Food for Thought

You love junk food; your best friend is a vegetarian. The British like prawn-flavored potato chips; the Japanese prefer seaweed seasoning.

Food may be basic but it isn’t simple.
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Resources

“Why We Do What We Do” by Diane Ackerman, Parade Magazine
The Multicultural Cookbook for Students by Carole Lisa Albyn and Lois Sinaiko Webb
The Kids’ Book of Chocolate by Richard Ammon
American Foodways — What, When, Why and How We Eat in America by Charles Camp
Food — Your Miracle Medicine by Jean Carper
Longman Illustrated Dictionary of Food Science by Nicholas Light
Simple Kitchen Experiments — Learning Science with Everyday Foods by Muriel Mandell
Where Food Comes From by Dorothy Hinshaw Patent
Eat the Grapes Downward — An Uninhibited Romp Through the Surprising World of Food by Vernon Pizer
The Chemicals We Eat and Drink by Dr. Alvin Silverstein and Virginia Silverstein
Food for the World by Su Swallow
“Waiter, there’s a fish in my tomato,” Utne Reader
“What’s for Dinner?” by Laura Shapiro, Newsweek
“Safer Food for a Tastier Millennium” by Karen Springen, Newsweek
World Book Encyclopedia

Researchers & written by Mary Hackworth
Designed and illustrated by Minna Jenkins
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Food

You love junk food; your best friend is a vegetarian. The British like prawn-flavored potato chips; the Japanese prefer seaweed seasoning. Hungry Ethiopians, reduced to skin and bones by famine, are featured on the evening news. An American model, reduced to skin and bones by dieting, sells a soft drink. Food may be basic, but it isn’t simple.

All living things need food. You must eat a minimum just to stay alive; to be healthy, you must eat a variety of foods. Beyond those basic facts, it seems, anything goes. Food is many things to many people.

Food is one of the most talked about, written about, and argued about topics.

People have strong feelings about which foods are appropriate, how they should be prepared, and when and how they should be eaten. For each opinion, there is someone who holds the opposite view.

An animal can spend much of its time just searching for food, but people are different. We control our food supply to a large extent. We cook most of our food and are often very creative in the ways we prepare it. We sometimes eat when we’re not hungry and deny ourselves food when we are. For humans, food is more than simply nourishment — it’s culture, beliefs, and values as well.

Food is often used in symbolic ways to represent beliefs and values. One example is the wedding cake.

The ancient Romans made a cake of wheat or barley and broke it over the bride’s head to symbolize fertility. To ensure prosperity, English couples tried to kiss each other over a pile of little cakes without knocking it over. The cakes became fancier during the 1600s when chefs began creating elaborate tiers of cake topped with sugar icing.

Food

Just Married (Where’s the Cake?)

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Activities

- Look for newspaper advertisements that feature food. How is the food presented? As nourishment? As reward? As a way to impress someone? Discuss the messages about food conveyed by the advertisements. Do they make you want to buy the food? Why or why not?
- Make a list of reasons people have for eating and share them with your class. Tally the results to discover your class’s top five reasons for eating.
- Throughout this food study, watch your newspaper for articles that deal with food or food issues. Organize them by topic in a notebook or folder; for example, food safety articles, consumer news, etc. See who can collect the most articles.
- We connect some foods to certain occasions. For example, in many American families, turkey is served for Thanksgiving. Every family has its own food traditions, whether it is a special type of cake for someone’s birthday or pizza on Friday nights. In a brief report, describe one of your family’s food traditions. Can you think of occasions when food has symbolic importance? Make a list to share with the class.
What’s for Dinner?

Nearly everything you eat comes from either a plant or an animal.

Fruits, vegetables, nuts, and grains all come from plants. Meat, fish, eggs, and dairy foods are all animal products. Most of these foods come from farms.

Some of the food you eat may be locally raised, but much of it comes from faraway places. Some foods that you eat regularly, such as bananas, even come from other countries.

Plants take chemicals out of the soil and air to make their own food. The substances they contain, including sugars, starches, and minerals, nourish us when we eat them. When we eat animal products, we are getting these same nutrients indirectly, because animals eat plants, too.

Many different parts of a plant can be eaten. During an ordinary dinner, you might eat leaves, stems, roots, bulbs, flowers, fruits, and seeds! If you don’t believe it, think about those leaves you had for dinner the other night (lettuce). In your salad, you might also have enjoyed some delicious stems (celery), roots (carrots), and bulbs (onions). If your meal included broccoli or cauliflower, you were actually eating flowers.

Grains such as wheat, corn, and rice are the seeds of grass plants. We eat grain in many forms. Wheat is usually ground into flour, which is used for baked goods. Corn may be eaten whole or ground. We usually eat rice whole, either with or without its brown husk.

Meat is the flesh of an animal. The meat we usually eat is muscle, although other parts, such as the liver, are sometimes eaten as well. Cattle (beef and veal), pigs (pork), chickens, and turkeys are the most common food animals in the United States. We also eat fish and other types of seafood. Other animal products include eggs, dairy foods, and gelatin.

A Fruit by Any Other Name ...

When is a fruit not a fruit? “Fruit” actually describes the part of a plant that contains the seeds. By that definition, tomatoes, cucumbers, and eggplants are fruits. We usually call them vegetables, however, and use the word “fruit” only for sweet-tasting plants.

A vegetable is an edible plant part other than the fruit.

Activities

- Look through your newspaper’s classified ads and circle all jobs related to food. These positions could include restaurant worker, nutritionist, caterer, and more. Which aspect of the food business is each job related to? Do any of them interest you? If so, why?

- Even comic strip characters have to eat. Clip any food-related comic strips from the newspaper, discuss the role food plays in the comic’s story, and then design a bulletin board to display the comic strips by theme. Extend this activity by using the grocery ads to plan a special dinner for your favorite comic strip character.

- Pick any fruit or vegetable from newspaper grocery ads and find out where it comes from. Trace its origins on a map or globe.

- Arrange a field trip to a nearby farm. Before you go, prepare a list of questions you’d like to ask the farmer about his work. After your visit, write a feature story describing how the farm operates.

- Many people think packaging should be kept to a minimum so that excess waste isn’t created. As an example, individual bags of potato chips packed in a plastic-wrapped box use material that wouldn’t be necessary in a single bag of potato chips. Look through your newspaper’s food advertisements for examples of efficient and inefficient packaging. Pick one package that you consider inefficient and redesign it.

- A product’s packaging sometimes influences us. From newspaper ads, select pictures of several packaged foods and discuss with your class whether the packaging for these products is appealing.
The Long Way Home

In poor countries, people often live very close to their food source — it might even be in their own back yard in the form of a small garden or a few livestock animals. In wealthy countries, including the United States, the food game is played somewhat differently.

Most of the food you eat is probably produced by someone else, and much of it is processed in some way before it reaches you. Processing may consist of adding preservatives, flavorings, colorings, and other substances to foods; cooking, drying, freezing, smoking, or curing the food; slaughtering animals and preparing the cuts of meat; pasteurizing (heating) milk to make it safe to drink; or simply washing and sorting the food.

After processing, many foods are packaged to protect them from spoilage or breakage and to make them easier to handle. Food may be canned, boxed, wrapped, or placed in cartons, jars, or bags. In addition to protecting the food, packaging also helps sell the product. Many manufacturers put a lot of effort into designing attractive packages, especially when the products are destined for store shelves.

After food is processed and packaged, it’s ready for the store — but it has to get there first. Shipping companies transport food from producers and factories to the stores. They rely on refrigerated vehicles to help keep the food from spoiling while in transit. Much of this food ends up in supermarkets. Some of it is also sold to restaurants, delicatessens, and bakeries.

Some producers sell their products at roadside stands or farmers’ markets. If you buy corn at a roadside stand, you’re probably buying it from the farmer who grew it. Many farmers, however, sell their food to processors. The processors sell their products to wholesalers, who buy in big quantities. Wholesalers then sell smaller amounts to retailers, the stores and restaurants from which consumers buy most of their food.

A Delicious Journey

Candy bars don’t grow on trees — but cocoa beans do. All chocolate is made from cocoa beans, the seeds of cacao tree. The best ones come from Brazil, Venezuela, and Ecuador.

The beans are roasted in ovens and have their shells removed. They are then ground into a heavy syrup called chocolate liquor. The fat in the beans, called cocoa butter, is what makes the ground beans syrupy.

Chocolate liquor (which is non-alcoholic) is the basic ingredient in all chocolate products. Chocolate candy is made by blending liquors from varieties of cocoa beans to achieve that candy’s particular flavor.

The blended chocolate is mixed with sugar and other ingredients, ground again, stirred to remove lumps, cooled, reheated, and poured into molds. After it cools, the candy is removed from the mold, wrapped, boxed, and shipped in big cartons to the store. All you have to do is eat it.
Nutrition Essentials

Food supplies the body with nutrients, the substances we must have to stay healthy. Although a person may live for several weeks without food, body processes will eventually break down and stop without nourishment.

There are six major groups of nutrients.

Water

The body uses water in many ways. Water is needed to carry other nutrients to the tissues and to transform food into energy and building material. Water also carries away waste and cools the body.

SOURCES: Drinking water, beverages. Water is also present in food.

Carbohydrates

Sugars and starches are carbohydrates. They supply energy that enables the body to do its work. You could not run, play soccer, study, or even watch television without energy to fuel your body’s actions.

SOURCES: Most foods. Milk contains lactose, one type of sugar; another sugar, fructose, is found in many fruits and vegetables. Bread, beans, grains, pasta, peas, and potatoes contain starches.

Fats

Fats are a form of very concentrated energy. They are made up of glycerol (a kind of alcohol) and fatty acids.

SOURCES: Plant oils, fish, olives, peanuts, dairy foods, and meat.

Proteins

Proteins have several jobs. They supply energy and building material for muscles, skin, and hair. Proteins called enzymes are present in every cell of the body and speed up chemical reactions. Proteins also fight diseases and act as chemical messengers.

SOURCES: Complete proteins are found in eggs, fish, lean meat, milk, and cheese. Cereal grains, vegetables, peas, and nuts also contain protein.

Minerals

Maintaining body structures and fluids is the job of minerals. They are also necessary for growth. Some minerals help form bones and teeth; others help make hemoglobin (an oxygen-carrying molecule in red blood cells) and help enzymes function properly.

SOURCES: Many foods. Milk contains calcium, cereals and meat contain phosphorus, meat contains iron, and green, leafy vegetables contain magnesium.

How nutritious is your favorite snack food? Labels can tell you a lot about what’s in a food — and what isn’t. Check the label of your favorite food or, if it doesn’t have a label, do some research to find out how many nutrients it contains. Is that amount of nutrients significant? Share your findings with the class.

Use your newspaper’s food ads to plan a meal that includes at least one serving from each of the five major food groups in the Food Pyramid (See page 7). Cut out the foods you’ve chosen and paste them on a piece of paper. How much will your meal cost?

Cut out pictures of foods that represent each of the groups of nutrients: water, carbohydrates, fats, protein, vitamins, and minerals. Make a collage that includes all of these groups.

Plan a “Healthy Eating” week at your school to increase awareness of good nutrition. Talk to the head of your school cafeteria to find out how meals are planned and write an article based on your findings.
**Humble Beginnings**

Pretzels were invented by European monks as a reward for pupils who learned their prayers. The crossed ends symbolized praying hands.

Popcorn may be the world’s oldest snack. Native Americans have been popping it for more than 5,000 years.

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**Vitamins**

Vitamins regulate the chemical processes that convert food into energy and body tissue.

- **Vitamin A** promotes healthy skin and bone development.
- **Vitamin B1** helps change starches and sugars into energy.
- **Vitamin B2** helps the body use food.
- **Vitamin B6**, **pantothenic acid**, and **biotin** function in various chemical reactions.
- **Vitamin B12** and **folic acid** help form red blood cells and promote a healthy nervous system.

- **Niacin** enables cells to use carbohydrates.
- **Vitamin C** helps maintain supportive tissue in the body.
- **Vitamin D** helps the body use calcium.
- **Vitamin E** helps maintain cell membranes.
- **Vitamin K** promotes proper blood clotting.

**Sources:** Many foods. Vitamin A is found in milk and green and yellow vegetables, niacin in lean meat and nuts, Vitamin C in fruits and potatoes, and Vitamin E in vegetable oil and whole-grain cereal.

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**Foods That Are Good for What Ails You!**

Some of the chemicals contained in food help regulate body processes, fight disease, lower blood pressure, and even relieve pain. Some common foods have benefits that might surprise you!

See if you can match each food with its description below.

1. As refreshing on a hot day as it is soothing on a cold night, it fights bacterial infections, ulcers, cavities, and diarrhea.

2. It may be used either ground or whole in cooking. Helps relieve toothache.

3. It’s often used to add flavor to baked goods and beverages. Relieves nausea; also reduces pain and swelling of arthritis.

4. Has high calcium content that helps maintain strong bones.

5. Can help neutralize cancer-causing agents in cigarette smoke. Often used as garnish for other foods.

6. A rich source of anti-cancer substances, including Vitamin C.

7. Good for a stuffy nose or congested sinuses.

8. Fights bacteria, fungi, intestinal parasites, cancer, colds, and inflammation. Tends to linger on your breath!


10. Sometimes known as brain food, but it could be called heart food as well. An ounce a day has been shown to reduce heart attack risk by 50 percent.

**Answers on Page 9**

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**The Food Guide Pyramid**

- **Fats, Oils, & Sweets Group** (Use Sparingly)
- **Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group** (2-3 Servings Daily)
- **Vegetable Group** (3-5 Servings Daily)
- **Bread, Cereal, Rice, & Pasta Group** (6-11 Servings Daily)
- **Milk, Yogurt, & Cheese Group** (2-3 Servings Daily)
- **Fruit Group** (2-4 Servings Daily)

**Source:** *Food – Your Miracle Medicine* by Jean Carper
What’s Cooking Around the World

China

The Chinese eat a lot of grains, especially rice. In northern China, people prefer wheat, which they make into bread and noodles.

Favorite meats are pork and poultry, but eggs, fish, and shellfish are also eaten. Cabbage, tofu (soybean curd), and roasted sweet potatoes are other common foods.

Rice porridge, chicken noodle soup, or fried pastries are favorite breakfast foods. For lunch, the Chinese enjoy egg rolls and meat or shrimp dumplings.

A typical Chinese meal includes vegetables with small bits of meat or fish, soup, and rice or noodles. The Chinese create varied textures in their food by adding such items as mushrooms and water chestnuts.

England

English foods usually are not very spicy. The English prefer roasted and grilled meats, especially beef and lamb. Fish dishes such as fish and chips and Dover sole are popular. Meals often include roasted or boiled potatoes, cabbage, Brussels sprouts, cauliflower, or carrots.

Their food may lack spice, but the English often give favorite dishes colorful names. Specialties include Yorkshire pudding (batter cooked with meat drippings), bubble and squeak (mashed potatoes and cooked cabbage fried in a skillet), toad in the hole (casserole made with batter and sausage), shepherd’s pie (a casserole of meat and mashed potatoes), and bangers and mash (thick sausages with mashed potatoes).

France

The French are the masters of crepes (usually filled with cheese, vegetables, shrimp, or meat), quiches, and appetizers, including escargots (snails in garlic butter), pates (spiced chopped meat), and puff pastries.

Ordinary meals often include onion or potato soup, steaks, chops, roasted chicken, French fries, crusty bread, green salad, or fruit and cheese. Breakfast is usually very simple, consisting of soft rolls with butter or jam.

French specialties include bouillabaisse (a heavy chowder made with several kinds of seafood) and cassoulet (a casserole of beans and several types of meat).

India

The Indian diet is based on grains (including rice, wheat, millet) and pulses (seeds such as beans, chickpeas, and lentils). A meal might include rice, dal (porridge made from pulses), and chappattis (flat baked breads similar to
tortillas). Samosas (pastries that are filled and fried) are snacks.

Hindus usually don’t eat beef, and Muslims don’t eat pork. Spicy vegetable dishes are very popular. Chutneys (relishes made of spices and fruits) are often served with meals, as is raita, a mixture of yogurt, fruits, and vegetables.

Roasted chicken or lamb is served on special occasions, when food is sometimes wrapped in thin silver that can be eaten as well.

**Mexico**

Tortillas are eaten at all meals, including breakfast. They are made from corn (the main food of most Mexicans) or wheat. Tortillas are used in several dishes, including tacos (tortillas that are filled with meat or cheese and fried) and enchiladas (filled tortillas that are rolled up and covered with sauce).

Refried beans (frijoles), fried rice, atole (a dish made from corn meal), and tamales (corn meal steamed in a wrapper and mixed with meat) are other common dishes. Chili peppers are a popular seasoning.

**Nigeria**

The main Nigerian foods are yams, corn, rice, millet, beans, peanuts, black-eyed peas, plantains (a kind of banana), and cassava roots. The food is often cooked in palm or peanut oil and seasoned with red peppers. Nigerians eat little meat, but sometimes beef, chicken, fish, or lamb is included in meals. Pepper soup, toasted corn and peanuts, and ogede sise (boiled bananas) are popular.

**United States**

The American diet is varied. We like many kinds of meat, from beef and pork to chicken and turkey. We also enjoy fish, shellfish, pizza, spaghetti, hot dogs, and sandwiches. Fast food, including hamburgers, fried chicken, and French fries, is very popular.

Unlike people in poorer countries, Americans eat many highly processed foods.

Potatoes, lettuce salads, and cooked vegetables commonly accompany meals, especially dinner. Bread, cereal, eggs, pancakes, bacon, and sausage are favorite breakfast foods, while sandwiches, soup, and fruit are popular for lunch.

Americans eat a lot of snacks and desserts, including cake, cookies, pie, ice cream, potato chips, and candy.

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**ACTIVITIES**

Pick any country that interests you and find out what types of food people eat there. How is that country’s typical diet different from yours? Why is it different? Share your findings with the class.

Look through your newspaper for advertisements or listings of local restaurants. See how many ethnic restaurants (those that feature the cooking of a particular nation or culture) you can find. How many cultures are represented? Which ethnic food is most popular in your area?

Arrange to have an “international day” in class featuring your favorite ethnic foods. If you like, include regional favorites from your part of the country. Conclude by writing a newspaper-style review of the various food selections.

Answers from page 7:

Prehistoric people ate whatever came to hand — roots, seeds, wild fruits, the flesh of dead animals. They spent much of their lives in search of the next meal.

Agriculture was established by about 8000 B.C. Farming was a big step forward for humanity because it meant people could stay in one place instead of continually foraging for something to eat. It also gave them a more reliable food supply.

It’s no coincidence that the great civilizations were all established in river valleys — the Nile Valley, the Tigris-Euphrates, the Indus, and the Huang He. Farmers had great success in cultivating the rich soils in these areas. Their bountiful harvests produced a well-fed populace, and towns and cities began to grow.

Throughout history, food has played a role not only in the rise of civilizations but in wars, trade, exploration, and colonization.

When the ancient Greeks and Romans lacked enough food to feed their people, they attacked the problem in two ways. They imported food and they conquered other people who had it. At its height, the Roman Empire spanned parts of Europe, the Middle East, and Northern Africa, and the Romans enjoyed a varied diet that included grain, fruits, and spices from many lands.

During the Middle Ages, many Europeans fought in the Crusades. While in the Middle East, they developed a taste for the local cooking. Their diet at home was plain and monotonous, consisting largely of bread, turnips, cabbage, and dried meat, so the zesty spices of the Middle East were real eye openers. This interest in spices led to an increase in foreign trade as well as a new era of exploration and discovery. Eventually, it led Christopher Columbus in search of a westward
route to the fabled Far East. It’s worth noting that although his search for Eastern spices failed, he did discover an entire hemisphere of new food – new to the Europeans, anyway.

The impact of these food discoveries was enormous. One of the foods native to the New World was the potato. Its nutritious properties actually helped bring about a population boom when it was introduced back in Europe. Native corn helped the English colonists survive their first winter in Massachusetts.

Sugar cane, which Columbus brought with him to the New World, also had a lasting impact on history. The climate in the West Indies was very favorable to the plant, so the Europeans began cultivating it on a large scale. This backbreaking work required laborers, and African slaves were imported for that purpose. Europeans got their sugar but at a high price in human suffering.

Use a map or atlas to discover the location of the Nile, Tigris-Euphrates, Indus, and Huang He rivers. Which modern countries are located on the sites? Pick one of the early civilizations and find out more about its culture and way of life. Share your findings with the class.

Put a check next to each food that you think was unknown in Europe before Columbus’s voyage of discovery. The correct answers are on Page 13:

- Apples
- Avocados
- Barley
- Cherries
- Chocolate
- Figs
- Licorice
- Peanuts
- Peppers
- Pineapples
- Rice
- Sweet potatoes
- Squashes
- Tomatoes
- Wheat

Can you think of any recent international conflicts that involved food? Watch your newspaper for these stories; keep all of the articles you find for a classroom bulletin board with the theme, “Food for the World.”

Can you think of any recent international conflicts that involved food? Watch your newspaper for these stories; keep all of the articles you find for a classroom bulletin board with the theme, “Food for the World.”

From your newspaper’s international news section, select a foreign country that is currently making headlines. Do research to learn all you can about the country’s main agricultural crops and the most common foods eaten by its citizens. Discuss with your class how diet is affected by agriculture.
From the latest food fad to breakthroughs in producing better strains of wheat, food is often in the news. Why? Well, everyone has to eat, so it's a topic of great concern for practical reasons. But beyond that, it seems people really like to read about food.

Many newspapers have a section devoted entirely to food. In these sections, you can find recipes, cooking tips, articles about new products and services, information about nutrition, and perhaps a profile of a local chef or restaurant. The section usually contains grocery store advertisements and coupons, too.

Reading the food section can be a lot of fun, even for an inexperienced cook. Bored with the same old thing for dinner? There are always new recipes to try. Going shopping? Check the advertisements for the best bargains. Interested in the latest kitchen gadget? Read all about it!

What's in Our Food?

One topic of concern to almost everyone is food safety, so it's not surprising that this issue sometimes makes headlines.

Artificial pesticides have helped farmers produce bigger crops that feed more people. Unfortunately, many of the chemicals sprayed on the crops remain in the food when we eat it; they also find their way into our water supply. Environmental pollutants of all types can also get into food — mercury from the burning of coal and radiation from nuclear power plants, for example.

Although the amounts of chemicals are usually very small, we don’t always know what effects they will have in the long run. Some of them may build up in our bodies over time and cause cancer or other illnesses. Some interact with each other in unexpected ways.

Many chemicals are added to foods on purpose, to add flavor or color, to keep the food fresh, or for other reasons. Preserving food is necessary because spoiled foods can make us very sick. The difficult part is finding preservatives that will do the job without causing safety problems of their own.

It’s important to remember that food is chemicals. Food is composed of chemicals and chemical compounds that your body breaks down and uses in various ways.
Your body, too, is made up of chemicals and even contains some — salt, for one — that are poisonous in large amounts. These same chemicals, though, are harmless and even necessary in small amounts!

Over time, people have learned a lot about natural poisons. We know which mushrooms to avoid eating, for example. The trouble with manmade chemicals is that sometimes it takes a while for their harmful effects to show up.

Many people think the best course of action is to test these chemicals carefully or to avoid using them at all unless absolutely necessary. Cleaning up the environment would also reduce the amount of artificial chemicals in our food and water.

Cooking also kills bacteria and other organisms in food.

No one knows exactly when people started cooking, but it’s an ancient art. At some point, maybe by accident, prehistoric people found they liked food that had been roasted over fire. We’ve been cooking ever since!

\[\text{Lettuce, Tomato, Hold the Pineapple}\]

People think of the hamburger as all-American fare, but it has international origins. In the 18th century, France’s imported beef was shipped from Hamburg, Germany. It was often served chopped and came to known as Hamburg steak. American cooks later added the bun and changed the name to “hamburger.”

Today the hamburger is known all over the world, but not everyone eats it with lettuce, tomato, and pickles. Some favorite toppings include beets and pineapple (Australia), fried eggs (Argentina), and bacon and bananas (South Africa). In Switzerland, American-style trimmings are popular, but watch — the Swiss always eat hamburgers with a knife and fork.

\[\text{A Word About Our Favorites}\]

Frankfurters are named after Frankfurt, Germany, and probably date to medieval times. According to one story, the American term “hot dog” came into use after a vendor advertised frankfurters as “hot dachshund sausages” because of their shape. Eventually, they became “hot dogs.”

Potato chips were invented by a cook at a Saratoga Springs, N.Y., resort who resented a complaint about the thickness of his fried potatoes. To get even he sliced a potato into thin slivers, cooked it in oil, salted it, and sent it out. To his surprise, his prank was an instant hit.

A doctor in St. Louis began making peanut butter around 1890 as a high-protein food for his patients. But the Incas had beaten him to it centuries earlier. They ground peanuts and mixed them together with honey for a delicious treat.

\[\text{Activities}\]

- Watch for advertisements or news items about new food products. Pick one to try at home, then write an evaluation. Explain why you did or did not like the product.
- Look in your newspaper’s food section for a recipe that appeals to you. Read it through completely. What amounts of ingredients would you need if you doubled the recipe? If you cut it in half? Prepare a grocery list of the items — including the amounts of each — you would need if you prepared the recipe for the entire class.
- Find an advertisement that lists the size and price of an item, then figure out the cost per unit. For example, if a 16-ounce package of hot dogs costs $1.50, how much is the price per ounce? See if you can find the same item on sale at another store and calculate the cost per unit. Which store has the better bargain?
- Pretend you have just invented a new food product. It can be anything you like, from a new cookie mix to a new kind of soup. Design a newspaper ad that will convince people to buy your product or create a press release to inform the media about it.
- In the food ads, see how many products you can find that are labeled “all natural” or “no artificial ingredients.” Do they cost more or less than other brands? What conclusions can you draw? Discuss.
A Look at the Future

Food science is constantly developing new methods of producing, processing, and preserving food. In many parts of the world, the emphasis is on growing more food to feed growing populations. In most developed countries, scientists are also working on ways to improve the flavor, appearance, and even the form of food.

There are about 250,000 types of plants on Earth today, and we cultivate only a fraction of them. In the future, we will probably begin to investigate more plants as potential food sources. Some of today’s food research could revolutionize the way we eat and even what we eat in the future.

Pass the Seaweed, Please

How does a seaweed sandwich sound? Don’t be too quick to say, “No way!” If you’ve eaten ice cream, you’ve probably eaten a seaweed product called alginate, which is commonly used as a thickener. Researchers are trying to discover more food uses for seaweed, which is plentiful all over the world. The Japanese already use seaweed in many of their dishes.

The sea holds other edible possibilities. Algae, for example, are high in protein. One type of algae has even more protein than soybeans. And, out of 30,000 species of fish, only a few hundred types end up on our plates.

We must carefully consider the effects new sources of food can have, however. Krill, which looks like a very small shrimp, is a food source for whales, seals, birds, and fish in the Antarctic region. Although it is a good source of protein, harvesting it for human consumption might upset the delicate food chain and ecological balance of the ocean.

Incredible Edibles

New food products can be made from some surprising materials. “Meat” made from textured vegetable protein, a soybean product, is now widely available and might become more popular in the future. Another meat substitute has been created from microscopic fungi.

You’d certainly never think of putting sawdust in your iced tea — would you? You might if the sawdust had been changed to sugar, as has been done in a laboratory.

Test-tube Kitchen

Scientists now have the ability to move plant genes — the units that determine the qualities of the plant — from one plant to another. In this way, the scientists can combine the characteristics of several entirely different plants. For instance, if one type of rice grew well under harsh conditions but had a low yield, scientists might move a gene from a high-yielding fruit tree to the rice plant. This would make the new rice plant both hardy and productive.

Through genetic engineering, scientists could also change the nutritional value of food. For example, they could boost the Vitamin C in orange juice or give a candy bar the nutrients of a healthy helping of Brussels sprouts. Both great ideas, but instead, most scientists are concentrating on ways to alter food so that it lasts longer or grows better. Some examples include research to develop potatoes and tomatoes that can be stored longer.

Although genetic engineering appears to have many possibilities, some people are concerned about potential problems. They worry about the dangers of introducing new organisms into the ecosystem and think some of the foods might be unsafe to eat.

Scientists can also grow plants from cultures in the laboratory. This process, called cloning, creates thousands of identical plants from one sample of plant tissue.
Food that’s Good — and Safe

We want our food to taste good — and to be safe. But food can make us ill, especially when it is not stored or handled properly. Each year thousands of people become sick as a result of food-borne illnesses.

Government regulations are designed to protect us from this problem, and scientists continue to look for new and better ways to ensure food safety.

Some ideas being tested include treating food with high-pressure processing or gamma rays. New packaging that better prevents bacteria is also being developed. Scientists have discovered that sterilizing eggs in their shells and changing the diet of cattle can destroy disease-causing microorganisms.

Fresh from the Factory

Vegetables come from the farm, right? Not always. Some crops are already being grown indoors, without soil, through a method called hydroponics. This technique uses liquid nutrients to nourish plants grown from seeds; computers control the temperature and lighting. The advantages of this system are that it uses much less water than traditional farming, weather is never a problem, and pesticides aren’t needed. The plants also grow faster and need less space than farmgrown crops.

Many scientists think climate changes caused by the greenhouse effect will change agriculture all over the world. Areas that are now too cold for crops could become warmer; fertile areas might become dry and hot. Indoor farming might allow us to avoid the effects of global warming on our crops.

Afterthoughts

Yogurt is a food with a past. Ancient Mesopotamians considered it a gift from the gods. So did the ancient Greeks, who used it as part of the training diet for Olympic athletes. ... The sandwich is named for the Earl of Sandwich, an 18th-century English nobleman. Not wishing to stop his card game for a meal, the earl instead asked his servant to bring him two pieces of bread with some meat in the middle. ...

Louis XVI of France might have avoided the guillotine if he hadn’t insisted on taking his kitchen staff along when he tried to escape. When Louis stopped for a three-hour lunch, his pursuers caught up with him.