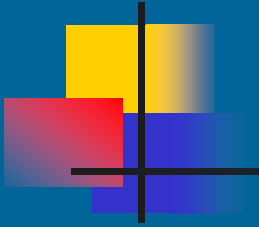
1. Grain products are any food made from wheat, rice, oats, cornmeal, barley, or another cereal grain. Examples of grain products are bread, pasta, oatmeal, breakfast cereals, tortillas, and grits. Grains are divided into two subgroups, whole grains and refined grains.

a. A whole grain contains the entire grain kernel, including the bran, germ, and endosperm. Examples of whole grains are whole-wheat flour, cracked wheat, oatmeal, whole cornmeal, and brown rice.

b. A refined grain has been milled. In the milling process the bran and germ are removed. The process gives the grain a finer texture and improves shelf life. On the other hand, it removes dietary fiber, iron, and many B vitamins. Some examples of refined grain products are white flour, degermed cornmeal, white bread, and white rice. Most refined grains are enriched. *Enriched* means certain B vitamins (thiamin, riboflavin, niacin, folic acid) and iron are added back after processing. Fiber is not added back to enriched grains.
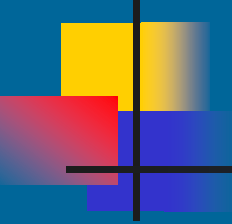
2. The vegetable group includes any vegetable or 100 percent vegetable juice. Vegetables may be raw or cooked; fresh, frozen, canned, or dried/dehydrated; and whole, cut up, or mashed. Vegetables are organized into five subgroups, based on their nutrient content. The subgroups are dark green vegetables, orange vegetables, dry beans and peas, starchy vegetables, and other vegetables.

3. The fruit group includes any fruit or 100 percent fruit juice. Fruits may be fresh, canned, frozen, or dried and may be whole, cut up, or pureed.

4. The milk food group consists of all fluid milk products and many foods made from milk. Foods made from milk that retain their calcium content are part of the group, while foods made from milk that have little to no calcium content, such as cream cheese, cream, and butter, are not. Most milk group choices should be fat free or low fat. Milk, yogurt, and cheese are some of the most commonly eaten choices from this group.

5. The meat and beans group includes all foods made from meat, poultry, fish, dry beans or peas, eggs, nuts, and seeds. Dry beans and peas are part of both this group and the vegetable group. Most meat and poultry choices should be lean or low fat. Fish, nuts, and seeds contain healthy oils, so these foods should be chosen frequently instead of meat or poultry.
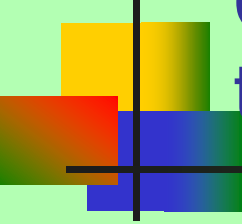
6. Oils are fats that are liquid at room temperature. Oils come from many different plants and from fish. Some common oils are canola oil, corn oil, cottonseed oil, olive oil, safflower oil, soybean oil, and sunflower oil. Some oils are used mainly as flavorings, such as walnut oil and sesame oil. A number of foods are naturally high in oils, such as nuts, olives, some fish, and avocados. Most oils are high in monounsaturated or polyunsaturated fats and thus low in saturated fats. Oils from plant sources do not contain any cholesterol. A few plant oils, however, including coconut oil and palm kernel oil, are high in saturated fats and for nutritional purposes should be considered solid fats. Solid fats are fats that are solid at room temperature. Solid fats are from animals and from vegetable oils that have gone through a process called hydrogenation. Some common solid fats are butter, beef fat, chicken fat, pork fat (lard), stick margarine, and shortening.

B. Nutritional fact labels must be present on all food products except raw single ingredient products. Nutritional fact labels were created by our government to help consumers follow a well-balanced diet.
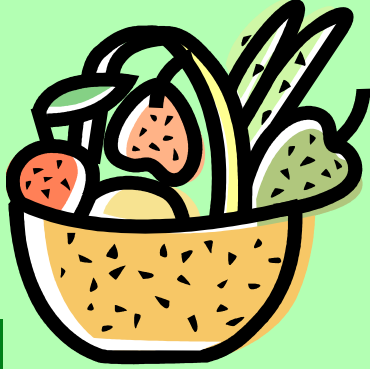
Objective 3: Identify agricultural products used to provide food, clothing, and human shelter.

- Anticipated Problem: What agricultural products are used to provide food, clothing, and human shelter?

III. Agricultural products are used to provide food, clothing, and human shelter.

A. Food comes from a variety of sources.

1. Grain crops are grown throughout the United States, with the greater production in the Midwest. Corn, wheat, and rye are important examples of grains. Grain crops are used for bread, pasta, rice, cereal, and many other food products.

2. Different types of fruit are produced in different parts of the country. Most of the fruit crop is sold as fresh fruit, and the rest is processed. Apples are grown in Washington, New York, Michigan, and California. About half the apples produced are marketed fresh, and the rest are processed into juice, jellies, pies, and other products. Citrus is grown in California and Florida and imported from Mexico and South America. Citrus grown in the United States includes oranges, grapefruit, tangerines, tangelos, lemons, and limes. Blueberries are predominantly grown in Michigan, and cranberries are widely grown in New England.
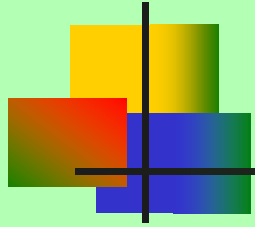
3. Cool-weather vegetable crops, such as lettuce and broccoli, are grown in northern states during the summer and in southern states during the winter. Most warm-weather vegetable crops are grown in California and Florida. Many vegetables consumed in the United States are imported from South America and Mexico.
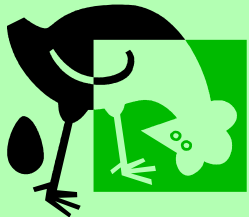
4. Most milk comes from cattle on dairy farms. Another source of milk is goats. Leading milk production states are California and Wisconsin.

5. Meat and beans provide a major source of protein. The category includes poultry, beef, pork, fish, and lamb, along with dry beans or peas, eggs, nuts, and seeds.
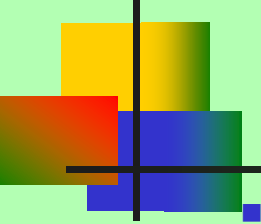
a. *Poultry* includes any domesticated birds grown for food. The most popular poultry is chicken, followed by turkey. Chickens also produce most of the eggs consumed in this country.

b. *Beef* is meat from cattle. It is prepared into popular dishes like steak and hamburger.

c. *Pork* is the meat of swine. *Swine* is the plural term used to define hogs and pigs. Pork chops and bacon are two popular forms of pork.
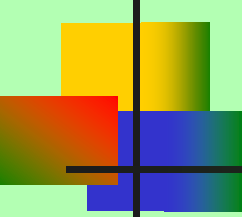
d. *Aquaculture* is the production of aquatic plants and animals for food. Fish and other aquatic organisms are farmed in oceans, streams, lakes, ponds, and raceways. Fish are harvested, processed, and prepared for the fresh or frozen market.
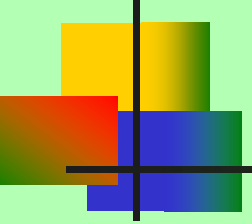
e. *Lamb* refers to meat from a sheep that is less than a year old. *Mutton* refers to meat from a sheep that is at least one year old. Compared to beef, chicken, and pork, Americans eat relatively little lamb and mutton.

f. A wide variety of beans are produced. Examples include soybeans, black beans, kidney beans, chickpeas, lima beans, navy beans, and pinto beans.

g. Four major types of commercially important nuts in the United States are almonds, pecans, walnuts, and filberts. Nuts are removed from a tree by a machine that gently shakes the tree. The nuts are then picked up from the ground by a nut sweeper.

- B. Clothing is made from natural and synthetic fibers. *Natural fibers* are from plants or animals. Common natural fibers are cotton, flax, kenaf, jute, hemp, wool, and fur. *Synthetic fibers* are manufactured from petroleum and other substances.
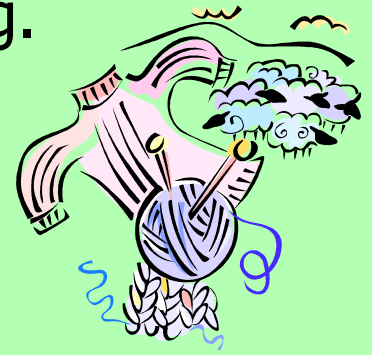
2. The flax plant produces fibers used in making a high-quality cloth called linen. The flax plant requires climates with plenty of rain and moderate temperatures. Most of today's flax is grown in Europe and New Zealand. However, North and South Dakota and Minnesota produce substantial amounts of flax. Linen comes from the fibers that make up the phloem of the plant. Fibers are removed from the stem by soaking the stem in warm water. After the phloem fibers have been removed, they are rolled and later combed to be spun into yarn. This popular cloth is used for making tablecloths, napkins, and clothing. The seeds of the flax plant are pressed for linseed oil, which is used in making paints and varnishes.

1. Cotton is a shrub-like perennial plant cultivated as an annual. It requires long growing season and warm temperatures. Leading states in the production of cotton are California, Texas, Arizona, and the states of the lower Southeast. Lint is removed from the bolls, separated from seeds, cleaned, graded, and stored or sent to a mill. Cotton is used for many fabrics.
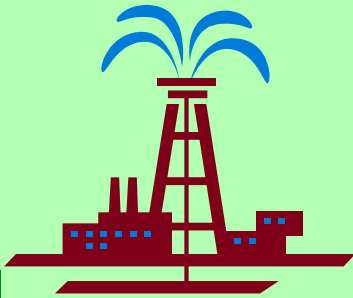
3. Kenaf is used to make cloth and paper.

4. Jute is used to make burlap.

5. Hemp and sisal are coarse fibers used in making rope.

6. Wool and fur are two animal fibers used in making clothing. Sheep and goat fleece are two sources of wool. The sheep and goat fleece are sheared, cleaned, dyed, and woven into thread. Angora goat fleece is woven into mohair. It is used to make soft blankets and clothing. Fur is used to make coats, hats, and other clothing. Rabbit and mink are two sources of common furs used in clothing.
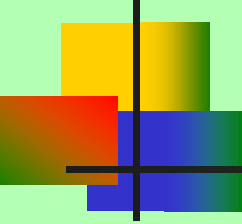
7. Much of the cloth produced today is manufactured from petroleum. This process was developed in the first half of the twentieth century. Petroleum is processed into long fibers used to make such cloth as rayon, nylon, and polyester. Synthetic fibers tend to be more wrinkle resistant and durable but cannot match the comfort of natural fibers. Today, cloth is generally a blend, or a combination of artificial and natural fibers. Blended cloth is durable yet has the comfort of cloth from natural fibers. The use of blended cloth also makes us less dependent on imported petroleum.

C. *Forestry* is the science of planting, caring for, and harvesting trees. Forestry products are made into many kinds of lumber, plywood, particle board, veneer, and paper. These products are used in many ways, with shelter being the most important.
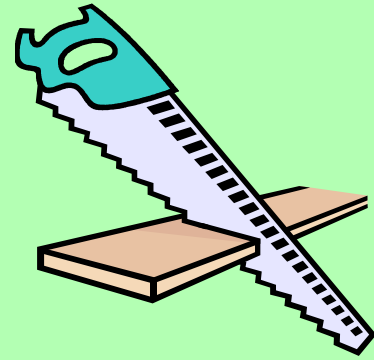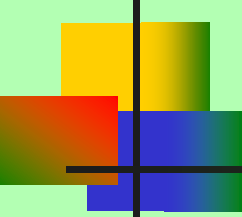
1. Forestry products are grouped by the types of trees harvested. The two major types of trees are hardwood and softwood. Hardwood trees are deciduous trees. A *deciduous tree* sheds its leaves in the winter. Softwood trees are coniferous trees. A *coniferous tree* is an evergreen tree that usually has cones and needles instead of leaves.
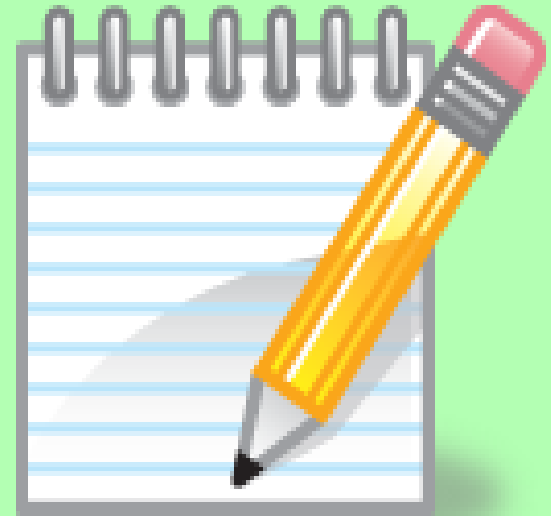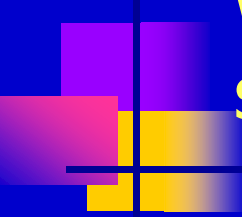
2. Lumber is made by sawing logs into boards. Logs come from the large stems of trees that require many years to grow. Trees are felled and cut into loglengths. Most logs are 12 to 20 feet. At a sawmill, logs are cut into boards and graded. Most logs are sawed into lumber while still green. Lumber must be seasoned. *Seasoning* is the natural or artificial drying of lumber. Natural drying involves stacking lumber so that air can move between the pieces. Artificial drying involves using heat to speed up the drying process. Lumber is then smoothed and sized by planing. Planing removes the roughness that results from sawing. Some lumber is treated with chemicals to make it resistant to rot and insect damage. Lumber used for outdoor structures is often pressure treated with such chemicals.

3. Smaller trees are used to make paper. Paper is made by breaking wood into small pieces and cooking the pieces in a chemical bath. These small pieces are called *pulp*. Pulp is screened and washed. The mixture of pulp and water is spread over a mesh wire to drain. The remaining mat of fibers is then rolled and dried. The fibers bond during the drying process.
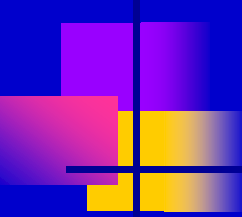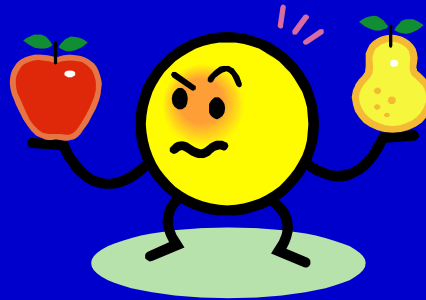
Objective 4: Describe factors that influence what people eat and use for clothing and shelter.

- Anticipated Problem: What factors influence what people eat and use for clothing and shelter?

IV. People make choices about food, fiber, and shelter. They have strong likes, or *preferences*, and strong dislikes.

- A. Food and fiber are produced to satisfy consumer needs. **_Consumers_** are the people who purchase products or services to fulfill certain needs. Without consumer demand, there is no reason to produce a product.

- B. Climate, customs, and standard of living influence consumer choices. **Climate**, or the nature of the weather, influences the types of products that can be grown in an area. It also has a major influence on the desired type of clothing and shelter. **Customs** are the long-established ways of doing things. Adults often prefer to purchase the same types of products they grew up eating or using. **Standard of living** refers to the income of people and the products available to them. People with more money often choose different foods and types of housing than people with less money.

REVIEW

- What are the basic needs for humans, and what is meant by quality of life?

- What role does modern agriculture play in basic human nutrition?

- What agricultural products are used to provide food, clothing, and human shelter?

- Describe factors that influence what people eat and use for clothing and shelter.