Food Safety

Your Self-Training Manual

Oregon Department of Human Services
Environmental Services & Consultation Section

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Why Read This Book?

Think about the last time you ate out. Was the food served hot? Did the restroom have hand soap and paper towels? The Health Department looks for these things to keep people from getting sick. People can get sick if food is left out at room temperature or if germs get into their food or drinks. Hands can look clean but if they have germs on them, someone can get sick. Food can smell good but have germs on it that make it unsafe to eat. This is why you will want to develop safe habits to keep you, your customers and your family healthy.

How to use this book

In the first few pages of this book, you will see the goals and outcomes that you will be tested on for your food handler certificate. You will need a score of 75% to pass the test. Throughout this book you will find study questions that will help you get ready to take the test for the food handler certificate. At the end of the book is a practice test for you to take and see how you do.

Some of the words in **bold** are explained in the glossary located in the back of this book.

This Belongs to You

This book is yours. If something comes up that you cannot answer with this book, ask the "person in charge" or call your local health department for help.

A "Person in Charge" is Required

Someone at your restaurant must be in charge during all hours of operation. This person is responsible for knowing the food sanitation rules and the procedures within your establishment. This person can provide you with information you need to perform your job.

Phone numbers of **local health departments**:

Baker	541-523-8211	Lane	541-682-4480
Benton	541-766-6841	Lincoln	541-265-4127
Clackamas	503-655-8384	Linn	541-967-3821
Clatsop	503-861-7377	Malheur	541-473-5186
Columbia	503-366-3828	Marion	503-588-5346
Coos	541-756-2020	Multnomah	503-988-3400
Crook	541-447-8155	Pendleton	541-276-7880
Curry	541-247-3300	Polk	503-623-9237
Deschutes	541-388-6575	Sherman	541-296-4636
Douglas	541-440-3571	State Office	503-731-4012
Hood River	541-386-1115	Tillamook	503-842-3900
Jackson	541-774-8206	Wasco	541-296-4636
Jefferson	541-475-4456	Washington	503-648-8722
Josephine	541-474-5325	Yamhill	503-434-7525
Klamath	541-883-1122		

Instructional Goals and Learning Outcomes

Below are the instructional goals and learning outcomes that food workers are expected to know to obtain their food handler certification.

Poor Personal Hygiene

Instructional Goal: ***Workers will understand elements of good personal hygiene***

Learning Outcomes:

1. Identify the following as the correct technique for hand washing: (p. 10 & 16)

    - Running warm water.
    - Soap & lather.
    - Scrub hands thoroughly (approximately 15-20 seconds).
    - Dry hands with single-use towel, cloth towel roll, or air dryer.
    - Sanitizer dip or use of hand sanitizers are not approved for hand washing nor acceptable substitutes to hand washing.

1. Identify the following as situations when food handlers need to wash their hands and when to double hand wash (p. 10 & 11):

- After using the toilet and again when entering work area (double hand washing).
- After handling raw foods.
- After smoking, eating, or drinking (double hand washing).
- After blowing nose (double hand washing).
- After handling dirty dishes.
- After handling garbage.
- After cleaning or using other toxic materials (p. 10).
- Before starting work.
- Before putting on gloves.

3. Identify that fingernails should be trimmed short (p. 15).

4. Knows not to work when he or she is ill with diarrhea, vomiting, fever, sneezing, and runny nose (p. 14).

5. Knows not to handle food with an infected cut or burn, pus or boil (p. 14).

6. Knows that plastic gloves are capable of spreading germs and do not substitute for proper hand washing (p. 16).

7. Knows that smoking, eating, drinking and chewing tobacco is prohibited in food preparation, food and utensil storage areas (p. 15 & 17).

Cross Contamination

Instructional Goal: ***Workers will understand why cross contamination is dangerous and know ways to prevent it.***

Learning Outcomes:

1. Define and identify cross contamination (p. 45).

2. Identify the following methods to prevent cross contamination (p. 47, 50):

   - Wash, rinse, and sanitize utensils, work surfaces and equipment between uses.

   - Identify that slicers should be cleaned and sanitized when switching foods to be sliced.

   - Identify that the procedure for in-place cleaning is to wash with warm soapy water, rinse with clear water and wipe with (50-100 parts per million [ppm] chlorine residual) sanitizer.

3. Identify that food service facilities do not reuse food from a customer's plate or table unless in unopened packages (p. 43).

4. Identify that workers must use clean utensils, instead of hands, for dispensing food and store scoops with handle extended out of the food (p. 47).

5. Identify the following storage conditions that will minimize the potential for cross contamination (p. 45, 46, 49):
   - Store raw meats below and completely separate from ready-to-eat food in refrigeration unit.
   - Store food off the floor.
   - Store chemicals and cleansers completely separate from food, utensils, and single service items.
   - Properly label all chemicals and pesticides.

6. Identify that in-use wiping cloths need to be stored in (50-100 ppm) sanitizer between uses (p. 50).

7. Correctly use test strips for checking sanitizer concentration (p. 51).

Improper Final Cooking Temperature

Instructional Goal: ***Workers will understand why cooking and reheating foods to proper temperatures is important for illness prevention***

Learning Outcomes:

1. Identify the following proper cooking (internal) temperatures (p. 29):
   - poultry – 165 degrees F
   - hamburger – 155 degrees F
   - pork, fish, steak, eggs, lamb, seafood - 145 degrees F
   - beef roasts- 130 degrees F

2. Identify that cooking to recommended temperature kills disease-causing germs (p. 29).

3. Identify that heating doesn't affect the illness causing properties of toxins (p.19).

4. Identify the following as proper equipment used for rapid heating and reheating (p. 43):
   - Stove
   - Microwave
   - Convection oven

Inadequate Temperature Control

Instructional Goal: ***Workers will understand why hot/cold holding and reheating temperatures are important factors in illness prevention.***

Learning Outcomes:

1. Identify the following types of thermometers (p. 22, 25 & 28):
   - Refrigerator thermometers
   - Probe (food) thermometers
   - Use of thermometers
   - Cleaning between uses

2. Identify the proper technique for calibration of thermometers is to use ice water (p. 26 & 27).

3. Identify the following as the approved thawing methods (p. 40):
   - Refrigerator
   - Running cold water
   - Microwave when followed by immediate cooking

4. Identify use of the probe thermometer when cooling, reheating, hot holding and cold holding (p. 35, 42 & 43).

5. Knows what the holding temperatures are for potentially hazardous foods (p. 21, 39 & 42):
   - Identify why foods should not be held between 41 degrees F and 140 degrees F (the “Danger Zone”).
   - Understand problems with temperature abuse of foods.
   - Understand what types of foods will support bacterial growth.
   - Identify 140 degrees F as the proper temperature for hot holding potentially hazardous foods.
   - Identify 41 degrees F as the proper temperature for cold holding.
   - Identify proper ice level for cold holding is level with the food.

6. Identify that proper cooling requires foods to cool from 140 degrees F to 41 degrees F in six hours or less by cooling from (p. 35):
   - 140 degrees F to 70 degrees F in 2 hours.
   - 70 degrees F to 41 degrees F in four hours.

7. Identify the following techniques for rapid cooling (p. 32, 33, & 34):
   - ice bath
   - shallow pans
   - small portions
   - stirring and ice wands

8. Identify 165 degrees F as the minimum temperature for reheating foods and that food must reach this temperature within 2 hours (p. 43).

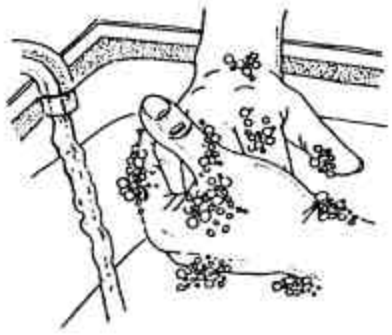
Your Own Health Comes First

Hand Washing is Very Important

Wash your hands often when working with food and drinks - this gets rid of germs that can make people sick. The best way to wash your hands is to scrub for approximately **15 to 20 seconds** with warm running water and soap, then dry them with clean paper towels, roll of linen towels or an air dryer.

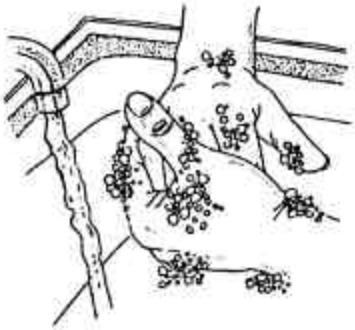
Remember to always wash your hands:

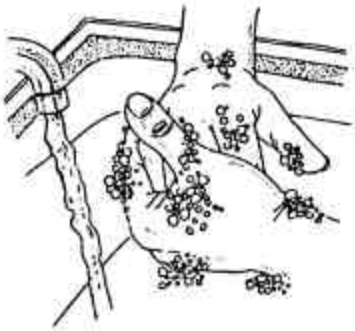
- **Before** you touch anything used to prepare food.
- **Before** you touch food that will not be cooked.
- **After** you work with **raw** meat, fish and poultry.
- **After** you handle trash and take out garbage.
- **After** you handle dirty dishes.
- **After** using cleaning or toxic chemicals.



Double Hand Wash is Required

It is necessary to wash your hands a second time or **double hand wash:**





- **After you go to the restroom** (use the toilet) and wash hands again when you return to the kitchen.
- **After** you eat.
- **After** you blow your nose, cough or sneeze, because your hands have touched your nose or mouth.
- **After** taking a smoking break.

Hand-Washing Sink

Wash your hands at the hand-washing sink with warm water and soap. Dry your hands with paper towels, an air dryer or roll of linen towels.

Review

Write your answers to the study questions in the space provided.

1. What does it mean to have a person in charge? (p. 2)

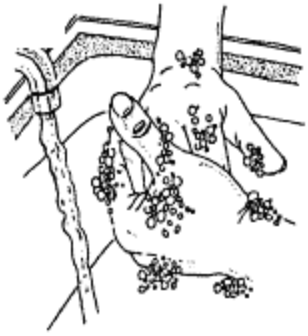
2. How long must you wash your hands? (p. 10)

3. When must you wash your hands? (p. 10)

4. What is a double hand wash? (p. 11)

5. When must you wash your hands twice? (p. 11)

Germs such as **bacteria** and **viruses** are everywhere. Think of your hands and fingernails as easily "contaminated." Just because they look clean does not mean they are clean. Germs are too tiny to see with your eyes. If you do not wash your hands in the right way and keep your fingernails trimmed short, your hands can put germs in food that gets eaten by your customers. They may get sick from these germs. This is called ***"food borne illness"*** or "food poisoning."



Work Only When You Are Well

If you feel sick you should not go to work. The germs you bring to work can spread when you sneeze and cough, and when you touch food, dishes, counters, utensils, forks, knives and spoons, pots, pans, and other people.

Do not work if you have a fever and sore throat.

Do not work if you have loose bowels (diarrhea).

Do not work if you are throwing up (vomiting).

Do not work if you have yellowing of the skin or dark tea color urine (jaundice). Tell your boss. Someone must tell the County Health Department right away.

Do not work with foods if you have an **infected** boil, burn, cut or sore on your hand. If the sore is not infected, wear a rubber or plastic glove.

Do not work with foods if you are sneezing, coughing or have a running nose.

Employee Practices

Take Care of How You Look and How You Act

Do not smoke or chew tobacco while you are working or when you are near food or dishwashing areas. Smoke only while you are on a break. After you smoke, wash your hands **twice** before you return to work (double hand wash).

Jewelry

Limit the amount of jewelry you wear on your fingers and forearms to a plain wedding band, medical bracelet or plain watchband. Jewelry can hide food particles and germs that can cause people to become sick.

Fingernails

Be sure to scrub underneath your fingernails. Keep fingernails short. Do not wear fingernail polish or fake fingernails.

Hand Sanitizers

Hand sanitizers **do not** substitute for hand washing at any time or any place – no exceptions.

Hand sanitizers can **only** be used after hands have been thoroughly washed and dried.

Gloves can spread germs

Plastic gloves can also spread germs. Wash and dry your hands before putting on gloves. Change gloves between tasks. When you wear gloves be aware that gloves can spread germs onto food that will not be cooked. Even when you wear gloves, it is best to keep fingernails short.

Beverages

When you are thirsty while working, you may drink from a closed beverage container when these precautions are taken:

- The beverage container must be covered and have a straw or handle so your hands do not touch where your mouth touches. If you touch the top end of the drinking straw or lid, be sure to wash hands afterwards.

- The container must be handled and stored in a way that will not contaminate food, utensils, equipment or any service items.

- The container should be cleaned and sanitized regularly or discarded after each use.

Review

Write your answers to the study questions in the space provided.

1. What should you do at work when you are sick? (p. 14)

2. How should you wear your fingernails? (p. 15)

3. What happens when gloves are not changed between tasks? (p. 16)

4. Can hand sanitizer replace hand washing? (p. 16)

5. What two things must you use to keep a personal beverage in the kitchen? (p. 17)

    1.

    2.

What Makes People Sick From Food?

Food Borne Illness

People can get sick when the food they eat has germs. Germs cause ***food borne illness*** or food poisoning. Germs grow easily in foods like meat, fish, poultry, milk, re-fried beans, cooked rice, baked potatoes and cooked vegetables. These are called ***potentially hazardous foods***. These are all foods that are moist and they have protein that the germs need to grow. Germs grow well on these foods at warm temperatures.

Potentially Hazardous Foods

Bacteria

Different kinds of germs can make people sick. ***Bacteria*** is one kind of germ. They grow fast and they may cause ***food borne illness***. Some ***bacteria*** make toxins that act like a poison. Cooking does not destroy most toxins. Almost always the food looks and smells good, but it may have enough ***bacteria*** or toxin to make someone sick. Toxins can occur in many foods that have not been kept cold enough (or hot enough) for several hours.

Other Germs

A ***virus*** is another kind of germ that causes illness. A ***virus*** can get onto food that a sick person touches. A ***virus*** can also be in raw or uncooked foods.

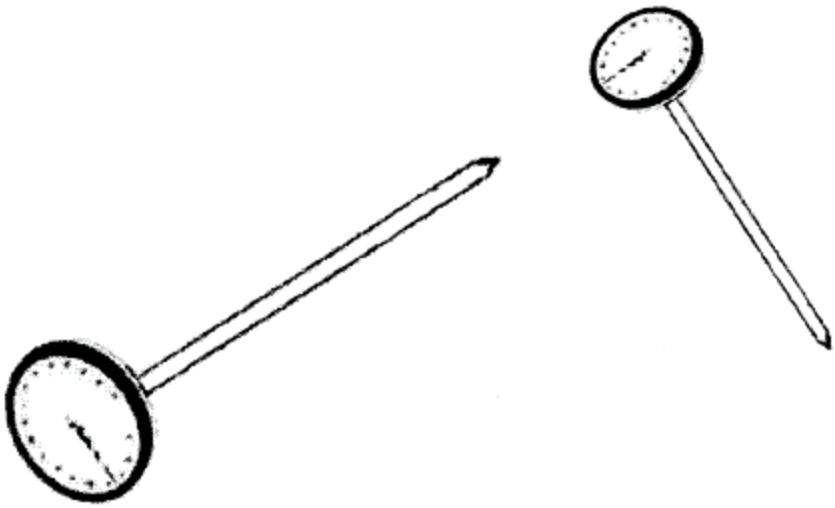
You can have a virus and not know it**.** Even before you start feeling sick, you may be passing viruses onto the food by not washing your hands after coughing, sneezing or using the toilet. This is one reason why the law **requires** all food workers to wash their hands (**two times**) using lots of soap and warm water.

Tiny worms that live in fish and meat are called **parasites**. Cooking fish and meat to the right temperature will kill **parasites**.

Chemicals

People can also get sick when **chemicals** get into the food. Be sure to keep chemicals away from food.

Food Temperatures



Temperature Control

This section is about killing germs with cooking and stopping their growth by keeping the food hot or cold. This is called **temperature control**, and you need a thermometer to check food temperatures.

The "Danger Zone"

Germs like ***bacteria*** need time, food and moisture to grow. **The temperature between 41°F(5°C) and 140°F(60°C)** is the ***"Danger Zone!"*** When food sits in the ***"Danger Zone", bacteria*** can grow fast and make toxins that can make you and others sick.

Refrigerator Thermometer

Every refrigerator is required to have a thermometer. This thermometer must be located where it is easy to see when you open the refrigerator door. Every **refrigerator thermometer** should read 41°F or less. If the thermometer reads above 41°F, then use a **food thermometer** to check the temperature of food inside of the refrigerator.

Date Marking

Potentially hazardous foods that are **ready-to-eat** must be marked with a date.

7 days

The food can be stored for 7 days when the refrigerator maintains **41°F(5°C)** or colder. Food older than 7 days must be discarded.

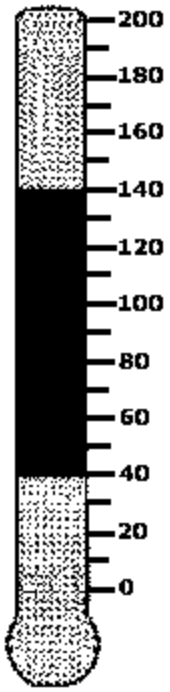
4 days

Food can only be stored for 4 days when an old refrigerator cannot maintain 41°F(5°C)but stays below **45°F(7°C)**. Food older than 4 days must be discarded.

1 day

Food used within one day is not required to be date marked.

Review



Write your answers to the study questions in the space provided.

1. What is it called when someone gets sick from eating food with germs or toxins on it? (p. 19)

2. You need a thermometer to check food _____. (p. 21)

3. What does it mean when food is in the **"Danger Zone?"** (p. 21)

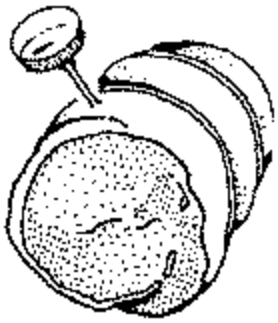
4. Where in the refrigerator is the thermometer stored? (p. 22)

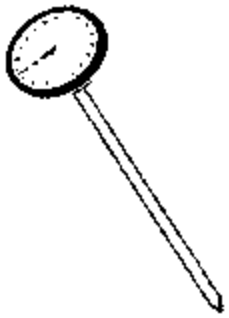
5. How many days can you keep ready-to-eat food in the refrigerator at 41°F(5°C)? (p. 22)

6. How many days can you keep ready-to-eat food stored at 45°F(7°C)? (p. 22)

Food or Probe Thermometer

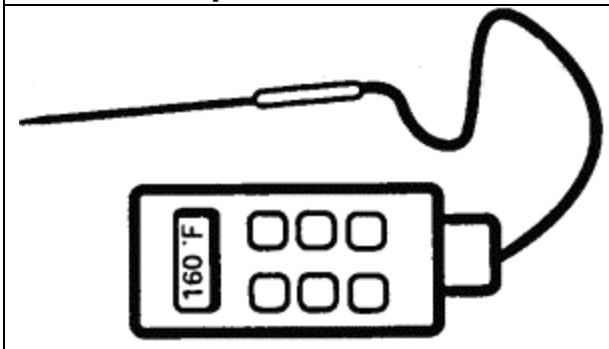
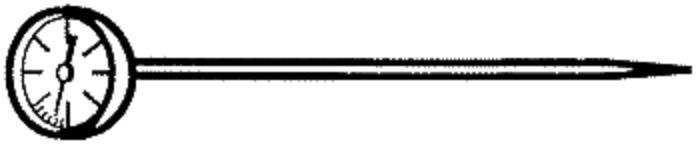
Using a thermometer is the only way to know the temperature of food. Anyone working with food needs to know how to **calibrate** and use a thermometer.





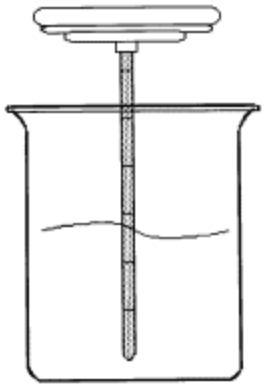
Take temperatures in the thickest part of the food. When taking temperatures of a large amount of food like a big piece of meat, be sure to take the temperature in two or more locations. This way you will know that the food is heated to the right temperature throughout.

Three types of food thermometers are shown on the next page. These thermometers are also known as **metal-stem probe thermometers**

Types of Food Thermometers	Speed	Placement
Thermocouple  Most models can be calibrated	2-5 seconds	¼" or deeper in the food as needed
Thermistor  Some models can be calibrated	10 seconds	At least ½" deep in the food
Instant-Read Bimetal  Most models can be calibrated	15-20 seconds	2- 2 ½" deep

Refer to manufacturer instructions to find out if your thermometer can be calibrated.

Calibrating A Food Thermometer



When you use a food thermometer you need to make sure the temperature it gives you is accurate. An easy way to do this is to use ice and water.

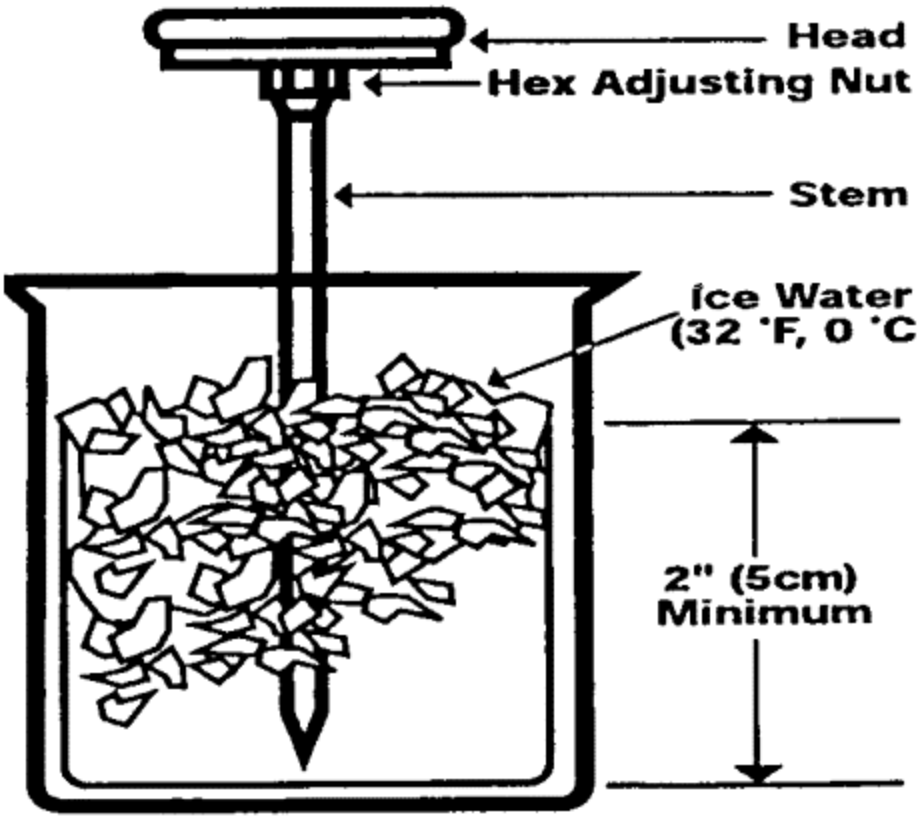
Pack a large cup to the top with crushed ice. Put the thermometer at least 2 inches into the water. After 30 seconds, read the dial. It should read 32°F (0°C).

If it does not read 32°F(0°C) after you have waited at least 30 seconds, you need to:

1. Leave it in the ice water

2. Use pliers or a wrench and turn the nut on the back of the thermometer until the needle reads 32°F(0°C). (Add ice as it melts.)

3. Wait 30 seconds. Keep repeating these steps until the thermometer reads 32°F(0°C).



Daily Calibrate your **food thermometer** every day and whenever it is bumped or dropped. This way you will know that it is telling you the correct temperature.

Preparing Food

Wash your hands first. Bring out only the amount of food that you can work on at one time. This practice will help limit bacteria growth.

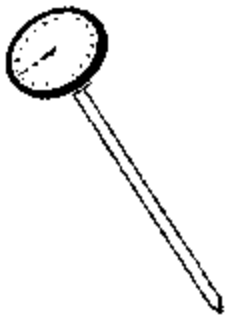
Cooking Food

Use a probe food thermometer to check temperatures while cooking food to make sure that it gets done all the way inside. A thermometer that works best shows a range of $0^{o}F(-18^{o}C)$ to $220^{o}F(104^{o}C)$. Even if you use a thermostat to control the temperature in the oven, you still need to use a thermometer to know the temperature in the center of the food.

Different foods have to reach different temperatures to be done or safe. Wash and ***sanitize*** the thermometer each time you check the temperature of a food.

When is the Cooked Food Safe?

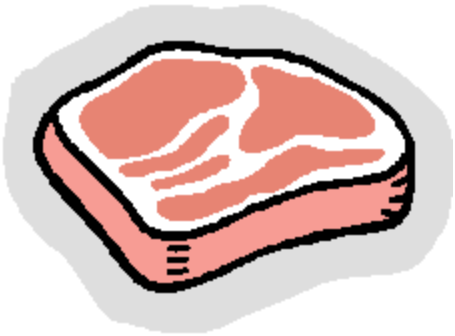
Here are a few examples of ***potentially hazardous foods*** and how hot they must be to be safe. They can be hotter, but they must be at least this hot to kill germs:



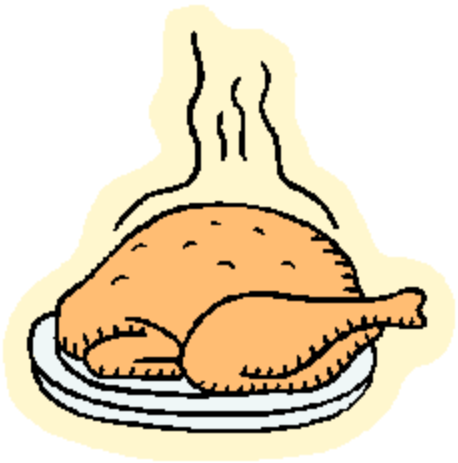
- Rare Roast Beef: 130°F (54°C)
- Pork, Steak, Fish and Eggs: 145°F (63°C)
- Beef, Lamb, and Seafood: 145°F(63°C)
- Hamburger and all ground meats except poultry: 155°F (68°C)
- Poultry and Stuffing: 165°F (74°C) (stuffing should be cooked outside of Poultry)

You must place the thermometer in the thickest part of the meat or in the center of the food to get a true reading. (Do not touch the bone with the stem of the thermometer to prevent a false reading).

145°F



165°F



Review

Write your answers to the study questions in the space provided.

1. What is a metal stem, probe or food thermometer? (p. 24)

2. How do you calibrate a food thermometer? (p. 26)

3. How often should you calibrate a food thermometer? (p. 27)

4. What do you need to do with a thermometer after you used it and it has food on it? (p. 28)

5. What are the cooking temperatures of eggs, fish, pork, steak, rare roast beef, chicken and hamburger? (p. 29)

Cooling & Reheating of Foods

Cooling & Reheating

This section is about how to get cooked foods cold (**cooling**) and how to get cold foods hot (**reheating**) in a way to keep food safe while it gets past the *"Danger Zone."*

Fresh is Best

You always take a chance that bacteria can grow and produce toxins when you cool food. **It is safest to make food fresh each day, just before you serve it.**

Speed is Important with Cooling

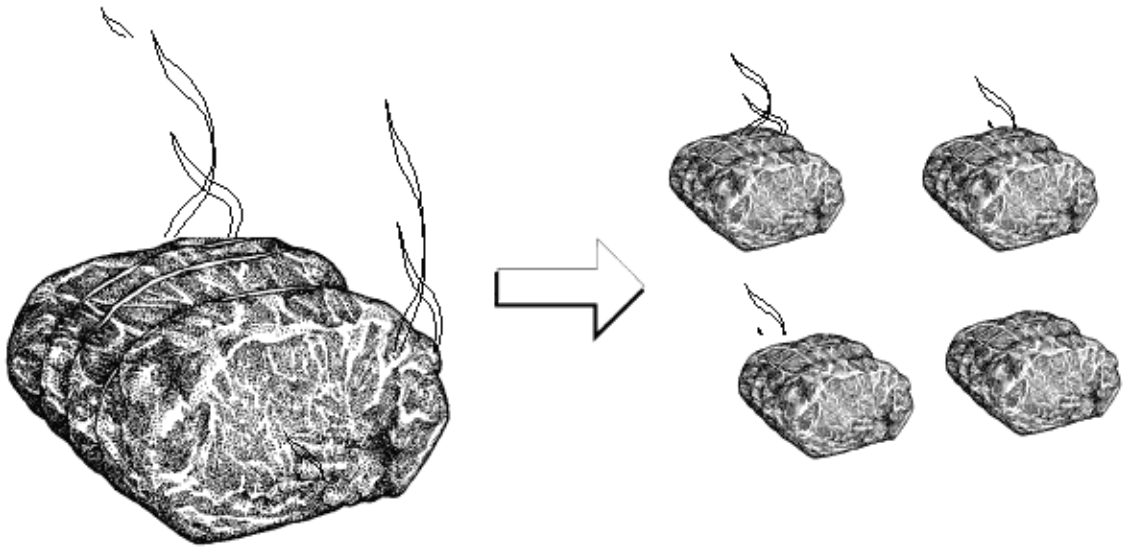
If you must make food in advance or save left over food, cool it as **fast** as you can to prevent bacteria growth and toxin production.
Reheating will not destroy toxins.

Cooling Solid Foods

When cooling solid cooked foods such as roast, turkey, and solid cuts of meat, be sure to:

1. Cut large roasts and turkeys into smaller portions. This will help them to cool faster.

2. Put all meats and other hot food in the refrigerator.



Cooling Soft/Thick Foods

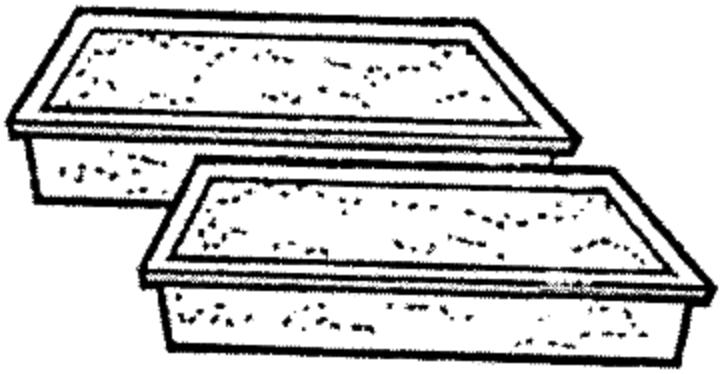
Examples of soft/thick foods are refried beans, rice, potatoes, stews, chili, thick soup or thick sauces. You can cool soft/thick foods by pouring food into a shallow metal pan. Use a sheet pan for very thick foods like refried beans. Cooling thick food is not easy. Whenever possible use a flat pan and spread the food out as shallow as you can to speed up the cooling.

When cooling food in shallow metal pans, be sure to:

1. Pour hot food into shallow metal pans. The shallower the pan the better the food will cool.

2. Stirring food speeds up cooling time.

3. Once food cools to 41°F(5°C), you can place food in a larger container and cover it.



Cooling Liquid Foods

You can use shallow metal pans or you can use the ice and water bath to cool thin soup and sauces. When cooling food with an ice bath, be sure to:

Ice Bath

1. Close the drain in a large sink. Place the metal pot or pan of hot food in the sink.

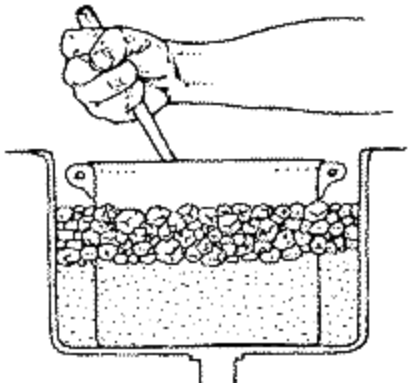
2. Fill the sink with ice **up to the level of food in the pot.**

3. Add cold water to the ice.

4. Stir the soup or sauce often so that it cools all the way to the center. Ice paddles or cooling wands can be used to speed up the cooling process.

5. Add more ice as ice melts.

6. The food must reach 41°F(5°C).



Remember You can choose several ways to cool food. No matter how you cool the food, it must drop from 140 °F (60 °C) to 70 °F (21 °C) within two hours and then drop from 70 °F (21 °C) to 41 °F(5 °C) within the next four hours.

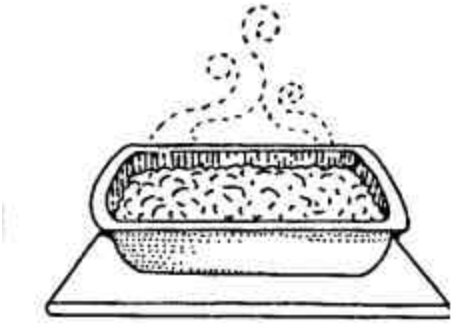
2 hours 140 °F (60 °C) to 70 °F (21 °C) within two hours

4 hours 70°F(21 °C) to 41°F(5 °C) within four hours

Use a food thermometer to check the temperature while it is cooling. If it isn't cooling fast enough you will need to do something else to speed up cooling.

Air Movement Air in the refrigerator must be able to move around the food. Also the pans and dishes need to have space between them; do not crowd them.

Do not stack on each other or on other containers during cooling.



Review

Write your answers to the study questions in the space provided.

1. Food must cool from 140°F(60 °C) to what ___ temperature within 2 hours? (p. 35)

2. Food must cool from _____ temperature to _____ temperature within 4 hours. (p. 35)

3. When cooling a large cut of meat what should you do? (p. 32)

4. When cooling a soft/thick food like refried beans what should you do to make sure the food cools fast? (p. 33)

5. How do you prepare an ice bath? (p. 34)

Tubs & Buckets

Do not use bus tubs or plastic tubs or buckets to cool food. Plastic prevents the heat from escaping. Also these types of containers are too big. It takes hours even days for food to cool in these types of containers.

More to Remember

Whenever you are cooling, always remember:

1. Do not stack pans; leave space for air to move around them.

2. Use a **food thermometer** to check the food temperature (clean and ***sanitize*** thermometer stem after each use).

3. Cool the food as quickly as you can. If it does not cool down from 140°F(60°C)to 70°F(21°C) in 2 hours or from 70°F(21°C)to 41°F (5°C) in 4 hours, the food will not be safe to eat!

4. Wait until the food is cold before you cover it.

Review

Write your answers to the study questions in the space provided.

1. Describe two problems with using plastic buckets or bus tubs for cooling food? (p. 37)

2. What four things must you remember when cooling food? (p. 37)

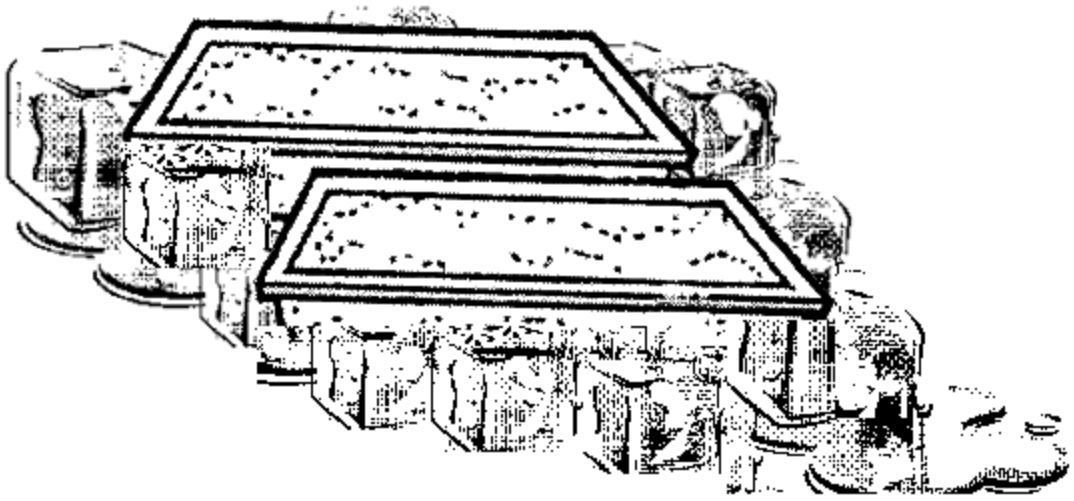
1.
2.
3.
4.

Cold Holding Always keep cold food at 41°F(5°C) and date mark according to the temperature (see page 22). Fish, shellfish, poultry, milk and red meat will stay fresh longer if you hold them cold at 41°F(5°C) or colder.

Use a ***food thermometer*** to check the food stored in salad bars and in refrigerators.

Using Ice If you use ice to keep the food cold on a salad bar or food display, be sure that the ice comes up to the level of the food that is in the pan or the dish.

Food must be 41°F(5°C) **or colder when you put it in the ice.**



Thawing Frozen Foods

Plan ahead to allow enough time to thaw foods in one of these three safe ways:

1. Thaw food in the refrigerator; it may take several hours to a few days. This is the best and safest way. Be sure to put meat in a container to catch the meat juices and to keep them from dripping. Put raw meats on the bottom shelf away from ready-to-eat foods.

2. Hold the food under cold running water.

3. Defrost in a microwave oven and then cook it right away.

Never thaw food at room temperature, on a counter or in warm or hot water. These methods let the food get into the ***"Danger Zone."***

Review

Write your answers to the study questions in the space provided.

1. What is the temperature that food must be at when holding food cold? (p. 39)

2. What are three ways to thaw food safely? (p. 40)

   1.

   2.

   3.

Hot Holding

After the food is cooked and ready to serve, you will need to keep it warm enough to stop any germs from growing. You must turn on steam tables, soup warmers and heated surfaces before you need them so that they will be hot enough when you put the cooked food into them.

Keep hot food at 140°F(60°C) or hotter

The only way to know that the food is hot enough is to check the food with your ***food thermometer*** to make sure the food **stays** at least 140°F (60°C) at all times.

Ways to help keep hot food hot

Stir food to help keep the food on top hot. Keep a cover on the pans to help keep the heat in and the food warm enough.

Reheating

Food that is cooked and then cooled may need to be heated again. **Reheat food quickly (within two hours) to 165°F (74°C).**

The right way to do this is on the stove burners, or in microwave ovens, convection ovens, or double boilers.

Do not use anything that will heat the food slowly, because it takes too long to pass the ***"Danger Zone."***

Stir the food to be sure that all parts of it are hot. Then use your ***thermometer*** to check the temperature. It must be at least 165°F(74°C).

What About Foods left At the Table

When a customer leaves food on a plate or at the table, you must throw it away. If you have food like chips, rolls and bread and some of it is left over, you **cannot** serve it again.

Unopened packages of crackers, jelly, candy or sugar may be served again.

Review

Write your answers to the study questions in the space provided.

1. What temperature must food stay at when you hold food hot? (p. 42)

2. How do you know that the food is staying at that temperature? (p. 42)

3. What temperature must food reach when you heat food before placing it on a steam unit or buffet line? (p. 43)

4. How much time do you have to reheat food to that temperature? (p. 43)

5. If someone hardly eats his or her food, can you serve it again to someone else? (p. 43)

Safe Storage Practices

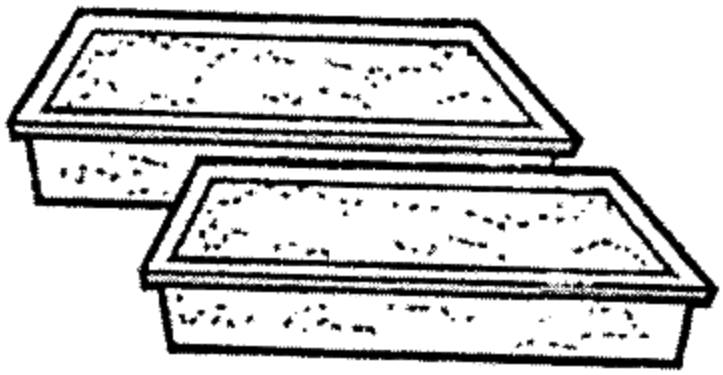
You want all the food you use to be healthy and safe. This section talks about how to safely store and handle food.

Good Food Needs

- Keep all foods off the floor.
- Store foods away from cleaners and poisons.

Good Storage

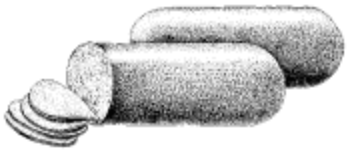
- Be careful about storing foods in garbage cans or containers or plastic bags that are not made to store food.
- Store food in **food-grade** containers to prevent chemicals getting into the food.

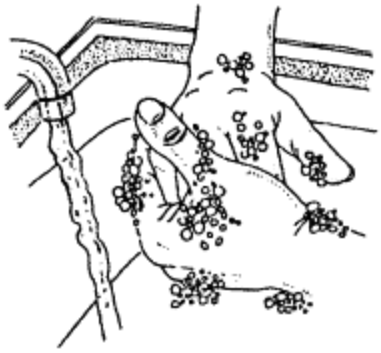


Cross Contamination

Cross contamination happens when germs from raw or unclean food get into foods that are ready to serve or that will not be cooked again before you serve them.

Keep Foods Safe From Cross Contamination



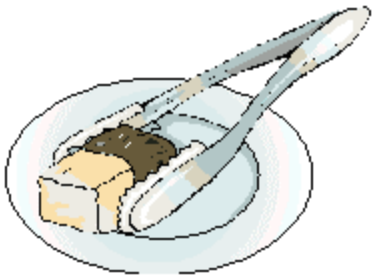


As a food handler you must prevent ***cross contamination***.

Here are some important ways that you can prevent ***cross contamination***:

- Store raw meat, fish and poultry on the lower shelves of the refrigerator.
- Don't let raw meat, fish or poultry drip onto foods that will not be cooked before serving.
- Separate different types of raw meat from each other.
- Store unwashed food or raw food away from ready-to-eat food.
- Wash your hands between handling raw meat and foods that will not be cooked before eating.
- Never store foods that will not be cooked before serving in the same container as raw meat, fish or poultry.

Keep Foods Safe from Contamination



Wash your hands before handling food.

Wash, rinse and ***sanitize*** the cutting surface and all the utensils and knives **every time** you finish with a job or between preparing different foods.

Store wipe cloths used around raw meat areas separate from wipe cloths used for other purposes.

Use utensils to mix food.

Use a clean spoon or fork to taste food and do not reuse it.

Store bulk foods in covered bins and containers with labels.

Store scoops and tongs with handle extended out of the food.

Use clean utensils, instead of hands, for dispensing food.

Review

Write your answers to the study questions in the space provided.

1. Where should you store cleaners and poisons in relation to food? (p. 45)

2. Is it safe to use a clean garbage container or bags to store food? (p. 45)

3. Where in the refrigerator should you store raw meat? (p. 46)

4. What is cross contamination? List five ways to prevent cross contamination? (p. 46 & 47)

    1.

    2.

    3.

    4.

    5.

A Clean Workplace is Safer

It takes more than soap and water to keep a food business clean and safe. You will likely be using detergents and sanitizers.

Follow These Important Rules

- Know what the directions say for using chemicals. Read the labels and talk to your boss about when to use them and how much to use. **Be sure you understand the directions!**
- Keep all chemicals away from food. You must put them below food, never on a shelf above food, or above any area where you fix food.
- Can you tell what the labels say? Are they easy to see? If they are not, tell the boss.
- Keep all chemicals in the bottles or boxes they come in. If you put them in a different container, label them clearly.

In-Place Sanitizing

Meat slicers, grinders and cutting boards that are too big to run through the dishwasher or too big to wash in the sink, still need to be cleaned and sanitized.

In-Place Sanitizing must be done after the equipment has been used. To clean big pieces of equipment in-place, you need to:

1. **Wash** them in hot soapy water.
2. **Rinse** them in clean water.
3. **Sanitize** them with freshly prepared sanitizer.

Follow the cleaning directions for each piece of equipment.

Wiping Cloths

Use wiping cloths to put sanitizer onto the clean surface of cutting boards and equipment.
Between uses, store the wiping cloth in a sanitizer that is at least 50 parts per million (ppm) chlorine residual but not more than 200 ppm.

Making Sanitizer

You can measure bleach by using 1 to 3 teaspoons or the lid of the container. Mix the measured bleach with one gallon of water. However you decide to measure the bleach, you will need to test the concentration to make sure it isn't too weak or too strong.

Do not add soap to this mix because the sanitizer will not work with soap in it. (If you use another kind of sanitizing mix, be sure it is approved by the Health Department.)

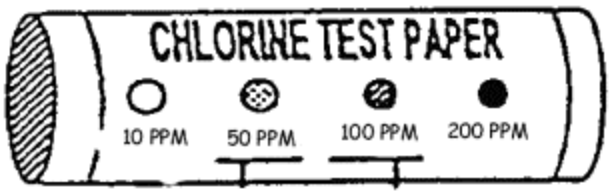
Testing Sanitizer

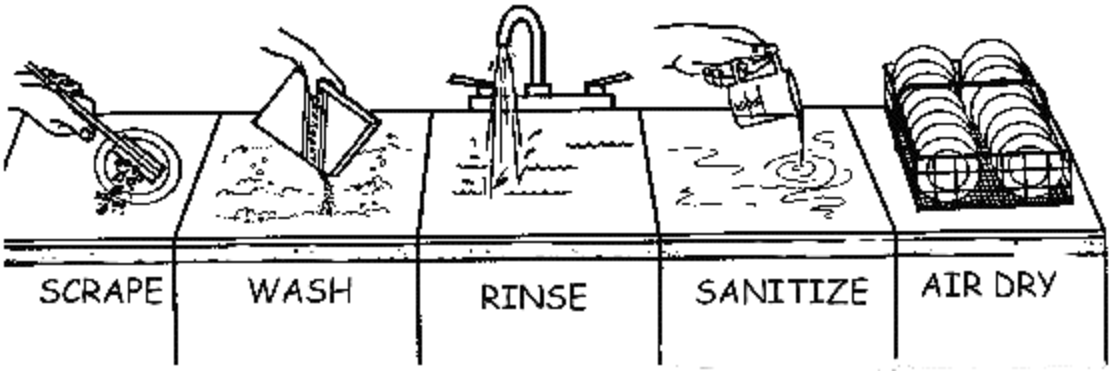
The only way to know the concentration of the sanitizer is to use test strips made for the type of sanitizer you are using.

50-100 ppm chlorine residual

Use special test strips that are made for the sanitizer you are using. For chlorine or bleach, the test strip should turn a blue color that indicates 50 to 100 parts per million (ppm). Look at the color chart on the test strip container. If the sanitizer has less than 50 ppm it is too weak. If it has 200ppm, it is too strong and can make people sick.

Change the sanitizer when it starts to get dirty. The sanitizer stops working when it gets dirty.





Washing By Hand – Using a Three Compartment Sink

1. Scrape and/or pre-rinse food from the dishes and utensils.

2. Wash with detergent and hot water in the first sink.

3. Rinse with clean, hot water to remove any soap or food in the middle sink.

4. Sanitize in the third sink for 10 seconds to kill any bacteria.

5. Air dry the dishes and utensils before putting them away.

Remember: Pre-rinse, wash, rinse, sanitize, air dry.

Review

Write your answers to the study questions in the space provided.

1. Where must chemicals be stored? (p. 49)

2. Describe In-Place Sanitizing. (p. 50)

3. Where do you store a wipe cloth when you are not using it? (p. 50)

4. How do you know that the sanitizer is at the right concentration? (p. 51)

5. Will sanitizer work when soap is added to it or if it gets dirty? (p. 51)

First Aid For Choking

(conscious adults)

1. If someone cannot breathe, cough or speak…
2. Ask, “Are you Choking” and ask the victim if you can help them. If they are choking, call 9-1-1 or the local emergency number.
3. Give First Aid for Choking

- Stand behind the person
- Wrap your arms around their waist
- Make a fist with one hand. Place your fist (thumb side) against the person’s stomach in the midline just above the navel and well below the ribs.
- Grasp your fist with your other hand.
- Press into the stomach with a quick upward thrust.

4. Repeat if necessary.

First Aid For Choking (INFANT or CHILD)

IF...	THEN...
the infant or child is breathing and continues to be able to speak or cough	Encourage continued coughing and stay with the victim to respond if their condition gets worse.
IF...	**THEN...**
the infant or child has ineffective coughing, high pitched inspirations, and the inability to speak or cry.	Call 9-1-1 and immediately begin the obstructed airway sequence described below.

Tell someone to dial 9-1-1 to reach the Emergency Medical Services.

Conscious Child *(over 1 year old)*

To dislodge an object from the airway of a child, perform abdominal thrusts:

- Stand or get on one knee behind the child.
- Place the thumb side of your fist just above the child's belly button, grab your fist with your other hand.
- Give quick upward thrusts until the object is removed or the child goes unconscious.

First Aid For Choking

Conscious Infant (*under 1 year old)*

To dislodge an object in the airway of an infant, perform 5 Back Blows and 5 Chest Thrusts by:

Supporting the head and neck with one hand, straddle infant face down, head lower than trunk, over your forearm, supported on your thigh.

Deliver five back blows with the heel of the hand between the infant's shoulder blades.

Turn the infant over by sandwiching the infant between your hands and forearms and turn onto its back. With their head lower than their trunk use 2-3 fingers on the center of the breastbone to deliver five chest thrusts. Each thrust should be about ½ - 1 inch deep.

Repeat back blows and chest thrusts until foreign body is expelled or the infant becomes unconscious.

Glossary

Bacteria – Bacteria is a germ with only one cell that can multiply into large numbers when food is in the danger zone for more than 4 hours.

Calibrate – To calibrate a thermometer is to test it for accuracy and adjust it if it isn't giving the correct temperature.

Chemicals – In this book chemicals are referred to as ingredients in cleaning, sanitizing, or pesticide products that make people sick if eaten.

Cold holding – Cold holding is when you keep food cold by using refrigeration or ice.

Cooling - The process of taking a hot food and making it a cold food. Cooling must occur within six hours with the temperature dropping from 140°F(60°C) to 70°F(21°C) within 2 hours and from 70°F(21°C) to 41°F(5°C) within 4 hours.

Cross Contamination – When germs from one food item are passed to another food item, usually raw food to ready-to-eat food.

Date Marking – Prepared potentially hazardous foods that are to be refrigerated for more than 24 hours must be marked with the date of preparation or the date to discard unused food.

Double Hand Wash – Lather hands with soap and warm water for approximately 15 to 20 seconds and repeat a second time. Dry hands with paper towel, air dryer or roll of linen towels.

Danger Zone – The Danger Zone is when the temperature of food is between 41°F(5 °C) and 140 °F(60 °C). This is called the danger zone because bacteria will grow quickly between these temperatures.

Food Borne Illness- Sickness caused from germs or toxins in food, also called food poisoning.

Food Grade Containers – This means the container has been made specifically to hold food.

Food Thermometer - a probe or metal-stem thermometer used to take temperatures of food.

Hot holding – Holding food hot after it has been properly cooked or reheated. Food must maintain a temperature of 140°F(60 °C) or hotter.

Infected – A cut or burn that is swollen, red, or has pus.

Metal-Stem-Probe Thermometer - a food thermometer used to take temperatures of food.

Refrigerator Thermometer – A thermometer kept in the warmest section of the refrigerator. This thermometer helps you know if the refrigerator is staying cold enough.

Reheating – The process of making a cold food hot. Food must be heated food from 41°F(5 °C) to 165°F(74 °C) within two hours.

Parasites – These are tiny worms that live in fish, meat and humans.

Potentially Hazardous Foods – These are moist, protein-rich foods that bacteria will grow on when the temperature is between 41°F(5° C) and 140 °F(60° C).

Sanitize – The final step to removing bacteria from food contact surfaces that have just been cleaned. Many places use a solution made up of one teaspoon of bleach to one gallon of water to sanitize equipment and utensils.

Temperature Control – Temperature Control is keeping foods hot or cold enough to prevent bacteria from growing.

Virus – Viruses are germs that can only reproduce inside of a living cell. It takes a small number of viruses to make someone sick. Many viruses are passed from the lack of hand washing especially after using the toilet and then touching food.

Practice Test

This test shows you what you might see on the food handler certification test. You can use the book to look up the answers. The certification test is made up of 32 questions and you will need to know the learning outcomes listed on pages 3-9 of this book to obtain your certification.

Choose only one answer per question.

1. Which of the following statements is true? After touching raw ground beef, it is important to:

   A. Wipe your hands on a sanitizer wipe cloth
   B. Use hand sanitizer
   C. Wash your hands
   D. Dip your hands in a bucket of sanitizer

2. When must you double hand wash?

   A. After sneezing or coughing
   B. After touching raw meat
   C. After eating
   D. A and C

3. What is proper hand washing?

   A. Using soap, running water and scrubbing 15-20 seconds
   B. Using sanitizer, running water and scrubbing for 15-20 second
   C. Using soap, running water and scrubbing for 5-10 seconds
   D. Using sanitizer, running water and scrubbing for 5-10 seconds

4. It is okay to wear disposable gloves if:

   A. You wear a pair of gloves to handle money and food
   B. You wash your hands first and discard gloves between activities
   C. You discard the gloves every few hours or at least once a day
   D. You blow into the gloves first to make them easier to put on

5. When you have a sore throat or diarrhea, you should:

   A. Go to work and tell your coworkers to be careful around you
   B. Call your boss and report that you are sick
   C. Take medicine to stop the symptoms and go to work
   D. Not tell anyone and continue working

6. The best way to check the temperature of food is to:

   A. Use an infra-red thermometer
   B. Use an oven thermometer
   C. Use a food thermometer
   D. Use a refrigerator thermometer

7. Preparing food several hours in advance can make food unsafe because:

   A. Bacteria can grow if the food temperatures are wrong
   B. Foods can lose their flavor, color and general quality
   C. Foods can lose their nutritional value
   D. Refrigerators can only hold so much food

8. Ice used to keep food cold on a salad bar or food display needs to be:

   A. Level with the top of the food inside the pan or dish
   B. Underneath the entire length of the food container
   C. Melting to show it is working at keeping the food cold
   D. Used in beverages to help limit food waste

9. Which of the following statements is true:

   A. A clean container that once held detergent may be used to store most types of foods
   B. A brand new bus tub designed to hold dishes may be used to store most types of foods
   C. A brand new garbage container may be used to store most types of foods
   D. A food-grade container may be used to store most types of foods

10. Opened containers of sour cream, chives and butter:

   A. May be used at one customer's table and then taken to another table
   B. Must be returned to the kitchen and refrigerated between customers
   C. Must be discarded after a customer has used it
   D. None of the above

11. The most important reason to wash, rinse and sanitize cutting boards is to:

   A. Eliminate odors and tastes from getting into other foods
   B. Make the cutting board look better and last longer
   C. Prevent contamination from one food to another
   D. Prevent flavors and garlic or onion juices from getting onto other foods

12. What is the coldest temperature that hot food must be kept at on the steam table to keep food safe?

    A. Hot – 140°F
    B. Hot – 130°F
    C. Hot – 120°F
    D. Hot – 165°F

13. What is the warmest temperature that cold food must be kept at on the salad bar to keep food safe?

    A. Cold - 51°F
    B. Cold – 65°F
    C. Cold - 41°F
    D. Cold - 55°F

14. What temperature must food reach when **reheating** food before placing on a steam table or buffet line?

    A. Reheat – 155°F
    B. Reheat – 140°F
    C. Reheat – 165°F
    D. Reheat – 160°F

15. What is the coldest temperature that ground beef must reach before it can be served?

    A. Ground Beef – 155 °F
    B. Ground Beef – 150 °F
    C. Ground Beef – 140 °F
    D. Ground Beef – 130 °F

16. What is the coldest temperature that chicken must reach before it can be served?

    A. Chicken – 160 °F
    B. Chicken – 165 °F
    C. Chicken – 155 °F
    D. Chicken – 140 °F

17. What is the coldest temperature that other meat and fish must reach before it can be served?

    A. Other meats and fish - 130 °F
    B. Other meats and fish - 104 °F
    C. Other meats and fish - 145 °F
    D. Other meats and fish - 140 °F

Answers:

1. C	2. D	3. A	4. B
5. B	6. C	7. A	8. A
9. D	10. C	11. C	12. A
13. C	14. C	15. A	16. B
17. C			

Acknowledgements

The Department of Human Services adapted this book from educational materials produced by:

- Seattle-King County Department of Public Health - Working Healthy.

- State of Washington Food and Beverage Workers Manual.

- San Diego County – The Health of the Public is in Your Hands: A Guide for Food Service Workers.

The Oregon Department of Human Services, the Oregon Department of Agriculture and Local Health Departments worked together to determine the food handler learning outcomes upon which this book is based.