

UNIT I: Playing It Safe—Food Safety

Foodborne Illness

What is it?

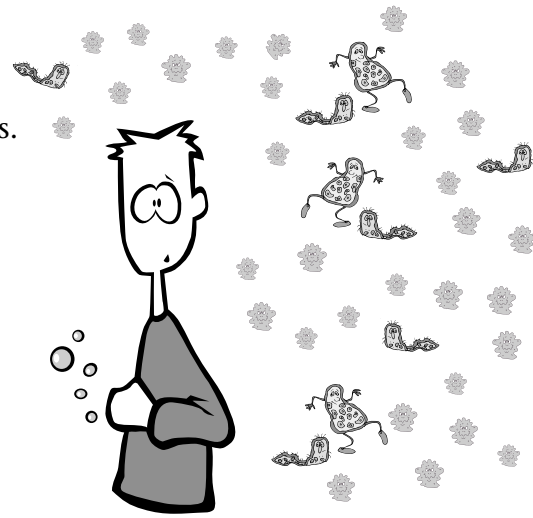
Microscopic bacteria and viruses cause foodborne illnesses. If you eat spoiled food it may contain germs that could make you sick.

What are the symptoms?

- Upset stomach or stomach pains
- Headache
- Dizziness
- Diarrhea

How do you prevent foodborne illness?

Cook and store foods at proper temperatures.



Can preserved foods cause foodborne illness?

YES. *Food preservation does not guarantee food safety.*

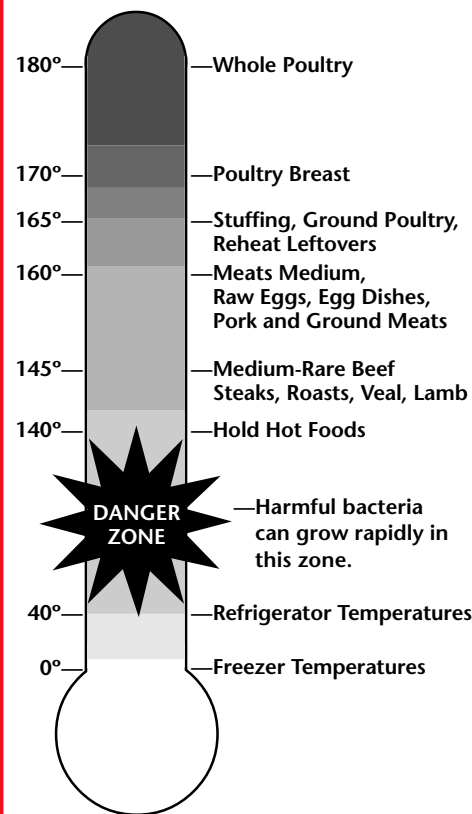
Enzymes: Proteins in fruits and vegetables that cause them to ripen and, eventually, spoil.

Enzymatic Browning: Darkening of fruits and vegetables when they are exposed to oxygen.

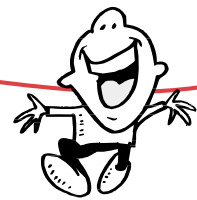
Anti-Darkening Agent: An acid that stops or slows oxidation (browning of fruit when exposed to oxygen).

Ascorbic Acid: Chemical name for vitamin C.

SAFE COOKING AND STORING TEMPERATURES



FOOD FUNNIES



- Why did the cookie go to the doctor?
- What do you call a stolen yam?
- Why did the tomato blush?

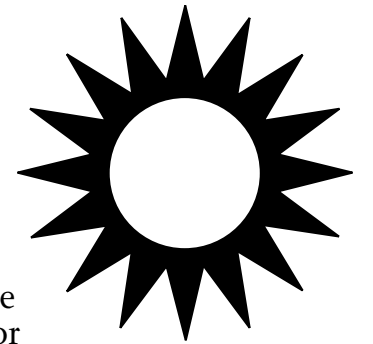
UNIT II: The Delights of Drying

Dehydration

Dehydration is a process that removes moisture.

Drying

Drying is the oldest form of food preservation. Columbus and his crew used dried fruits, grains, and meats on their expedition to the New World. Early settlers and Native Americans preserved food for winter by drying. In 1795, the French introduced the first food dehydrator.



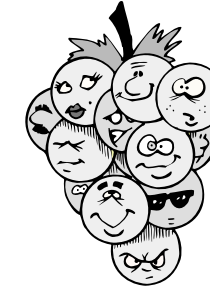
FRUITS TO DRY

RECOMMENDED FOR DRYING:

Apples



Blueberries



Cherries



Cranberries

Figs

Grapes

Huckleberries

Peaches

Pears

Plums

Persimmons

Strawberries



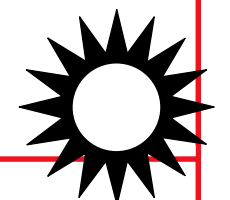
NOT RECOMMENDED:

Blackberries

Dewberries

Oranges

Rhubarb



HERBS TO DRY

Thyme

Tarragon

Rosemary

Parsley

Dill

Mint

Sage

Oregano

Chive

Cilantro

The leaves (foliage) of these plants are the herb.

FOOD FUNNIES



- Why are bananas never lonely?
- Which one doesn't belong in this group?
apple, grape, banana, cherry, pear
- What vegetable was forbidden on the ships of early explorers?

DRYING YOUR FAVORITE FRUITS

Fruit	Preparation	Test for Dryness
Apples	Peel and core. Cut in rings 1/4" thick.	Leathery to crisp: 6–12 hours
Apricots	Cut in half and pit, dip in honey or ascorbic acid solution.	Springy, no moist area: 24–36 hours
Bananas	Peel, slice 1/4" to 1/2" thick.	Pliable to crisp: 8–10 hours
Blueberries		Shriveled, leathery: 24–36 hours
Cherries	Remove stems, cut in half, remove pit.	Pliable: 24–36 hours
Coconut	Drain milk. Steam fruit 1 minute to loosen fruit, or pry out with a knife. Trim dark outer skin; slice.	Leathery to crisp: Dry at 110°F
Kiwi Fruit	Remove outer skin, slice 1/4" thick.	Pliable, leathery
Papayas	Cut in half, remove seeds, peel and slice.	Pliable, leathery
Peaches	Peel and slice, dip slices in honey or ascorbic acid solution.	Pliable, leathery: 24–36 hours
Pears	Peel, cut in half lengthwise, core, cut 1/4" thick slices. Dip in honey or ascorbic acid.	Pliable, leathery: 24–36 hours
Pineapples	Peel and remove thorny covering, cut into 1/4" thick slices.	Leathery but not sticky: 24–36 hours
Plums	Cut in half and pit. Will dry faster if quartered.	Pliable, leathery: 24–36 hours
Strawberries	Remove stems, cut in half, dry skin side down.	Pliable, leathery

ANTI-DARKENING AGENTS

Ascorbic Acid (Vitamin C)—3000 mg/gallon of water, soak fruit 2 minutes

Ascorbic Acid Mixtures—prepared commercial mixes such as Ever Fresh and Sure-Jell. Follow directions.

Lemon/Orange Juice—not as effective as ascorbic acid, can overpower other flavors

Salt & Vinegar—not effective on lighter fruits (peaches, apples, etc.)

NATURAL PRESERVATIVES

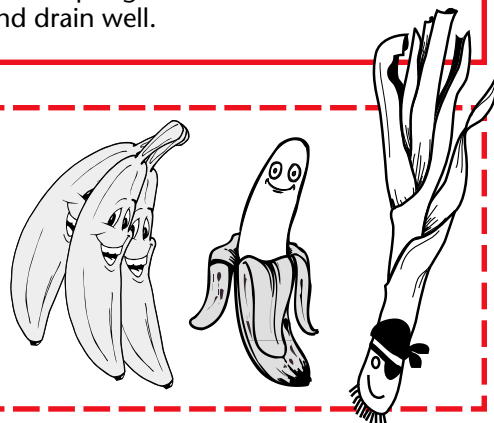
Here are some of nature's best pretreatments for preservation. Treating your fruits before freezing helps retain their color. (Who wants to eat a shriveled brown peach?)

- **Citric Acid Dips**
Dissolve 1/2 teaspoon ascorbic acid crystals (or use three crushed 500 mg Vitamin C tablets) in 1 quart of water. Soak fruits for 5 minutes.
- **Honey Dip**
Mix 1 part honey to 4 parts water. Soak sliced fruit for about 5 minutes, drain well.
- **Salt Solution Dip**
2–4 tablespoons salt per gallon of water. Soak fruit 2–5 minutes and drain well.



ANSWERS TO FOOD FUNNIES

- Because they hang around in bunches.
- The banana is the only one you have to peel to eat.
- Leeks.



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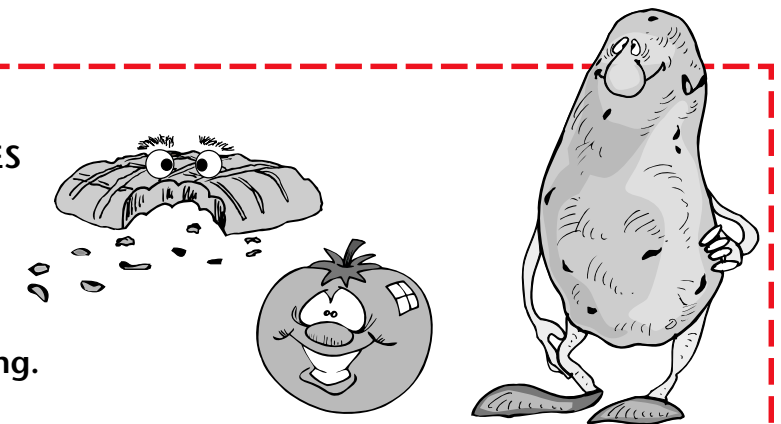
YOUR FOOD FRESH GUIDELINES

FOOD	TIPS TO CHECK FOR RIPENESS	SIGNS OF OVERRIPEENESS
Cantaloupe	Fruit should be slightly soft and smell ripe at stem scar	Dents, bruises, too soft at stem scar



ANSWERS TO FOOD FUNNIES

- Because he was feeling crummy.
- A hot potato.
- Because he saw the salad dressing.



UNIT III: South Pole Strategies—Freezing Food

Freezer Science

A freezer isn't just a place for ice cream and frozen pizza! Freezing is a great way to preserve food and save time. You can use the freezer to store prepared lunches and leftovers.

Temperature Fluctuation

When you open a freezer or refrigerator door, the temperature inside changes. The shelf life of frozen food declines when the temperature fluctuates. Colder areas in the refrigerator and freezer are usually toward the back and along the sides. The ideal temperature for frozen foods is 0°F (-18°C).

Don't Stuff Your Freezer

In order for a freezer to work well, cold air needs to be able to circulate and reach all the food. If your freezer is stuffed to the edges with containers, the air cannot circulate evenly to all of the food. Rotate your frozen foods by moving older frozen items toward the front. Food will freeze better and faster in the back of your freezer.



HOW TO PREVENT FROZEN FOOD PROBLEMS

ICE CRYSTALS: When the temperature changes in a freezer the food will begin to thaw and then refreeze. This creates ice crystals on your food. ***What can be done:*** Try not to open the freezer door any more than necessary. Put a thermometer in your freezer and maintain constant temperature.

FREEZER BURN: The air in a freezer is very dry, and depletes moisture. If your storage container is not airtight, your frozen foods will become shriveled and dry. Blech! ***What can be done:*** Wrap and store food carefully, making sure the packaging is airtight.

FLAVOR CHANGES: Odors from certain foods can change the taste of food next to it in the freezer. ***What can be done:*** Store raw foods in odor-proof containers.

FOOD FUNNIES

- What did the banana do when it heard the ice scream?
- What do cats eat for breakfast?
- What happened at the badly organized milking contest?



UNIT IV: Boil Buddies—Canning

What is canning?

Canning is a method of preserving food that keeps food usable for a very long time. During the canning process, food is both heated (stopping the growth of bacteria) and sealed in airtight containers (reducing opportunities for spoilage). Most canned goods do not require refrigeration until they are opened.

Why is it called canning?

If we are using jars, why is it called “canning” and not “jarring”? The expression “canning” is used because sealed metal cans are the most common commercial containers.

During World War I, overseas troops needed food and it had to be transported overseas in ships. Crossing the ocean in a ship usually took a couple weeks. Many youth in 4-H learned how to can foods (in tin cans) to show their patriotism and citizenship. The food was safely preserved and shipped.



FOOD FUNNIES

- When do you put pickles in a door?
- How do you drop an egg six feet without breaking it?
- If bees make honey, what do wasps make?

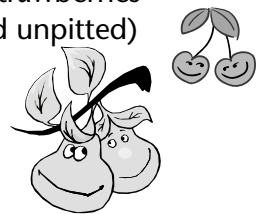


ELEVATION ADJUSTMENT—Water boils at a lower temperature at higher altitudes. For example, at an elevation of 5,000 feet, water boils at 203°F rather than 212°F, which is the boiling temperature at sea level. Because of this, the processing time must be lengthened if boiling water bath canning is done at altitudes above 1,000 feet.

Altitude (feet)	Increase Processing Time By:
1,001 - 3,000	5 minutes
3,001 - 6,000	10 minutes
6,001 - 8,000	15 minutes
8,001 - 10,000	20 minutes

Generally, the following amounts of fresh fruit or tomatoes (as purchased or picked) make one quart of canned food.

Produce	Pounds
Apples	2½ to 3
Berries, except strawberries	1½ to 3 (1 to 2 quart boxes)
Cherries (canned unpitted)	2 to 2½
Peaches	2 to 3
Pears	2 to 3
Plums	1½ to 2½
Tomatoes	2½ to 3½

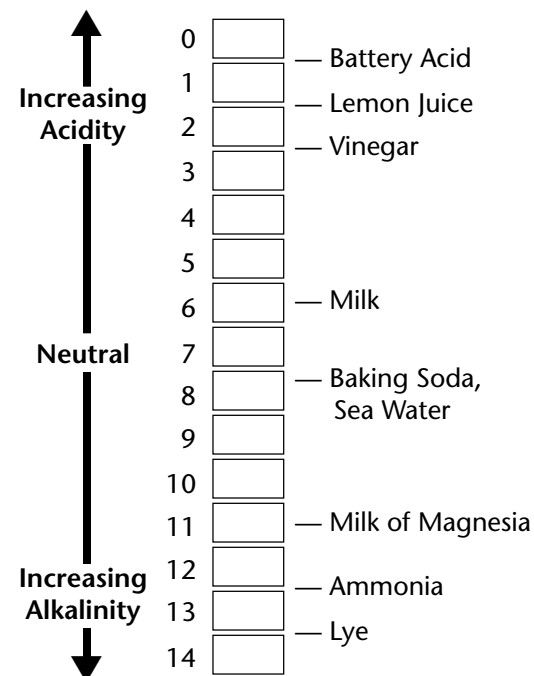


In one pound there are about three medium apples or pears; four medium peaches or tomatoes; and eight medium plums.



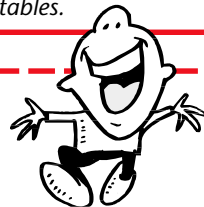
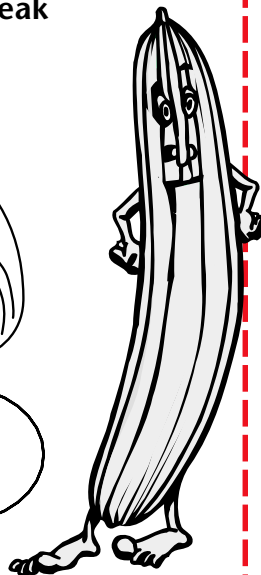
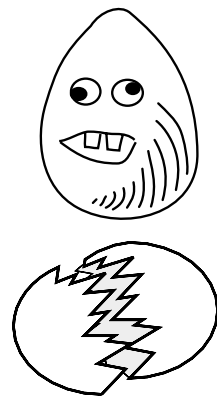
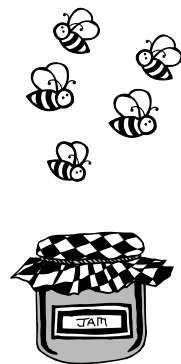
Information taken from USDA Home and Garden Bulletin Number 8, *Home Canning of Fruits and Vegetables*.

pH SCALE OF COMMON HOUSEHOLD ITEMS



ANSWERS TO FOOD FUNNIES

- A. When it's ajar!
- B. Drop it seven—it won't break the first six.
- C. Waspberry jam.



NEW WORDS—pectin and headspace

THE QUICK LUNCH INGREDIENT CHART

FROZEN FOOD	Recommend for freezing	Describe what the food is like when thawed:
macaroni and cheese		
pre-cooked hotdogs		
bread	yes	
peanut butter	yes	
jelly	no	n/a
jam	yes	
lunch meat	yes	
cheese	cream or cheddar	
mayonnaise	no	n/a
margarine	yes, spread to cover all bread	
tomatoes	no	n/a
lettuce	no	
salad dressing	yes	
cookies	yes	
egg whites	no	n/a
egg yolks	yes	
salami, pepperoni, and dried sausage	yes	
yogurt		
honey		
carrot sticks		
apple or banana		
pickle relish		
potato chips	no	n/a
fruit pie	yes	



FILL IN THIS CHART AS YOU TRY EACH INGREDIENT!

REMEMBER: MOST FOODS ARE ONLY SAFE UNREFRIGERATED FOR 4-6 HOURS



ANSWERS TO FOOD FUNNIES

- A. It split.
- B. Mice-Krispies.
- C. There was UDDER chaos.

