



BE FOOD SAFE:

CLEAN. SEPARATE. COOK. CHILL.





Food safety matters

While the food supply in the United States may be the safest in the world, it is important to note that there are many organisms you can't see, smell or taste that can infiltrate that food supply. Bacteria, viruses and tiny parasites are everywhere in the environment. According to the Centers for Disease Control and Prevention, each year 48 million illnesses, 128,000 hospitalizations and 3,000 deaths in this country can be traced to foodborne pathogens. That is why food safety is a serious matter. Publix Super Markets Inc. has partnered with Florida Press Educational Services to bring you this Newspaper in Education publication to enhance your awareness of foodborne illnesses and how you and your family can stay healthy.



Think about it

Foodborne illnesses are a preventable and often underreported public health problem. An awareness of food safety risks is especially important to high school students.

In addition to the fact that you will be on your own soon and preparing your own food, high school students also:

- Prepare food for younger siblings or older relatives.
- Work in restaurants, supermarkets and other places that sell, handle and serve food.
- Eat food in restaurants and friends' homes.

The shopping experts

Publix Super Markets Inc. is the nation's largest independently owned grocery retailer. So, it goes without saying that they take food safety very seriously. Publix associates are food safety experts, and they want to share their knowledge with you.

Publix has associates that are experts in food safety. Food safety training includes instruction on proper food handling, hygiene, food storage, cleaning and sanitation, and pest management.

Publix wants to make sure your food stays safe in the store. To learn more about Publix programs, go to tbtim.es/13pb.

Partners in education

Publix Super Market Charities is a national sponsor of the Partnership for Food Safety Education. The 25 partner organizations and federal liaisons of the Partnership for Food Safety Education help educate millions of consumers about preventive practices that halt the growth and spread of dangerous foodborne pathogens that can cause

serious illness and even death. The partnership delivers science-based behavioral health messaging and a network of resources that support consumers in their efforts to reduce the risk of foodborne illness.

The partnership's food and safety educators, known as BAC! Fighters, help consumers protect their health through safe food handling and hand hygiene. To learn more or become a BAC! Fighter, go to teamfoodsafety.org/bac-fighters.

A major problem

Not only can you get sick from

foodborne pathogens, the United States Food and Drug Administration estimates that 2 to 3 percent of all foodborne illnesses lead to serious secondary long-term illnesses. That means that a case of food poisoning could result in meningitis, sepsis or kidney failure. Not only is this bad for your health, but it is bad for public health in general. Foodborne illnesses also contribute significantly to the cost of health care.



Sources: Department of Health and Human Services; U.S. Food and Drug Administration; National Science Teachers Association; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education



CLEAN



SEPARATE



COOK



CHILL

The core four

You have the power to reduce your risk of foodborne illness. It's as easy as following these core four Fight BAC! practices for food safety:

- **Clean:** Wash hands and surfaces often
- **Separate:** Don't cross-contaminate raw meat with vegetables
- **Cook:** Cook your food to the safe internal temperature
- **Chill:** Refrigerate foods quickly and don't overstuff the fridge

DID YOU KNOW?

- In 1950, scientists knew of five foodborne pathogens. By 2011, there were 31 pathogens known to cause foodborne illnesses.
- The most common foodborne illnesses are caused by norovirus and by the bacteria *Salmonella*, *Clostridium* and *Campylobacter*.
- The Centers for Disease Control and Prevention (CDC) estimates that over 1 million people in the United States are infected each year with *Salmonella*.
- According to the Economic Research Service (ERS) of the United States Department of Agriculture (USDA), each year \$6.9 billion in costs is associated with four bacterial pathogens: *Campylobacter*, *Salmonella*, *Listeria monocytogenes* and *E. coli*.
- In Florida in 2014, 2,382 foodborne disease outbreaks were reported, resulting in 29,395 illnesses, 2,026 hospitalizations and 45 deaths.

GOVERNMENT RESOURCES

- Food Safety and Inspection Service: fsis.usda.gov
- U.S. Department of Agriculture: usda.gov
- U.S. Food and Drug Administration: fda.gov
- U.S. Department of Health & Human Services: foodsafety.gov
- Centers for Disease Control and Prevention: cdc.gov
- Florida Health Department: floridahealth.gov
- Florida Department of Agriculture: freshfromflorida.com



Going beyond the text

Journaling to self discovery

Knowing who you are is the first step in being healthy and taking charge of your life. Keeping a journal is a great way to learn more about yourself. Who are you? Why do you do what you do? Do you have strong convictions? Are you able to stand up to others when your ideas are questioned? In other words, what makes you, you? While you read through this food safety publication, keep a journal, cataloguing your thoughts and ideas about what you are reading and learning. In addition, read your local newspaper to learn more about the world around you. Each day, write down your thoughts about something you read in the newspaper. To begin your journal, write about something that you have read in the newspaper and in this publication that directly affects your life. Share some of your journal entries and thoughts with your peers and teachers.

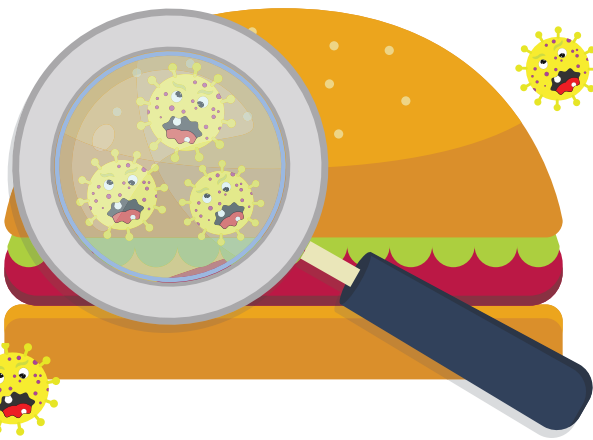
• **Fast-food restaurants employ more high school students than any other industry.**

• **Today, nearly 50 percent of the money we spend on food goes toward buying food that others prepare.**



Sources: Department of Health and Human Services; U.S. Food and Drug Administration; National Science Teachers Association; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education

Preventable public health challenge



Everyone is at risk for getting a foodborne illness. However, some people are at greater risk for suffering a more serious illness should they get a foodborne illness. Those at greater risk are infants, young children, pregnant women and their unborn babies, older adults and people with weakened immune systems (such as those with HIV/AIDS, cancer, diabetes, kidney disease and transplant patients).

Bacteria and food

Microorganisms may be present on food products when you purchase them. Thousands of types of bacteria are naturally present in our environment. Microorganisms that cause disease are called pathogens. When certain pathogens enter the food supply, they can cause foodborne illness. While some bacteria, such as the bacteria in yogurt, may be healthy, the unhealthy ones can spread quickly.

All foods, including safely cooked and ready-to-eat foods,

can become cross-contaminated with pathogens transferred from raw egg products and raw meat, poultry and seafood products and their juices, other contaminated products, or from food handlers with poor personal hygiene. Most cases of foodborne illness can be prevented with proper cooking or processing of food to destroy pathogens.

When microorganisms attack

Microorganisms are sneaky and often invisible to the naked eye. Even though you cannot see them, these organisms may be present on food products. Think about it: plastic-wrapped boneless chicken breasts and ground meat were once part of live chickens or cattle. Raw meat, poultry, seafood and eggs are not sterile. And despite its appearance and health benefits, fresh produce is not sterile either.

Thousands of types of bacteria are naturally present in our environment. Most of these bacteria are harmless. However, some are not.

Foodborne illness is a preventable public health challenge that causes an estimated 48 million illnesses and 3,000 deaths each year in the United States. It is an illness that comes from eating contaminated food.

Some people may become ill after ingesting only a few harmful bacteria; others may remain symptom free after ingesting thousands. The onset of symptoms may occur within minutes to weeks and often presents itself as flu-like symptoms, as the ill person may experience symptoms such as nausea, vomiting, diarrhea or fever.



Think about it

The best ways to avoid getting or spreading the bacteria are:

- Keep food properly refrigerated before cooking
- Clean hands with soap and warm water before handling food
- Clean surfaces before preparing food on them
- Separate cooked foods from ready-to-eat foods
- Cook foods to a safe internal temperature
- Chill foods promptly after serving and when transporting from one place to another.

Sources: Department of Health and Human Services; U.S. Food and Drug Administration; National Science Teachers Association; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education

Beware of pathogens

Bacteria and viruses are the most common cause of food poisoning. The severity and symptoms of food poisoning vary depending on the bacteria involved. The U.S. Public Health Service has identified the following microorganisms as being the biggest culprits of foodborne illness, either because of the severity of the sickness or the number of cases of illness they cause.

- ***Campylobacter*** – This is the second most common bacterial cause of diarrhea in the United States. The sources are raw and undercooked poultry and other meat, raw milk and untreated water.
- ***Clostridium botulinum*** – This organism produces a toxin which causes botulism, a life-threatening illness that can prevent the breathing muscles from moving air in and out of the lungs. The sources are improperly prepared home-canned foods.
- ***E. coli*** – This is a bacterium that can produce a deadly toxin and causes approximately 73,000 cases of foodborne illness each year in the U.S. The worst type of *E. coli* is known as *E. coli* O157:H7. The sources include beef, especially undercooked or raw hamburger; produce, fruits and vegetables; raw milk; and unpasteurized juices and ciders.
- ***Listeria monocytogenes*** – This bacterium causes listeriosis, a serious disease for pregnant women, newborns and adults with a weakened immune system. The sources are unpasteurized dairy products, including soft cheeses; sliced deli meats; smoked fish; hot dogs; pate and deli-prepared salads.
- ***Norovirus*** – This organism is the leading viral cause of diarrhea in the United States. Poor hygiene causes norovirus to be easily passed from person to person and from infected individuals to food items. The sources include any food contaminated by someone who is infected with this virus.
- ***Salmonella*** – Salmonella is the most common bacterial cause of diarrhea in the United States, and the most common cause of foodborne deaths. It is responsible for 1.4 million cases of foodborne illness a year. The sources of this bacteria are raw and undercooked eggs, undercooked poultry and meat, fresh fruits and vegetables, and unpasteurized dairy products.
- ***Staphylococcus aureus*** – This bacterium produces a toxin that causes vomiting shortly after being ingested. The sources are cooked foods high in protein, such as cooked ham, salads, bakery products and dairy products that are left too long at room temperature.
- ***Shigella*** – *Shigella* causes an estimated 448,000 cases of diarrhea illnesses per year. Poor hygiene causes *Shigella* to be easily passed from person to person and from infected individuals to food items. Sources of this bacterium are salads, unclean water and any food handled by someone who is infected with the bacterium.
- ***Toxoplasma gondii*** – This is a parasite that causes toxoplasmosis, a very severe disease that can produce central nervous system disorders, particularly mental retardation and visual impairment in children. Pregnant women and people with weakened immune systems are at a high risk. The source is primarily raw or undercooked pork.
- ***Vibrio vulnificus*** – This bacterium causes gastroenteritis, wound infection, and severe bloodstream infections. People with liver diseases are especially at high risk. The source is raw or undercooked seafood, particularly shellfish.



If you experience any symptoms of food poisoning, such as vomiting or diarrhea, drink plenty of fluids and get lots of rest. If you cannot drink enough fluids to prevent dehydration or if your symptoms are severe (including blood in your stools or severe abdominal pain), call your doctor.



Want to learn more?

- Download the *Bad Bug Book* second edition here: <http://tbtim.es/11i9>
- A-Z Index for Foodborne Illness: <http://tbtim.es/11ih>
- Check out these two charts from the Food Safety and Inspection Service:
 - o Foodborne Bacteria - <http://tbtim.es/11ia>
 - o Foodborne disease-causing organisms - <http://tbtim.es/11ie>

Sources: Department of Health and Human Services; U.S. Food and Drug Administration; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education



Going beyond the text

Creating a public service announcement

Newspaper advertising is a great way to reach a large number of people. Newspaper advertising has been around longer than any other type of advertising. The purpose of an advertisement is to sell something or provide information. A public service announcement (PSA) is providing information to the public. It can be in printed or broadcasted form. PSAs are used to inform, educate or persuade the public. The U.S. Food and Drug Administration, the United States Department of Agriculture and the Centers for Disease Control and Prevention often use PSAs to warn the public of food recalls. You can learn more about that on this website: foodsafety.gov/recalls.

A PSA that you read in the newspaper will be different from one you see on the Internet, in a text or on television. Look through your newspaper to find examples of traditional advertisements and public service announcements. Notice the difference in the visuals, language used and rhetoric being presented.

With a partner or in a small group, you are going to create a PSA. Using the information on these pages and the links provided, create a PSA to be printed in the newspaper and one to be presented on television or the Internet. The focus of your PSA will be that foodborne illness is a preventable public health challenge. Share your PSA with your classmates.

Cleanliness matters

Did you know that cleanliness is a major factor in preventing food-borne illness? Even though food safety inspections are monitored at the federal, state and local levels, your role, as a consumer, is very important.

Illness-causing bacteria can survive in many places around your kitchen, including your hands, utensils and cutting boards. Unless you wash your hands, utensils and surfaces the right way, you could spread bacteria to your food and your family.

Making sure food is safely handled after you purchase it is paramount to avoiding food borne illnesses. Everything that touches food should be clean because bacteria are everywhere.



Wash your hands

The first step in preparing a meal is to wash your hands. The process is simple. First, wet your hands with warm or cold running water. Second, apply soap. Third, rub your hands together to make a lather and scrub them well.

Bacteria can hide everywhere, so be sure to scrub the backs of your hands, between your fingers and under your nails. Rub and scrub your hands for at least 20 seconds. After you rinse your hands well under running water, dry your hands using a clean towel or air dry.

It is important to clean your hands

- before and after handling food

- after using the bathroom
- after changing a diaper
- after handling pets
- after tending to a sick person
- after blowing your nose, coughing or sneezing
- after handling uncooked eggs or raw meat, poultry or fish and their juices.

Wash your scene

You need to thoroughly wash with hot, soapy water all surfaces that come in contact with raw meat, poultry, fish and eggs before preparing a meal. You can use disposable paper towels to clean kitchen surfaces. If you use dishcloths, wash them often in the hot cycle of your washing machine. You also need to clean all kitchen surfaces and food preparation items.

- Keep cutting boards clean by washing them with hot, soapy water after each use. Cutting boards can be sanitized with a solution of one tablespoon of unscented, liquid chlorine bleach per gallon of water.
- Non porous acrylic, plastic, glass and solid wood boards can be washed in a dishwasher. Once cutting boards become excessively worn or develop hard-to-clean grooves, replace them.
- When using a food thermometer, you should wash the probe after each use with hot, soapy water before re-inserting it into a food.
- When cooking outdoors or preparing a picnic, be sure to bring plenty of clean utensils and bring clean, dry, and wet and soapy cloths for cleaning surfaces and hands.

Washing food

You should always wash fruits and vegetables before cooking or eating. Even if you plan to peel fruits and veggies, it is important to wash them first



because bacteria can spread from the outside to the inside as you cut or peel them. You should rinse the produce under running water. It is okay to use a clean produce brush, but do not use soap, detergent, bleach or commercial produce washes.

Do not wash meat, poultry or eggs. Washing raw meat and poultry can actually help bacteria spread, because their juices may contaminate your sink and countertops. All commercial eggs are washed before sale. Any extra handling of the eggs, such as washing, may actually increase the risk of cross-contamination, especially if the shell becomes cracked.



Fight BAC! like a producepro.
fightbac.org/food-safety-education/safe-produce

Sources: Department of Health and Human Services; U.S. Food and Drug Administration; National Science Teachers Association; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education



Be smart. Keep foods apart

The United States Department of Agriculture Food Safety and Inspection Service defines cross-contamination as the transfer of harmful bacteria to food from other foods, cutting boards and utensils. Cross-contamination can occur when you handle raw meat, poultry and seafood. Keeping these foods and their juices away from already-cooked or ready-to-eat foods and fresh produce will avoid spreading bacteria.



Food preparation

It is important to keep raw and cooked products separate to avoid cross-contamination. Don't use the same platter and utensils that held the raw product to serve the cooked product. Any bacteria present in the raw meat or juices can contaminate the safely cooked product. Serve cooked products on clean plates, using clean utensils and clean hands.

Even after you've cleaned your hands and surfaces thoroughly, raw meat, poultry, seafood and eggs can still spread illness-causing bacteria to ready-to-eat foods. That is why you need to keep them separated.

Follow these tips to keep bacteria away:

- Use separate cutting boards and plates for produce and for meat, poultry, seafood and eggs.
- Use separate plates and utensils for cooked and raw foods.
- Before using these plates or utensils again, thoroughly wash them.
- Keep meat, poultry, seafood and eggs separate from all other foods at the grocery store and in your grocery bags.
- Keep meat, poultry, seafood and eggs separate from all other foods in the fridge.

Sources: Department of Health and Human Services; U.S. Food and Drug Administration; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education

Going beyond the text

Researching food safety practices

Food safety practices have changed a great deal throughout the centuries. Research food safety practices from long ago, such as the following:

- use of drying and salting meats
- use of ice to cool and fire to cook
- first use of thermometers in determining safe food temperatures
- invention of pasteurization and irradiation

Think about how the industrial revolution and technology have changed food safety practices. Are these practices applied throughout the world? How might people in different parts of the world deal with food safety? Does the availability of soap, water and electricity make a difference?

What happens when natural disasters, such as earthquakes, hurricanes, tornadoes and floods, hit? In addition to using books and the Internet for research, use your local newspaper for your research. Write a research paper based on the information you discover. At the end of your paper, include strategies for good food safety practices during times of disaster or emergency.

Activity adapted from the Partnership for Food Safety Education.



Think about it

Harmful bacteria and pathogens from raw meat, poultry, seafood and eggs can spread to other foods if they are not separated properly. This is especially risky when bacteria are spread to foods that are eaten raw, such as fresh fruits and vegetables. Separating food will prevent cross-contamination.

In the grocery store

- Separate raw meat, poultry, seafood and eggs from other foods in your shopping cart.
- Place produce and meat products in separate plastic bags to prevent juices from getting on other foods.
- If you use reusable grocery bags, wash them frequently in the washing machine.

At home

- Separate raw meat, poultry, seafood and eggs from other foods in the refrigerator. Place these items in containers or sealed plastic bags on the bottom shelf of the refrigerator. That way, if there is a leak, it will not mix with the other food.
- If you are not planning to use meat products within a few days, freeze them.
- Keep fresh fruits and vegetables separate from raw meat, poultry, seafood and eggs.

Every year, one in six Americans, that's 48 million, will get sick from eating food contaminated with germs. The fact is that bacteria can multiply quickly when food is between 40 and 140 degrees Fahrenheit.



Avoiding cross-contamination

In addition to handling food safely by washing your hands and avoiding cross-contamination, it is important to make sure foods are chilled and cooked at the proper temperatures. Here are some facts from the Partnership for Food Safety Education:

- Bacteria that can cause illness grow rapidly in the “danger zone”: between 40 and 140 degrees Fahrenheit.
- The predicted number of cases of listeriosis would be reduced by more than 70 percent if home refrigerator temperatures stayed at 40 degrees Fahrenheit or below.
- Proper storing of food in a refrigerator at 40 degrees Fahrenheit or below helps to reduce the risk of food poisoning.
- Leftover refrigerated food should be consumed or frozen within three or four days.
- Refrigerate perishable foods within 2 hours.
- Divide leftovers into shallow containers and refrigerate immediately. Do not let them cool on the counter.
- Food should be thawed or marinated in the refrigerator, not at room temperature.
- Frequent refrigerator cleaning and sanitizing can help to reduce the likelihood of bacterial cross-contamination.
- Cook all raw ground beef, pork, lamb and veal to an internal temperature of 160 degrees Fahrenheit as measured with a food thermometer.
- Cook all poultry to a safe minimum internal temperature of 165 degrees Fahrenheit as measured with a food thermometer.

Think about it

While many people think they can tell when food is done simply by checking its color and texture, that is not the best way to determine safety. Cooked food is safe only after it's been heated to a high enough temperature to kill harmful bacteria. Color and texture alone won't tell you whether your food is done. Instead, use a food thermometer to be sure.

When you think your food is done, place the food thermometer in the thickest part of the food, making sure not to touch bone, fat or gristle. Wait the amount of time recommended for your type of thermometer. Some foods need 3 minutes of rest time after cooking to make sure that harmful germs are killed. Remember to wash your food thermometer with hot, soapy water after each use.

Temperature matters

Barbecues and picnics can be a lot of fun. Hanging out in your yard, at the beach or at a park with good friends and good food can be a great experience unless something, like food poisoning, dampens the mood.

Did you know that illness-causing bacteria can grow in perishable foods within two hours unless you refrigerate them? And if the outdoor temperature is above 90 degrees Fahrenheit, that growth can begin growing in half that time. Cold temperatures slow the growth of illness-causing bacteria. So it's important to chill food promptly and properly.



Know when to throw food out

You can't tell just by looking or smelling whether harmful bacteria has started growing in your leftovers or refrigerated foods, but looking and smelling food is important. Anything that looks or smells suspicious should be thrown out. Mold is a sign of spoilage. It can grow even under refrigeration.

DID YOU KNOW?

Did you know that pet food, pet treats and nutritional supplements for pets can become contaminated with harmful germs that can make people and pets sick? Pets that eat contaminated food can carry germs even if they appear healthy, and those germs can make you and your family sick. One type of germ that can make both pets and people sick is *Salmonella*. These germs can cause diarrhea in people, which can be mild, severe or even life-threatening.

Sources: Department of Health and Human Services; U.S. Food and Drug Administration; National Science Teachers Association; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education



Think about it

The possibility of bacterial growth actually increases as food cools after cooking because the drop in temperature allows bacteria to thrive. But you can keep your food above the safe temperature of 140 degrees Fahrenheit by using a heat source like a chafing dish, warming tray or slow cooker.

Using a food thermometer

- Place the food thermometer in the thickest part of the food. It should not touch bone, fat or gristle.
- Start checking the temperature toward the end of cooking, but before you expect it to be done.
- Be sure to clean your food thermometer with hot, soapy water before and after each use.



Thermometers make a difference

If you don't already have one, consider buying a food thermometer. Learn more about the different types of food thermometers available: <http://tbtimes/1287>. Using the information on this page, provided by the United States Department of Agriculture, create a chart showing the pros and cons of each different device.



Going beyond the text

Scavenger hunt

Look through the daily newspaper for pictures, articles, photos, cartoons, advertisements and recipes depicting food. Based on your research, note how long and by which method the foods should be prepared and cooked to make sure they are safe and taste good. Make a poster showing at least 10 items, with captions explaining the purpose of the preparation and cooking tips. Share what you have learned with your class.



The incredible egg

Eggs can be good for you nutritionally, but they also can contain illness-inducing pathogens.

- Always keep shell eggs refrigerated at or below 45 degrees Fahrenheit.
 - Throw out cracked or dirty eggs.
 - Wash hands, cooking utensils and food preparation surfaces with soap and water after contact with raw eggs.
 - Cook recipes containing eggs mixed with other foods to an internal temperature of 160 degrees Fahrenheit.
 - Promptly refrigerate any leftover foods that contain eggs.
 - Do not keep eggs warm or at room temperature for more than two hours.
 - Avoid eating raw or undercooked eggs.
- Learn more at foodsafety.gov/keep/types/eggs.



Sources: Department of Health and Human Services; U.S. Food and Drug Administration; National Science Teachers Association; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education

Convenience foods

Many Americans' freezers are stocked with fast, tasty convenience foods. While the shortest distance between the freezer and the table may be the microwave oven, not all convenience foods can be cooked in the microwave. You can prevent foodborne illness due to under-cooking frozen or other convenience foods with these four simple tips:

1. Read and follow the cooking instructions on the package.
2. Know when to use a microwave or a conventional oven.
3. Know the microwave wattage before microwaving food.
4. Use a food thermometer to ensure the food has a safe internal temperature.

Microwaving tips

Using a microwave to cook or reheat food is very convenient. However, they vary in power and efficiency, and sometimes cause foods to cook unevenly. Here are some tips you should follow to make sure your food is safe.

- Step one is to make sure it is okay to use a microwave instead of a conventional oven for the item you are cooking.
- Know your microwave wattage before cooking food.
- Read and follow the cooking instructions on the package.
- When you microwave, stir your food in the middle of heating.

- If the food label says, "Let stand for x minutes after cooking," don't skimp on the standing time. Letting your microwaved food sit for a few minutes actually helps your food cook more completely by allowing colder areas of food time to absorb heat from hotter areas of food.
- After waiting a few minutes, check the food with a food thermometer to make sure it is at least 165 degrees Fahrenheit.

Do the research

There are different ways that you can cook food. Research the following terms and methods of cooking:

- Conventional oven
- Crockpot
- Slow cookers
- Barbecue
- Smoker
- Rest time

Safeguarding your food

Safeguarding your home against foodborne illnesses begins not at home, but at the grocery store or any other place where you buy food that you plan to store and serve.

Combating foodborne illnesses is a top priority at the Food and Drug Administration (FDA). According to the Centers for Disease Control and Prevention (CDC), the top five pathogens caused almost 5.5 million illnesses last year.

Consumers play a key role in preventing these illnesses. While shopping for food, you should:

- Check for cleanliness at the store. Buying from a retailer who follows proper food-handling practices helps ensure that the food is safe.
- Keep certain foods separated. Separate raw meat, poultry and seafood from other foods in your grocery shopping cart. Place these foods in plastic bags to prevent their juices from dripping on other foods. It is also best to separate these foods from other foods at checkout and in your grocery bags.
- Inspect cans and jars. Don't buy food in cans that are bulging or dented. Also, don't buy food in jars that are cracked or have loose lids.
- Inspect frozen food packaging. Don't buy frozen food if the package is damaged. Packages should not be open, torn or crushed on the edges. Also, avoid packages that are above the frost line in the store's freezer or if the package has frost or ice crystals.
- Select frozen foods and perishables last. Meat, poultry, fish and eggs should be the last items placed in your shopping cart.
- Choose fresh eggs carefully. Before putting eggs in your cart, open the carton and

make sure that the eggs are clean and none are cracked.

- Be mindful of time and temperature. It's important to refrigerate perishable products as soon as possible after grocery shopping. If it will take more than an hour to get your groceries home, use an ice chest to keep frozen and perishable foods cold. Also, when the weather is warm and you are using your car's air conditioner, keep your groceries in the passenger compartment, not the trunk.

Source: U.S. Food and Drug Administration

Taking food seriously

Publix associates take food safety very seriously. Publix associates receive thorough food safety training specific to the tasks they perform. Store managers and associates who handle fresh foods in the deli, bakery, meat, seafood and produce departments, as well as the Aprons kiosk, receive even more extensive training. In addition, Publix associates take the following food safety measures.

- They use a nationally accredited Food Protection Manager Certification training program to help management associates with food safety knowledge and techniques.
- All Publix stores receive monthly cleaning and sanitation focus visits from sanitation specialists.
- Stores have bi-annual food safety audits, conducted by an independent, professional food safety management organization that reviews food safety practices and helps associates understand the key practices to maintain a safe food-handling environment.



Managing food safely from source to plate

Safe food handling doesn't begin with the consumer, but it does end on the consumer's plate. No matter how careful you are, if you start out with contaminated food you will almost certainly get sick. To ensure that foods are safely produced and transported from the farm or sea to the store, the FDA and other agencies have created strict rules for everything from pesticide use on the farm to cold storage in trucks to proper storage in the supermarket.

Even with all the rules in place, though, it's possible to slip up. That's why

it's important to buy from a reputable source – whether you're purchasing food to cook at home or prepared food from a store or restaurant.

Here's how one major reputable grocery chain, Publix, ensures that the food you buy in their stores is both fresh and safe to eat, so the final step in the food source chain, you, the consumer, have a safe product to prepare.

STEP 1

SOURCING

During this step, corporate purchasing associates purchase products that meet Publix's strict quality and food safety specifications. For sliced meats, representatives from Corporate Quality Assurance, the deli retail business unit, manufacturing and supply purchasing, and marketing discuss supplier qualifications. The objective of this step is to ensure all suppliers are able to maintain the safety and quality of all products and ingredients.

STEP 2

RECEIVING

During receiving, Publix distribution associates check the product for temperature and trucks for cleanliness. Associates take the product's internal temperature and review the truck's data logger to monitor the load's temperature throughout shipping.

STEP 3

PROCESSING AND PACKAGING

Processing the product involves any steps related to preparing the product before it's packaged, stored and ready to ship. In the case of pre-sliced meats, these steps include seasoning, cooking, chilling product and packaging for further distribution to stores. Associates at the deli kitchen check the product at each step to ensure it meets all quality and food safety standards.

STEP 4

STORAGE

In this case, the Publix brand deli meats are sent to our manufacturing central warehouse, while food safety tests are conducted by a food testing laboratory partner. Once the testing is complete and the food safety controls are verified, the product is transferred to one of the Publix distribution centers. The focus at this step is time and temperature. These meats must be kept cold throughout the supply chain. Forklift operators are responsible for storing the product properly.

STEP 5

SHIPPING

From manufacturing to our distribution centers to their final destination in Publix stores, the products are monitored closely by associates. The goal with some, as in this example, is to keep them cold until they're ready to come off the truck. Publix drivers, shippers and quality specialists work together to make this happen.

STEP 6

STORE RESPONSIBILITIES

Store associates receive, unload and refrigerate the product. Maintaining the cold chain at retail is critical to minimize the time the product is in the temperature danger zone (between 40 degrees Fahrenheit and 140 degrees Fahrenheit). Publix associates are trained to get these products under proper refrigeration. In the case of deli meats, associates take the product from the reach-in or walk-in cooler and slice it for sub kits for later use or to fill a customer's order and return unused product to the cooler. Food preparation equipment and utensils are kept cleaned and sanitized. Additional steps include rotating unopened product, identifying how long it should be open and properly marking opened items to maintain quality and reduce the potential growth of bacteria on products. Just as important is the health of all associates involved in food preparation.

STEP 7

CUSTOMER RESPONSIBILITIES

Remember, as soon as food is purchased, it becomes the consumer's responsibility to safely handle and prepare the food so that everyone who eats it continues to be protected. Though there are seemingly endless varieties of foods, preparation practices, eating customs, traditions and habits, proper food safety practices can be effectively applied in any kitchen. Food safety is literally in your hands.

Source:
Publix Super Markets



Going beyond the text

Researching new ideas

The Publix associates know their customers want our food to taste good and to be safe. Publix follows government regulations that are designed to protect consumers from getting sick. Scientists continually look for new and better ways to ensure food safety. Some ideas being tested include treating food with high-pressure processing or gamma rays and creating new packaging that better prevents bacteria. Scientists have discovered that sterilizing eggs in their shells and changing the diet of cattle can destroy disease-causing microorganisms. Use the newspaper, the Internet and magazines to research new food products and how they're being developed. Write a report on one of the new products you find interesting. Present the information you have learned to your class.

FOOD SAFETY CAREERS



Working in the food industry can be a fulfilling career choice. From working in the great outdoors to working in a laboratory, or from working for an independently owned farm stand to a corporate government facility, you can make a difference in protecting the health of the American people. There are many career opportunities in the food industry focusing on food handling and safety, nutrition, health-related sciences and health policies. Here are just a few of the career choices.

AGRICULTURE AND FOOD SCIENTIST

Agricultural and food scientists research ways to improve the efficiency and safety of agricultural establishments and products. Agricultural and food scientists work in various industries, including colleges and universities, manufacturing, and scientific research and development. They work in offices, laboratories and food production facilities.

AGRICULTURAL AND FOOD SCIENCE TECHNICIAN

Agricultural and food science technicians assist agricultural and food scientists by performing duties such as measuring and analyzing the quality of food and agricultural products. Agricultural and food science technicians work in laboratories, processing plants, farms and ranches, greenhouses and offices.

CONSUMER SAFETY INSPECTOR

Consumer safety inspectors work in one or more privately owned meat, poultry and egg processing plants. They ensure the plant is operating within its written plans for sanitation and processing. In addition, they conduct regulatory oversight activities inside the plants in matters relating to other areas of consumer protection.

FOOD ANIMAL VETERINARIAN

Veterinarians care for the health of animals and work to improve public health. They diagnose, treat and research medical conditions and diseases of pets, livestock and other animals. Most veterinarians work in private clinics and hospitals, while others travel to farms, work in laboratories or classroom, or work for the government.



FOOD INSPECTOR

Entry-level food inspectors in private commercial slaughtering plants provide the first line of defense against diseased and adulterated meat and poultry. They are responsible for much of the day-to-day in-plant inspection of animals before and after slaughter.

FOOD PREPARATION WORKER

Food preparation workers perform many routine tasks under the direction of cooks, chefs or food service managers. Food preparation workers prepare cold foods, slice meat, peel and cut vegetables, brew coffee or tea, and perform many other food service tasks. Food preparation workers are employed in restaurants, hotels and other places where food is served, such as cafeterias, grocery stores, hospitals and schools.

FOOD PROCESSING OPERATOR

Food processing workers operate equipment that mixes, cooks or processes ingredients used in the manufacture of food products. Most food processing workers are employed in manufacturing facilities. These workplaces are usually noisy and may be hot or cold, depending on the goods being produced.

FOOD SAFETY SPECIALIST

Food safety specialists help to ensure the quality and safety of our food supply. Most become experts in a specific aspect of food production or in a segment of the food industry, such as meat processing. For food grown in the United States, food safety specialists enforce proper methods of seed selection, fertilization, pest control, harvesting, storage and transport. They make sure foods are properly labeled, kept at the right temperature and taken off the shelves once they expire. Import inspectors are charged with ensuring that food products imported into the United States meet the same safety standards. For commercially prepared foods, food safety specialists monitor processing operations, inspect equipment and identify potential sources of contamination. Food safety specialists also inspect food service operators, such as restaurants and caterers, to enforce health and safety regulations.



FOOD SERVICE WORKER

Food and beverage servers and related workers perform a variety of customer service, food preparation and cleaning duties in restaurants, cafeterias and other eating and drinking establishments. Food and beverage servers and related workers are employed in restaurants, schools, hospitals, cafeterias and other dining places.

IMPORT INSPECTOR

Import inspectors are stationed at ports and other points of entry to the United States. They make sure that products imported from other countries are as safe as those produced domestically.

MICROBIOLOGIST

Microbiologists study microorganisms such as bacteria, viruses, algae, fungi and some types of parasites. They try to understand how these organisms live, grow and interact with their environments. Microbiologists work in laboratories and offices, where they conduct scientific experiments and analyze the results.

Source: Bureau of Labor Statistics



Career resources

Institute of Food Technologists
<http://tbtim.es/13f7>

Publix Corporate Careers
<http://tbtim.es/13f6>

United States Bureau of Labor Statistics
<http://tbtim.es/13f5>

**United States Department of Agriculture
Food Safety and Inspection Service**
<http://tbtim.es/13f4>

**United States Food and Drug
Administration**
<http://tbtim.es/13f8>



Going beyond the text Food safety inspector

By now you are aware of ways to keep your food and yourself safe. Check out the following website – <http://tbtim.es/13f9> – to get a more detailed picture of what health inspectors look for in dining areas. Then do an inspection at home, school and your favorite fast food or dine-in restaurant. In your journal, write down the positive things you see as well as the areas that need improvement. Using the letters to the editor in your newspaper as models, write a letter to the editor about your observations and your recommendations. Make sure to explain why following health safety precautions is so important. Be sure to include specific suggestions for improvement. Also write a letter to the owner of the establishment. You can use the form letter module on the Read, Write, Think website: <http://tbtim.es/13fa>.

DID YOU KNOW?

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Publix has been selected as one of Fortune magazine's 100 Best Companies to Work For® for 19 consecutive years. Publix is continually recognized as one of the best places in America to work. You can learn more about careers at Publix on the supermarket's website, corporate.publix.com/careers.

Playing with food

Food safety is not just about food preparation, it also includes the types of foods that you buy and eat. You've probably been told that it is better to eat fresh food than it is to eat food that has been heavily processed. Just as all bacteria isn't bad, not all processed foods are bad. It is a good idea to limit your intake and, of course, read labels carefully.

Fast food is a convenient option for people who lead busy lives and it can be fairly inexpensive.

However, having a steady diet of fast food is not a great idea. Here is an experiment for you to learn the difference between fresh and processed foods.

For this experiment, you will need a kid's meal from a local fast food restaurant: a cheeseburger, fries and apple slices. You also will need the following from your local Publix: bakery hamburger bun, cooked hamburger, fresh fruit and french fries from the deli.

Store each meal in an airtight container on a shelf. Do not open the containers until it is time to observe their contents.

Chart the results for each check-in: Two hours, four hours, eight hours, 24 hours, 36 hours, 48 hours, 60 hours, 72 hours, 84 hours and 108 hours. At each time increment, note how the food looks, smells, feels and decomposes. Take photos at each time increment. When you have finished the experiment, write a report, being sure to include as many details and your conclusions about those details.

Food for thought

Did this experiment gross you out? Do you think the better-looking meal is the one you would want to eat? Why or why not? Think about this: While mold is not pretty, it is a living organism that needs nutrients to survive. It obtains those nutrients by decomposing materials.

The purpose of preservatives is to resist that decomposition process, allowing food to be shipped and to be shelf stable. Your body also gains nutrients by breaking down food. If your food resists breakdown, you can't get important nutrients from that food. So, if mold doesn't want the ingredients, why would you want to eat that food?

Source: Kohl's Cooks for Kids and Fit4Allkids staff



Separating fact from fiction

Here are some common myths about food safety from the U.S. Department of Health and Human Services.

Myth: Food poisoning isn't that big of a deal.

Fact: Some foodborne illnesses can actually lead to long-term health conditions, and 3,000 Americans a year die from foodborne illness.

Myth: It is fine to thaw meat on the counter. Since the meat is frozen, bacteria isn't really a problem.

Fact: Bacteria grow surprisingly fast at room temperatures, so the counter is never a place you should thaw foods.

Myth: When cleaning my kitchen, I should use a lot of bleach. Since bleach kills bacteria, it is safe for my family, if I use a lot of bleach.

Fact: There is no advantage to using more bleach than needed. To clean kitchen surfaces effectively, use just 1 teaspoon of bleach to 1 quart of water.

Myth: I don't need to wash fruits or vegetables if I'm going to peel them.

Fact: Because it's easy to transfer bacteria from the peel or rind when you are cutting fruits and veggies, it's important to wash all produce, even if you plan to peel it.

Myth: In order to remove any bacteria on my meat, poultry or seafood, I should rinse off the juices with water first.

Fact: Rinsing meat, poultry or seafood with water can increase your chance of food poisoning. When you wash the meat product, you may splash juices and any bacteria they might contain onto your sink and counters.

Myth: The only reason to let food sit after it's been microwaved is to make sure I don't burn myself on food that's too hot.

Fact: Letting microwaved food sit for a few minutes helps your food cook more completely by allowing colder areas of food time to absorb heat from hotter areas of food.

Myth: Leftovers are safe to eat until they smell bad.

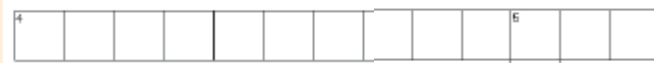
Fact: The types of bacteria that cause food poisoning do not affect the look, smell or taste of food.

Myth: Once food has been cooked, all the bacteria have been killed.

Fact: The possibility of bacterial growth increases after an item is cooked because the drop in temperature allows bacteria to thrive.

Food safety matters

The answers to the puzzle questions can be found in the pages of this publication.



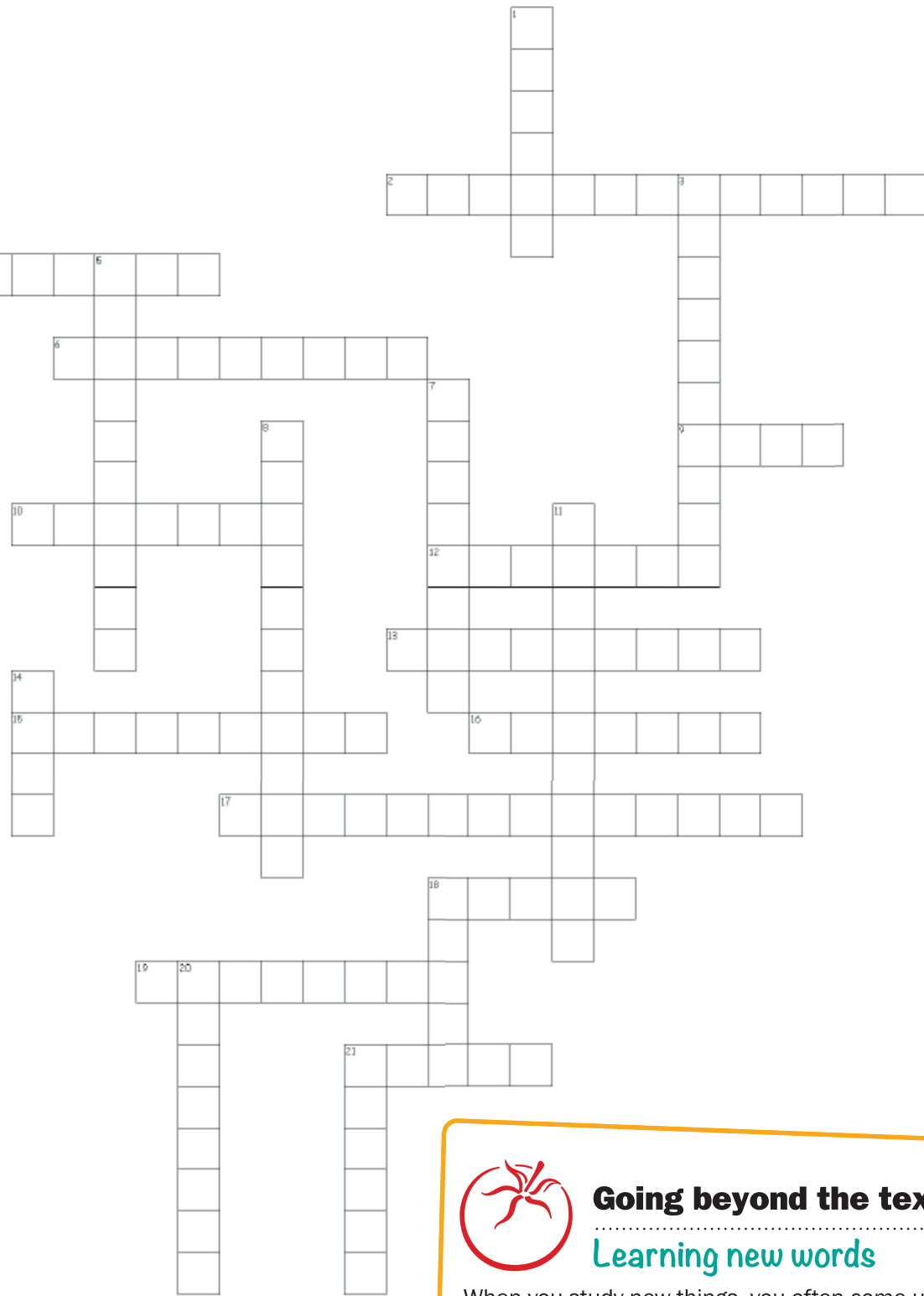
Across

- This can result in serious symptoms and long-term illness.
- Publix Super Markets Inc. is the nation's largest _____-owned grocery retailer.
- Consumers need to be educated about preventive practices that halt the growth and spread of these dangerous pathogens.
- This food can be good for you, nutritionally, but also can contain illness-inducing pathogens.
- You can become a BAC _____.
- In 2014, 2,382 foodborne disease outbreaks were reported in this state.
- The most common foodborne illnesses are caused by this.
- You cannot see or smell these items, but they can infiltrate a food supply.
- Clean produce with this type of water.
- These may be present on food products when you purchase them.
- This happens when you refrigerate foods quickly.
- By doing this to your food, you will not cross-contaminate raw meat with vegetables.
- Don't buy food in cans that have these.

Down

- If you come in contact with bad bugs, drink plenty of these.
- This is the most common bacterial cause of diarrhea in the United States.
- You need to wash all cooking spaces this way.
- This industry employs more high school students than any other industry.
- Publix Super Market Charities is a national sponsor of the _____ for Food Safety.
- Foodborne illnesses are this if you are careful with the handling of food.
- You should do this to make sure your food has a safe internal temperature.
- You must do this to hands and surfaces often.
- These people are at risk for getting a foodborne illness.
- Between 40 and 140 degrees Fahrenheit is known as this type of zone.

Crossword puzzle answers
 Across: 2. Food poisoning, 4. Independently, 6. Foodborne, 9. Eggs, 10. Fighters, 12. Florida, 13. Norovirus, 15. Organisms, 16. Running, 17. Microorganisms, 18. Chill, 19. Separate, 21. Dents
 Down: 1. Fluids, 3. Salmonella, 5. Thoroughly, 7. Fast food, 8. Partnership, 11. Preventable, 14. Cook, 18. Clean, 20. Everyone, 21. Danger



Going beyond the text

Learning new words

When you study new things, you often come up against some tough vocabulary words. There are a lot of challenging words in the field of science, especially in regard to nutrition and food safety. Most vocabulary words are learned from context clues or good old-fashioned dictionary work. While you read this publication, be sure to highlight or circle words you don't know. Try to figure out the words' meanings by looking for clues in the sentences around them. Write down your best guesses, and then look the words up in a dictionary. As a group activity, make a list of the words your classmates identified and see which ones stumped the class. Next, use these words for a news scavenger hunt. See if you can find these words in your newspaper. Write down each time you find one of the words. The team with the most words wins.

ATTENTION EDUCATORS

Publix wants to hear from you. Publix Super Markets is excited about engaging teachers and their students in learning about food safety. Please go to surveyMonkey.com/r/C6Q9J98 and take the short survey. Teachers who complete the survey will be entered into a random drawing, sponsored by Florida Press Educational Services, to win a \$50 gift card to Publix. Ten teachers will be selected at random to receive gift cards.

Food for thought

Food safety is an important and relevant subject for exploration. You can learn more from the following sources:

- **Centers for Disease Control and Prevention: Food Safety**
cdc.gov/foodsafety
- **Florida Health Department**
floridahealth.gov
- **Florida Department of Agriculture**
freshfromflorida.com
- **Food Safety Modernization Act**
fda.gov/Food/GuidanceRegulation/FSMA
- **Food Safety and Inspection Service**
fsis.usda.gov
- **Partnership for Food Safety Education**
fightbac.org
- **Publix – Food Safety**
publix.com/foodsafety
- **U.S. Department of Agriculture**
usda.gov
- **U.S. Department of Agriculture Food and Nutrition Service**
fns.usda.gov
- **U.S. Food and Drug Administration: Food**
fda.gov/Food
- **U.S. Department of Health and Human Services**
foodsafety.gov

The Partnership for Food Safety Education

The Partnership for Food Safety Education is composed of public and sponsoring partners that form the leadership base of the organization. The partnership's mission is to improve public health and reduce foodborne illness. Companies such as Publix Super Markets, trade associations and public interest and scientific organizations with involvement in securing, maintaining and promoting a safe food supply are invited to become partners. Anyone who cares about ending illness and death from foodborne infection can become a BAC! Fighter. BAC! Fighters simply fight BAC – harmful bacteria that can cause foodborne illness. BAC Fighters can be dietitians, nutritionists, parents, caregivers, nurses, local, state or federal public health officials, private company food safety professionals, health educators, food retailers or food producers. To learn more or become a BAC! Fighter, go to teamfppdsafety.org/bac-fighters.



Sources: Department of Health and Human Services; U.S. Food and Drug Administration; National Science Teachers Association; Centers for Disease Control and Prevention; and the Partnership for Food Safety Education



Going beyond the text

Creating an argument

Many food safety issues are controversial. Look for articles in the newspapers about food safety issues. As you read, try to identify different points of view in the articles. In your journal, draw a line down the middle of the paper. On one side, write “facts.” On the other side write “opinions.” Write down the facts and opinions in each article. Then decide which side has the stronger case. Discuss your thoughts with your classmates.

Sharing informational text ... and knowledge

Florida Press Educational Services Inc. (FPES) is a non profit 501(c)(3) organization of newspaper professionals that promotes literacy, particularly for young people.



FPES members consist of daily and weekly newspapers throughout the state of Florida. Through its member newspapers, FPES serves educators, students and families in all 67 Florida counties.

Newspaper in Education (NIE) programs across Florida are a cooperative effort between schools and the newspapers to encourage the use of newspapers in print and electronic form as educational resources – a living textbook. Our educational resources fall into the category of informational text, a type of nonfiction text. The primary purpose of informational text is to convey information about the natural or social world. NIE teaching materials cover a variety of subjects and are correlated to the Florida State Standards.

For more information about FPES and its member newspapers, visit fpesnie.org. For additional copies of this publication, email ktower@flpress.com or jpushkin@tampabay.com.

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Credits

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Florida Standards

The Florida Standards reflect the Florida Department of Education's foundational expectations of what all students should know and be able to do in each grade, from kindergarten through 12th grade. This publication and its activities incorporate the following Florida Standards for middle and high school students.

Health: HE.B.3.1; HE.B.3.2; HE.B.3.3; HE.B.4.1; HE.B.4.3; HE.B.5.1; HE.B.5.2; HE.B.5.4; HE.B.6.1; HE.B.6.4; HE.C.1.1; HE.C.1.3; HE.C.1.4; HE.C.2.2; HE.C.2.3; HE.C.2.4; HE.C.2.5; HE.C.2.6; HE.P.7.1; HE.P.7.2; HE.P.8.1; HE.P.8.2; HE.P.8.3; HE.P.8.4
Science: SC.CS-CC.1.3; SC.CS-CC.1.4; SC.CS-CC.1.5; SC.CS-CS.1.1; SC.CS-CS.1.2; SC.CS-CS.1.3; SC.CS-CS.1.5; SC.CS-PC.1.2 SC.CS-PC.3.3; SC.CS-PC.3.4; SC.N.1.1
Language Arts: LAFS.L.1.1; LAFS.L.1.2; LAFS.L.2.3; LAFS.L.3.4; LAFS.L.3.5; LAFS.L.3.6; LAFS.RI.1.1; LAFS.RI.1.2; LAFS.RI.1.3; LAFS.RI.2.4; LAFS.RI.2.5; LAFS.RI.2.6; LAFS.RI.3.7; LAFS.RST.1.2; LAFS.RST.1.3; LAFS.RST.2.4; LAFS.RST.2.5; LAFS.RST.2.6; LAFS.RST.3.7; LAFS.RST.3.8; LAFS.RST.3.9; LAFS.SL.1.1; LAFS.SL.1.2 LAFS.SL.1.3; LAFS.SL.2.4; LAFS.SL.2.5; LAFS.SL.2.6; LAFS.W.1.1; LAFS.W.1.2; LAFS.W.1.3; LAFS.W.2.4; LAFS.W.2.5; LAFS.W.2.6; LAFS.W.3.7; LAFS.W.3.8; LAFS.W.3.9; LAFS.W.4.10; LAFS.WHST.1.1; LAFS.WHST.1.2; LAFS.WHST.2.4; LAFS.WHST.2.5; LAFS.WHST.2.6; LAFS.WHST.3.7; LAFS.WHST.3.8; LAFS.WHST.3.9; LAFS.WHST.4.10



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